DRAFT

2045 ACTIVE TRANSPORTATION PLAN

METROPOLITAN PLANNING ORGANIZATION

DRAFT JANUARY 2019

THE HOUSTON-GALVESTON METROPOLITAN PLANNING AREA

h-gac.com/community/qualityplaces/pedbike/

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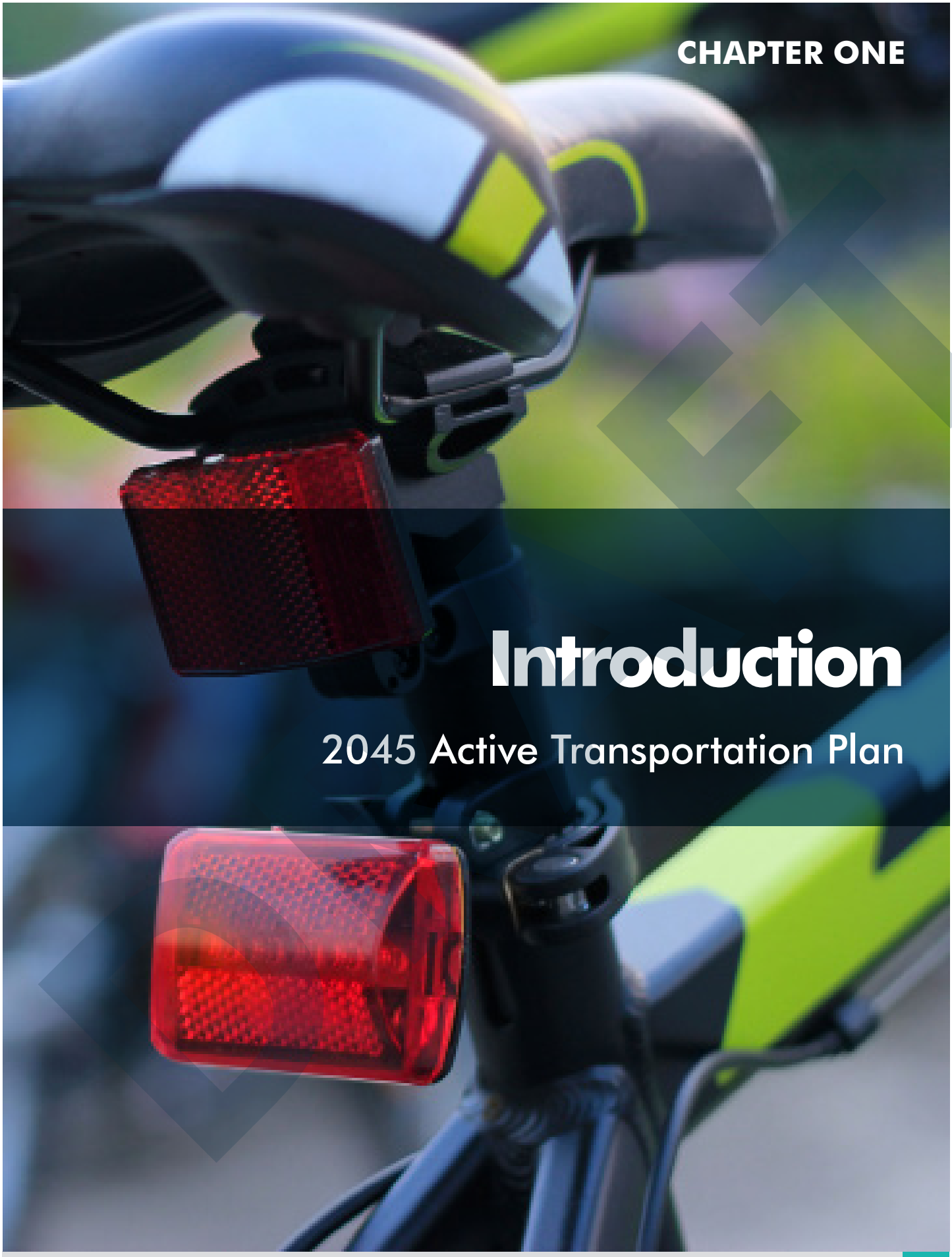


CHAPTER ONE

Introduction

2045 Active Transportation Plan

WELCOME TO THE 2045 ACTIVE TRANSPORTATION PLAN

Everyone uses active transportation, whether they are walking to school, using a wheelchair to get to a transit station, biking to work, or pushing a stroller to the grocery store. As the eight counties of the Houston-Galveston region[1] add more than 4,000,000 new residents over the next 30 years[2], well-planned walkways and bikeways will keep all road users safe and will act as relief valves for our congested roadway network.

The Houston-Galveston Area Council (H-GAC) took input and guidance from partners from across the region to develop the 2045 Regional Active Transportation Plan (the Plan). The Plan guides public investment, aligns efforts across the region, and promotes the local use of national best practices for planning, designing and building walkways and bikeways. The ATP also supports and informs the larger 2045 Regional Transportation Plan (RTP) which determines all roadway construction and maintenance in the eight counties.

OVERVIEW OF CONTENTS

The next few pages outline the benefits of active transportation in our communities. They are followed by an explanation of the ingredients used to create the Plan, and a glossary of commonly-used terms related to active transportation planning.

Then, the Plan dives into the existing conditions and regional needs based on available data. The Plan closes with a vision for a world-class active transportation network and spells out the goals and strategies that will be critical for us to achieve that vision.

What is active transportation? Active transportation refers to any form of non-motorized, human-powered transportation. This includes walking and biking, but also using a wheelchair, pushing a stroller, or using a scooter, skateboard or rollerblades. In recent years, the definition of active transportation has expanded to include some forms of motorized transportation like electric scooters, electric bikes and other small personal electric vehicles. The Plan refers to active transportation users as ***pedestrians*** and ***bicyclists*** or as ***people who walk, bike, or roll***. Although it may sound odd, the Plan intentionally includes ***people who roll*** because the residents using wheelchairs and pushing strollers and walkers often have a tough time navigating existing infrastructure. By planning and designing for those users, we defacto design for everyone else, too.

BENEFITS OF ACTIVE TRANSPORTATION

Active transportation infrastructure improves connectivity for people walking, biking, and rolling in the region, but it also brings a host of other benefits to the region.

TRANSPORTATION CHOICE

In many parts of the region, a personal vehicle is the only feasible transportation option, limiting mobility for people without access to a car, people who prefer not to drive, and people who are unable to drive like children, seniors and people with disabilities. Safe and convenient walkways and bikeways give residents the ability to choose the transportation option that best fits their needs. This includes the choice to ride transit since most bus and rail riders walk, bike, or roll to their transit stop. Transportation choice also supports a strong economy by expanding job opportunities for working adults without access to a car.

[1] The Houston-Galveston Area Council serves an eight-county Transportation Management Area (TMA) comprised of Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties in the State of Texas.

[2] H-GAC Regional Growth Forecast, 2017 (arcgis02.h-gac.com/RGF2017)

CLEAN AIR

Walking, biking, and rolling are zero-emission transportation modes. By replacing automobile trips, active transportation reduces emissions from private vehicles and improves air quality. Light-duty passenger vehicles are responsible for almost a fifteen percent of the region's nitrogen oxides (NOx) emissions, contributing to the region's ground-level ozone non-attainment status[3]. A 2015 study from the Institute for Transportation and Development Policy found that if only 14% of travel in the world's cities were done by bike, global carbon emission would drop 11% by 2050.[4]

HEALTHY PEOPLE

Safe and convenient walkways and bikeways allow residents to incorporate physical activity into their daily routines, reducing obesity and improving overall health.[5] Recent commuter studies conducted in the United States and the United Kingdom have found that commuters who walk or bike are happier and sleep better than people who drive.[6] Inactivity, on the other hand, is strongly associated with poor health outcomes. Driving is a major source of physical inactivity and is linked to weight gain and obesity.[7]

THRIVING ECONOMY

Active transportation fosters economic growth and vitality in communities by creating access to jobs, increasing property values, contributing to tourism, and reducing the cost of maintenance on roadways. On its own, bicycling is one of the top 10 most popular recreational activities in the country, with participants pumping an estimated $133 billion annually into the U.S. economy.[8]

Increases Property Values

Active transportation infrastructure can significantly boost property values. An Urban Land Institute study conducted in Philadelphia, PA, found that properties located within a quarter mile of a popular biking and walking trail, Radnor Trail, were valued $69,000 higher than other properties.[9] In Minnesota, real estate agents reported that proximity to biking trails makes properties as much as 80 percent easier to sell.

Job Creator

Of all transportation project types, bicycling infrastructure creates the most jobs for every $1 million spent. In 2011, a Political Economy Research Institute study found that an average of 11.4 jobs are created for every $1 million spent on bicycle projects compared to 7.8 jobs created for road-only projects.[10] This conclusion was reinforced by a study commissioned by the American Association of State Highway and Transportation Officials (AASHTO) on American Recovery and Reinvestment Act (ARRA) job creation finding that transportation enhancements (trails, walking and biking) projects create 17 jobs (design, engineering and construction) per $1 million spent, more than any other type of project.[11]

Reduces System Cost

Active transportation infrastructure can be an important way to reduce overall transportation infrastructure costs. Initial construction and maintenance costs of walkways and bikeways is a fraction of construction costs of urban freeways. In addition, well-planned active transportation infrastructure can reduce the number of cars on the road, extending the lifespan of existing roadways by preventing additional wear-and-tear.

[3] TCEQ Houston-Galveston-Brazoria Attainment Demonstration State Implementation Plan for 8 hour Ozone, revised on 12/15/2016

[4] Institute for Transportation & Development Policy, A Global High Shift Cycling Scenario, November 2015 https://3gozaa3xxbpb499ejp30lxc8-wpengine.netdna-ssl.com/wp-content/uploads/2015/11/A-Global-High-Shift-Cycling-Scenario_Nov-2015.pdf

[5] Role of Built Environment in Physical Activity, Obesity, and Cardiovascular Disease, San Diego State University (2012), https://www.ahajournals.org/doi/10.1161/CIRCULATIONAHA.110.969022

[6] Fast Company, Want to Reduce Stress at Work? Try Commuting By Bike, May 2015 https://www.fastcompany.com/3046054/want-to-reduce-stress-at-work-try-commuting-by-bike

[7] Active Living Research—Moving Toward Active Transportation: How Policies Can Encourage Walking and Bicycling (January 2016) https://activelivingresearch.org/ActiveTravelreview

[8] League of American Bicyclists, Bicycling Means Business: The Economic Benefits of Bicycle Infrastructure (July 2012) https://www.bikeleague.org/sites/default/files/Bicycling_and_the_Economy-Econ_Impact_Studies_web.pdf

[9] Curbed Philadelphia, How Bike Trails Became Philly Real Estate's Most Valued Amenity (April 2016) https://philly.curbed.com/2016/4/12/11409656/philly-development-boom-near-bike-trails

[10] Political Economy Research Institute, Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts (June 2011) file:///C:/Users/ronneberg/Downloads/PERI_ABikes_October2011.pdf

[11] Rails to Trails Fact Sheet, Trail Investment: A Good Deal for the American Economy (March 2018) https://www.railstotrails.org/resourcehandler.ashx?name=trail-investment-a-good-deal-for-the-american-economy&id=14675&fileName=RTC_Trail_Benefits_Fact_Sheet_All_Use.pdf

RESILIENT INFRASTRUCTURE

In recent years, climate disruptions and extreme weather events have impacted Texas transportation infrastructure. Active transportation infrastructure can reduce negative impacts by offering redundant transportation routes; redundancy being a key component of resiliency. Particularly in the Houston-Galveston region, walkways and bikeways can play dynamic and multipurpose roles as flood barriers and flood detention spaces.

PLAN INGREDIENTS

The 2045 Regional Active Transportation Plan incorporates a variety of information from several different sources to develop a motivating vision for the region. From data sets to stakeholder input, the Plan presents all of this information in one place to develop a vision for the region's active transportation network. Major components of the plan include:

DATA

Data on safety, health, active transportation usage, and demographics shed light on the state of our active transportation infrastructure and its users. This data analysis can be found throughout the Plan but is featured in detail in the Existing Conditions chapter on page 14.

EXISTING PLANS

Previous planning efforts reveal active transportation preferences at the local level. The Plan takes these existing initiatives into account when describing regional needs and strategies. See more about completed local plans in the County Profiles chapter on page 66.

PUBLIC INPUT

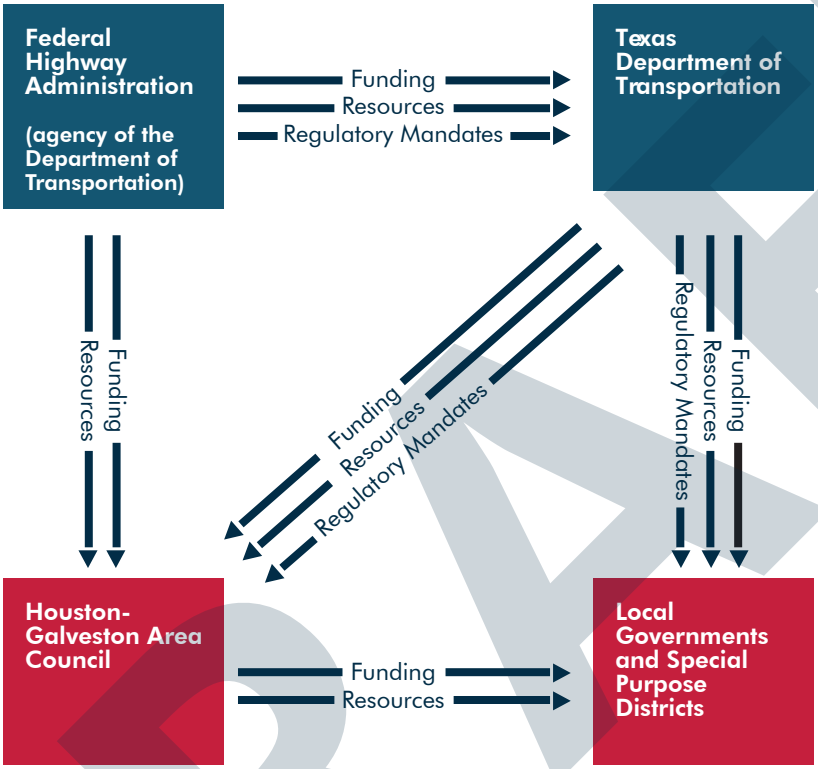
Public Meetings - Residents across the region shared their priorities for our region's active transportation infrastructure at 13 public meetings in spring 2018 and 6 meetings in winter 2019. See a summary of public comments on pages 16-20.

Online Surveys - A set of open online surveys collected more than 650 responses from local partners and from residents in the region who walk, bike, and roll.

EXPERT INPUT

The H-GAC Pedestrian-Bicyclists Subcommittee and the 2045 Active Transportation Plan Advisory Workgroup offered expert feedback on the direction of the plan and its contents.

Active Transportation Family Tree



Non-Government Organizations
League of American Bicyclists
AmericaWalks
People for Bikes
AARP
Assn. of Pedestrian and Bicycle Professionals
Institute of Transportation Engineers
Rails-to-Trails Conservancy
Transportation for America
American Assn. of State Hwy. and Transportation Officials
Natl. Assn. of City Transportation Officials

Government Agencies
Federal Transit Administration
Centers for Disease Control
Housing and Urban Development
Texas Parks and Wildlife

ACTIVE TRANSPORTATION GLOSSARY

GOVERNMENT ORGS

United States Department of Transportation (DOT)

United States DOT is a federal agency responsible for construction and oversight of the national transportation system.

Federal Highway Administration (FHWA)

FHWA is an agency within the Department of Transportation that oversees the planning and construction of the national highway system. FHWA provides funding and technical assistance to the Texas Department of Transportation, H-GAC, and local governments in the region.

Texas Department of Transportation (TxDOT)

TxDOT is a government agency responsible for construction and oversight of the state highway system in the State of Texas. TxDOT's responsibilities include oversight of transportation investments by regional and local governments.

TxDOT District

A TxDOT District is a branch of TxDOT that oversees construction and maintenance of the state highway system in its designated counties. The eight-county H-GAC region spans two separate TxDOT Districts. The Beaumont District includes Chambers and Liberty counties while the Houston District includes Brazoria, Fort Bend, Galveston, Harris, Montgomery, and Waller counties.

Metropolitan Planning Organization (MPO)

An MPO is a local decision-making body responsible for planning and funding regional transportation infrastructure. These responsibilities include distributing funds to local governments for their own planning and construction efforts and providing technical assistance on best practices in planning, design and construction of walkways, bikeways, and roadways.

Houston-Galveston Area Council (H-GAC)

H-GAC is the designated MPO for the eight-county region, or **Transportation Management Area**, which includes Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller counties. The H-GAC region includes over 6.7 million residents and more than 100 cities. Transportation investments and policies at H-GAC are determined by the **Technical Advisory Committee (TAC)** and the **Transportation Policy Council (TPC)**. The **TAC** and **TPC** provide policy guidance for the MPO and overall coordination of the transportation planning activities in the region. The **TAC** and **TPC** members represent local governments and transportation agencies.

Pedestrian-Bicyclist Subcommittee

The Pedestrian-Bicyclist Subcommittee is an H-GAC committee of experts selected by the TAC to advise H-GAC on issues related to active transportation. Members represent local governments, transportation agencies, TxDOT, advocacy groups, management districts, and non-profit organizations.

LOCAL GOVERNMENT

Local governments include cities, counties, and school districts.

KEY TERMS

Management District

A management district is an entity that provides services, infrastructure improvements, and economic development support for the area within its boundaries – including investments in active transportation. Management districts offer these services in addition to those already provided by the local government. The activities of a management district are largely funded through taxes and impact fees on property owners (except single-family detached residences) in the management district boundaries.

Active Transportation

Active transportation refers to any form of non-motorized, human-powered transportation. This includes walking and biking, but also using a wheelchair, pushing a stroller, or using a scooter, skateboard or rollerblades. In recent years, the definition of active transportation has expanded to include some forms of motorized transportation like electric scooters, electric bikes and other small personal electric vehicles. Active transportation users are often referred to as pedestrians and bicyclists or as people who walk, bike, or roll.

Active Transportation Infrastructure

Active transportation infrastructure includes any piece of infrastructure that is designed and built to safely accommodate active transportation uses. The most common types of active transportation infrastructure include sidewalks, shared-use paths/trails, bike lanes, signed shared roadways, and signed shoulder bike routes. The Plan often uses "walkways and bikeways" as shorthand for active transportation infrastructure. See page 12 for a breakdown of the types of active transportation infrastructure.

Network

For the purposes of the Plan, a network is the totality of walkways and bikeways in a specific geography. Since bicyclists share the same legal rights and responsibilities as cars in the State of Texas, a local bicycle network includes bike lanes, shared-use paths, and all roadways except freeways in that area. This does not mean that all roads are safe for bicyclists to use or that all bicyclists are comfortable using any type of roadway. For examples of local active transportation networks:

Conroe's pedestrian network includes all sidewalks, shared-use paths/trails, and any other infrastructure intended for pedestrians in the City of Conroe.

Lake Jackson's bicycle network includes all bike lanes, shared-use paths/trails, all roads except freeways, and any other infrastructure intended for bicyclists in the City of Lake Jackson.

Intelligent Transportation Systems (ITS)

Intelligent Transportation Systems incorporate communications technologies into the transportation network to improve safety and mobility and reduce fuel consumption. ITS include strategies such as prioritizing traffic signals to benefit transit and active transportation, coordinating traffic signals to reduce congestion, and incorporating pedestrian signals at intersections.

First-Mile/Last-Mile

Since most transit users in the region walk, bike and roll to and from the bus or train, local governments and transit agencies often prioritize active transportation investments near transit stops. These investments are regularly referred to as first/last mile improvements because they represent the first mile and last mile of a transit rider's trip.

Vision Zero

Vision Zero is a national campaign to eliminate all traffic-related deaths and serious injuries. Local governments can elect to become a Vision Zero community by setting clear goals for reducing traffic fatalities and serious injuries, committing resources to achieving those goals, developing a plan or strategy around those goals, and establishing a Vision Zero Task Force. There are currently no Vision Zero communities in the eight-county region.

Safe Routes to School (SRTS)

SRTS is a national campaign to make it safe and convenient for children to walk and bike to school through equitable and well-designed investments in walkways and bikeways, enforcement of traffic laws, encouragement and education for students, and evaluation of all strategies used.

ACTIVE TRANSPORTATION INFRASTRUCTURE

Active Transportation

Active People walking, biking and rolling use many types of infrastructure to get to their destinations. In places where walkways and bikeways do not exist or are not well connected, pedestrians and cyclists are often forced into the roadway or along a grassy right-of-way, making their trip uncomfortable and dangerous. For people using wheelchairs and walkers, or pushing strollers, the lack of walkways may act as an outright barrier to essential daily activities like going to the grocery store or getting to a bus stop.

The best solution for any local context requires understanding the range of design options for active transportation. The Pedestrian and Bicycle Information Center – funded by the U.S. Department of Transportation – offers detailed descriptions, examples, and cost estimates for a variety of active transportation infrastructure types. The FHWA also follows the guidance of the American Association of State Highway and Transportation Officials (AASHTO) and their design manual, often referred to as the green book.

The walkway and bikeway facilities listed below are among the most common in our region:

Sidewalk

Sidewalks – the most common form of walkway infrastructure – are exclusively for pedestrians, although some places allow bicyclists on sidewalks legally. Sidewalks run parallel to a roadway and are a good infrastructure choice in a variety of situations – from calm neighborhood streets to busy arterials and freeway frontage roads with speeds of 45 miles per hour or greater. The FHWA recommends that sidewalks be at least 5 feet in width if they are set back from the curb. This allows two people to comfortably walk side-by-side. However, in many cases, a sidewalk 6-feet wide or wider is preferred, specifically when it touches the curb, or in locations with heavy pedestrian traffic, like a school.

Crossing or Crosswalk

Sidewalks As an important part of a healthy transportation network, walkways and bikeways regularly intersect roadways, railroads, transit lines, and other barriers. As places where pedestrians and bicyclists encounter other types of traffic, intersections can be a hot spot for crashes. Crossings reduce crash risk for pedestrians and bicyclists and come with a range of different designs and ITS depending on the context. Safe crossings include a well-marked crosswalk, a functional pedestrian and/or bicycle signal head, and advanced stop lines for cars. Crosswalks may have other features to improve safety like a median that serves as a pedestrian island, restrictions for right turns on red, and extensions of the curb to reduce the crossing distance among others.

Pedestrian and Bicycle Bridge

Pedestrian and bicycle bridges are a type of crossing specifically for special situations where the only safe option to cross a busy roadway, railroad, waterway or other barrier is to travel over it. These bridges completely separate people walking, biking and rolling from vehicular traffic, but should only be used when a normal at-grade crossing is not possible.

Shared-Use Path

Shared-use paths, also referred to as sidepaths and shared-use trails, are built for all types of users – people walking, biking, and rolling. Shared-use paths are typically set farther away from a roadway than a standard sidewalk – ideally 10-feet in most circumstances. Due to their larger width and separation from vehicles, shared-use paths make a great choice for higher-speed roadways. In many cases, these paths are not adjacent to a roadway, but are found along waterways and in green spaces.

Wide Shoulder

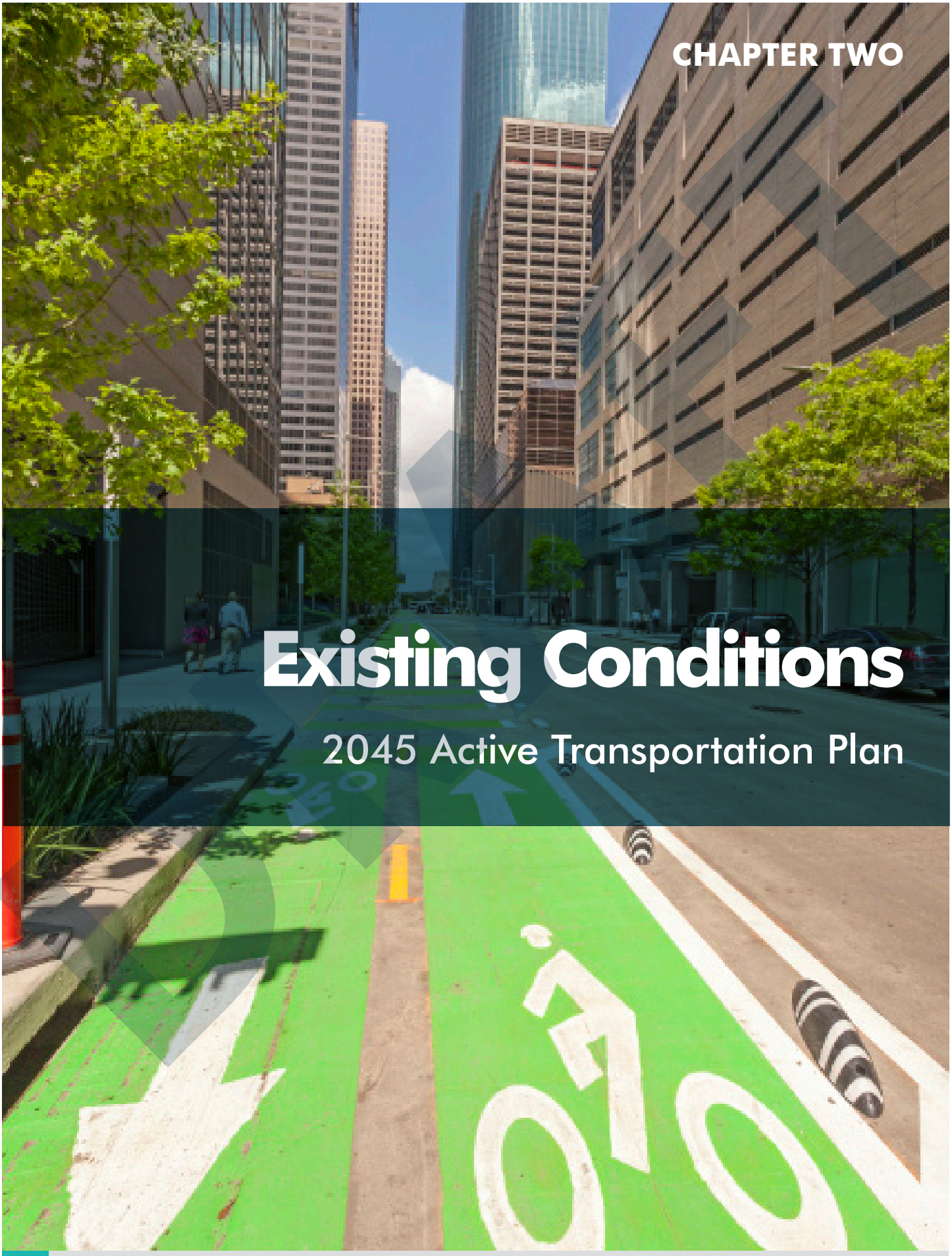
On streets with higher speeds, particularly in suburban or rural communities, bicyclists can ride on a roadway's paved shoulder to stay out of the vehicular travel lanes. Shoulders should be at least five feet wide or wider depending on the roadway speed and usage. Additional signage can indicate that the shoulder is a shared space for bicyclists.

Bike Lane

A bike lane is a designated portion of the roadway for bicyclists and is marked – at a minimum – by a white stripe and signage that indicates it is for bicyclist use. Bike lanes come in many different configurations, but are typically four to six feet wide. Depending on the roadway speed, traffic volumes, number of vehicle lanes and other roadway factors, bike lanes may be **buffered** or **protected** from the vehicle travel lanes, parked cars, transit stops, or other potential conflicts. **Buffered bike lanes** have additional striping that separates the bike lane from potential conflicts while **protected bike lanes** (sometimes called separated bike lanes or cycle tracks) include a physical barrier like flexible posts, parked cars or street planters that separate the bike lane and the rest of the roadway.

Bike Boulevard

A bike boulevard is a local street with low speed limits and traffic volumes that provide safe connections for bicyclists. Bike boulevards often include signage and traffic calming measures like narrow lane widths and speed bumps to discourage speeding by motorists.



CHAPTER TWO

Existing Conditions

2045 Active Transportation Plan

EXISTING CONDITIONS

Data points related to active transportation can sharpen our understanding of regional walkways, bikeways, and the people who use them. We can map the physical extent of our active transportation network and measure safety with data on crashes involving people walking, biking, and rolling. We also learn a lot about the impact of active transportation on our communities through health data and with feedback from surveys and public meetings. This chapter paints a picture of our region's existing conditions through an analysis of:

PUBLIC INPUT

H-GAC hosted 19 public meetings in 2018 and 2019 and gathered responses from three distinct online surveys to gather feedback from residents across the region about their preferences for active transportation infrastructure. The responses are summarized on pages 16-20.

NETWORK

The region's active transportation infrastructure is constantly expanding to meet the needs of a growing population and a resurgence in demand for walking and biking. Up-to-date maps of walkways and bikeways in the region can be found on pages 28-30.

USE

Although it is difficult to gather an exact count of people walking, biking, and rolling, a few sources of data can help us understand broad trends across the region and specific data related to individual pieces of infrastructure. An analysis of the region's active transportation use can be found on pages 21-23.

SAFETY

TxDOT tracks data for all crashes on the state's transportation system, including those involving people walking, biking, and rolling. An analysis of the geography and severity of recent crash data can be found on pages 25-26.

HEALTH

Active transportation offers an outlet for physical activity, which can minimize the risk of preventable diseases such as heart disease and diabetes. See a summary of the region's health data on page 27.

[12] Over 130 residents participated in the public meeting surveys with about 13% from Brazoria County, 4% from Chambers County, 13% from Fort Bend County, 8% from Galveston County, 45% from Harris County, 4% from Liberty County, 5% from Montgomery County, and 9% from Waller County.

PUBLIC INPUT

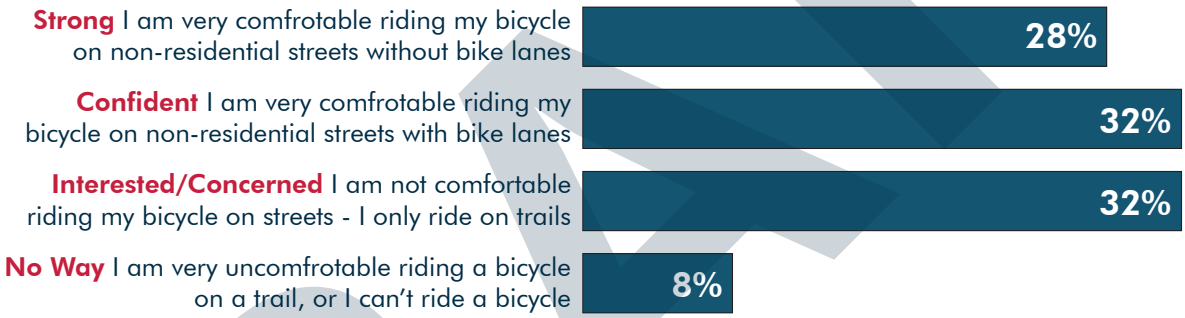
Throughout the planning process, H-GAC sought feedback from regional residents through public meetings and online surveys. The input shows a reluctance to walk, bike or roll in unsafe conditions due to high speed, lack of lighting, or poor infrastructure condition. Residents expressed strong support for well-maintained walkways and bikeways that separate cars from people who walk, bike and roll.

PUBLIC MEETINGS

In Spring 2018, H-GAC organized thirteen public meetings and attended the Houston Bike Summit to gather feedback regarding walking and biking in the region[12]. At each meeting, attendees answered questions about their comfort level walking and biking and preferred improvements to infrastructure in their community. Participants selected what type of cyclist they were based on four categories, see Figure 1:

Type of Cyclist

Figure 1



Most people self-identified as Confident or Interested/Concerned cyclists. Participants were then asked which type of walkway/bikeway they would prefer on four different road types: major rural roads, major urban roads, small town main streets and neighborhood street.

The responses collected at the public meetings show that people prefer infrastructure that fits the context of the street and keeps all users safe, see Figure 2. The results indicate that most cyclists want more physical separation from cars as speed and number of lanes increases on a roadway. This follows national best practices on safe bikeway design [13]. For pedestrians, most prefer sidewalks when walking along roadways, except for major rural roads where a trail/path is the preferred infrastructure.

Major Rural Roads *2+ lanes with speeds at 45 mph or higher*

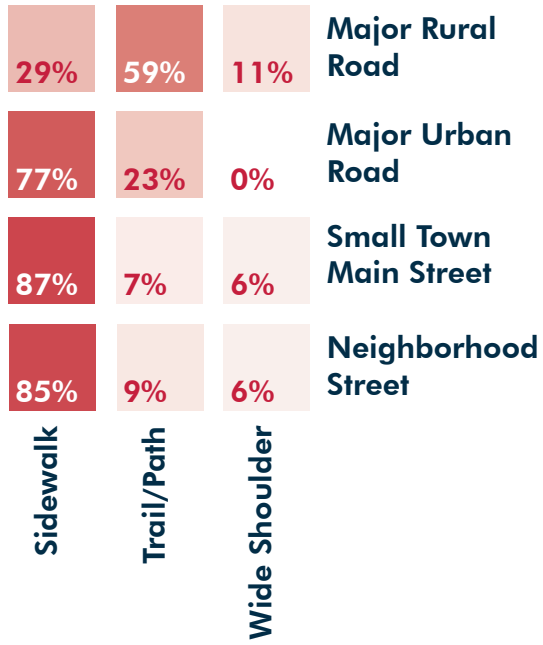
A majority of both pedestrians (59%) and cyclists (53%) prefer a separate trail or path for major rural roads and an additional 24% of bicyclists want a wide shoulder. Traditional bike lanes do not even register as a preference for this type of roadway.

[13] Designing for All Ages & Abilities, NACTO 2017 https://nacto.org/wp-content/uploads/2017/12/NACTO_Designing-for-All-Ages-Abilities.pdf

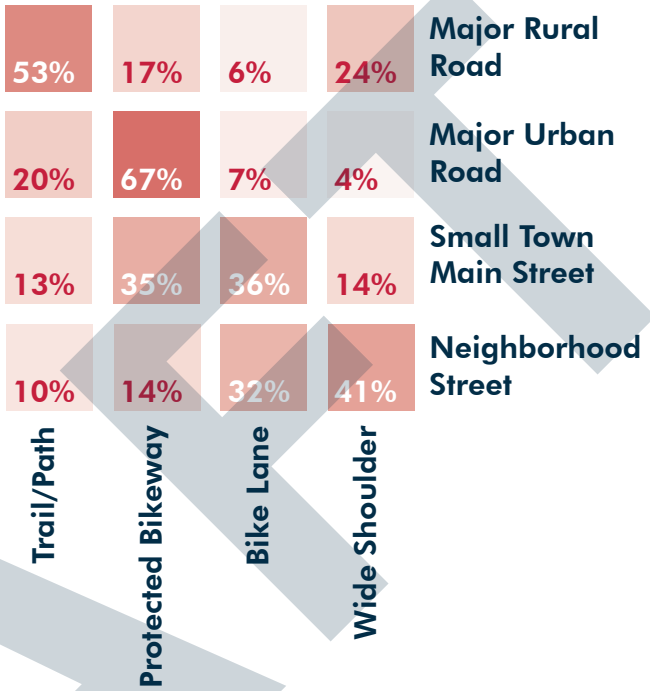
Infrastructure Preferences

Figure 2

Walkway Infrastructure Preferences



Bikeway Infrastructure Preferences



Major Urban Roads *4+ lanes, a high number of cars, and speeds at 35 mph or higher*

For Bicyclists overwhelmingly prefer a protected or buffered bikeway while pedestrians would prefer a sidewalk for major urban roads. Around 20% of each group said a trail/path would be acceptable.

Small Town Main Streets *2+ lanes with speeds of 35 mph or higher*

Nearly 90 percent of pedestrians prefer a sidewalk along small town main streets while cyclists are split between a standard bike lane (36%) and a protected bike lane (35%).

Neighborhood Streets *2 lanes with a small number of cars and speeds of 30 mph or less*

On neighborhood streets, 41% of bicyclists said a shoulder or no bicycle infrastructure was necessary for them to feel safe. Most who chose the shoulder option indicated that they did not need any specific type of infrastructure on this street type. A sidewalk was again the preferred infrastructure type for pedestrians.

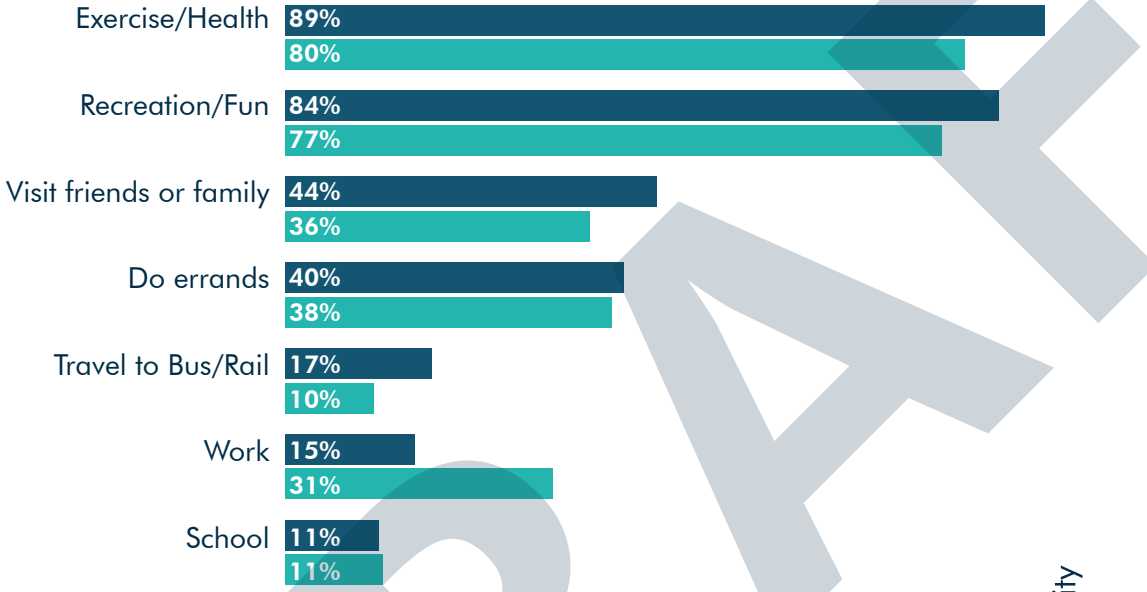
ONLINE SURVEYS

H-GAC also conducted online surveys to collect information about why people walk and bike, how far they walk or bike, why they don't walk or bike more often, and what bicycle/pedestrian improvements they prefer.[14] Most respondents walk or bike daily or weekly for exercise/health or recreation/fun, see Figure 3. Around 40% of respondents bike daily or weekly for school or work and 20% walk for the same reasons.

Survey respondents offered safety concerns and lack of infrastructure as major reasons for not walking and biking. Most respondents walk less frequently because of fast traffic, insufficient lighting at night and unsafe street crossings, see Figure 4.

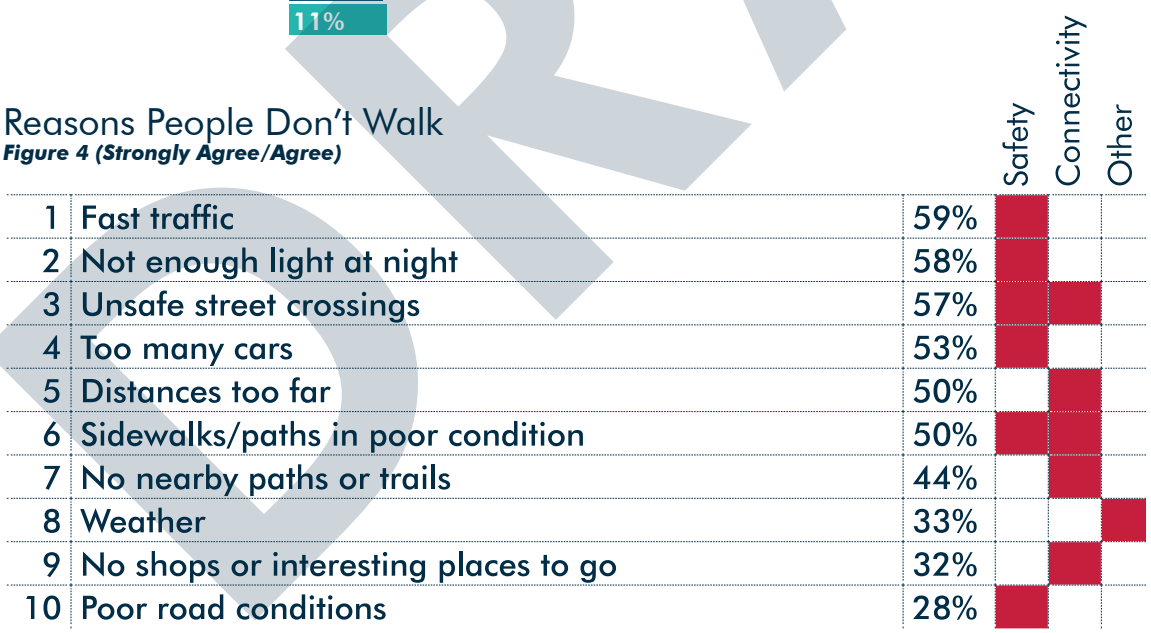
Reasons for **Walking**/**Biking** Daily or Weekly

Figure 3



Reasons People Don't Walk

Figure 4 (Strongly Agree/Agree)



[14] Over 300 people responded to the I Walk Here survey with ~0% from Brazoria County (only one respondent), none from Chambers County, 11% from Fort Bend County, 54% from Galveston County, 35% from Harris County, none from Liberty County, 1% from Montgomery County, and none from Waller County. Over 300 people also responded to the I Bike Here survey with ~0% from Brazoria County (only one respondent), none from Chambers County, 18% from Fort Bend County, 27% from Galveston County, 52% from Harris County, none from Liberty County, 3% from Montgomery County, and none from Waller County.

For people biking, 86% of respondents do no bike more often due to the lack of quality, protected bike lanes, see Figure 5. Fast traffic, too many cars, and unsafe street crossings were also popular answers, each receiving over 60% support.

Reasons People Don't Bike

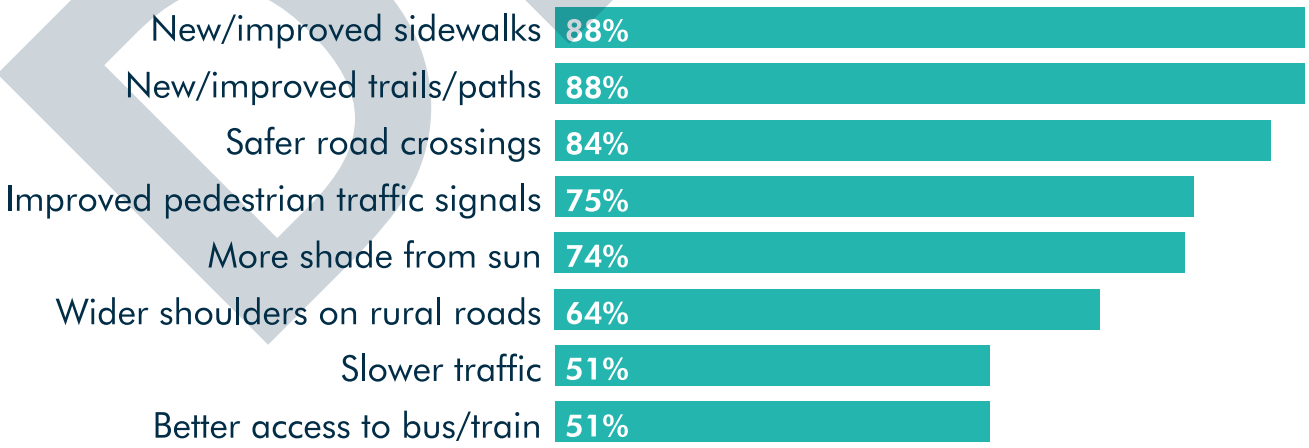
Figure 5 (Strongly Agree/Agree)

			Safety	Connectivity	Other
1	Not enough quality bike lanes, protected bike lanes	86%	■	■	
2	Fast traffic	71%	■		
3	Too many cars	66%	■		
4	Unsafe street crossings	63%	■	■	
5	Sidewalks/paths in poor condition	54%	■	■	
6	Poor road conditions	50%	■		
7	Not enough light at night	48%	■		
8	No nearby paths or trails	46%		■	
9	Not enough bike racks/other bike storage	41%		■	■
10	Debris	32%	■		■

Input from the online surveys mirrors the results from the public meetings when respondents were asked about preferred improvements, see Figures 6 and 7. Most want new or improved sidewalks and trails/paths, safer road crossings, and improved signals for pedestrians. 93% of respondents to the bicycling survey prefer separated bikeways and 86% prefer off-street trails/paths. Separation from traffic is the common theme and again reflects the responses from the public meetings. Bicycle boulevards, buffered bike lanes, and bicycle racks also received strong support.

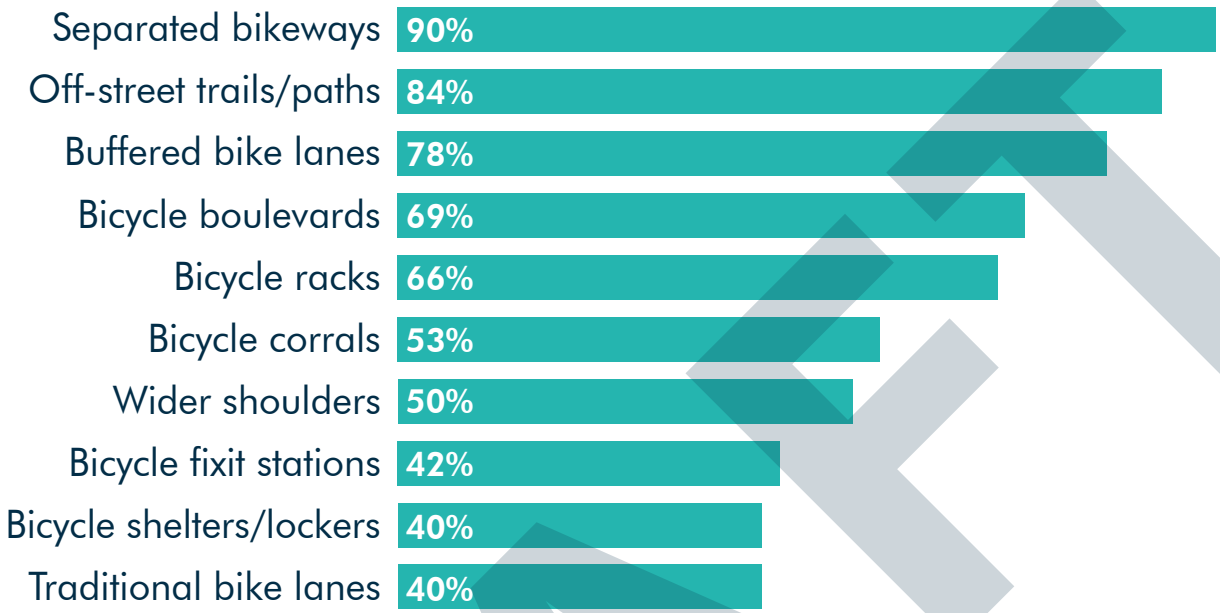
Preferred Walkway Improvements

Figure 6 (Strongly Agree/Agree)



Preferred Bikeway Improvements

Figure 7 (Strongly Agree/Agree)



PARTNER SURVEY

H-GAC conducted a partner survey regarding the bicycle and pedestrian challenges partners face in their communities. The partners unanimously agreed on many improvements but cited a lack of funding and project prioritization as roadblocks for completing improvements. Improved signals for pedestrians and bicyclists, safer road crossings, and off-street trails/paths were the unanimous improvements partners preferred to build in their communities, and again showed a community preference for bicycle-pedestrian facilities separate from roadways. Road projects take priority over bicycle-pedestrian projects leaving partners with little funding or local support for these improvements. H-GAC asked what policies or programs it should prioritize according to the partners, and most supported engineering and infrastructure. This category is diverse and included sidewalk infill, bicycle parking, pop-up projects, bike share, context-sensitive facilities, and roadway safety audits. Safe Routes to School was also suggested as a top priority for H-GAC.

TRANSIT + ACTIVE TRANSPORTATION

Although public transit (bus and light rail that runs along fixed, designated routes) is not a form of active transportation, most public transit riders in the region use walkways and bikeways to get to and from transit stops. A region-wide transit origin-destination survey conducted in 2018 revealed that over 80 percent of transit riders in the region walk, bike or roll to get to a transit stop and 92 percent walk, bike or roll once they get off the bus or rail, see Figure 8.

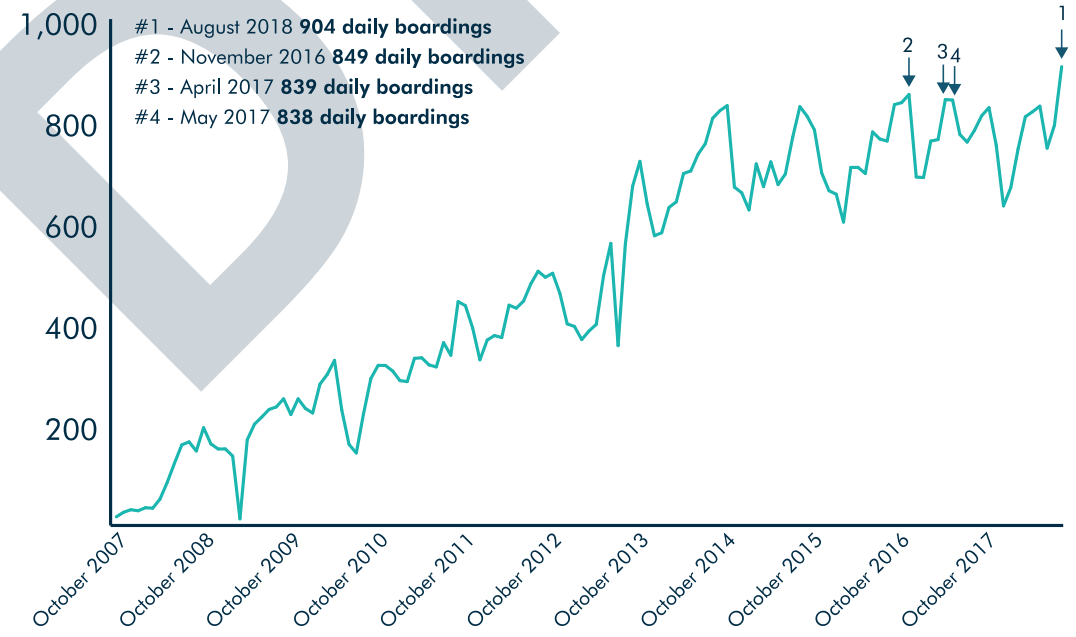
Preferred Bikeway Improvements

Figure 8 Source: 2018 H-GAC Transit Origin-Destination Survey

In 2007, the Metropolitan Transportation Authority of Harris County (METRO) began retrofitting their local buses with racks that can hold up to two bikes. As part of this program, they decided to track the use of the racks and have seen a steady increase in bicyclists riding their buses over the last ten years, see Figure 9. In August, 2018, METRO counted an average of 904 bike boardings per day, or more than 28,000 total boardings for the entire month. This data supports the notion that people are using more than one mode of transit, and that active transportation and transit infrastructure support one another. In recent years, bike boardings jumped in April and October, indicating a higher rate of bicycling in those months.

METRO Average Daily Bike Boardings

Figure 9, October 2007-August 2018 Source: 2018 METRO

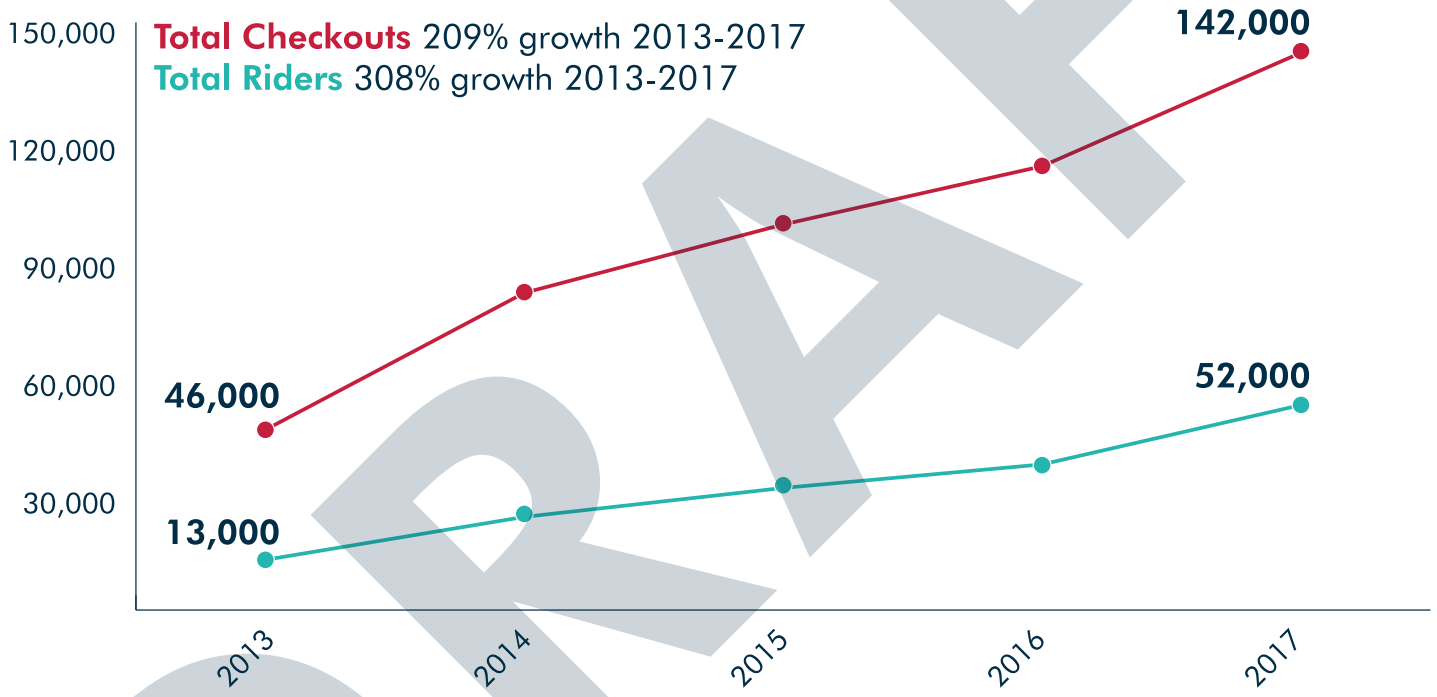


BIKE SHARE

Houston Bike Share (HBS) has managed the City of Houston's BCycle system and its docks of for-rent bicycles since 2011. HBS started with three stations and 18 bikes and is on pace to reach more than 100 stations within the next few years. Data from the BCycle system, like METRO's Bikes on Buses program is one of the region's only indicators of increasing usage of bicycles. HBS has seen a 308% growth in riders from 2013 to 2017 and a 209% growth in total checkouts over the same period, see Figure 10.

Houston BCycle Usage

Figure 10, 2013-2017 Source: 2018 Houston Bike Share



In 2018, The Woodlands Township had a bike share partnership with Mobike. In a span of seven months – between January and July – the number of monthly riders jumped from 1,000 to 2,135, a 114% increase. Mobike pulled its services from many U.S. cities, including The Woodlands in the summer of 2018 and the service is no longer available.

COMMUTE PATTERNS

The Census Bureau tracks the transportation mode people use to get to work. These estimates show normal daily commute patterns for workers 16 years old and older and shed some light on the use of active transportation in our region and how that usage trends over time. Four percent of workers in H-GAC's eight counties walk, bike, and use transit – that's around 120,000 people[15] . Transit is included alongside active transportation because most transit users walk, bike, or roll to get to their transit stop (see Figure 8 on page 21).

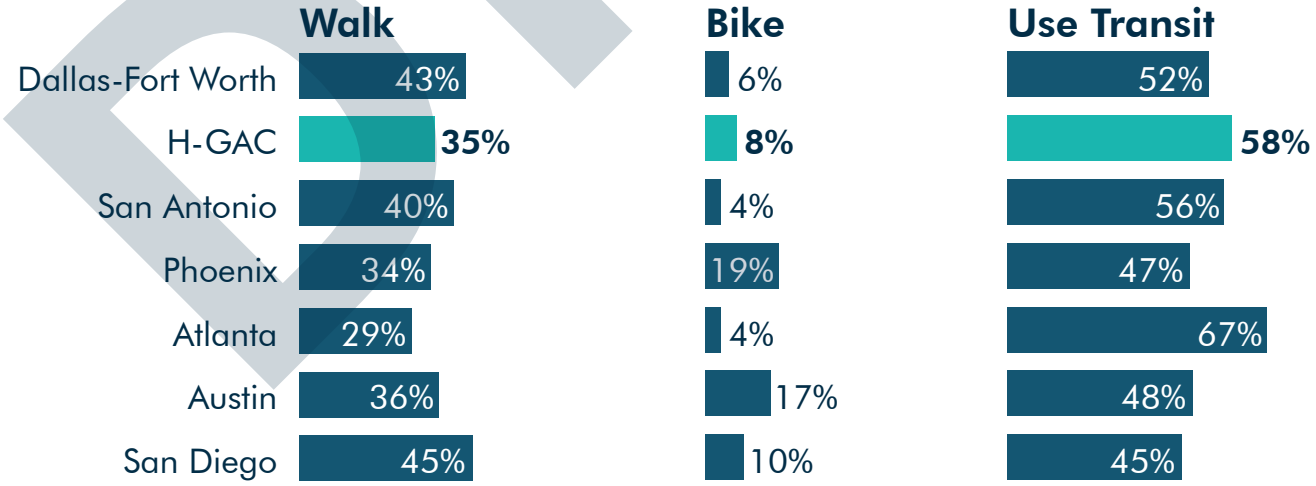
Workers Commuting by Active Transportation and Transit in Peer MPOs

Figure 11 Source: U.S. Census Bureau American Community Survey 2012-2016 5-year estimates

Compared to MPOs in similar regions, workers in H-GAC's eight counties walk, bike, roll, and use transit less frequently, see Figure 11. Of the regions selected for comparison, only Dallas-Fort Worth has a smaller percentage of workers using active transportation or transit. Regions like Atlanta, Austin and San Diego all have higher rates, but not by much.

Commute Mode for Non-Driving Workers in Peer MPOs

Figure 12 Source: U.S. Census Bureau American Community Survey 2012-2016 5-year estimates

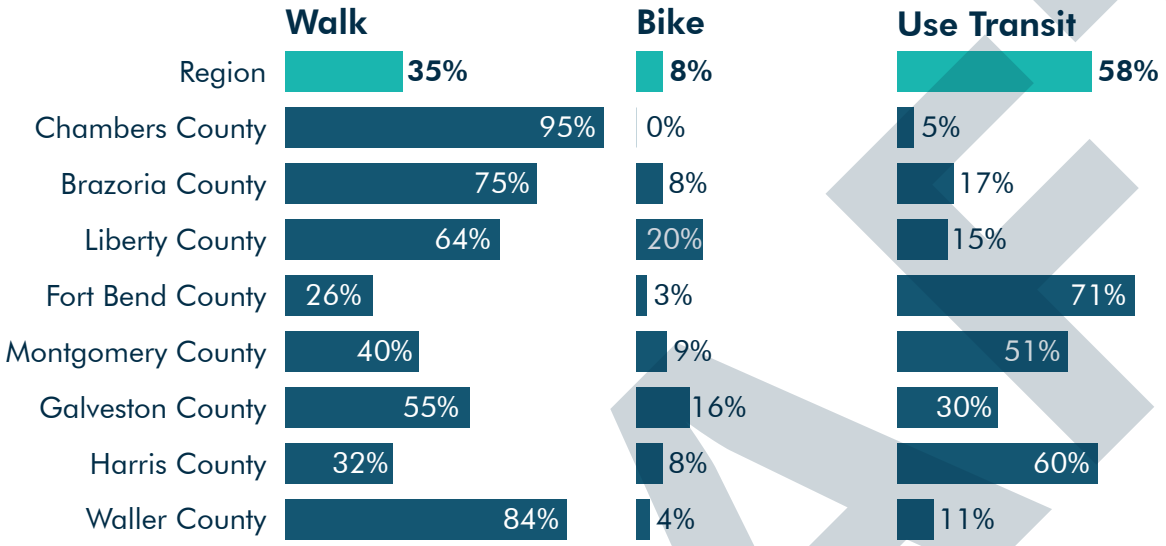


[15] U.S. Census Bureau American Community Survey (Table B08006), 2012-2016 5 year estimates

The Census Bureau data also shows the breakdown of commute type for the region's 120,000 workers using active transportation and transit, see Figures 12 and 13. Of those commuters, 35 percent are walking to work, eight percent are biking, and 58 percent are using transit. Counties within our region also show differences in the share of workers walking, biking, and taking transit as their commute. Active transportation and transit usage is higher in places like Galveston, Harris, and Waller counties and lower in Chambers, Brazoria, and Liberty counties.

Commute Mode for Non-Driving Workers in Peer MPOs

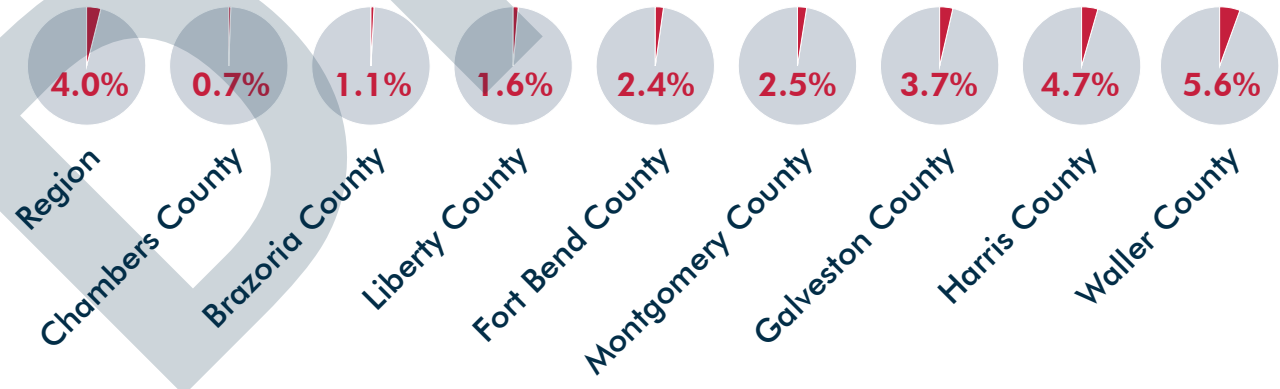
Figure 13 Source: U.S. Census Bureau American Community Survey 2012-2016 5-year estimates



Commute type differs by county, too. Chambers, Waller and Brazoria counties show higher rates of walking – possibly due to insufficient bicycle infrastructure and limited transit service. Meanwhile, counties like Fort Bend, Montgomery, and Harris have higher transit usage in part due to regular transit service to major regional employment centers.

Workers Commuting by Active Transportation and Transit in Eight Counties

Figure 14 Source: U.S. Census Bureau American Community Survey 2012-2016 5-year estimates



While the Census commute pattern dataset is one of the only national sources with active transportation trip data, it has its limits. According to the U.S. Bureau of Transportation Statistics, commuting only accounts for 15 percent of all daily trips.[16] Commute patterns are important for making transportation investment decisions, but they cannot tell us how many people are using active transportation to run errands, get to school, visit friends and family, or exercise.

SAFETY

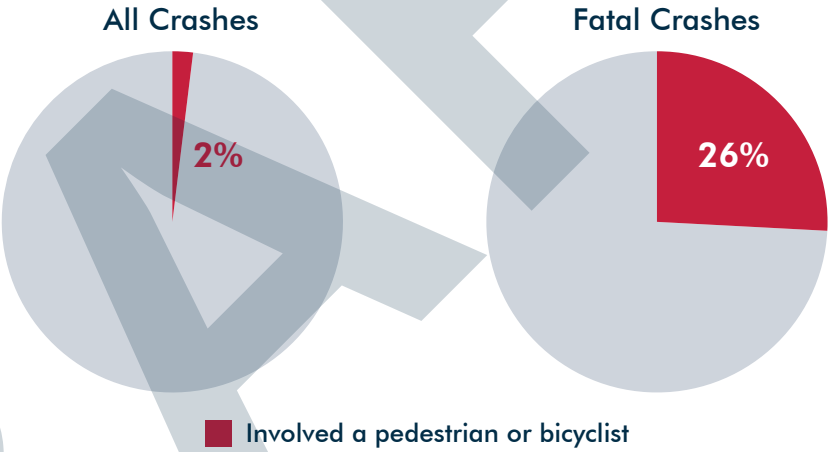
In 2016, the eight county region recorded 1,983 pedestrian crashes and 889 bicycle crashes. To help address this issue, H-GAC's 2018 Regional Safety Plan identifies Bicycle & Pedestrian Safety as one of its five Focus Areas. The FHWA also named the City of Houston a Pedestrian-Bicycle Focus City and the State of Texas a Pedestrian-Bicycle Focus State in 2015, eligible for targeted technical assistance from the agency. The special attention to safety for pedestrians and bicyclists is not without reason. Although only two percent of the region's crashes between 2012 and 2016 involved people walking and biking, those crashes accounted for more than one-quarter of all crash fatalities, see Figure 15[17]. For a detailed look at regional active transportation crash data, see the 2018 Regional Safety Plan, starting on page 20.

TxDOT's crash data tells us that men are more likely to be involved in a crash as either a pedestrian or bicyclist than women. We also know that although Black residents represent 17% of the region's population, Black pedestrians and bicyclists account for 27% and 23% of all pedestrian and bicycle crashes, respectively[18].

Crashes involving pedestrians and bicyclists happen on all types of roadways, with the largest percentage on city streets, as shown in Figure 16. Non-trafficways (private driveways, parking lots, etc.), highways, and county roads also account for a high percentage of crashes. Although we do not have accurate counts for pedestrian and bicycle traffic volumes, the higher number of crashes on city streets may due to people walking, biking, and rolling on city streets more often than other types of roadways.

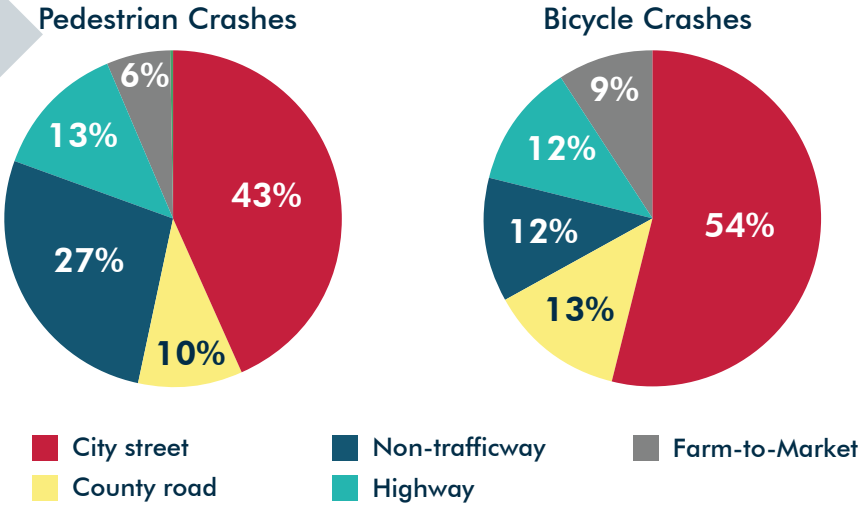
Pedestrian and Bicycle Crash Rates

Figure 15, 2012-2016 Source: TxDOT Crash Records Information System, 2012-2016



Pedestrian and Bicycle Crash Locations

Figure 16, 2012-2016 Source: TxDOT Crash Records Information System, 2012-2016



[16] Bureau of Transportation Statistics, 2017 https://www.bts.gov/statistical-products/surveys/national-household-travel-survey-daily-travel-quick-facts
[17] All crash data in this section comes from TxDOT's Crash Records Information System.

Pedestrian and bicycle crashes are also more prevalent close to dusk, when visibility becomes limited for both motorists and pedestrians. For every month except April, the highest percentage of pedestrian crashes occur in the hour before or after sunset, see Figure 17. A similar pattern shows that the highest frequency of bicycle crashes occurs between 4pm and 7pm, as shown in Figure 18.

Most Common Hour of Pedestrian Crashes by Month

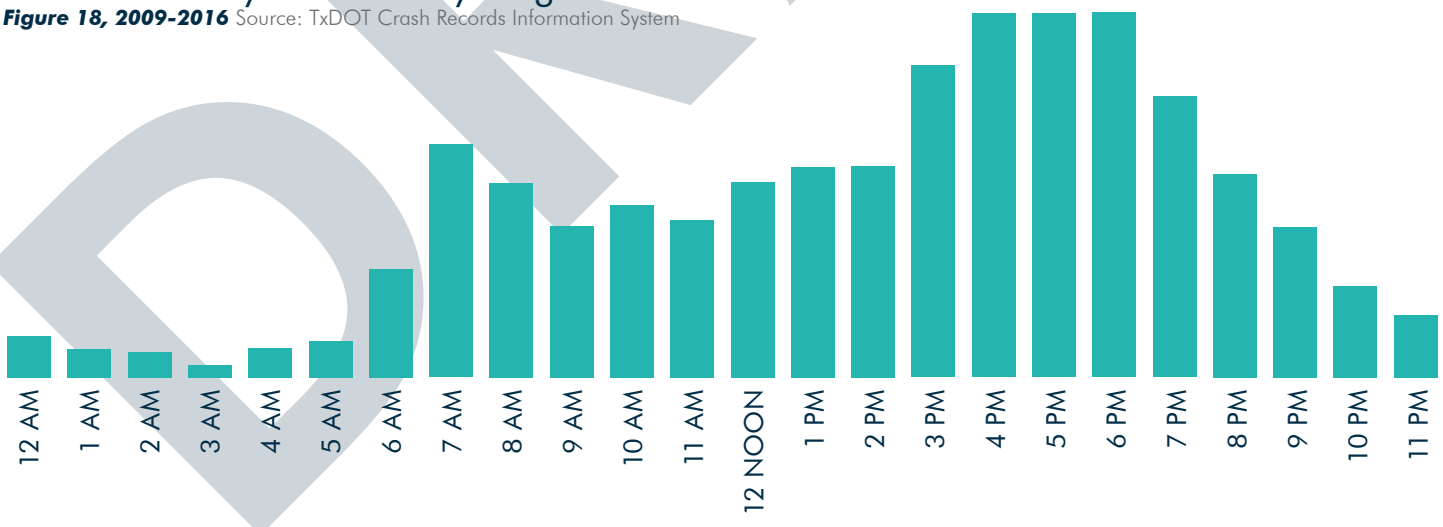
Figure 17, 2007-2016 Source: TxDOT Crash Records Information System

	AM												PM											
MONTH	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11
JANUARY																			●					
FEBRUARY																			●					
MARCH																					●			
APRIL																			●					
MAY																						●		
JUNE																						●		
JULY																						●		
AUGUST																						●		
SEPTEMBER																					●			
OCTOBER																				●				
NOVEMBER																			●					
DECEMBER																			●					

● Hour with the most crashes that month Daylight hours

Bike Crashes by Hour of Day - Eight Counties

Figure 18, 2009-2016 Source: TxDOT Crash Records Information System



The 2018 Regional Safety Plan names a set of actions to address the region's safety issues on our roadways, including specific strategies related to the Bicycle & Pedestrian Safety Focus Area. Find those actions on page 60 of this plan and page 48 of the 2018 Regional Safety Plan.

HEALTH

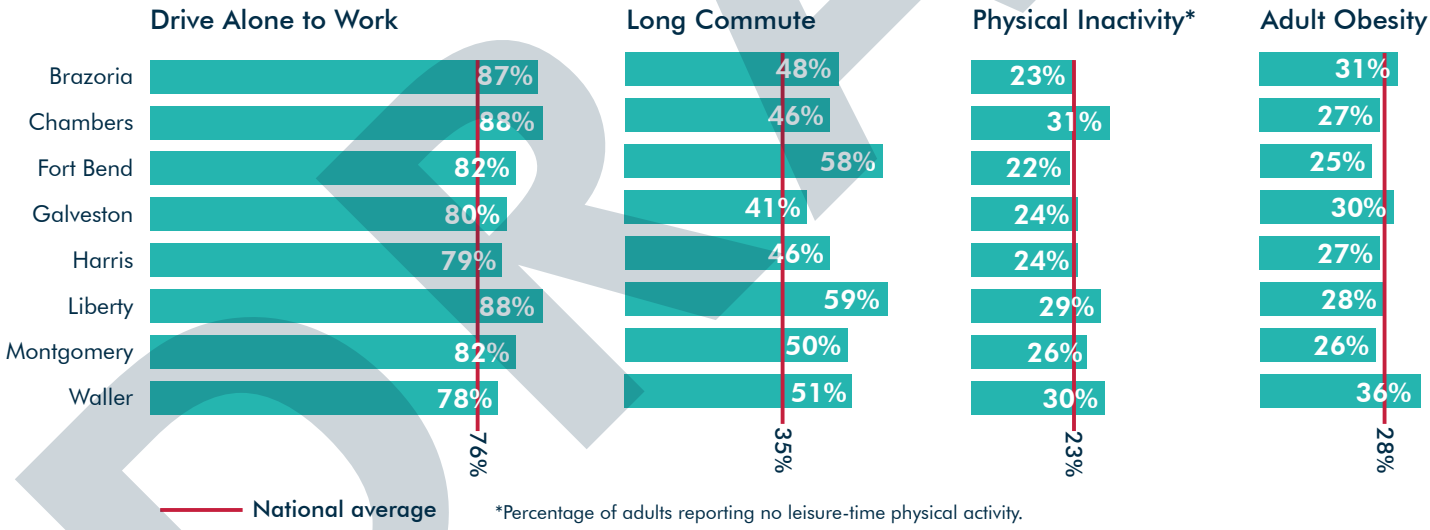
Physical activity, including that achieved through active transportation, is associated with a host of health benefits--physical and mental. Physical activity has been linked to reduced rates of obesity, cardiovascular disease, hypertension, diabetes, depression and others—to the point that the risk of negative health outcomes is 30 percent lower for active populations than for inactive populations (AHA, 2012). To attain activity related health benefits, the Center for Disease Control (CDC) recommends adults to engage in a minimum of 30 minutes of exercise a day, or 150 minutes a week. Such exercise can take the form of walking or biking and can easily be achieved by active transportation in a daily commute.

Inactivity, on the other hand, is strongly associated with poor health outcomes. Driving is a major source of physical inactivity and is linked with overweight and obese populations[18]. Annually, the Robert Wood Johnson Foundation develops County Health Rankings & Roadmaps which provides a snapshot of a county's health. Two major factors contributing to a community's overall health score are the percent of the workforce that drives to work alone and the percent of commuters with long commutes.

Health outcomes are calculated based on a variety of factors ranging from socio-economic, to access to clinical care, to environmental. The factors most closely related to active transportation are Adult Obesity, Physical Inactivity, Driving Alone to Work, and Long Commute. Houston-Galveston region health rankings for these four factors is seen in Figure 19, in comparison to the national average.

Health Factors Related to Active Transportation

Figure 19, Source: 2018 Robert Wood Johnson County Health Rankings



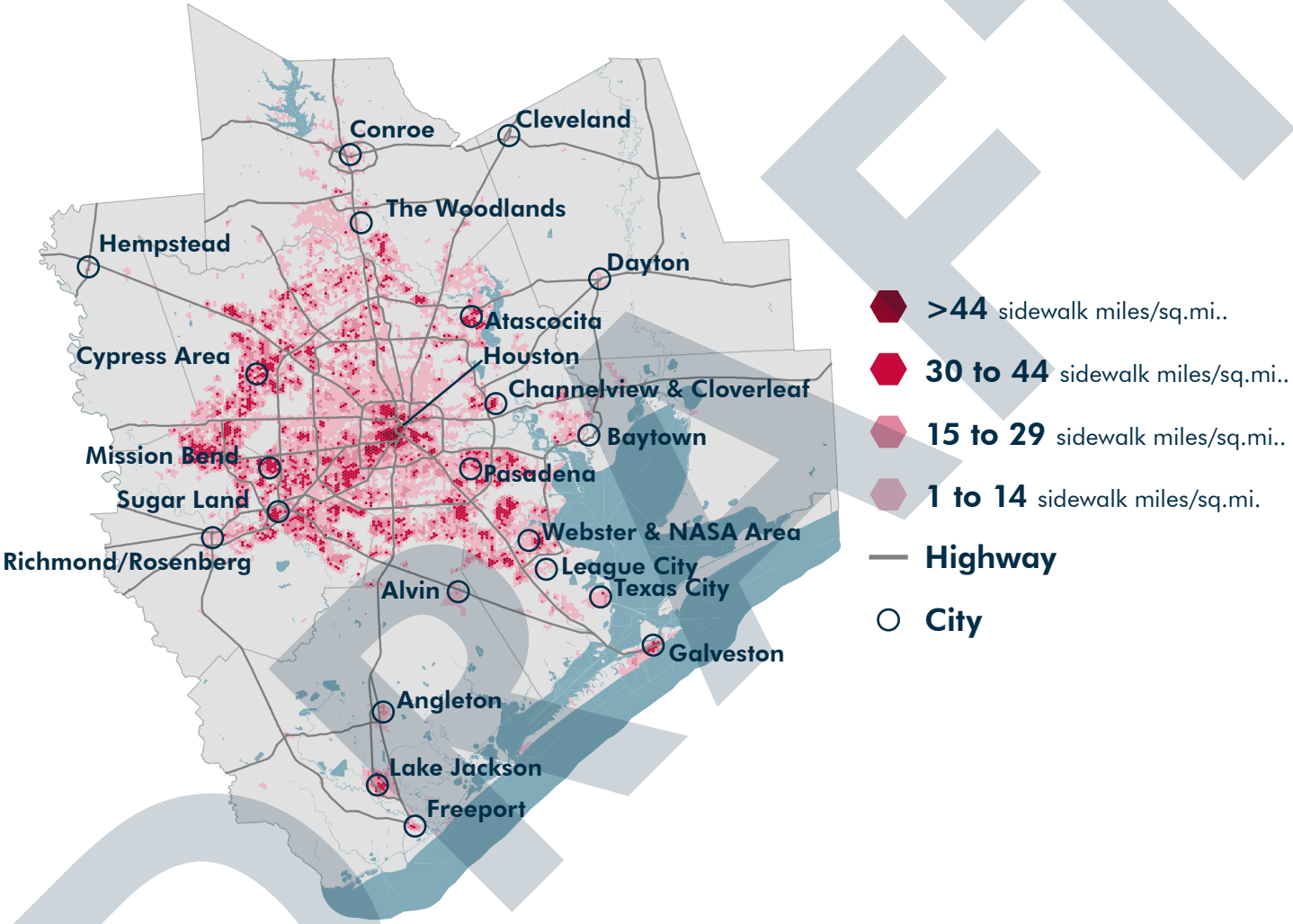
*Percentage of adults reporting no leisure-time physical activity.

[18]Active Living Research—Moving Toward Active Transportation: How Policies Can Encourage Walking and Bicycling (January 2016) https://activelivingresearch.org/ActiveTravelreview

SIDEWALK DENSITY

Sidewalk Miles per Square Mile

Map 1 Source: 2018 H-GAC 2018 Aerial Imagery

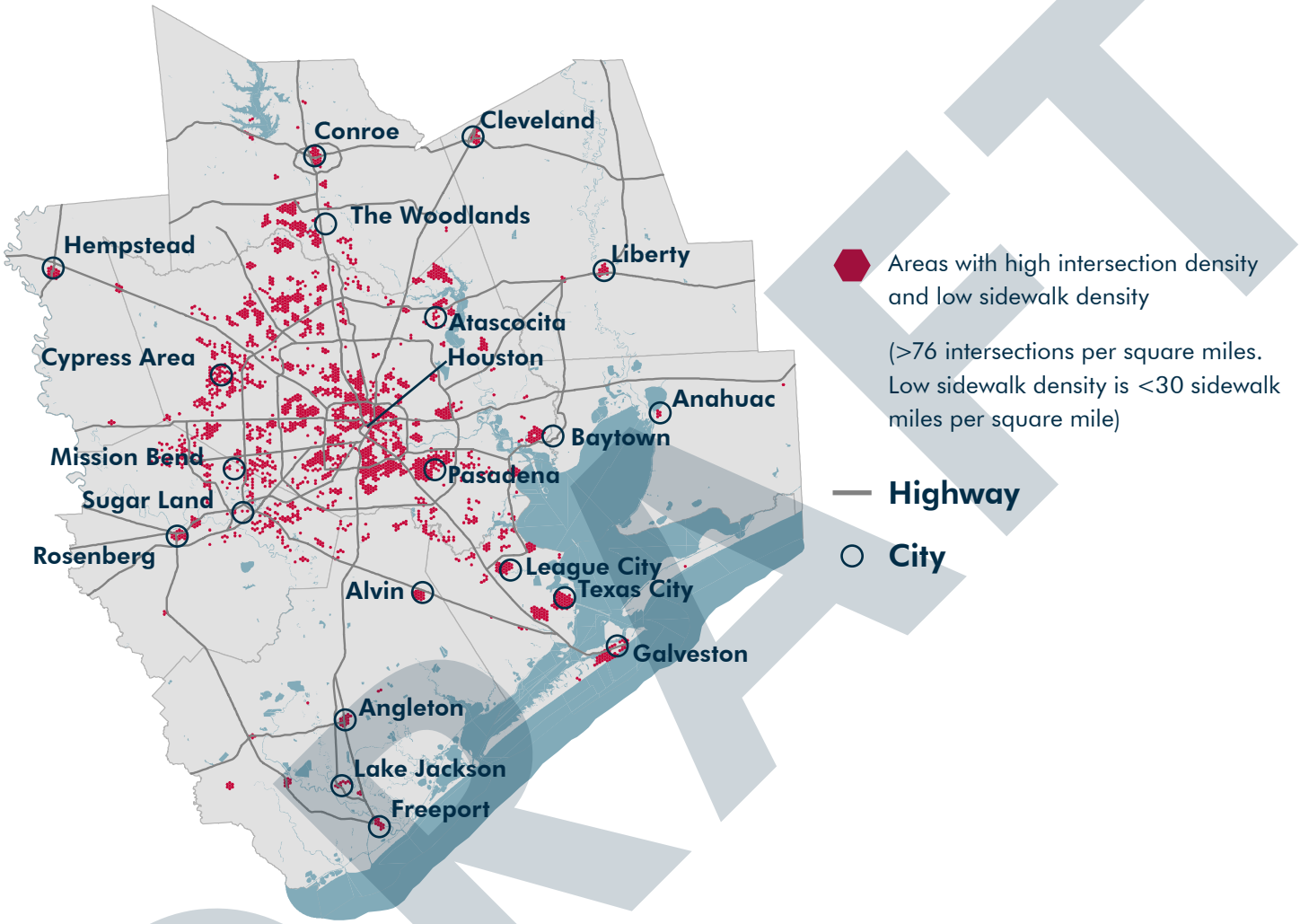


H-GAC mapped the region's first comprehensive sidewalk layer in 2018, offering a new look at the connectivity of more than 19,300 linear miles of sidewalks in the eight counties. Map 1 shows the density of sidewalks in the region, with the highest density in neighborhoods inside the 610 Loop like Downtown, the Heights, Montrose, and the Near Northside, shown in dark red. Some suburban communities outside of Beltway 8 like Cinco Ranch and Clear Lake show relatively high sidewalk density while much of the rest of the region shows a relative lack of density.

For a more detailed look at the sidewalk infrastructure in each county, see the county profiles starting on page 66.

Sidewalk Density vs Intersection Density

Map 2 Source: 2018 H-GAC 2018 Aerial Imagery; 2017 H-GAC STAR*Map



A comparison of sidewalk density might not be as fair to suburban and rural community, some of which have fewer roads which are more separated than dense urban areas. That is one of the reasons that the sidewalk density map shows greater density in the region's population centers. Still, many communities have low sidewalk densities where we should expect to see more. Map 2 reveals places in the region that match two characteristics: low sidewalk density and high intersection density.

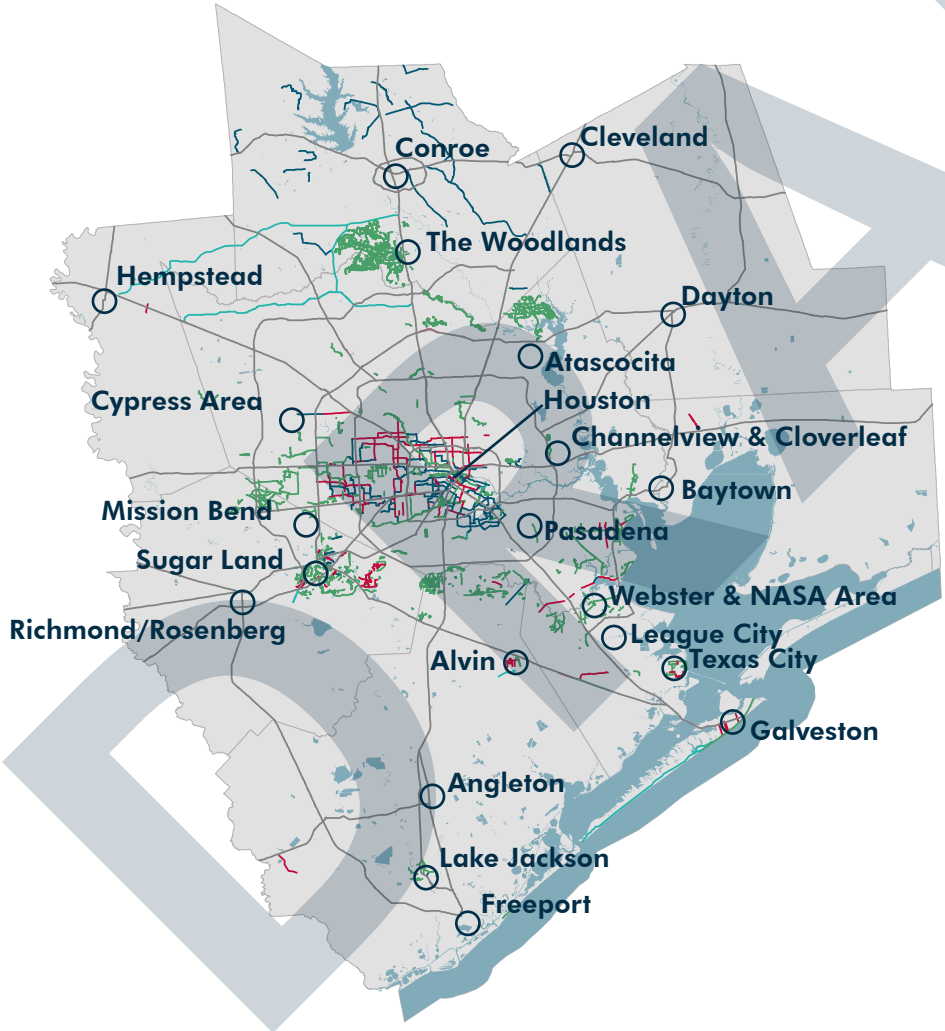
Places with high intersection density typically have more connected street networks making it more likely that people will walk, bike or roll. However, if a community's well-connected street grid does not have sidewalks, that can greatly discourage people walking, using a wheelchair or walker, or pushing a stroller. The places highlighted in red in Map 2 are areas where we should see higher sidewalk density, but do not. This includes many places inside the 610 Loop and some larger cities like Conroe, Galveston, Baytown and others. The map also highlights smaller cities with historic town centers and an intact historic street grid like Liberty, Cleveland, Anahuac, Angleton, Waller, Tomball, Needville and others.

BIKEWAY NETWORK

The network of bikeways across the eight counties to grow. The last regional active transportation plan, completed in 2015 counted 1,215 miles of bikeways in the region. Using data provided by local governments, we estimate that there are now more than 1,443 miles of bicycle facilities. Most of the completed bikeways are in and around population centers. Places like The Woodlands, Sugar Land, Missouri City, Kingwood, Shadow Creek Ranch and Cinco Ranch boast large networks of Shared-use paths/Trails. A few signed shoulder routes also cross parts of the region with lower population density like northern Waller County, western Montgomery County, northwest Harris County, and the southern portion of Galveston Island.

Regional Bikeway Infrastructure

Map 3 Source: H-GAC and local partners



Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

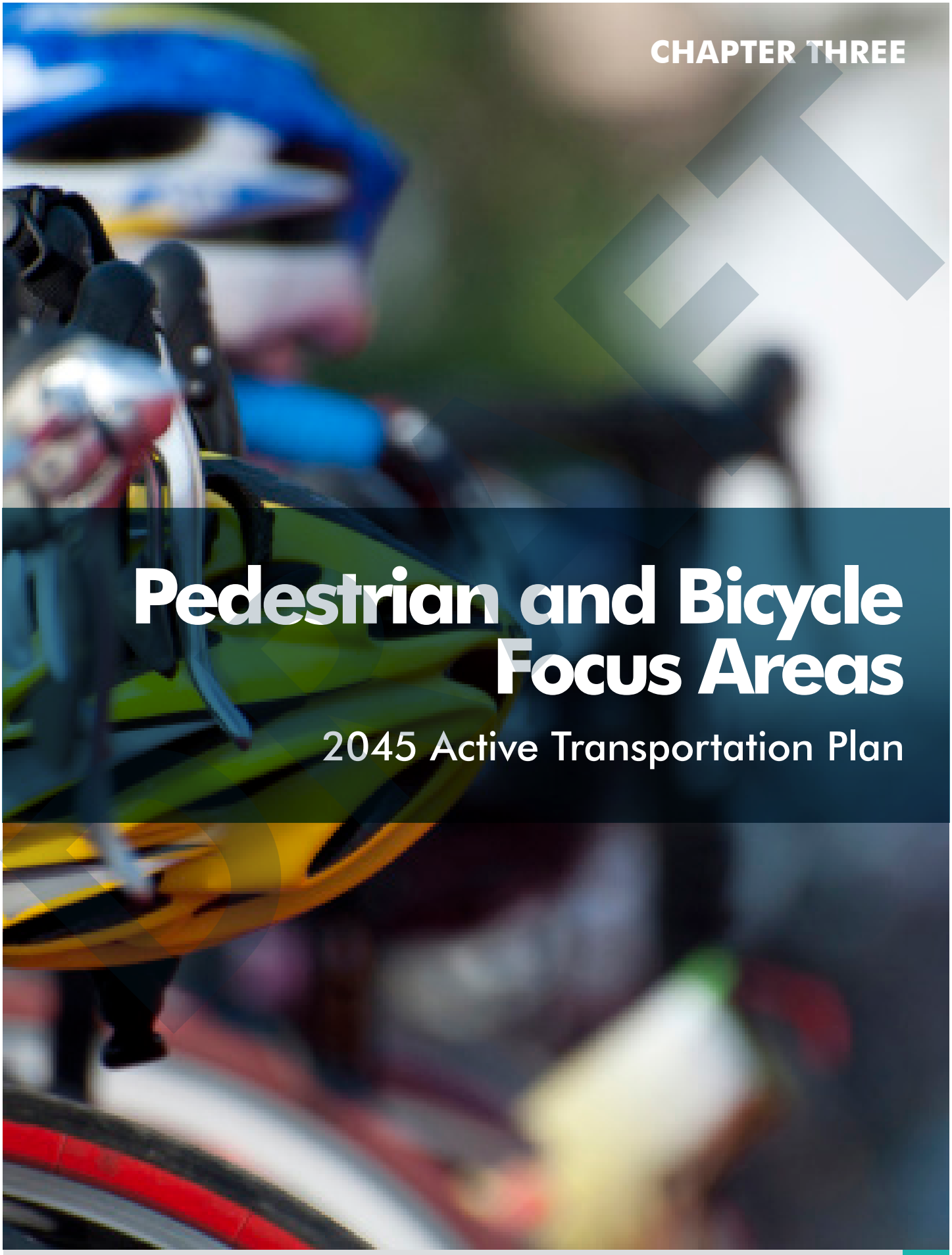
Shared-Use Path/Trail
Dedicated trail completely separated from auto traffic and used by both pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

For a refresher on the different types of bicycle infrastructure, see page 12.

For a more detailed look at the infrastructure in each county, see the county profiles starting on page 66.



CHAPTER THREE

Pedestrian and Bicycle Focus Areas

2045 Active Transportation Plan

PEDESTRIAN AND BICYCLE FOCUS AREAS

As the region's existing condition maps show, high-quality walkways and bikeways are present in some communities, but not all. Similarly, residents use walkways and bikeways differently depending on their economic circumstances, age, and the availability of infrastructure in their community. For those reasons, some parts of the eight-county region have a higher need for active transportation and a higher propensity of active transportation use. We have identified those places in our region as Pedestrian and Bicycle Focus Areas. For a full description of the methodology used to determine the Focus Areas, see Appendix A.

HOW WILL THEY BE USED

Focus Areas are primarily intended to inform the decisions of the Transportation Policy Council, the Technical Advisory Committee, and the Pedestrian/Bicyclist Subcommittee about where and how to best allocate limited time and resources. This analysis does not assign any defined benefits or drawbacks for the identified focus areas, only holds them up as the places in the region with the greatest need based on available data.

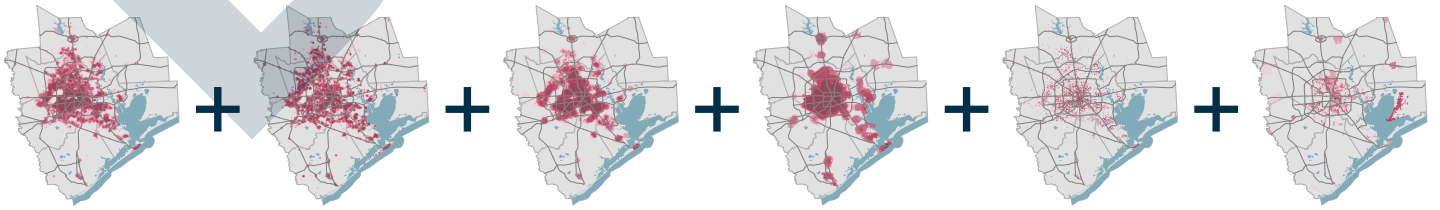
FOCUS AREAS INSIDE AND OUTSIDE OF HARRIS COUNTY

In the initial stages of our Focus Area analysis, we analyzed the entire region together and found that the majority of Focus Areas fell within Harris County. Although Harris County has a noted need for walkways and bikeways and is home to nearly 70% of the population and 80% of the jobs in the eight county region, we also know that the other seven counties and their communities exhibit a demand and need for active transportation. For that reason, we identified four distinct groups with 40 Focus Areas each: Pedestrian and Bicycle Focus Areas within Harris County and Pedestrian and Bicycle Focus Areas outside of Harris County.

FOCUS AREA CRITERIA

Focus Areas were determined using six criteria, shown below. The criteria are nearly identical for pedestrians and bicycles because walkway and bikeway users have similar needs and similar indicators of use.

Pedestrian and Bicycle Focus Areas



Job + Resident Density | **Intersection Density** | **School Proximity** | **Transit Proximity** | **Crashes** | **Environmental Justice**

Job + Resident Density

Job + Resident Density (also known as Activity Population Density) totals the number of jobs per square mile and the number of residents per square mile. A high Job + Resident Density defines places where the population gathers throughout the day and points to areas of high traffic for pedestrians, bicyclists, cars, and transit. Walkway and bikeway investments in these areas can reduce overall congestion and improve safety for all road users. Source: H-GAC Regional Growth Forecast, 2017

Intersection Density

Intersection Density measures the number of times one roadway intersects another per square mile. As an indicator, intersection density reveals areas where people will have a higher propensity to walk, bike or roll. Areas with high intersection densities typically have more connected street networks, slower vehicle speeds and a larger number of destinations. Source: Southeast Texas Addressing and Referencing Map (STAR*Map) 2017

School Proximity

The State of Texas does not require school districts to provide bus service to children living within two miles of their school, meaning many children walk and bike to class. People living within 2 miles of a grade school, technical school, college or university have a higher propensity to walk, bike or roll to class. Sources: Texas Education Agency 2018 (grade schools include all regular, charter, and alternative schools in the region); Integrated Post-Secondary Education System 2018 and National Center for Education Statistics 2018 (colleges, universities, and technical schools).

Transit Proximity

The recent origin-destination survey for regional transit users clearly shows that most transit users walk or bike to get to and from transit stops. Places near transit stops have a higher need for active transportation infrastructure that is safe and convenient for transit users. Sources: Transit stop data was gathered from the eight regional transit providers who have fixed-route service: Brazos Transit District, City of Conroe, Fort Bend County Transit, City of Galveston, Gulf Coast Center (Connect Transit), Harris County Transit, METRO, and The Woodlands Township.

Crashes

Crashes involving pedestrians and bicyclists are a key signal for identifying unsafe or insufficient active transportation infrastructure. The crashes used for this analysis do not include crashes in which one of the parties (motorist, bicyclist, or pedestrian) was intoxicated. Crashes where all parties were sober are more likely to occur because of issues that can be solved through design or policy. Source: TxDOT Crash Records Information System, 2009-2017

Environmental Justice Areas

Environmental Justice (EJ) Areas are defined as Census block groups in which the average population in a protected class is greater than the average across all eight counties*. Protected classes include low-income households, racial and ethnic minorities, people with low educational attainment, people with limited English proficiency, female-headed households, and zero-car households. These areas indicate need for active transportation because people in these protected classes are more likely to walk, bike, roll or use transit than non-protected classes. Source: Environmental Justice - H-GAC's Strategy for the Fair Treatment and Meaningful Involvement of All People, 2017

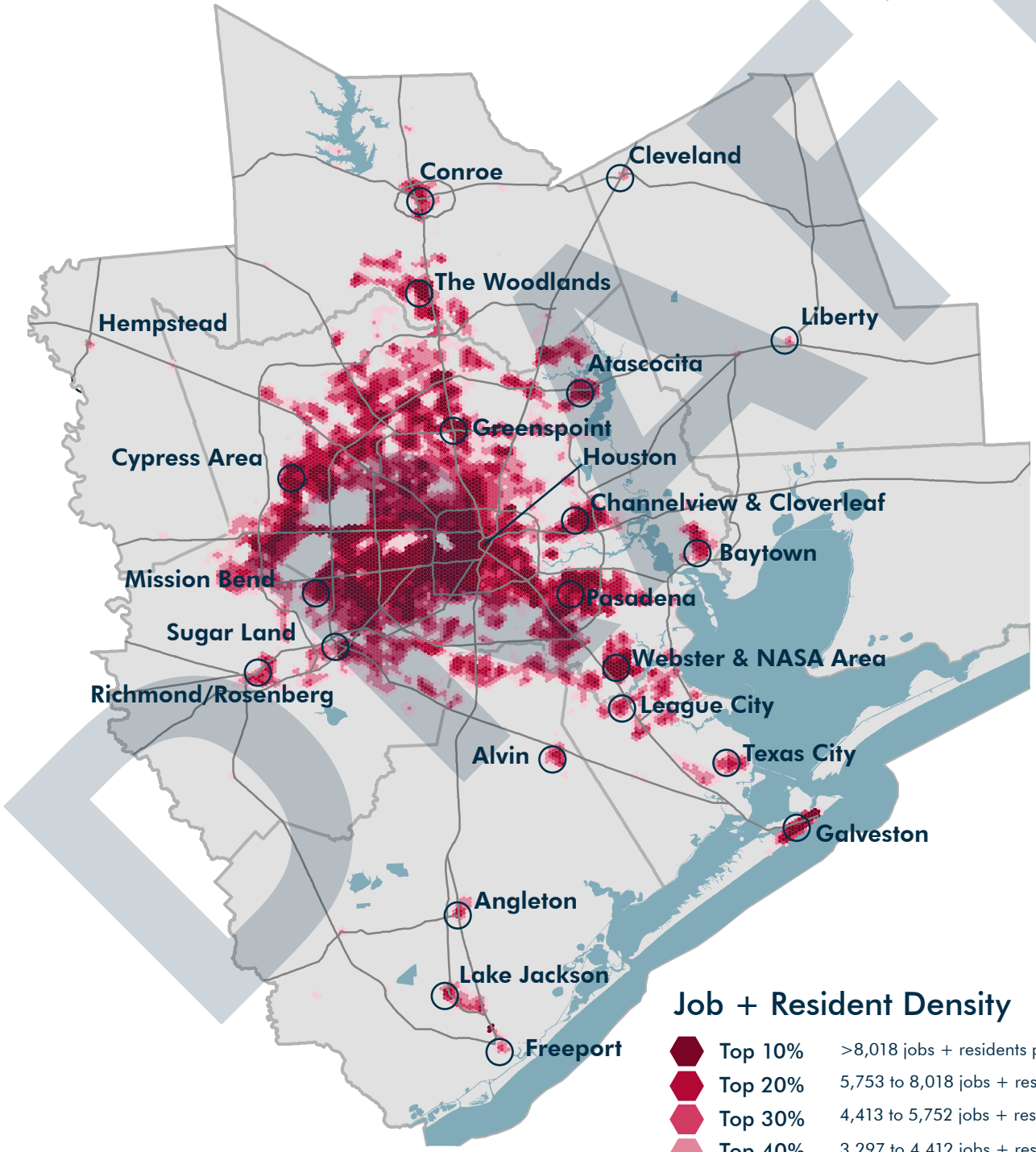
*For all protected classes except racial and ethnic minorities, EJ Areas are determined by a greater than regional average plus one standard deviation.

JOB + RESIDENT DENSITY **PEDESTRIAN** FOCUS AREA CRITERIA

The Pedestrian Job + Resident Density map reveals concentrations in central and western Harris County, eastern Fort Bend County, Galveston, Atascocita, Conroe, and The Woodlands, among others.

Job + Resident Density - Pedestrian Focus Area Analysis

Map 4 Source: H-GAC Regional Growth Forecast, 2017

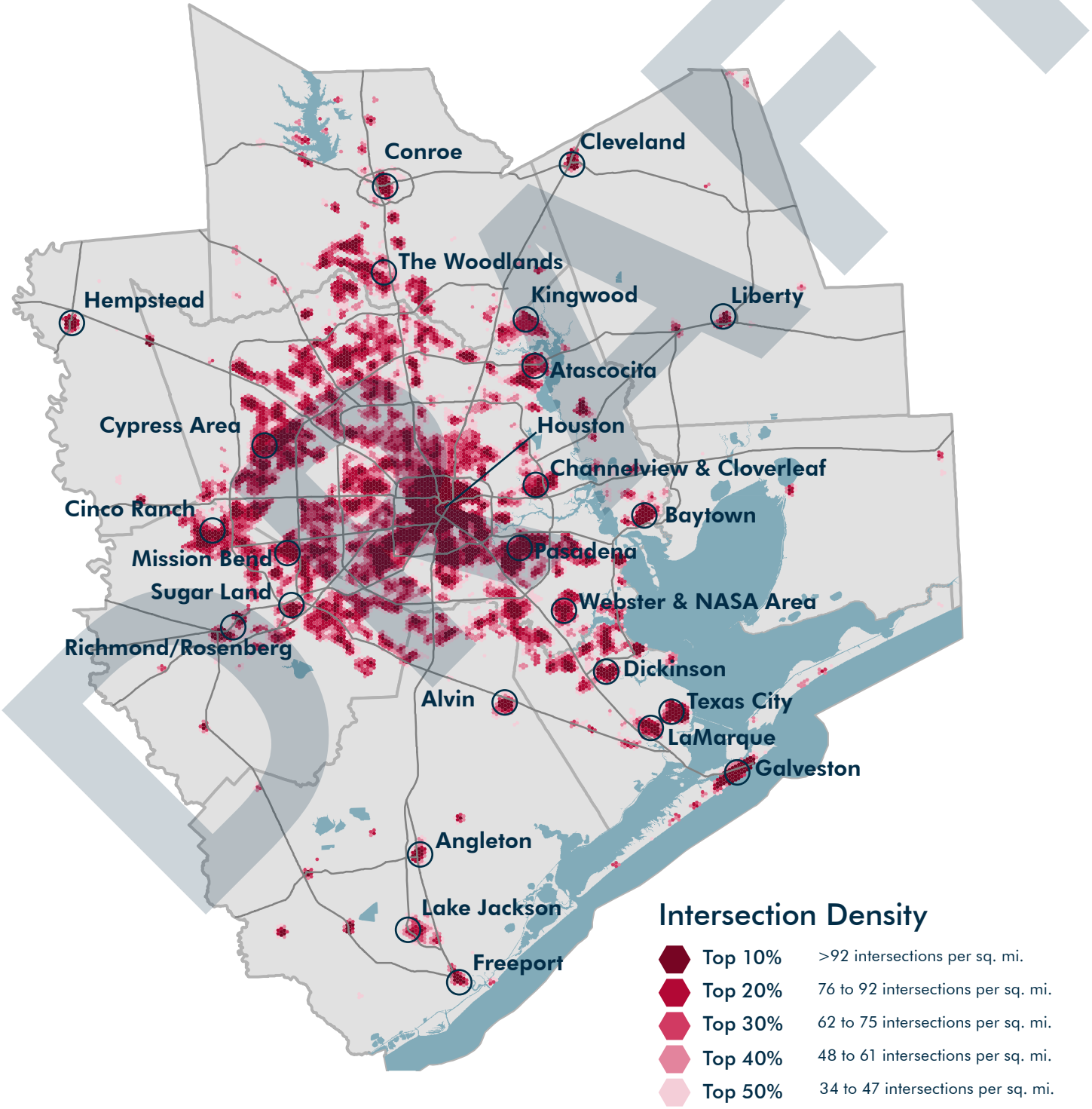


INTERSECTION DENSITY **PEDESTRIAN** FOCUS AREA CRITERIA

The Pedestrian Intersection Density map shows concentrations inside the 610 Loop in Houston, and in the downtown areas of large cities like Pasadena, Galveston, Texas City, and Conroe. It also highlights smaller communities like Cleveland, Hempstead, Freeport, Alvin and many others with historic and well-connected town centers.

Intersection Density - Pedestrian Focus Area Analysis

Map 5 Source: Southeast Texas Addressing and Referencing Map (STAR*Map) 2017

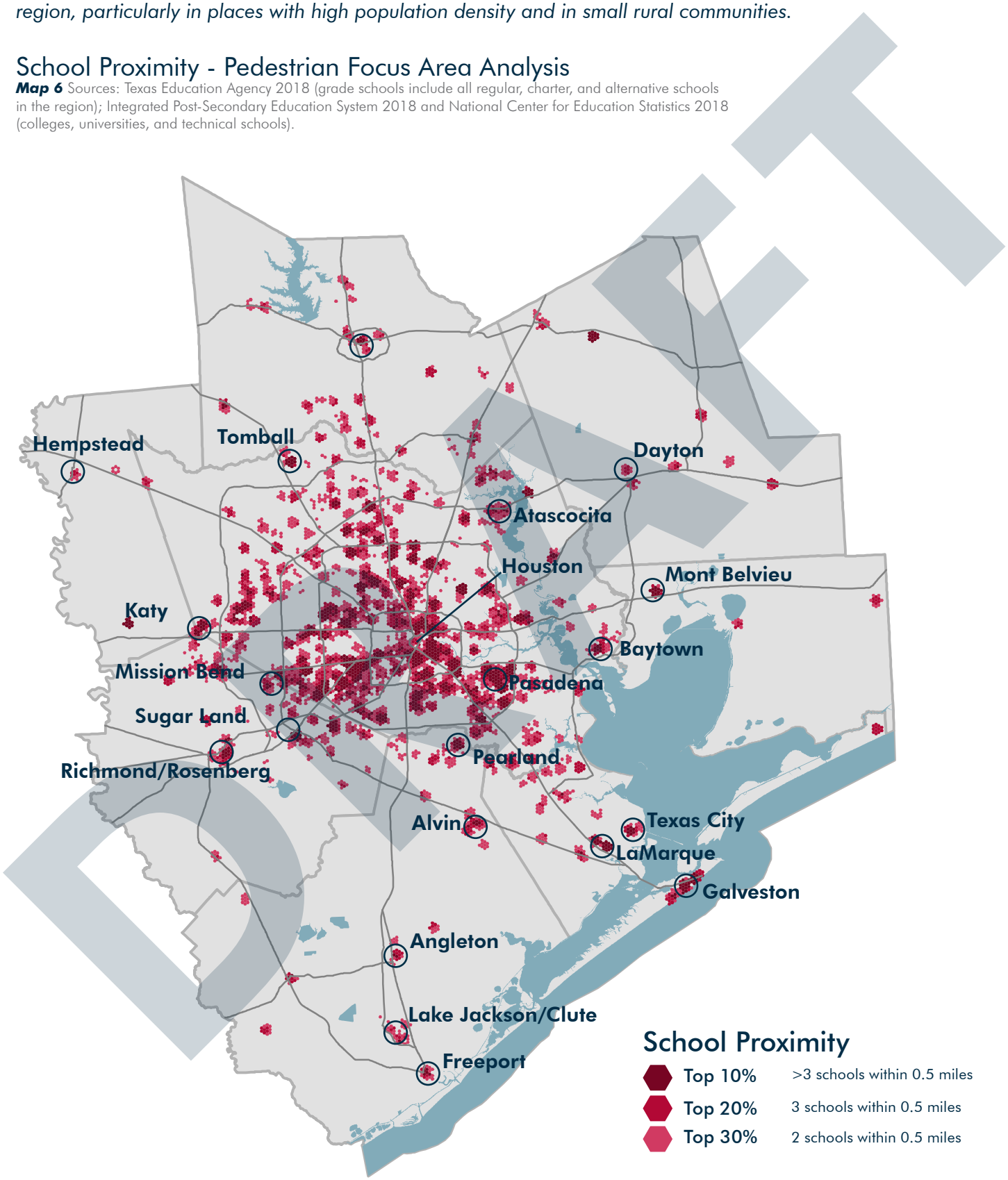


SCHOOL PROXIMITY **PEDESTRIAN** FOCUS AREA CRITERIA

Since schools tend to be located in population centers, the Pedestrian School Proximity map shows need across the region, particularly in places with high population density and in small rural communities.

School Proximity - Pedestrian Focus Area Analysis

Map 6 Sources: Texas Education Agency 2018 (grade schools include all regular, charter, and alternative schools in the region); Integrated Post-Secondary Education System 2018 and National Center for Education Statistics 2018 (colleges, universities, and technical schools).

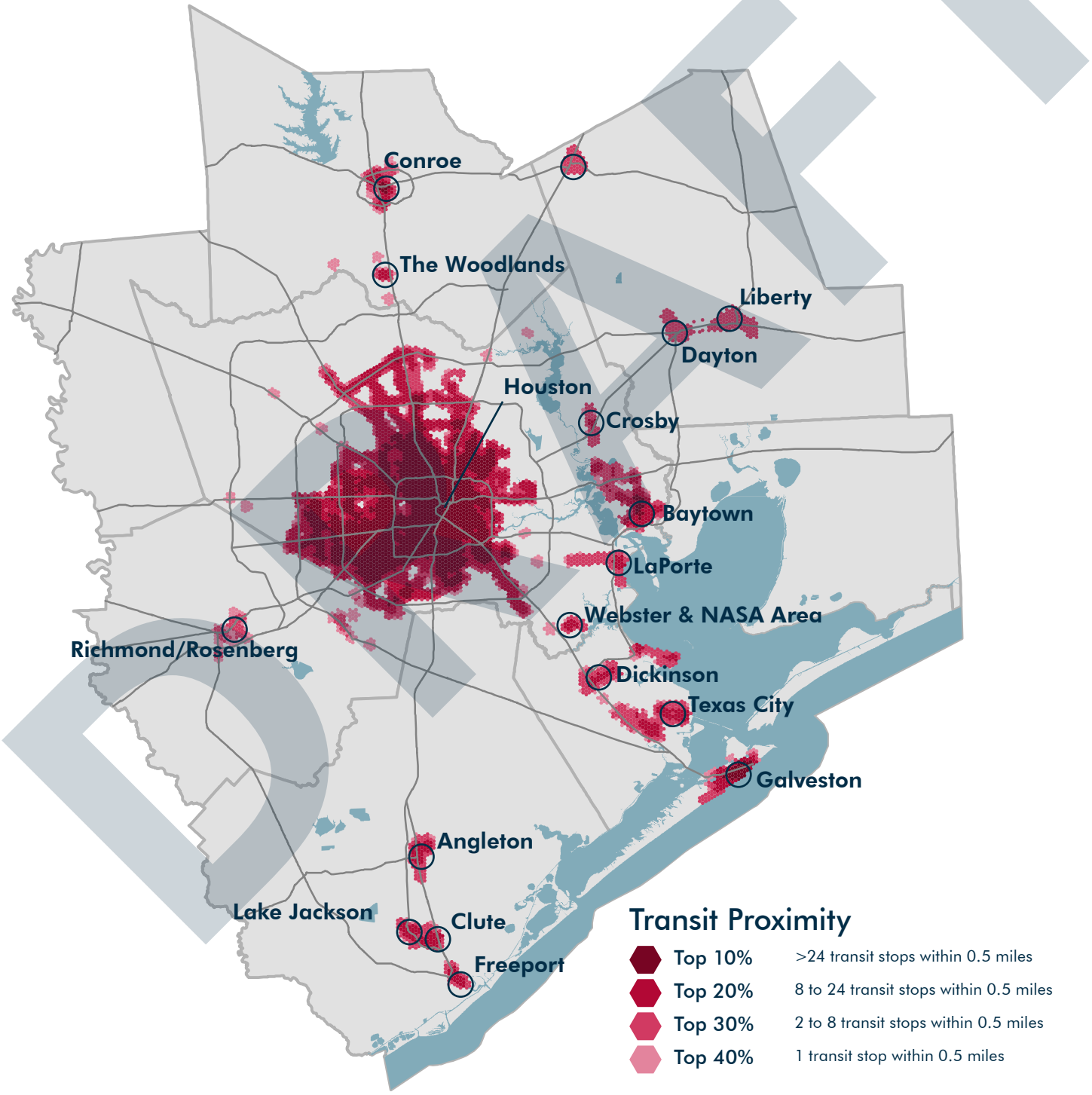


TRANSIT PROXIMITY **PEDESTRIAN** FOCUS AREA CRITERIA

The Pedestrian Transit Proximity map closely mirrors the service areas for the fixed-route transit providers with concentrations in the middle of Harris County (METRO's service area), eastern Harris County (Harris County Transit), Galveston (City of Galveston's Island Transit), Conroe (City of Conroe's Conroe Connect), and southern Brazoria County (Golf Coast Center's Connect Transit).

Transit Proximity - Pedestrian Focus Area Analysis

Map 7 Sources: Transit stop data was gathered from the eight regional transit providers who have fixed-route service: Brazos Transit District, City of Conroe, Fort Bend County Transit, City of Galveston, Gulf Coast Center (Connect Transit), Harris County Transit, METRO, and The Woodlands Township.

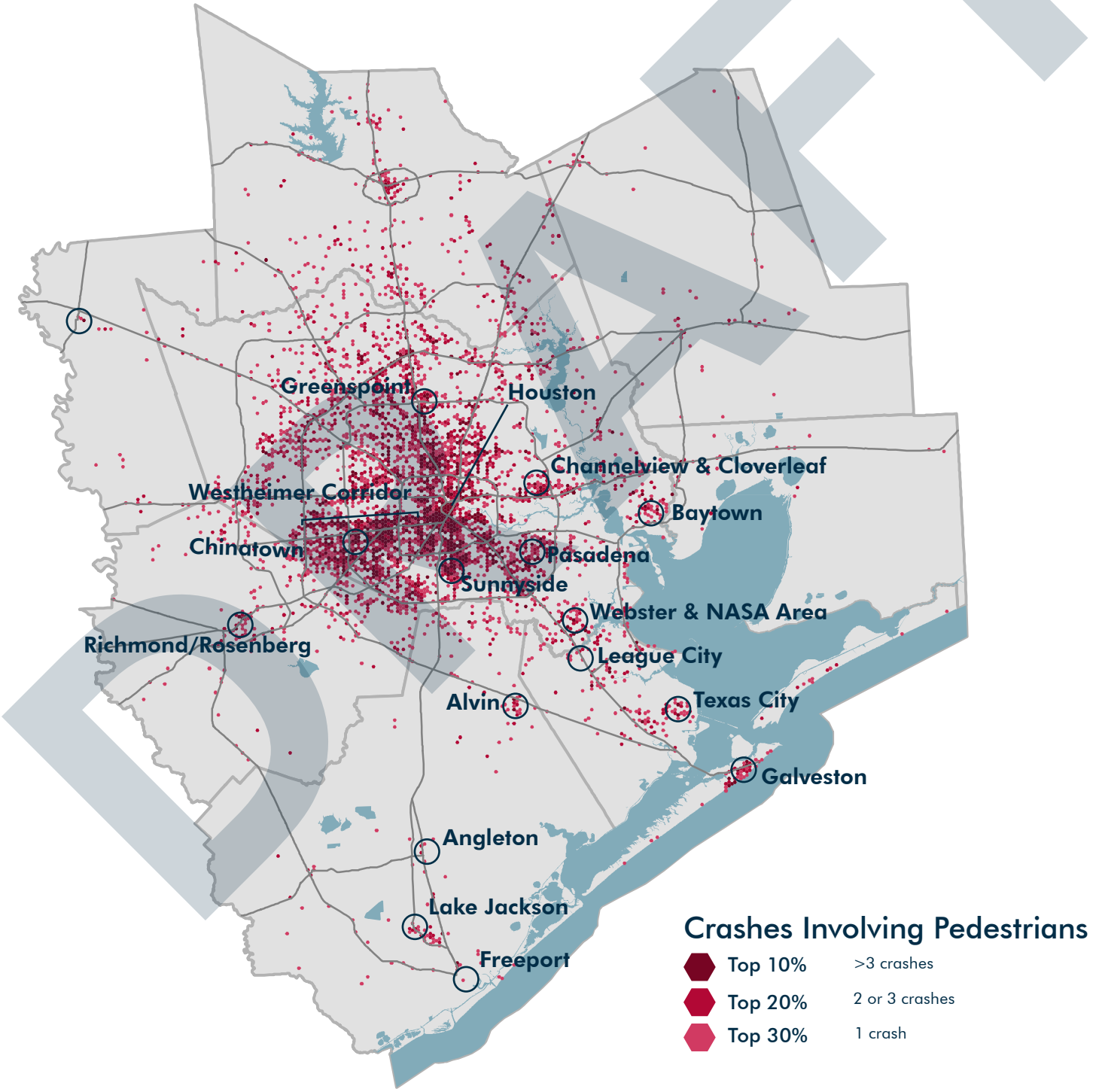


CRASHES **PEDESTRIAN** FOCUS AREA CRITERIA

The Pedestrian Crash map reveals a concentration of crashes inside the 610 Loop, just south of the 610 Loop, along the Westheimer corridor and the U.S. 45 corridor. Conroe, Galveston, Texas City, Rosenberg/Richmond, Pasadena, and The Woodlands also contain clusters of crashes.

Crashes - Pedestrian Focus Area Analysis

Map 8 Source: TxDOT Crash Records Information System, 2009-2017

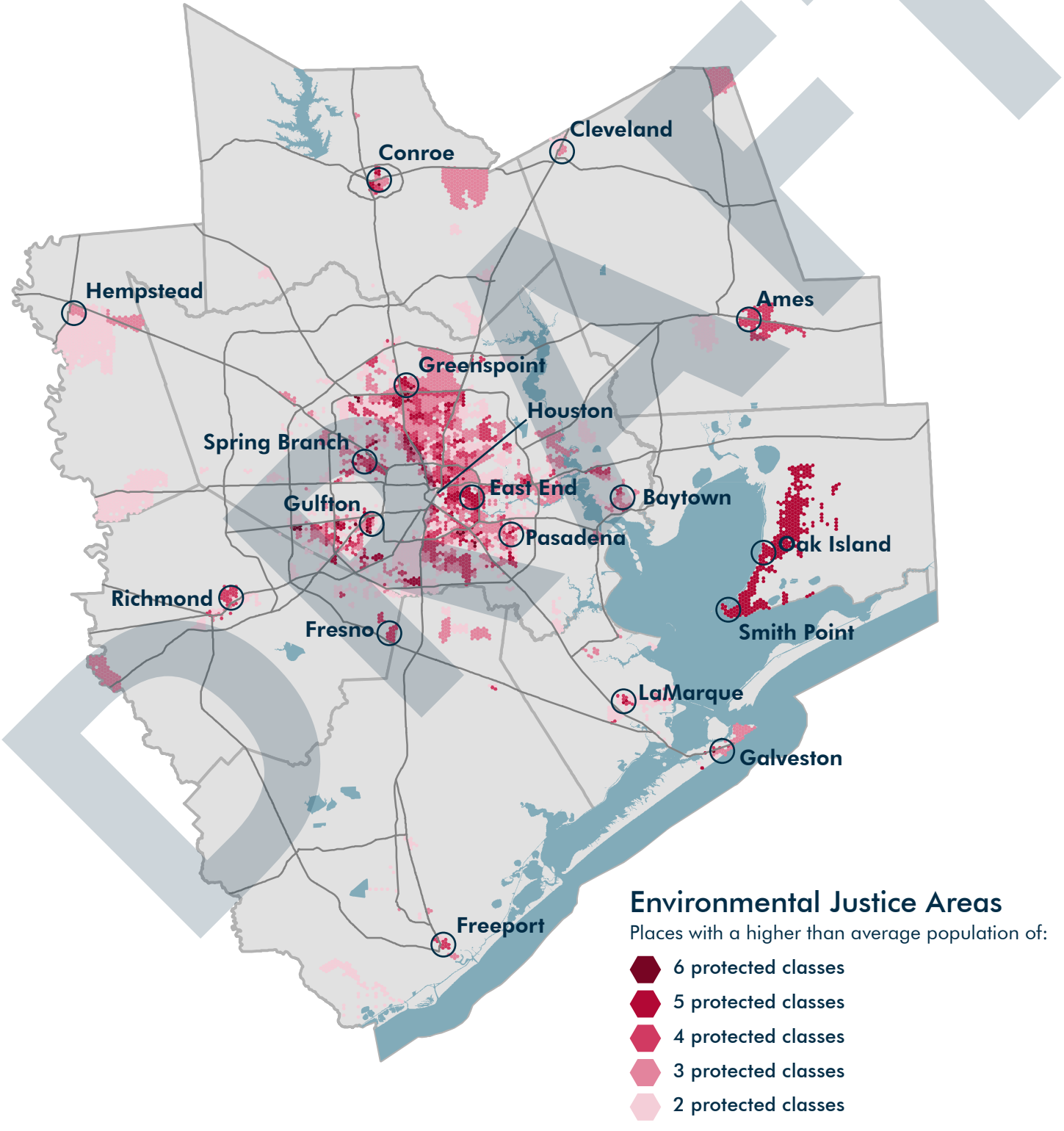


ENVIRONMENTAL JUSTICE **PEDESTRIAN** FOCUS AREA CRITERIA

The Environmental Justice Area map shows a concentration inside the 610 Loop and Beltway 8, south of Westpark Tollway, the City of Conroe, and southwest Chambers County.

Environmental Justice - Pedestrian Focus Area Analysis

Map 9 Source: Environmental Justice - H-GAC's Strategy for the Fair Treatment and Meaningful Involvement of All People, 2017

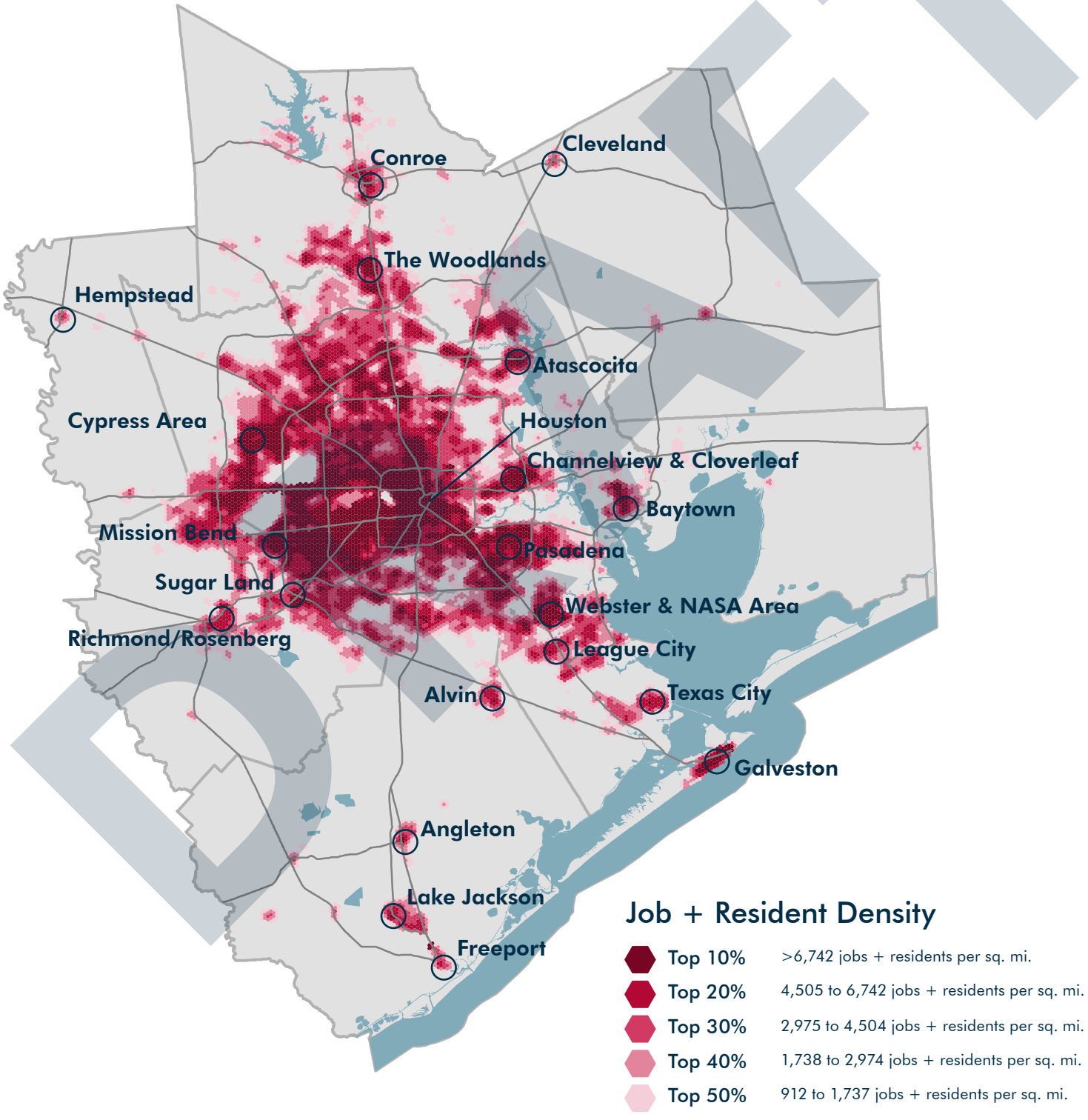


JOB + RESIDENT DENSITY **BICYCLE** FOCUS AREA CRITERIA

The Bicycle Job + Resident Density map shows concentrations in central and western Harris County, eastern Fort Bend County, Galveston, Atascocita, Conroe, Cloverleaf, and The Woodlands, among others.

Job + Resident Density - Bicycle Focus Area Analysis

Map 10 Source: H-GAC Regional Growth Forecast, 2017

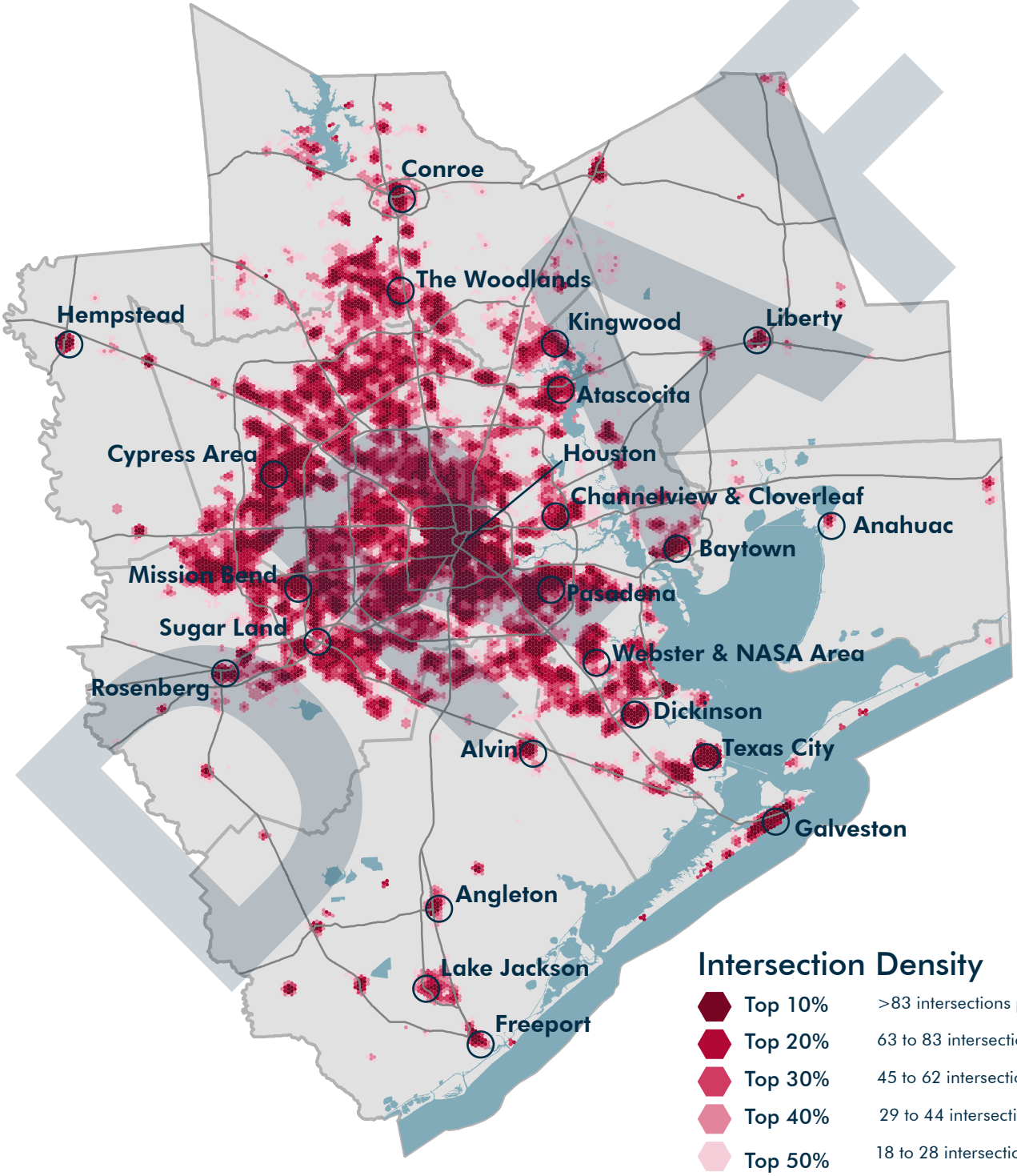


INTERSECTION DENSITY **BICYCLE** FOCUS AREA CRITERIA

The Bicycle Intersection Density map, similar to the pedestrian map shows concentrations inside the 610 Loop in Houston, and in the downtown areas of cities like Pasadena, Galveston, Texas City, and Conroe. It also highlights those smaller communities with historic street grids like Cleveland, Hempstead, Freeport, Alvin and many others.

Intersection Density - Bicycle Focus Area Analysis

Map 11 Source: Southeast Texas Addressing and Referencing Map (STAR*Map) 2017

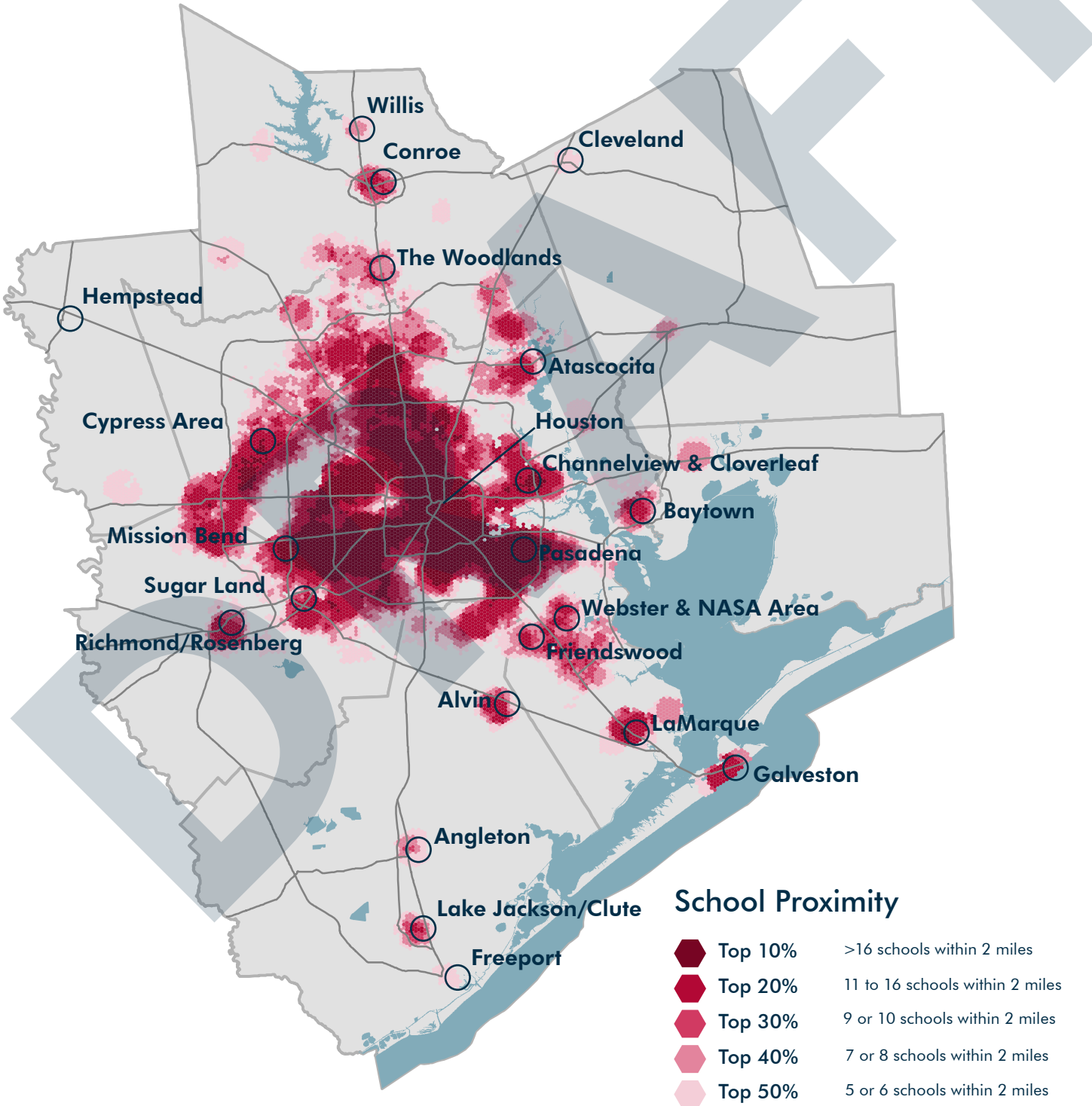


SCHOOL PROXIMITY **BICYCLE** FOCUS AREA CRITERIA

Since schools tend to be located in population centers, the Bicycle School Proximity map shows need in places with high population density and in suburban and rural communities that have larger school districts.

School Proximity - Bicycle Focus Area Analysis

Map 12 Sources: Texas Education Agency 2018 (grade schools include all regular, charter, and alternative schools in the region); Integrated Post-Secondary Education System 2018 and National Center for Education Statistics 2018 (colleges, universities, and technical schools).

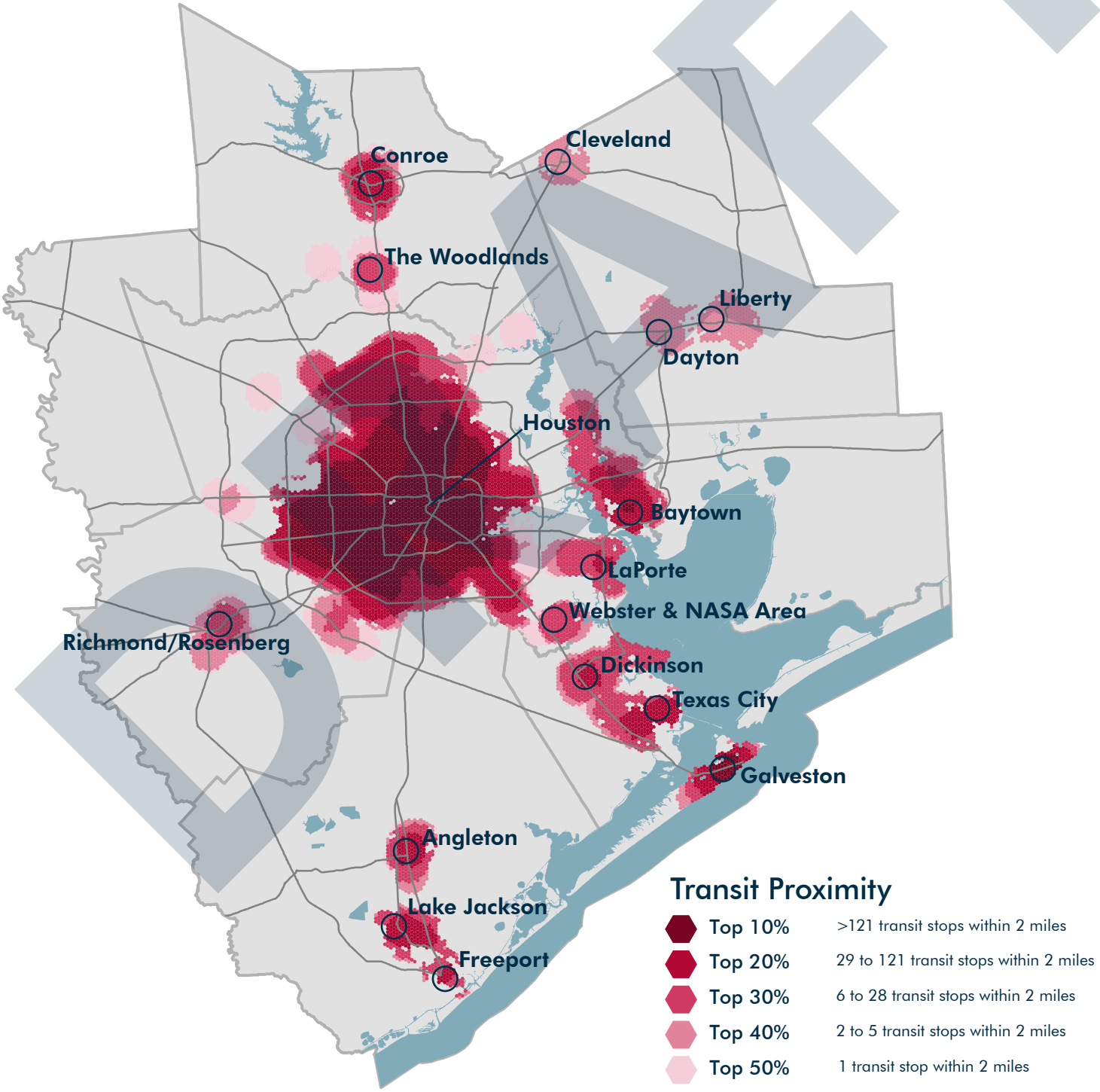


TRANSIT PROXIMITY **BICYCLE** FOCUS AREA CRITERIA

The Bicycle Transit Proximity map closely mirrors the service areas for the fixed-route transit providers with concentrations in the middle of Harris County (METRO's service area), eastern Harris County (Harris County Transit), Galveston (City of Galveston's Island Transit), Conroe (City of Conroe's Conroe Connect), and southern Brazoria County (Golf Coast Center's Connect Transit).

Transit Proximity - Bicycle Focus Area Analysis

Map 13 Sources: Transit stop data was gathered from the eight regional transit providers who have fixed-route service: Brazos Transit District, City of Conroe, Fort Bend County Transit, City of Galveston, Gulf Coast Center (Connect Transit), Harris County Transit, METRO, and The Woodlands Township.

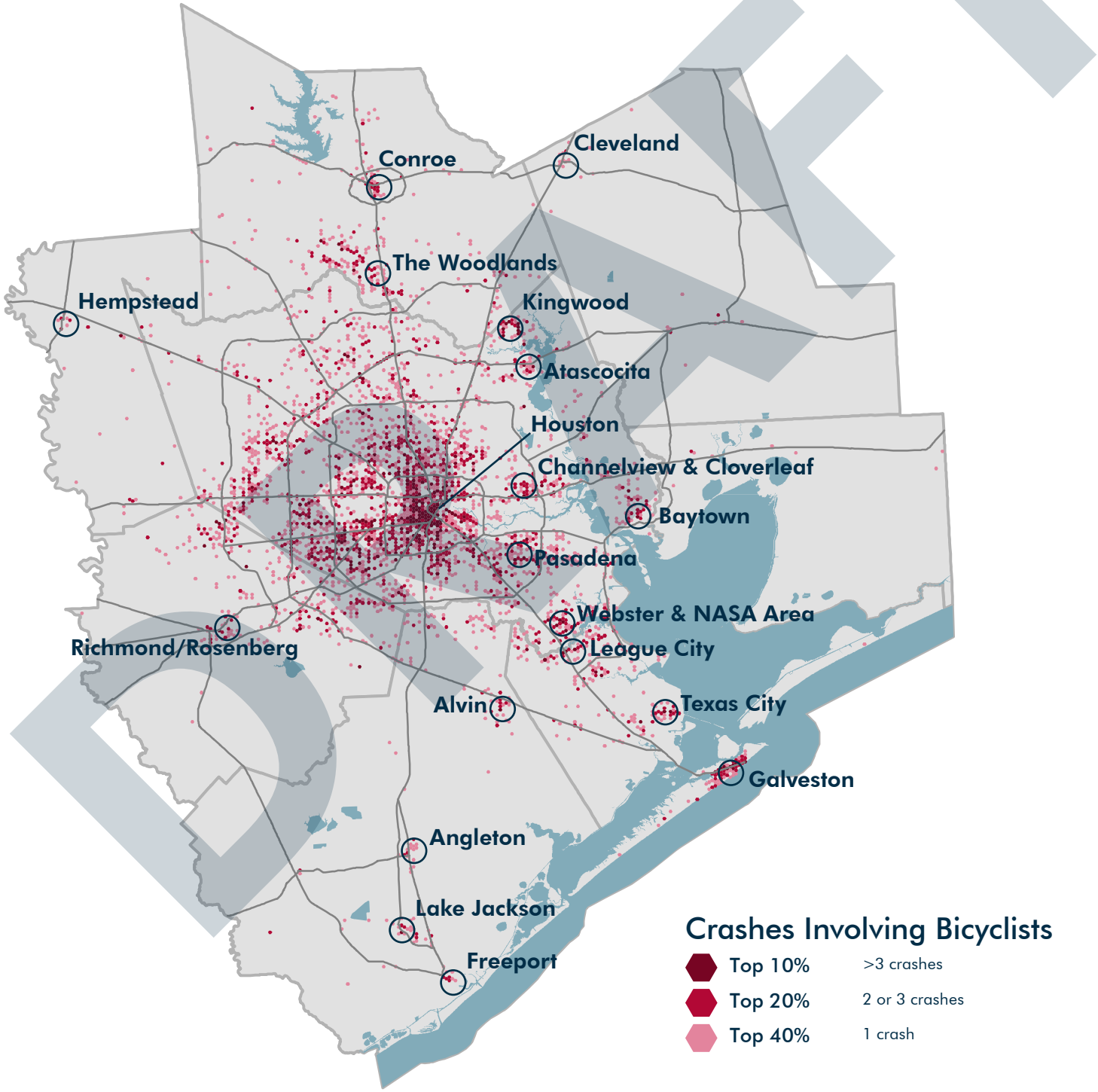


CRASHES **BICYCLE** FOCUS AREA CRITERIA

The Bicycle Crash map reveals a concentration of crashes inside the 610 Loop in Downtown Houston, Midtown, Montrose and the Heights. Kingwood, Conroe, Galveston, Texas City, and the NASA Area also contain clusters of crashes.

Crashes - Bicycle Focus Area Analysis

Map 14 Source: TxDOT Crash Records Information System, 2009-2017

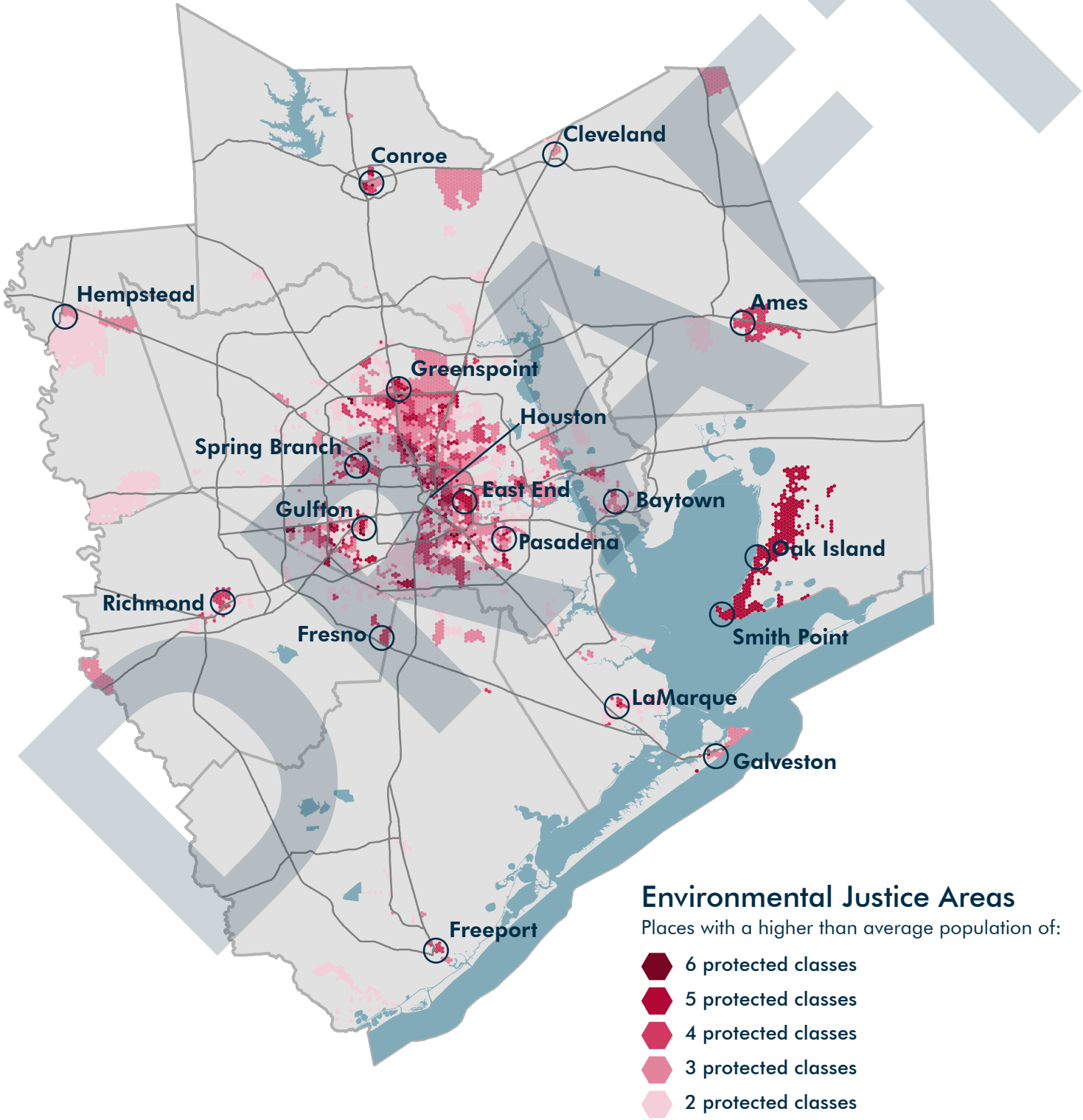


ENVIRONMENTAL JUSTICE **BICYCLE** FOCUS AREA CRITERIA

The Environmental Justice Area map shows a concentration inside the 610 Loop and Beltway 8, south of Westpark Tollway, the City of Conroe, and southwest Chambers County.

Environmental Justice - Pedestrian Focus Area Analysis

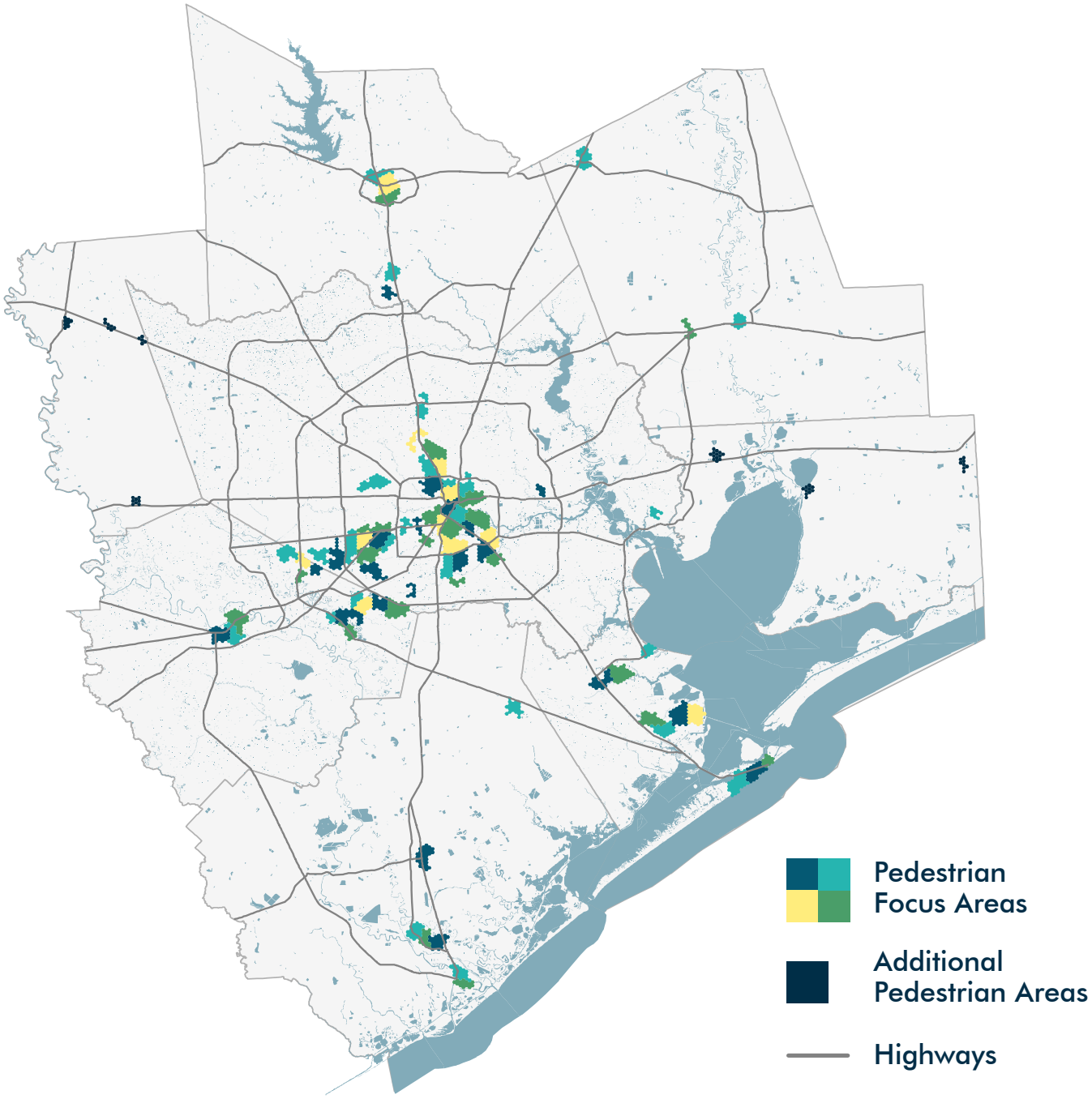
Map 15 Source: Environmental Justice - H-GAC's Strategy for the Fair Treatment and Meaningful Involvement of All People, 2017



PEDESTRIAN FOCUS AREAS IN HARRIS COUNTY

All Pedestrian Focus Areas

Map 16

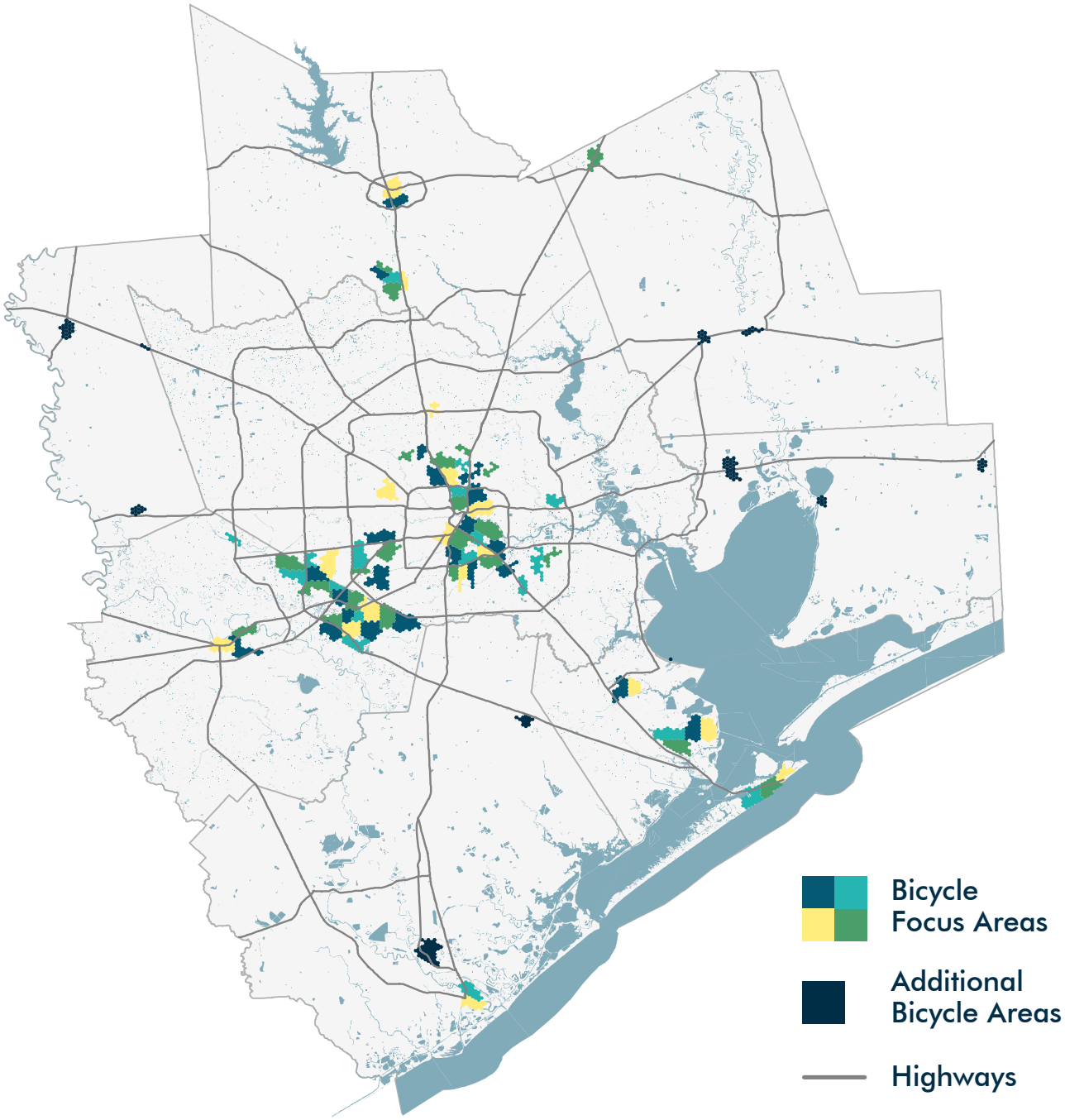


This map shows the full extent of Pedestrian Focus Areas in the region. For detailed and labeled maps, see pages 48-51.

BICYCLE FOCUS AREAS IN HARRIS COUNTY

All Bicycle Focus Areas

Map 17

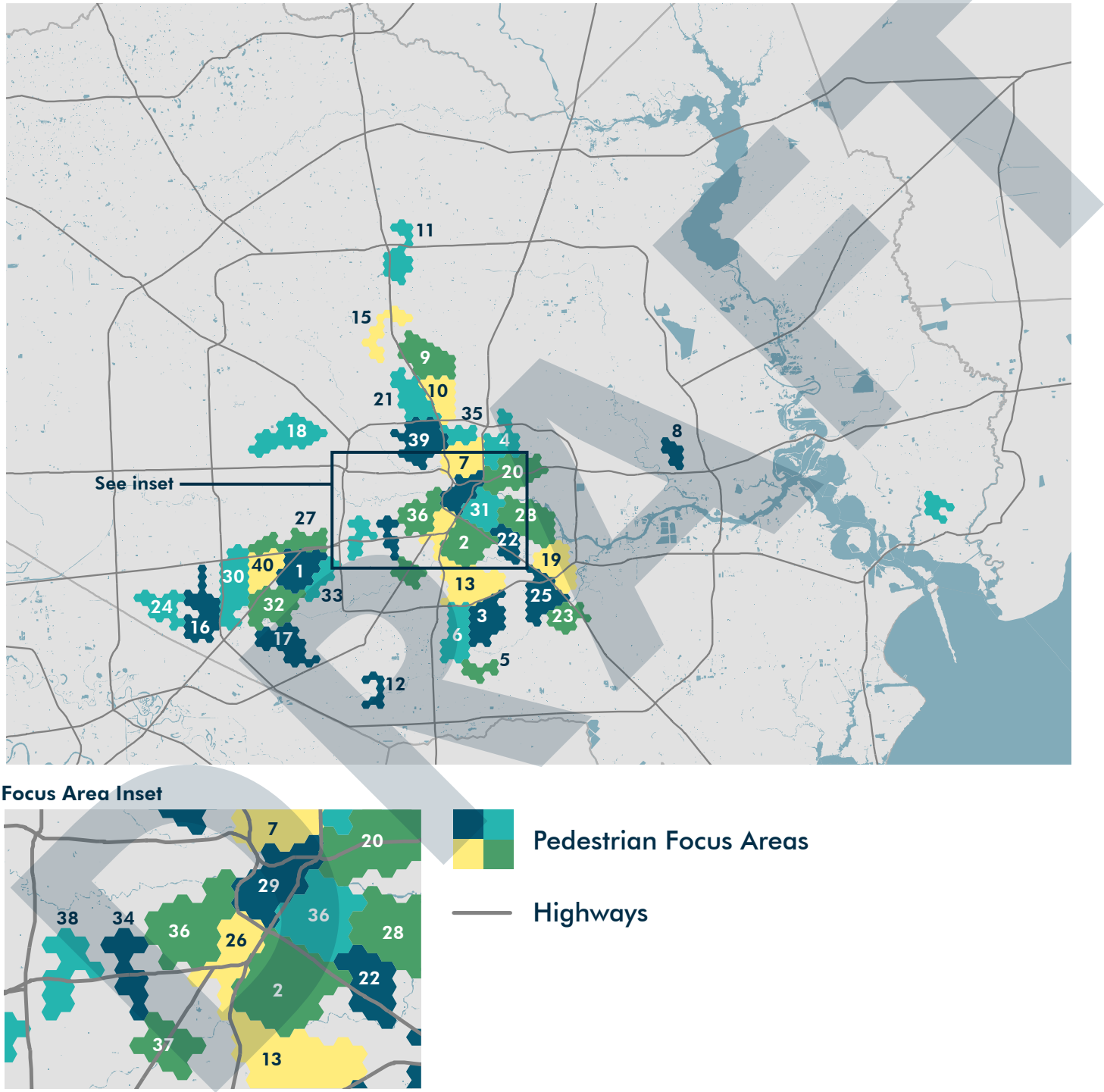


This map shows the full extent of Bicycle Focus Areas in the region. For detailed and labeled maps, see pages 52-55.

PEDESTRIAN FOCUS AREAS IN HARRIS COUNTY

Pedestrian Focus Areas in Harris County

Map 18



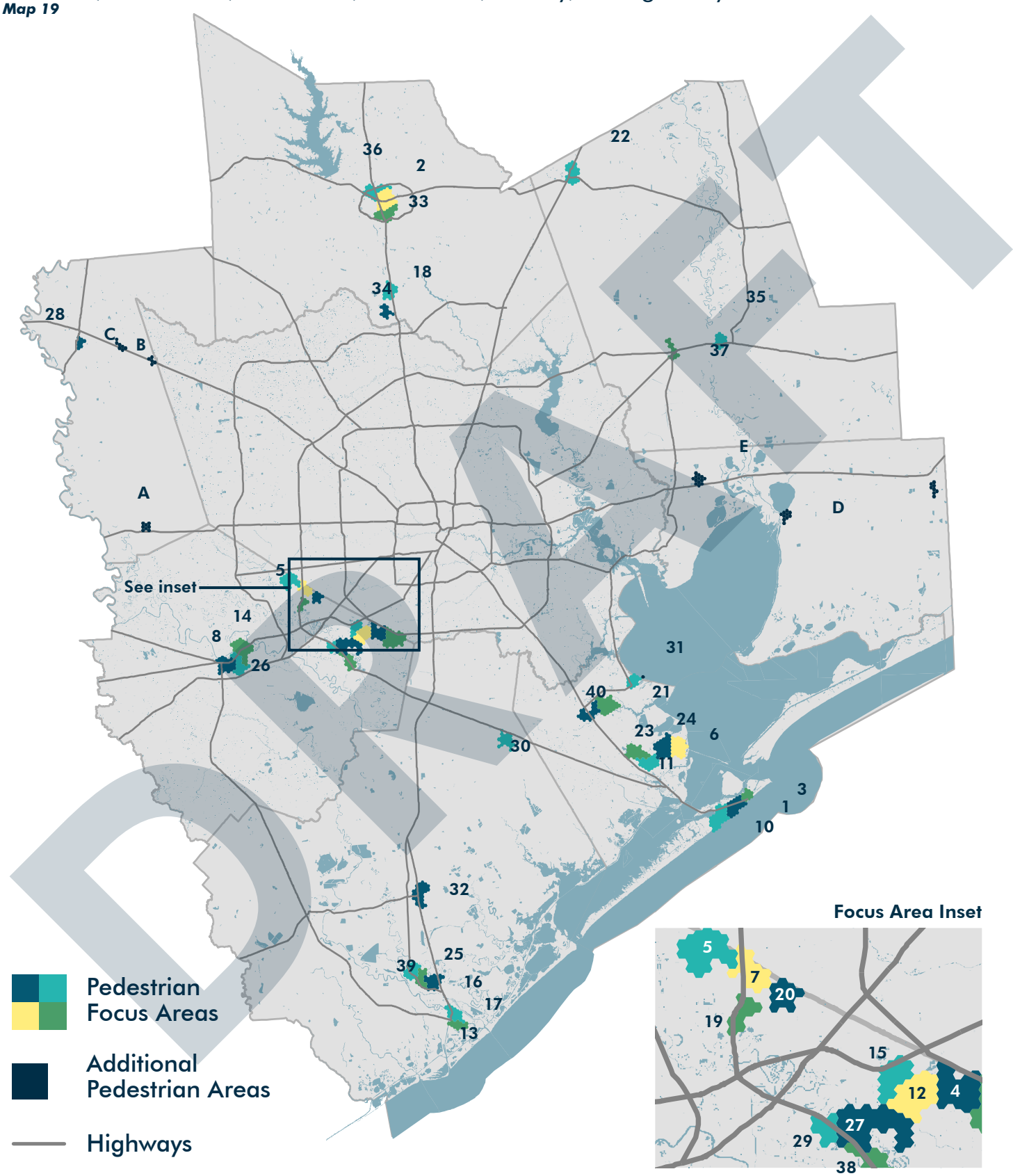
Label	Pedestrian Focus Area	Location	Index*	Job + Res. Density Top 10	Intersection Density Top 10	School Proximity Top 10	Transit Proximity Top 10	Crashes Top 10	Enviro. Justice Top 10
1	Gulfton	Houston	98	■		■		■	■
2	Third Ward	Houston	98		■	■	■	■	
3	South Park	Houston	98						
4	Kashmere Gardens	Houston	98				■		■
5	Crestmont Park	Houston	98						
6	Sunnyside	Houston	98						■
7	Near Northside - Quitman	Houston	97		■	■	■		■
8	Cloverleaf	Cloverleaf	97						
9	Northline - Parker	Houston	97						■
10	Northline - Commons	Houston	97						
11	Greenspoint	Houston	97			■			■
12	SW - Buffalo Speedway	Houston	97						
13	Old Spanish Trail/South Union	Houston	97						
14	Baytown	Baytown	97		■				
15	Acres Home - Gulf Bank	Houston	97						
16	Alief - East	Houston	97			■			
17	SW - Fondren	Houston	97						
18	Spring Branch	Houston	97						
19	Pecan Park/Park Place	Houston	97			■			
20	Fifth Ward	Houston	96		■		■		
21	Independence Heights	Houston	96						■
22	Eastwood	Houston	96			■			
23	Hobby	Houston	96						
24	Alief - West	Houston	96						
25	Golfcrest	Houston	96						■
26	Midtown/Museum District	Houston	96	■	■		■	■	
27	Uptown - Richmond	Houston	96	■		■		■	
28	Second Ward/Magnolia Park	Houston	96						■
29	Downtown	Houston	96	■	■		■	■	
30	Chinatown	Houston	96	■				■	■
31	East Downtown	Houston	96		■		■		
32	Beechnut at Bissonnet	Houston	95			■			
33	Bellaire	Bellaire	95			■			
34	Upper Kirby/Rice Village	Houston	95	■			■	■	
35	Near Northside - Cavalcade	Houston	95		■				
36	Greater Montrose	Houston	95	■	■		■	■	
37	Texas Medical Center	Houston	94	■			■	■	
38	Greenway Plaza/Highland Village	Houston	94	■				■	
39	Greater Heights	Houston	94		■				
40	Sharpstown	Houston	91	■					

*The Focus Area Index is an average of the Pedestrian Focus Area score for all hexagons within the Focus Area

PEDESTRIAN FOCUS AREAS OUTSIDE HARRIS COUNTY

Pedestrian Focus Areas
Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery and Waller Counties

Map 19



Label	Pedestrian Focus Area	County	Index*	Job + Res. Density Top 10	Intersection Density Top 10	School Proximity Top 10	Transit Proximity Top 10	Crashes Top 10	Enviro. Justice Top 10
1	Downtown Galveston	Galveston	95	■	■	■	■		■
2	Downtown Conroe	Montgomery	87		■		■	■	■
3	UTMB/East Galveston	Galveston	86	■		■	■		■
4	Briargate	Fort Bend	85				■		
5	Mission Bend	Fort Bend	84	■		■			
6	Downtown Texas City	Galveston	84		■				■
7	SH6 at Keegans Bayou	Fort Bend	84	■		■		■	
8	Downtown Rosenberg	Fort Bend	83		■				■
9	Ridgegate/Ridgemont	Fort Bend	83				■	■	■
10	Stewart Rd at 61st	Galveston	83	■	■	■	■	■	
11	Downtown LaMarque	Galveston	82			■			
12	Missouri City - North	Fort Bend	82						
13	Freeport - South	Brazoria	81			■			
14	Richmond	Fort Bend	81						■
15	Fifth Street	Fort Bend	81			■			
16	Clute	Brazoria	81				■		
17	Freeport - North	Brazoria	80						■
18	Downtown The Woodlands	Montgomery	80	■				■	
19	SH6 at Airport Blvd	Fort Bend	80	■				■	
20	Bellfort at Eldridge	Fort Bend	80	■		■			
21	Dickinson - East	Glaveston	80		■				
22	Cleveland	Liberty	80		■				
23	Texas City - SH3	Galveston	79						■
24	Texas City - West	Galveston	79						
25	Lake Jackson - East	Brazoria	79						
26	Rosenberg - East	Fort Bend	79			■			
27	Quail Valley	Fort Bend	79						
28	Hempstead	Waller	79		■				■
29	Sugar Land - Southeast	Fort Bend	79	■					
30	Alvin	Brazoria	78		■	■		■	
31	Bacliff	Galveston	78		■			■	
32	Angleton	Brazoria	78				■		
33	Conroe - South	Montgomery	78						
34	Grogans Mill	Montgomery	78	■					
35	Liberty	Liberty	78						
36	Conroe - Northwest	Montgomery	78				■	■	
37	Dayton	Liberty	77			■			
38	Dewalt	Fort Bend	76						
39	Lake Jackson - West	Brazoria	76				■		
40	Dickinson - West	Glaveston	76						

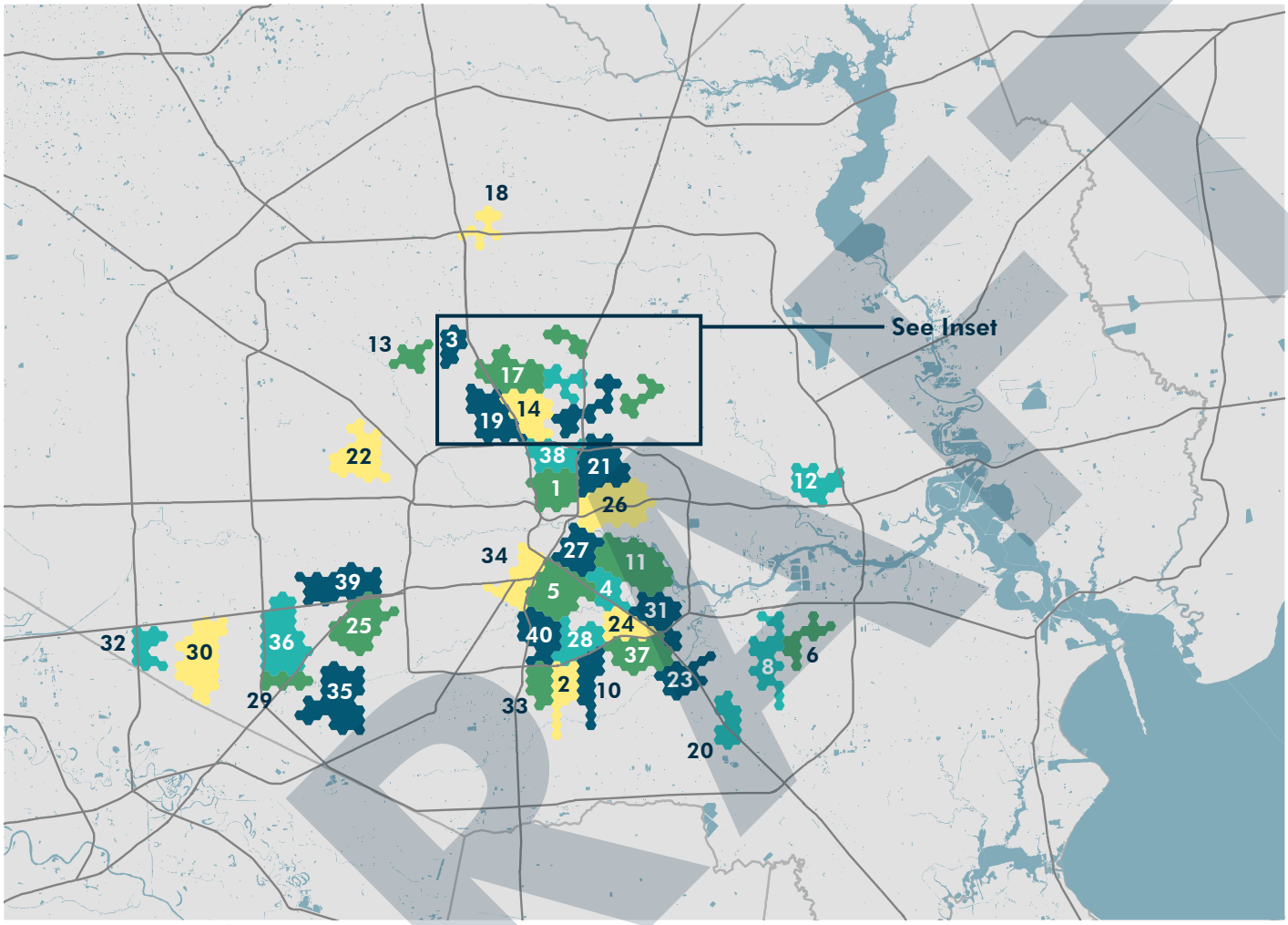
Additional Pedestrian Areas: A - Brookshire; B - Waller; C - Prairie View; D - Anahuac; E - Mont Belvieu; F - Winnie. These six Additional Pedestrian Areas represent the places in the region that did not score within the Top 40 highest focus areas, but still represent areas of need relative to other places in their county.

*The Focus Area Index is an average of the Pedestrian Focus Area score for all hexagons within the Focus Area

BICYCLE FOCUS AREAS IN HARRIS COUNTY

Bicycle Focus Areas in Harris County

Map 20



Focus Area Inset

Bicycle Focus Areas

Highways

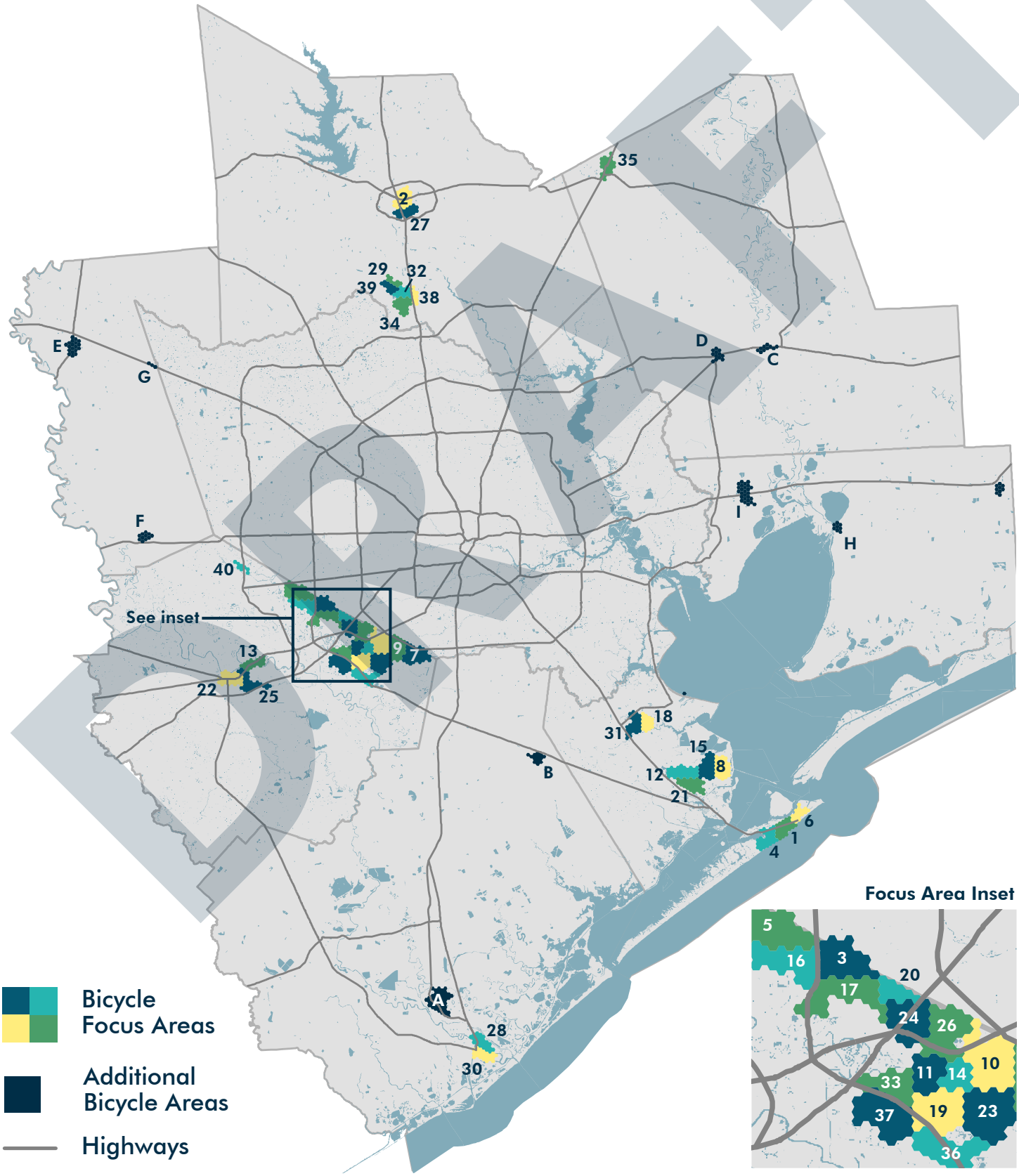
Label	Bicycle Focus Area	Location	Index*	Job + Res. Density Top 10	Intersection Density Top 10	School Proximity Top 10	Transit Proximity Top 10	Crashes Top 10	Enviro. Justice Top 10
1	Near Northside - Quitman	Houston	99		■	■	■	■	■
2	Sunnyside - Cullen	Houston	99					■	
3	Acres Home - East	Houston	99						
4	Eastwood	Houston	98		■	■			
5	Third Ward	Houston	98		■	■	■	■	
6	Southmore and Pasadena	Pasadena	98	■		■			
7	Crosstimbers and Lockwood	Houston	98						
8	Vince Bayou at Southmore	Pasadena	98						
9	Halls Bayou at Little York	Houston	98					■	
10	South Park - MLK	Houston	98						
11	Second Ward/Magnolia Park	Houston	98		■				■
12	Cloverleaf	Cloverleaf	98						
13	Acres Home - West	Houston	98					■	
14	Northline - Commons	Houston	97						
15	Trinity Gardens	Houston	97					■	
16	Aldine-Westfield at Jensen	Houston	97						■
17	Northline - Parker	Houston	97						■
18	Greenspoint	Houston	97	■					■
19	Independence Heights	Houston	97						■
20	Edgebrook	Houston	97	■					
21	Kashmere Gardens	Houston	97		■		■		■
22	Spring Branch	Houston	97						
23	Hobby	Houston	97						
24	Gulfgate	Houston	97	■		■			
25	Gulfton	Houston	97	■		■	■		
26	Fifth Ward	Houston	97		■		■		■
27	East Downtown	Houston	97		■	■	■		
28	Griggs at Cullen	Houston	97				■		
29	Bissonnet at BW8	Houston	97	■		■		■	
30	Alief - West	Houston	97						
31	Pecan Park/Park Place	Houston	97						
32	Westpark at SH6	Houston	96					■	
33	Sunnyside - Scott	Houston	96		■				■
34	Midtown/Museum District	Houston	96	■	■		■	■	
35	SW - Fondren	Houston	96	■					
36	Chinatown	Houston	96	■		■			
37	Golfcrest	Houston	96						■
38	Near Northside - Cavalcade	Houston	96		■		■		
39	Uptown - Richmond	Houston	96	■		■		■	
40	South Side - Scott	Houston	96				■		

*The Focus Area Index is an average of the Bicycle Focus Area score for all hexagons within the Focus Area

BICYCLE FOCUS AREAS OUTSIDE HARRIS COUNTY

Bicycle Focus Areas
Brazoria, Chambers, Fort Bend, Galveston, Liberty, Montgomery and Waller Counties

Map 21



Label	Bicycle Focus Area	County	Index*	Job + Res. Density Top 10	Intersection Density Top 10	School Proximity Top 10	Transit Proximity Top 10	Crashes Top 10	Enviro. Justice Top 10
1	Downtown Galveston	Galveston	95	■	■	■	■	■	■
2	Downtown Conroe	Montgomery	91		■		■	■	■
3	Keegans Bayou at Fort Bend Co. Line	Fort Bend	90	■		■	■		
4	Stewart Rd at 61st	Galveston	90		■		■	■	
5	Mission Bend	Fort Bend	89	■	■	■			
6	UTMB - East	Galveston	87	■			■	■	■
7	Ridgegate/Ridgemont	Fort Bend	86				■		
8	Downtown Texas City	Galveston	86		■			■	■
9	Briargate	Fort Bend	86				■		
10	Missouri City - North	Fort Bend	86						
11	Brightwater	Fort Bend	86			■			
12	Texas City - SH3	Galveston	86						■
13	Downtown Richmond	Fort Bend	85						■
14	Fifth Street	Fort Bend	85			■			
15	Texas City - SH146	Galveston	85				■	■	
16	Four Corners	Fort Bend	85			■			
17	Sugar Land - North	Fort Bend	85						
18	Dickinson - East	Galveston	85		■			■	
19	Quail Valley - West	Fort Bend	84						
20	Meadows Place	Fort Bend	84	■	■	■	■		
21	Downtown LaMarque	Galveston	84						
22	Downtown Rosenberg	Fort Bend	84		■				■
23	Quail Valley - East	Fort Bend	84						
24	Stafford - West	Fort Bend	84	■					
25	Rosenberg - East	Fort Bend	83						
26	Stafford - East	Fort Bend	83			■			
27	Conroe - South	Montgomery	82				■		■
28	Freeport - North	Brazoria	82						■
29	Research Forest	Montgomery	82	■				■	
30	Freeport - South	Brazoria	82						
31	Dickinson - West	Galveston	82						
32	Downtown The Woodlands	Montgomery	82	■					
33	Sugar Land - East	Fort Bend	82	■		■			
34	Grogans Mill	Montgomery	81	■					
35	Cleveland	Liberty	81						■
36	Dewalt	Fort Bend	81						
37	Sugar Land - Southeast	Fort Bend	81		■				
38	Oak Ridge North	Montgomery	81						
39	Lake Woodlands	Montgomery	81		■			■	
40	Cinco Ranch - Westheimer Pkwy	Fort Bend	80			■		■	

Additional Bicycle Areas: A - Lake Jackson; B - Alvin; C - Liberty; D - Dayton; E - Hempstead; F - Brookshire; G - Waller; H - Anahuac; I - Mont Belvieu; J - Winnie. These ten Additional Bicycle Areas represent the places in the region that did not score within the Top 40 highest focus areas, but still represent areas of need relative to other places in their county. *The Focus Area Index is an average of the Bicycle Focus Area score for all hexagons within the Focus Area

CHAPTER FOUR

A Vision for 2045

2045 Active Transportation Plan

A VISION FOR 2045

PEDESTRIANS AND BICYCLISTS OF ALL AGES AND ABILITIES CAN TRAVEL CONVENIENTLY AND COMFORTABLY IN ALL COMMUNITIES USING CONNECTED, WELL-MAINTAINED NETWORKS OF WALKWAYS AND BIKEWAYS.

While the Existing Conditions in this report tell us where we stand today, the vision for 2045 describes where we aspire to be. To bridge the gap between the two, a set of key recommendations serve as both rallying points and guideposts. Each recommendation is based in a need from the Existing Condition data and is followed by a set of strategies for H-GAC and our partners at local governments, TxDOT, FHWA, special purpose districts, and advocacy groups.

The vision for the Active Transportation Plan supports the RTP's vision: In the year 2045, our region will have a multimodal transportation system through coordinated investments that supports a desirable quality of life, enhanced economic vitality and increased safety, access and mobility.

RECOMMENDATION: PRIORITIZE SAFETY

Improve safety for people walking, biking, and rolling.

Two clear patterns emerge from the existing conditions: a growing number of people in our region are using walkways and bikeways as transportation and too many of those people are involved in crashes with vehicles every year. Public feedback showed safety as a serious concern for most respondents. By prioritizing safety in our investments, we are not only improving the quality of life for the people already using active transportation every day, but we also lower the barrier to entry for new users by creating a more comfortable and convenient trip.

RELATED 2045 RTP GOAL: IMPROVE SAFETY

RECOMMENDATION: BUILD FOR IMPACT

Build interconnected networks of walkways and bikeways in Pedestrian and Bicycle Focus Areas.

The Focus Area analysis gives us a new understanding of the region and allows us to think strategically about how to allocate resources for the greatest impact. Building for impact means investing limited funding and resources in infrastructure, programs and planning in the places where new walkways and bikeways will make a marked improvement for the most number of people. Places with high jobs + resident density often have a higher number of trips, so building new infrastructure in those places can improve the quality of trip and quality of life for more people.

RELATED 2045 RTP GOALS: MOVE PEOPLE AND GOODS EFFICIENTLY, STRENGTHEN REGIONAL ECONOMIC COMPETITIVENESS

RECOMMENDATION: BUILD FOR NEED

Ensure that all people – regardless of age, ability, or location within the region – have access to walkways and bikeways that are safe, convenient and comfortable.

As we see in the Focus Area analysis, people across the region have a clear need for active transportation infrastructure. We can meet much of that need by building for impact, but it is also important to think about the places and people that depend on walkways and bikeways daily, but may not live in areas with a high concentration of jobs and residents. To build for need means to build around schools, transit stops, and in environmental justice areas and rural population centers.

RELATED 2045 RTP GOAL: CONSERVE AND PROTECT NATURAL AND CULTURAL RESOURCES

RECOMMENDATION: MAINTAIN WHAT'S BUILT

Maintain and improve the existing network of walkways and bikeways in the region and coordinate regional data collection for active transportation infrastructure.

Building for impact and need are critically important, but it will have a limited impact if we do not maintain our current walkways and bikeways. This maintenance requires collecting useful data on the state of our existing infrastructure that can be used to determine need and plan intelligently for future infrastructure.

RELATED 2045 RTP GOAL: ACHIEVE AND MAINTAIN A STATE OF GOOD REPAIR

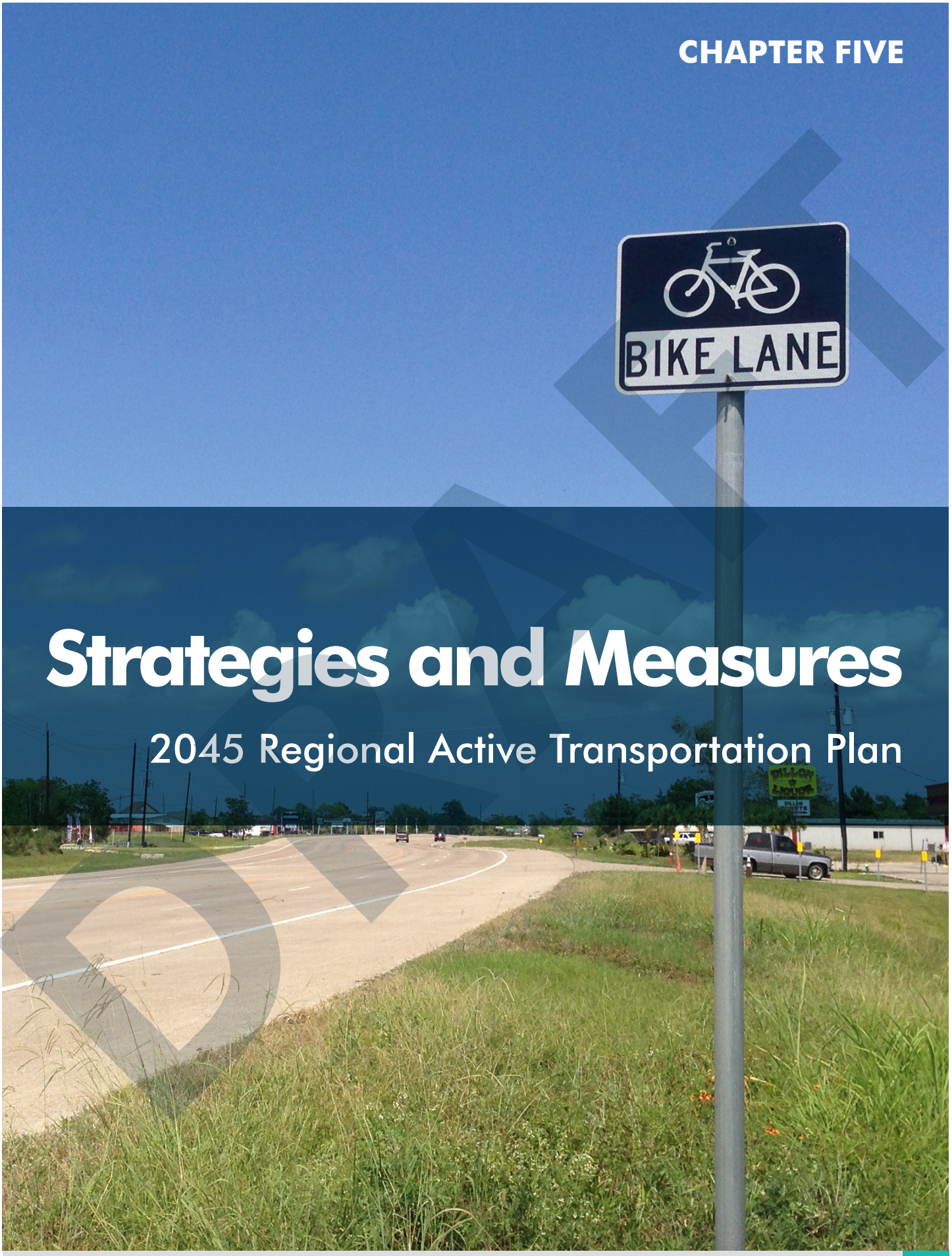
RECOMMENDATION: ENCOURAGE MORE WALKING AND BIKING

Encourage and incentivize the use of walkways and bikeways to mitigate congestion, improve air quality, and increase physical activity.

Walkways and bikeways provide benefits to the people using them, and to the community at-large. When more people walk, bike, or roll as a means of transportation, there are fewer cars on the road. Fewer car trips mean less congestion and better air quality. Walking, biking and rolling are also important for physical activity that can be less expensive and more accessible than a gym membership. Pursuing the other four recommendations will also go a long way in encouraging more people to use our active transportation network. When people have safe, reliable, and convenient walkways and bikeways from their home to key destinations, they will be more likely to use them.

RELATED 2045 RTP GOAL: CONSERVE AND PROTECT NATURAL AND CULTURAL RESOURCES

CHAPTER FIVE



Strategies and Measures

2045 Regional Active Transportation Plan

ACTIVE TRANSPORTATION STRATEGIES

To achieve the vision for our regional active transportation network, we developed a set of strategies for each of the five recommendations. The strategies range from implementing new programs to building high-comfort walkways and bikeways and will serve as an implementation plan for H-GAC and our local partners.

MEASURING IMPACT

The Federal Highway Administration (FHWA) oversees surface transportation improvements across the country and distributes funding to TxDOT, H-GAC and local governments. To guide infrastructure investments and better monitor the national transportation system, FHWA requires states and MPOs to use transportation performance measures. These performance measures apply to different aspects of the transportation system: safety, infrastructure, and system performance. For example, the safety performance measure for pedestrians may be the number of fatal crashes involving a pedestrian within the eight-county region. H-GAC and FHWA can track this measure over time to understand (1) the safety of our existing infrastructure for pedestrians relative to a state benchmark, and (2) where we may be able to fund improvements to increase safety.

H-GAC currently has two performance measures included in its Regional Transportation Plan (RTP) related to active transportation – one for safety and one for system performance:

- **H-GAC Performance Measure for Safety**
  Number of non-motorized fatalities and non-motorized serious injuries
- **H-GAC Performance Measure for System Performance**
  Percent of non-single occupancy vehicle travel

H-GAC's 2017 Mobility Report (found at h-gac.com/taq/regional-mobility-report) includes these and other performance measures and their annual progress.

In addition to the strategies under each recommendation, we developed a set of performance measures tied to each of the five recommendations.

PRIORITIZE SAFETY

IMPROVE SAFETY FOR PEOPLE WALKING, BIKING, AND ROLLING

Performance Measures

1. Number of non-motorized fatalities (RTP performance measure)
2. Number of non-motorized serious injuries (RTP performance measure)
3. Number of total non-motorized crashes
4. Number of people reached through safety outreach (Regional Safety Campaign, bicycle safety classes, safety workshops, etc.)

Strategy		Responsible Party
Safety 1	Construct walkways and bikeways that are compliant with the Americans with Disabilities Act (ADA) and safe for all users.	H-GAC & local stakeholders
Safety 2	Launch a regional safety campaign focusing on safety for people walking, biking, and rolling.	H-GAC
Safety 3	Conduct regular adult bicycle safety classes in the region.	H-GAC & local stakeholders
Safety 4	Collect, analyze, and share data on crashes involving people walking, biking and rolling.	H-GAC
Safety 5	Conduct pedestrian and bicycle safety audits at high-frequency crash locations.	H-GAC & local stakeholders
Safety 6	Create local safety action plans for walking and bicycling.	H-GAC & local stakeholders
Safety 7	Host workshops on policies, plans, and pro-grams that improve the safety of walking, biking, and rolling. These policies may include Vision Zero, Safe Routes to School, ADA Transition Plans, Safety Action Plans, and other best practices in safety.	H-GAC & local stakeholders
Safety 8	Continue to build partnerships with public health and law enforcement stakeholders to collaborate on funding, planning, and building safe walkways and bikeways.	H-GAC & local stakeholders
Safety 9	Support local governments completing their ADA Transition Plans.	H-GAC
Safety 10	Support the strategies of the State Strategic Highway Safety Plan and the Regional Safety Plan.	H-GAC

STATE STRATEGIC HIGHWAY SAFETY PLAN PEDESTRIAN STRATEGIES

1. Improve driver and pedestrian safety awareness and behavior.
2. Reduce pedestrian crashes on urban arterials and local roadways.
3. Improve pedestrians' visibility at crossing locations.
4. Improve pedestrian networks.
5. Improve pedestrian involved crash reporting.
6. Establish vehicle operating speeds to decrease crash severity.
7. Develop strategic pedestrian safety plans tailored to local conditions

2018 REGIONAL SAFETY PLAN PEDESTRIAN AND BICYCLE CRASH REDUCTION STRATEGIES

PEDESTRIAN

Engineering

- Lane Reductions (Road Diet) CRF: 19-47%
- Reduce Lane Width
- Intersection Crosswalk Enhancements for pedestrians
- Raised medians
- Pedestrian Crossing Islands
- School Zone Improvements
- Signal Timing/Optimization
- Pedestrian Signal/Timing
- Wayfinding
- Ensure best practices and countermeasures are incorporated into TIP/RTP projects, as well as local engineering projects as applicable
- Perform safety audits at high crash locations

Enforcement

- Enforce existing laws against pedestrians and drivers

Education

- Launch Regional Safety Campaign focusing on Pedestrian safety
- Support and expand existing bicycle/pedestrian safety programs

Encouragement and Empowerment

- Conduct bicycle/pedestrian feasibility studies throughout the region similar to the feasibility study done in the West Houston Mobility Plan (2015)
- Conduct or support Safe Routes to School audits in the region

Evaluation

- Use crash data to identify relevant geographic and demographic information about bicycle and pedestrian crashes

BICYCLE

Engineering

- Lane Reductions (Road Diet) CRF: 19-47%
- Bicycle Lanes
- Separated Bicycle Lanes
- Bike Boulevard
- Intersection markings for bicyclists
- School Zone Improvements
- Wayfinding
- Ensure best practices and countermeasures are incorporated into TIP/RTP projects, as well as local engineering projects as applicable
- Perform safety audits at high crash locations

Enforcement

- Enforce existing laws against bicyclists and drivers

Education

- Launch Regional Safety Campaign focusing on Bicycle safety
- Support and expand existing bicycle/pedestrian safety programs
- Encourage adoption of bicycle helmets laws

Encouragement and Empowerment

- Conduct bicycle/pedestrian feasibility studies throughout the region similar to the feasibility study done in the West Houston Mobility Plan (2015)
- Conduct or support Safe Routes to School audits in the region

Evaluation

- Use crash data to identify relevant geographic and demographic information about bicycle and pedestrian crashes

BUILD FOR IMPACT

BUILD INTERCONNECTED NETWORKS OF WALKWAYS AND BIKEWAYS IN FOCUS AREAS

Performance Measures

1. Miles of new walkways built (within and outside of Regional Focus Areas)
2. Miles of new bikeways built (by facility type and comfort/level of stress within and outside of Bicycle Focus Areas)
3. Number of planning studies completed by H-GAC
4. Number of recommendations funded from H-GAC planning studies

Strategy		Responsible Party
Connectivity 1	Conduct planning studies that lay the groundwork for expanding and improving the regional active transportation network, particularly in Focus Areas (see Focus Areas starting on page 31). These include Active Transportation and Livable Centers Studies conducted by H-GAC as well as studies conducted by local partners.	H-GAC & local stakeholders
Connectivity 2	Build high-comfort biking infrastructure in Bicycle Focus Areas (see the Bicycle Focus Areas on pages 52-55).	H-GAC & local stakeholders
Connectivity 3	Build new walkways and replace outdated walkways in Pedestrian Focus Areas (see the Pedestrian Focus Areas on pages 48-51).	H-GAC & local stakeholders
Connectivity 4	Include high-comfort walkways and bikeways as a component of all roadway projects, both new construction and retrofits.	H-GAC & local stakeholders
Connectivity 5	Identify and build bikeways that connect population centers to local tourism destinations.	H-GAC & local stakeholders
Connectivity 6	Host workshops on policies, plans, and programs that improve walkways and bikeways. Workshop topics may include AASHTO and NACTO design standards, Complete Streets policies, and other best practices.	H-GAC
Connectivity 7	Collect and share information and research on the benefits of active transportation on the economy, mobility, quality of life, and tourism.	H-GAC & local stakeholders
Connectivity 8	Create a toolbox of best practices for designing, funding and building walkways, bikeways and roadways.	H-GAC
Connectivity 9	Continue to analyze commute mode to work as a performance measure for congestion mitigation.	H-GAC
Connectivity 10	Create and refine performance measures for walkway and bikeway network connectivity.	H-GAC

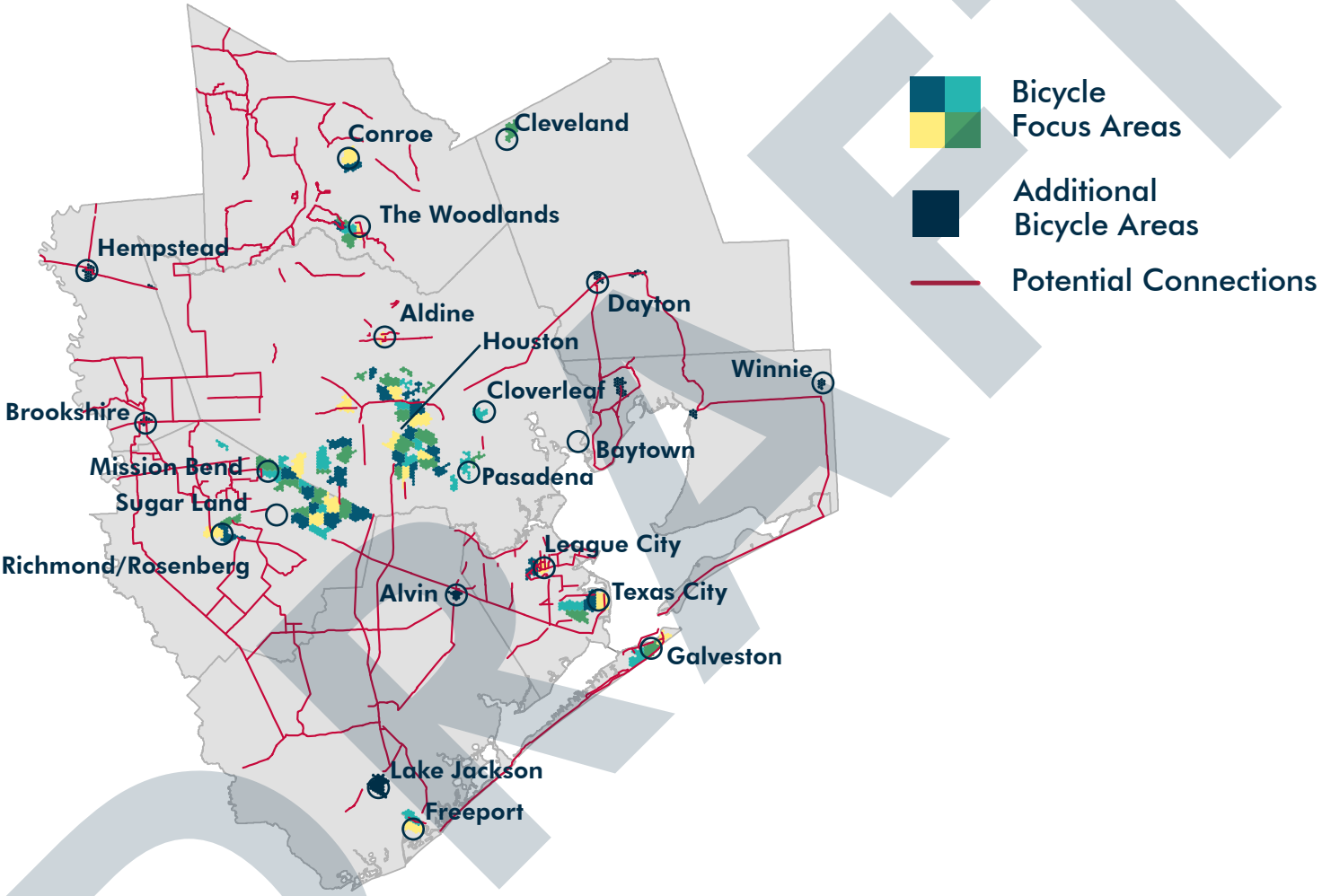
BUILD FOR IMPACT – BICYCLE CONNECTIONS FOR TOURISM

The Bicycle Focus Areas identify places in the region where planning and investment in bicycle infrastructure will likely have the greatest impact on congestion, health, air quality and safety. Outside of the Focus Areas, bikeway investments that connect to regional tourism destinations can boost economic development and open up new opportunities for recreation.

The 2040 Regional Bicycle and Pedestrian Plan identified regional connectors in the Regional Bikeway Concept Map, see Map 20. The map shows the connectors from the 2040 plan and their relationship to the Bicycle Focus Areas.

Regional Bikeway Connectors

Map 22 Source: 2040 Regional Bicycle & Pedestrian Plan, H-GAC



FURTHER STUDY

Creating these connections will take coordination across city and county boundaries, and potentially non-traditional funding sources. As identified in the Connectivity 5 Strategy on the previous page, we need to commit to further study of these potential connections to determine which ones are most feasible and effective for the region. We also need to revisit the recommendations from the 2040 plan to identify potential connections to Focus Areas like Cleveland, Cloverleaf, and Winnie.

BUILD FOR NEED

ENSURE THAT ALL PEOPLE – REGARDLESS OF AGE, ABILITY, OR LOCATION WITHIN THE REGION – HAVE ACCESS TO WALKWAYS AND BIKEWAYS THAT ARE SAFE, CONVENIENT AND COMFORTABLE

Performance Measures

1. Share of new walkways and bikeways constructed in environmental justice sensitive areas and rural communities
2. Share of new walkways and bikeways constructed within a half mile of transit stops
3. Share of non-motorized crashes, fatalities, and serious injuries in environmental justice sensitive areas

Strategy		Responsible Party
Equity 1	Include an analysis of underserved populations, rural communities, and transit connections when collecting data related to active transportation.	H-GAC & local stakeholders
Equity 2	Fund high-comfort walkways and bikeways in rural communities, particularly within and near school zones, employment centers, and environmental justice sensitive areas.	H-GAC & local stakeholders
Equity 3	Conduct ADA Self-Evaluations and Transition Plans.	Local stakeholders
Equity 4	Identify and distribute information to local governments about funding opportunities for ADA improvements to walkways.	H-GAC
Equity 5	Include first-mile/last-mile connections to transit as considerations in all planning activities.	H-GAC & local stakeholders
Equity 6	Host workshops on policies, plans, and programs that encourage safe and direct active transportation connections to transit.	H-GAC
Equity 7	Collect feedback from residents in rural communities to better understand their specific active transportation needs.	H-GAC
Equity 8	Host workshops and share information about strategies for building walkway and bikeway networks in small towns and rural communities.	H-GAC

MAINTAIN WHAT'S BUILT

MAINTAIN AND IMPROVE THE EXISTING NETWORK OF WALKWAYS AND BIKEWAYS IN THE REGION AND COORDINATE REGIONAL DATA COLLECTION FOR ACTIVE TRANSPORTATION INFRASTRUCTURE

Performance Measures

1. Number of permanent and temporary counters deployed
2. Number of ITS installations that include technology for active transportation (e.g., pedestrian and bicycle detection at signalized intersections)
3. Share of bike facilities with a high level of service

Strategy		Responsible Party
Asset Management 1	Conduct an annual active transportation survey of local governments to gather information on (1) existing infrastructure, (2) local policies, (3) planning activities, and (4) regional knowledge of best practices in the field.	H-GAC
Asset Management 2	Include active transportation intelligent transportation systems (ITS) in the construction and retrofit of roadways.	H-GAC & local stakeholders
Asset Management 3	Fund projects that retrofit existing walkways and bikeways to be ADA-compliant and resilient to changing climate patterns.	H-GAC & local stakeholders
Asset Management 4	Collect and share walkway and bikeway data for both existing and proposed infrastructure. Create GIS data sets for the infrastructure to be easily shared and analyzed.	H-GAC & local stakeholders
Asset Management 5	Update H-GAC's sidewalk GIS data set to include crosswalks and absent sidewalks.	H-GAC
Asset Management 6	Classify the regional bikeway GIS layer by level of service and/or comfort.	H-GAC
Asset Management 7	Collect, analyze, and share data on people walking and biking using permanent and temporary counters, particularly around schools, transit centers and job centers.	H-GAC & local stakeholders
Asset Management 8	Increase the number of permanent and temporary counters in the region.	H-GAC & local stakeholders
Asset Management 9	Incorporate walking and biking into the Regional Travel Model.	H-GAC
Asset Management 10	Conduct an active transportation origin/destination study in the region.	H-GAC
Asset Management 11	Continue to distribute the I Walk Here and I Bike Here surveys, particularly in Brazoria, Chambers, Liberty and Waller counties to understand the preferences and needs of rural residents.	H-GAC & local stakeholders

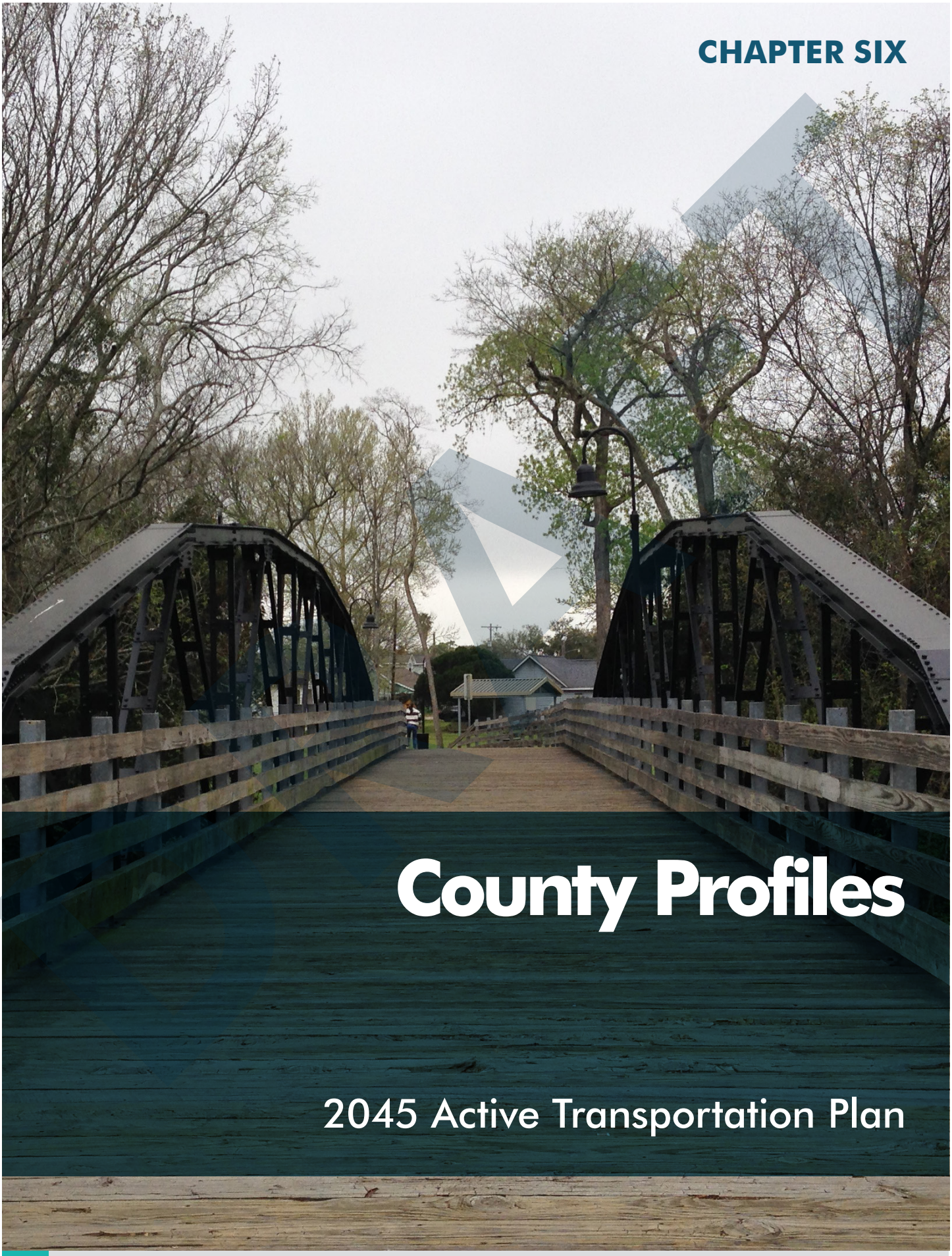
ENCOURAGE MORE WALKING AND BIKING

ENCOURAGE AND INCENTIVIZE THE USE OF WALKWAYS AND BIKEWAYS TO MITIGATE CONGESTION, IMPROVE AIR QUALITY, AND INCREASE PHYSICAL ACTIVITY

Performance Measures

1. Use of active modes for regional commuters (current RTP performance measure)
2. Share of regional residents reporting physical inactivity.
3. Number of walkway and bikeway users counted by permanent and temporary counters
4. N0x emissions reductions (tons per year)
5. Number of people reached through connectivity outreach (Commute Solutions, workshops, toolbox downloads, data downloads)
6. Number of communities with Walk Friendly or Bike Friendly status

Strategy		Responsible Party
Encouragement 1	Collect public health data as a component of any active transportation analysis.	H-GAC & local stakeholders
Encouragement 2	Include public health officials when planning walkways, bikeways, and roadways.	H-GAC & local stakeholders
Encouragement 3	Encourage region-wide participation in Bike Month and National Walk and Bike to School Day.	H-GAC
Encouragement 4	Provide resources, information, and encouragement for employers and employees in the region about active transportation commuting via H-GAC's Commute Solutions program.	H-GAC
Encouragement 5	Increase the number of communities in the region that are designated Walk Friendly and Bike Friendly communities.	H-GAC & local stakeholders



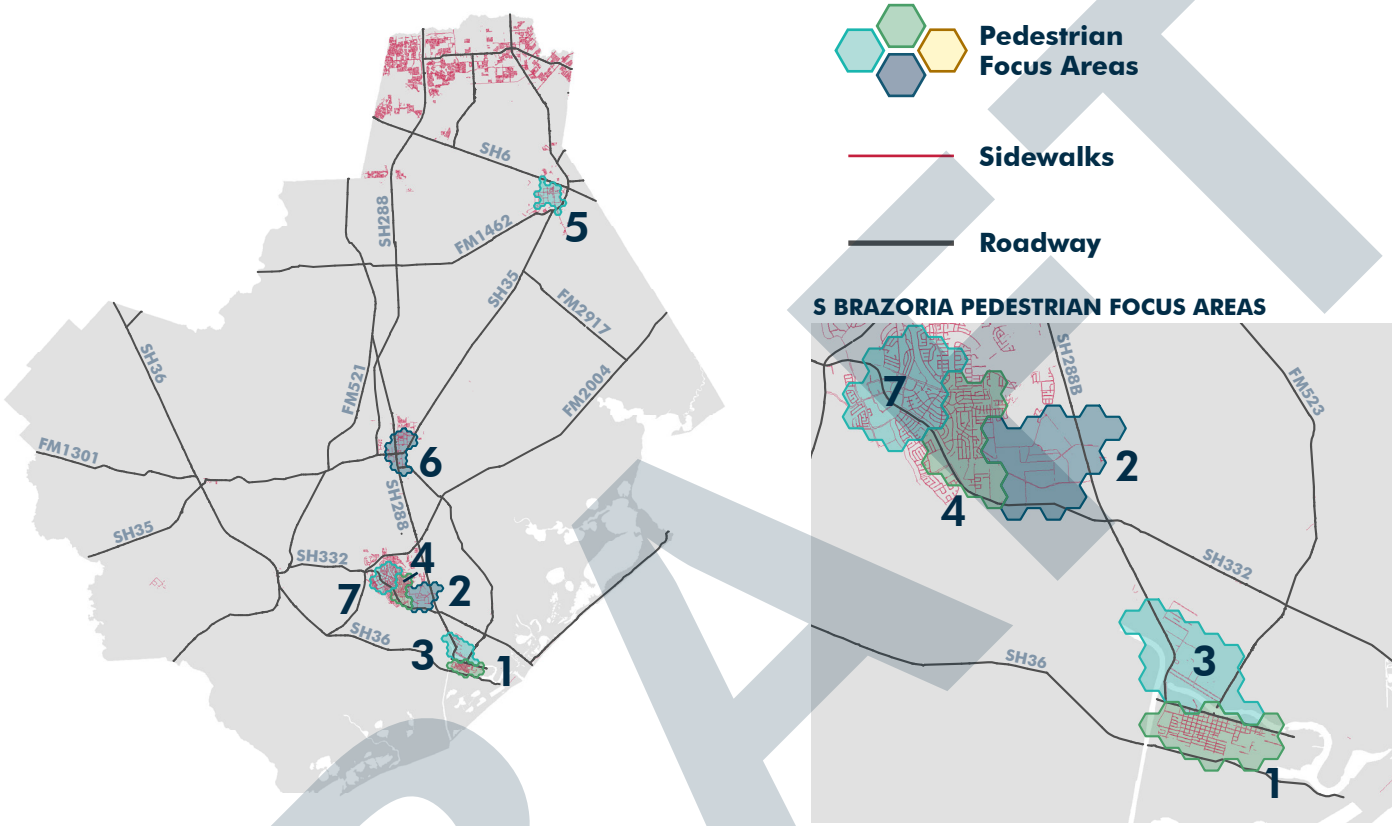
CHAPTER SIX

County Profiles

2045 Active Transportation Plan

BRAZORIA COUNTY PROFILE

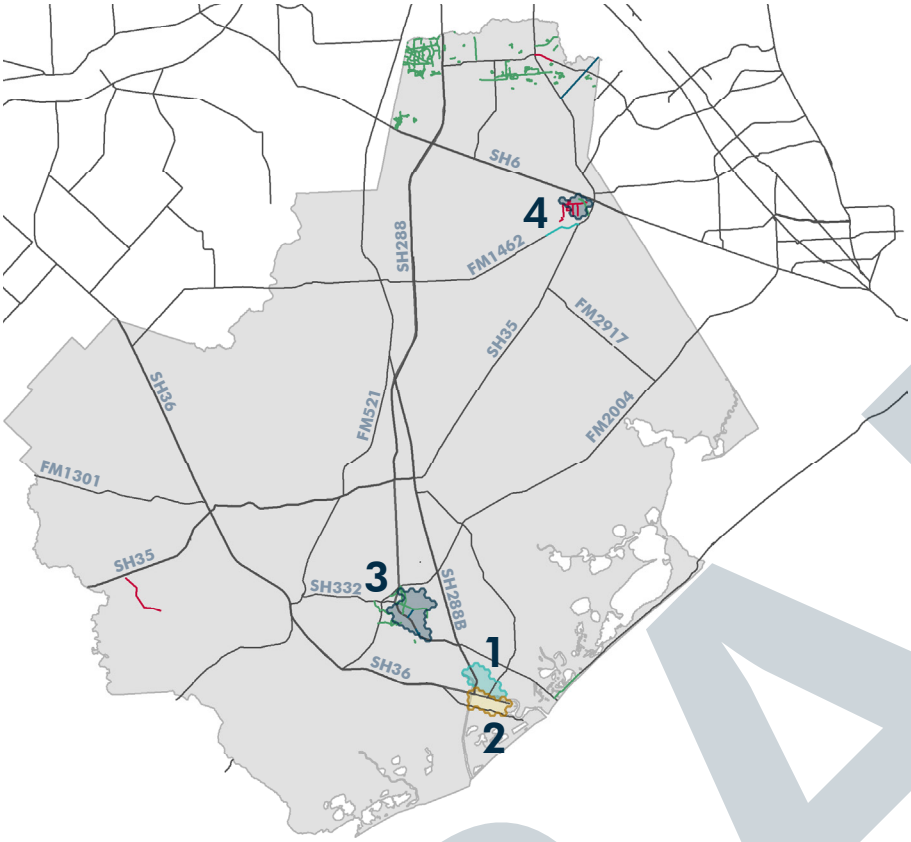
WALKWAYS & PEDESTRIAN FOCUS AREAS



Pedestrian Focus Areas		Index*	Need**
1	Freeport (South)	81	School
2	Clute	81	Transit
3	Freeport (North)	80	EJ
4	Lake Jackson (East)	79	-
5	Alvin	78	School
6	Angleton	78	Transit
7	Lake Jackson (West)	76	Transit

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

BIKEWAYS & BICYCLE FOCUS AREAS



Bicycle Focus Areas

Additional Bicycle Areas

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Roadway

Bicycle Focus Areas	Index*	Need**
1 Freeport (North)	82	EJ
2 Freeport (South)	82	-

Additional Bicycle Areas

These areas did not score within the Top 40 highest focus areas outside of Harris County, but they still represent areas of need relative to other places in Brazoria County.

3 Lake Jackson	80	-
4 Alvin	80	-

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

Existing Plan	Plan Partners	Year
Parks and Recreation Master Plan	City of Alvin	2017
Master Parks Plan	City of Manvel	2017
Parks and Recreation Master Plan	City of Pearland	2015
Pedestrian and Bicycle Master Plan	City of Lake Jackson	2011
Trail Master Plan	City of Pearland	2007

BRAZORIA COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to Brazoria County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Brazoria County should use this list as a starting point and tailor solutions to fit their specific needs.

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits to reveal potential design improvements at those locations.
2. Create local pedestrian and bicycle safety action plans, particularly in the cities that contain the county's Pedestrian and Bicycle Focus Areas like Alvin, Angleton, Clute, Freeport, and Lake Jackson.
3. Bring sidewalks into compliance with the Americans with Disabilities Act, particularly in places with an existing sidewalk network like Lake Jackson, southern Freeport, and the northern portion of the county.
4. Fill the gaps in the county's sidewalk network, particularly in the Pedestrian Focus Areas with discontinuous sidewalks like Alvin, Angleton, Clute, and northern Freeport.
5. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
6. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists, bicyclists and pedestrians.

Build for Impact

1. Conduct local active transportation studies that expand on the set of existing parks and trails plans. Use these plans to guide investment in walkways and bikeways that connect population centers, schools, job centers, and transit.
2. Use the upcoming Livable Centers Study in Angleton to identify sidewalk improvements in its Pedestrian Focus Area.
3. Identify and build bikeway connections between the county's population centers and tourist destinations, including Brazos Bend State Park, the Brazoria National Wildlife Refuge and the San Bernard National Wildlife Refuge.

Build for Need

1. Build new walkways and bikeways that connect environmental justice areas to nearby job centers, particularly for the Freeport (North) Pedestrian and Bicycle Focus Areas.
2. Use walkways and bikeways to create first-mile/last-mile connections to transit stops in the county, particularly in the Freeport (North) focus areas and within the job centers in Freeport and Lake Jackson.
3. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.

Maintain What's Built

1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths and protected bike lanes within the county.

Encourage More Walking and Biking

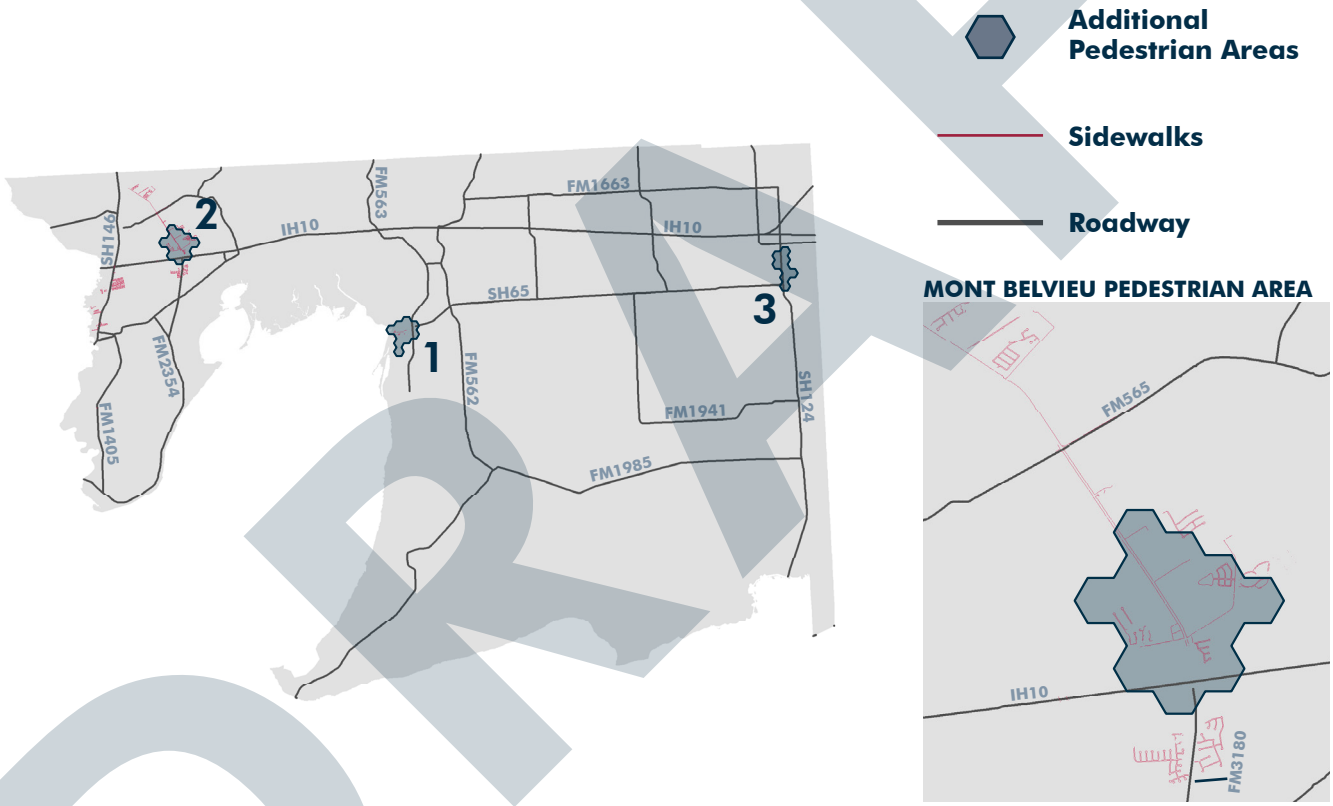
1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

CHAMBERS COUNTY PROFILE

With largely rural communities, none of Chambers County's hexagons were identified as Pedestrian or Bicycle Focus Areas. However, people still walk, bike and roll in the county, and some places show more need than others. We have listed the top three places in Chambers County with a higher relative need for walkways and bikeways.

Chambers County's expected growth and its abundant natural resources also offer great reasons to invest in active transportation. Communities in the county have the benefit of planning in advance for an expected population boom and building walkways and bikeways in anticipation of future needs. Tourism traffic generators like the Anahuac National Wildlife Refuge, Lake Anahuac, Smith Point, and others are also potential destinations for bicyclists on regional or long-distance bicycling tours.

WALKWAYS & PEDESTRIAN FOCUS AREAS

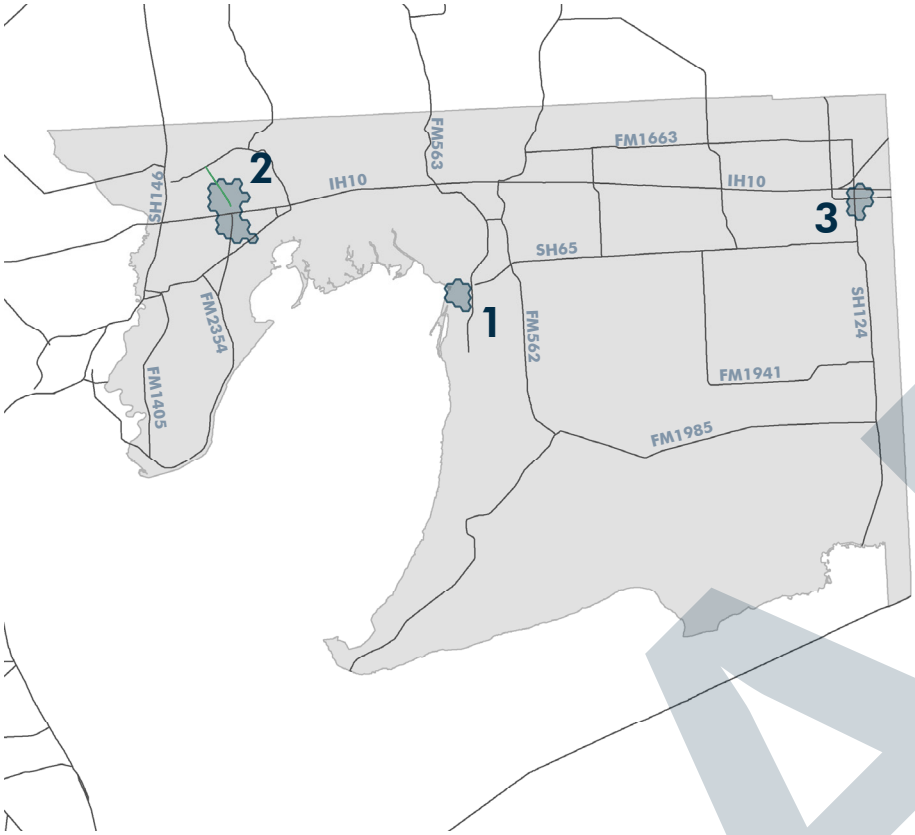


Additional Pedestrian Areas	Index*	Need**
1 Anahuac	55	-
2 Mont Belvieu	49	-
3 Winnie	46	-

These areas did not score within the Top 40 highest focus areas outside of Harris County, but they still represent areas of need relative to other places in Chambers County.

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

BIKEWAYS & BICYCLE FOCUS AREAS



Additional Bicycle Areas

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Roadway

Additional Bicycle Areas		Index*	Need**
1	Anahuac	49	-
2	Mont Belvieu	49	-
3	Winnie	47	-

These areas did not score within the Top 40 highest focus areas outside of Harris County, but they still represent areas of need relative to other places in Chambers County.

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

Existing Plan	Plan Partners	Year
City of Mont Belvieu Livable Centers Study	H-GAC, City of Mont Belvieu	2018

CHAMBERS COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to Chambers County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Chambers County should use this list as a starting point and tailor solutions to fit their specific needs.

CHAMBERS COUNTY RECOMMENDATIONS, CONTINUED

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits to reveal potential design improvements at those locations.
2. Create local pedestrian and bicycle safety action plans, particularly in the county's Pedestrian and Bicycle Areas like Anahuac, Mont Belvieu, and Winnie.
3. Fill the gaps in the county's sidewalk network, starting with the Pedestrian Areas.
4. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
5. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists, bicyclists and pedestrians.

Build for Impact

1. Conduct local active transportation studies that establish a vision for walkway and bikeway networks in the county's Pedestrian and Bicycle Areas. Use these studies as a guide for investment in walkways and bikeways that connect residential areas to schools and commercial centers.
2. Fund and build the active transportation infrastructure recommended in the 2018 Mont Belvieu Livable Centers Study.
3. Study potential bikeway connections between the county's population centers and tourist destinations like the Anahuac National Wildlife Refuge, Fort Anahuac Park, Smith Point, JJ Mayes Trace Park, the JD Murphree Wildlife Management Area, and the McFaddin National Wildlife Refuge.
4. Study the potential for a bikeway connection to the Bolivar Peninsula.

Build for Need

Chambers County has some Census tracts with high Environmental Justice Populations, but the largest concentrations live in small coastal communities along the eastern shore of Trinity Bay. These communities do not have nearby schools, transit stops, or a concentration of destinations within walking and biking distance.

1. Identify specific strategies to improve walkway and bikeway connectivity for the county's coastal environmental justice communities, potentially through coordinated investments in tourism.
2. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.

Maintain What's Built

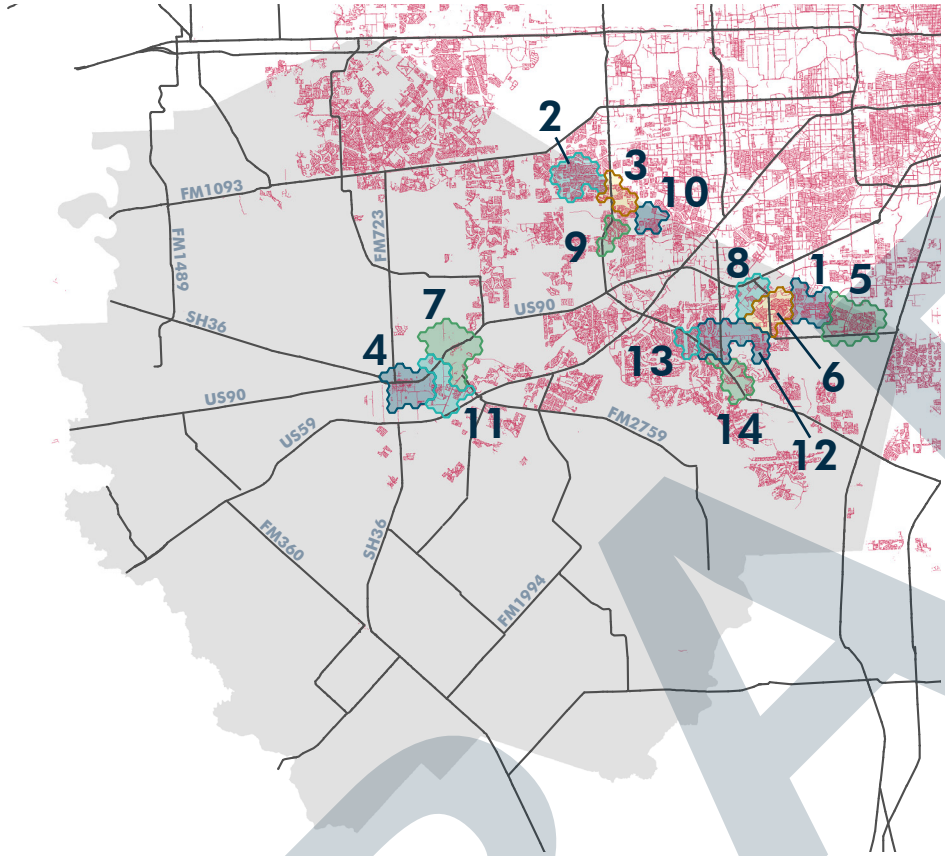
1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths and protected bike lanes within the county.

Encourage More Walking and Biking

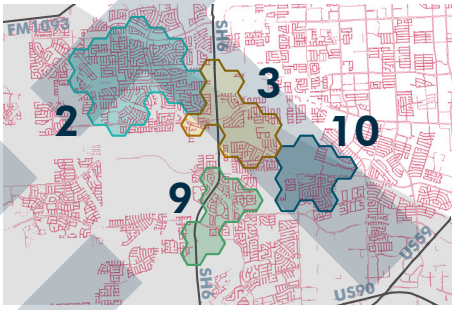
1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

FORT BEND COUNTY PROFILE

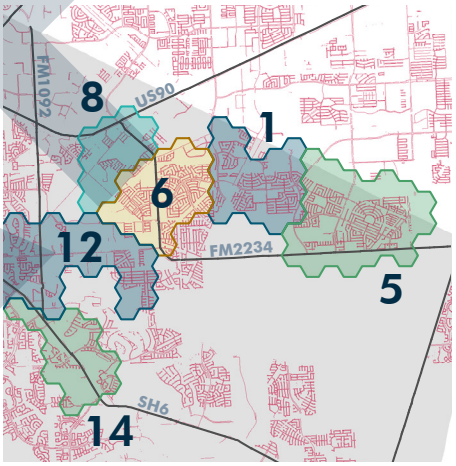
WALKWAYS & PEDESTRIAN FOCUS AREAS



NE FORT BEND PEDESTRIAN FOCUS AREAS



E FORT BEND PEDESTRIAN FOCUS AREAS

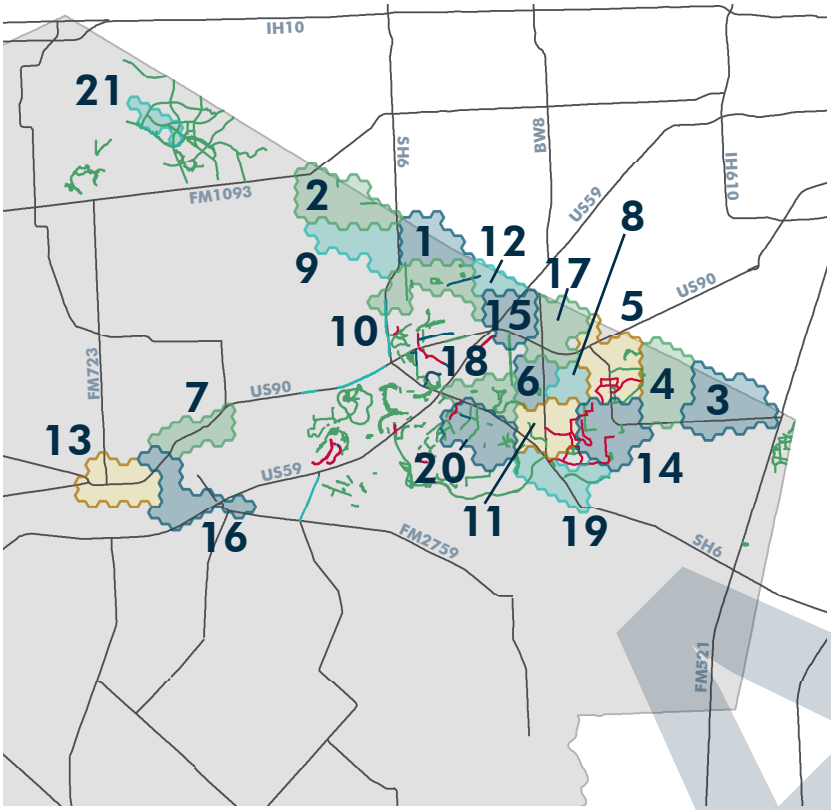


Pedestrian Focus Areas — **Sidewalks** — **Roadway**

Pedestrian Focus Areas		Index*	Need**
1	Briargate	85	Transit
2	Mission Bend	84	School
3	SH6 at Keegans Bayou	84	School
4	Downtown Rosenberg	84	EJ
5	Ridgegate/Ridgemont	83	EJ, Transit
6	Missouri City (North)	82	School
7	Richmond	81	EJ
8	Fifth Street	81	School
9	SH6 at Airport Blvd	80	-
10	Bellfort at Eldridge	80	School
11	Rosenberg (East)	79	School
12	Quail Valley	79	-
13	Sugar Land (Southeast)	79	-
14	Dewalt	77	-

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

BIKEWAYS & BICYCLE FOCUS AREAS



Bicycle Focus Areas

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Roadway

Bicycle Focus Areas		Index*	Need**
1	Keegans Bayou at Fort Bend Co. Line	90	School, Transit
2	Mission Bend	89	School
3	Ridgegate/Ridgemont	86	EJ, Transit
4	Briargate	86	Transit
5	Missouri City (North)	86	-
6	Brightwater	86	School
7	Downtown Richmond	85	EJ
8	Fifth Street	85	EJ, School
9	Four Corners	85	School
10	Sugar Land (North)	85	-
11	Quail Valley (West)	84	-
12	Meadows Place	84	School, Transit
13	Downtown Rosenberg	84	EJ
14	Quail Valley (East)	84	-
15	Stafford (West)	84	-
16	Rosenberg (East)	83	-
17	Stafford (East)	83	School
18	Sugar Land (East)	82	School
19	Dewalt	81	-
20	Sugar Land (Southeast)	81	-
21	Cinco Ranch (Westheimer Pkwy)	81	School

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

Existing Plan	Plan Partners	Year
Trail Master Plan	City of Richmond	2015
Rosenberg Avenue/90 A Livable Centers Study	H-GAC, West Fort Bend Management District, City of Rosenberg	2015
Brazos River Corridor Master Plan	Fort Bend Green	2014
Bicycle and Pedestrian Mobility Plan	City of Missouri City	2013
Pedestrian and Bicycle Master Plan	City of Sugar Land	2013
Transit and Pedestrian Study	City of Rosenberg	2010
Missouri City Pedestrian and Bicycle Plan	H-GAC, City of Missouri City	2009
Sugar Land Town Center Pedestrian and Bicyclist Special District Study	H-GAC, City of Sugar Land	2007

FORT BEND COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to Fort Bend County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Fort Bend County should use this list as a starting point and tailor solutions to fit their specific needs.

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits to reveal potential design improvements at those locations.
2. Create local pedestrian and bicycle safety action plans, particularly in the cities that contain the county's Pedestrian and Bicycle Focus Areas like Rosenberg, Richmond, Mission Bend, and the cluster of communities in the county's northeast.
3. Bring sidewalks into compliance with the Americans with Disabilities Act, particularly in places with an existing sidewalk network like Sugar Land, Missouri City and Mission Bend.
4. Fill the gaps in the county's sidewalk network, particularly in the Pedestrian Focus Areas with discontinuous sidewalks like Richmond and Rosenberg.
5. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
6. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists, bicyclists and pedestrians.

Build for Impact

1. Conduct local active transportation studies for the Pedestrian and Bicycle Focus Areas without one. Use these plans to guide investment in walkways and bikeways that connect population centers, schools, job centers, and transit.
2. Fund and build the active transportation infrastructure recommendations included in the 2015 Rosenberg Livable Centers Study and the 2013 active transportation plans for Missouri City and Sugar Land.
3. Identify and build bikeway connections between the county's population centers and tourist destinations, including Brazos Bend State Park, the George Ranch Historical Park, Sugar Land Town Center, The Fountains, Fulshear, and others.

FORT BEND COUNTY RECOMMENDATIONS, CONTINUED

Build for Need

1. Build new walkways and bikeways that connect focus areas to nearby job centers, particularly for the Richmond, Rosenberg, and Ridgegate/Ridgemont Pedestrian and Bicycle Focus Areas.
2. Build walkways and bikeways that create first-mile/last-mile connections to transit stops in the county, including:
    - Connections to Fort Bend County Transit stops in Richmond and Rosenberg
    - Connections to METRO's 98 (Briargate) and 49 (Chimney Rock/S Post Oak) bus routes in Ridgegate/ Ridgemont
    - High-comfort bikeways that connect to the METRO Park and Ride in Missouri City.
3. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.
4. Identify specific strategies to improve walkway and bikeway connectivity in the county's environmental justice communities that fall outside of a Focus Area, including Census tracts north of SH6 in the Arcola and Fresno areas.

Maintain What's Built

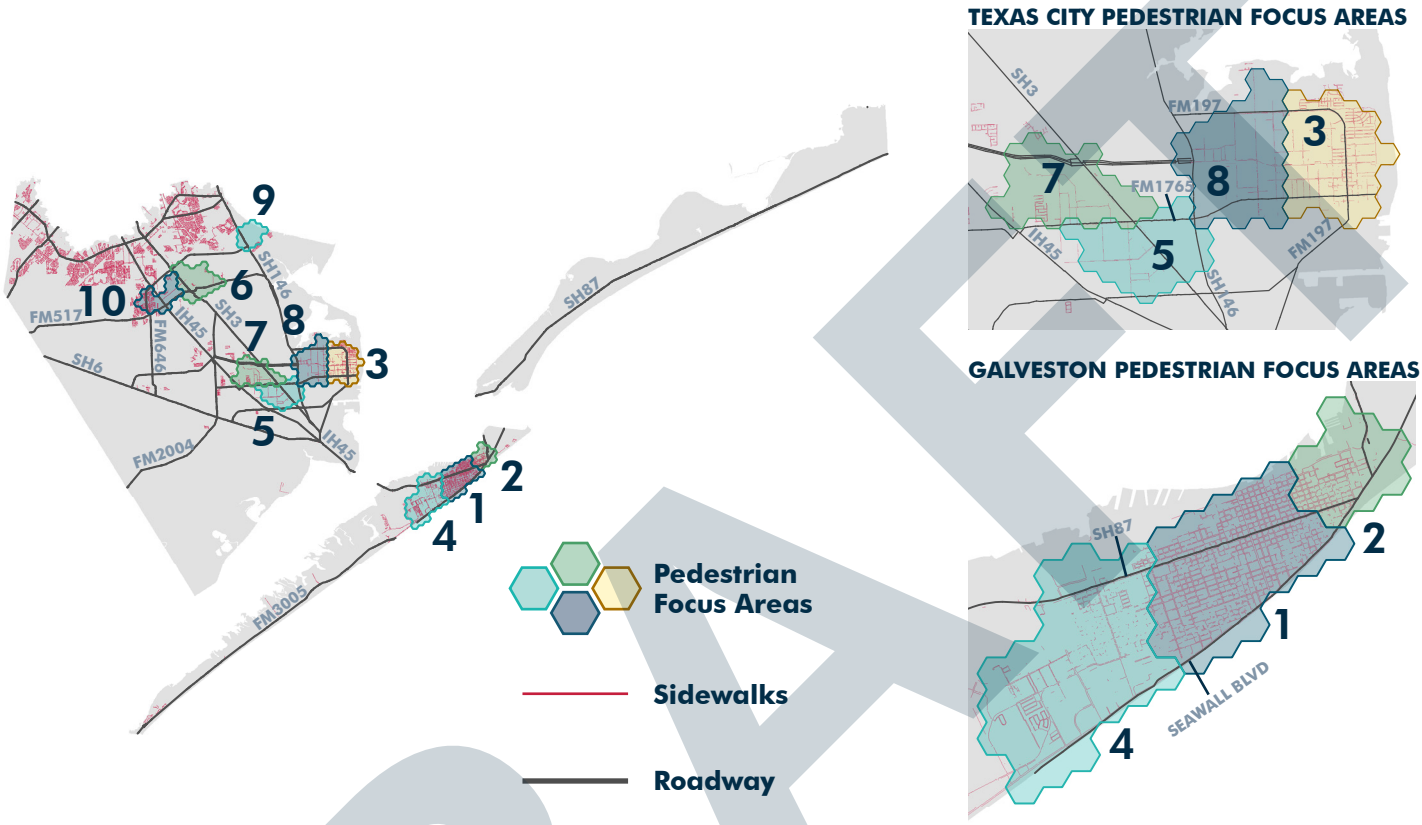
1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths and protected bike lanes within the county
4. Maintain the existing networks of bikeways in Sugar Land and Missouri City and walkways in the county's northeast.

Encourage More Walking and Biking

1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

GALVESTON COUNTY PROFILE

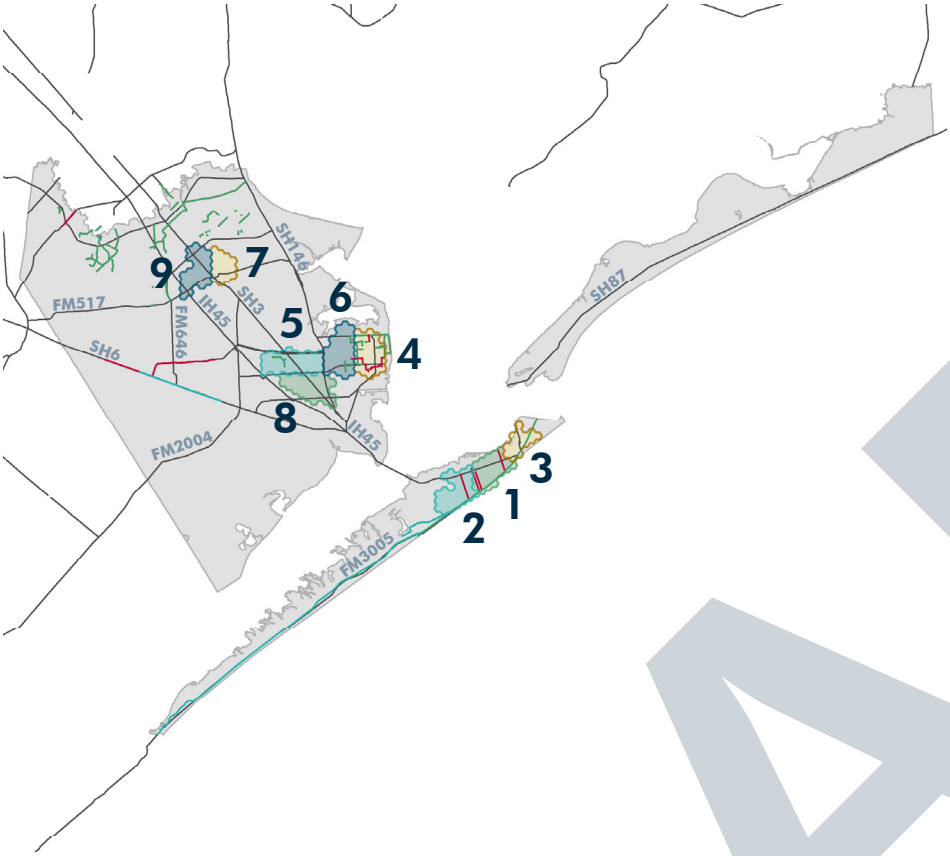
WALKWAYS & PEDESTRIAN FOCUS AREAS



Pedestrian Focus Areas		Index*	Need**
1	Downtown Galveston	95	EJ, School, Transit
2	UTMB (East)	86	EJ, School, Transit
3	Downtown Texas City	84	EJ
4	Stewart Rd at 61st St	83	School, Transit
5	Downtown LaMarque	83	School
6	Dickinson (East)	80	-
7	Texas City at SH3	80	EJ
8	Texas City (West)	79	-
9	Bacliff	78	-
10	Dickinson (West)	76	-

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

BIKEWAYS & BICYCLE FOCUS AREAS



Bicycle Focus Areas

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Roadway

Bicycle Focus Areas		Index*	Need**
1	Downtown Galveston	95	EJ, School, Transit
2	Stewart Rd at 61st St	89	Transit
3	UTMB (East)	87	EJ, Transit
4	Downtown Texas City	86	EJ
5	Texas City at SH3	86	EJ
6	Texas City at SH146	85	Transit
7	Dickinson (East)	85	-
8	Downtown LaMarque	84	-
9	Dickinson (West)	82	-

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

Existing Plan	Plan Partners	Year
Parks, Trails & Open Space Master Plan	City of League City	2017
City of Texas City Livable Centers Study	H-GAC, City of Texas City	2016
Galveston Livable Centers Study	H-GAC, Galveston Housing Authority, Historic Downtown Strand Seaport Partnership	2012
City of League City: Main Street Implementation Plan	H-GAC, City of League City	2012
NASA Area Livable Centers Study	H-GAC, NASA Area Management District, City of Nassau Bay	2012
Hike and Bike Trails Master Plan	City of Seabrook	2010
Galveston Island Pedestrian and Bicyclist Special Districts Study	H-GAC, City of Galveston	2006

GALVESTON COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to Galveston County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Galveston County should use this list as a starting point and tailor solutions to fit their specific needs.

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits to reveal potential design improvements at those locations.
2. Create local pedestrian and bicycle safety action plans, particularly in the county's Pedestrian and Bicycle Focus Areas like Galveston, Texas City, Dickinson, LaMarque, and Bacliff.
3. Bring sidewalks into compliance with the Americans with Disabilities Act, particularly in places with an existing sidewalk network like Galveston and portions of League City, Friendswood, Texas City and others.
4. Fill the gaps in the county's sidewalk network, particularly in the Pedestrian Focus Areas with discontinuous sidewalks like Texas City, LaMarque, Dickinson and Bacliff.
5. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
6. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists, bicyclists and pedestrians.

Build for Impact

1. Conduct local active transportation studies and expand on existing parks and trails plans for the Pedestrian and Bicycle Focus Areas without one. Use these plans to guide investment in walkways and bikeways that connect population centers, schools, job centers, and transit.
2. Fund and build the active transportation recommendations in the 2016 Texas City Livable Centers Study and revisit the Galveston, League City, and NASA Area Livable Centers studies to determine progress and revamp the recommendations.
3. Continue to invest in a high-comfort bikeway network in the Downtown Galveston and UTMB/East Bicycle Focus Areas
4. Identify and build bikeway connections between the county's population centers and tourist destinations like San Luis Pass, the Johnson Space Center, Moody Gardens, the Kemah Boardwalk and others.
5. Study potential bikeway connections up the Bolivar Peninsula to the national wildlife refuges in Chambers County for touring bicyclists.

GALVESTON COUNTY RECOMMENDATIONS, CONTINUED

Build for Need

1. Build walkways and bikeways that connect focus areas to nearby job centers, particularly between environmental justice Census tracts and job centers within the Galveston and Texas City focus areas.
2. Build walkways and bikeways that create first-mile/last-mile connections to transit stops in the county, including:
    - Connections to Island Transit stops in Galveston's central and eastern neighborhoods.
    - Connections to Connect Transit stops in Texas City.
3. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.
4. Identify specific strategies to improve walkway and bikeway connectivity in the county's environmental justice area in Hitchcock that falls outside of a Focus Area.

Maintain What's Built

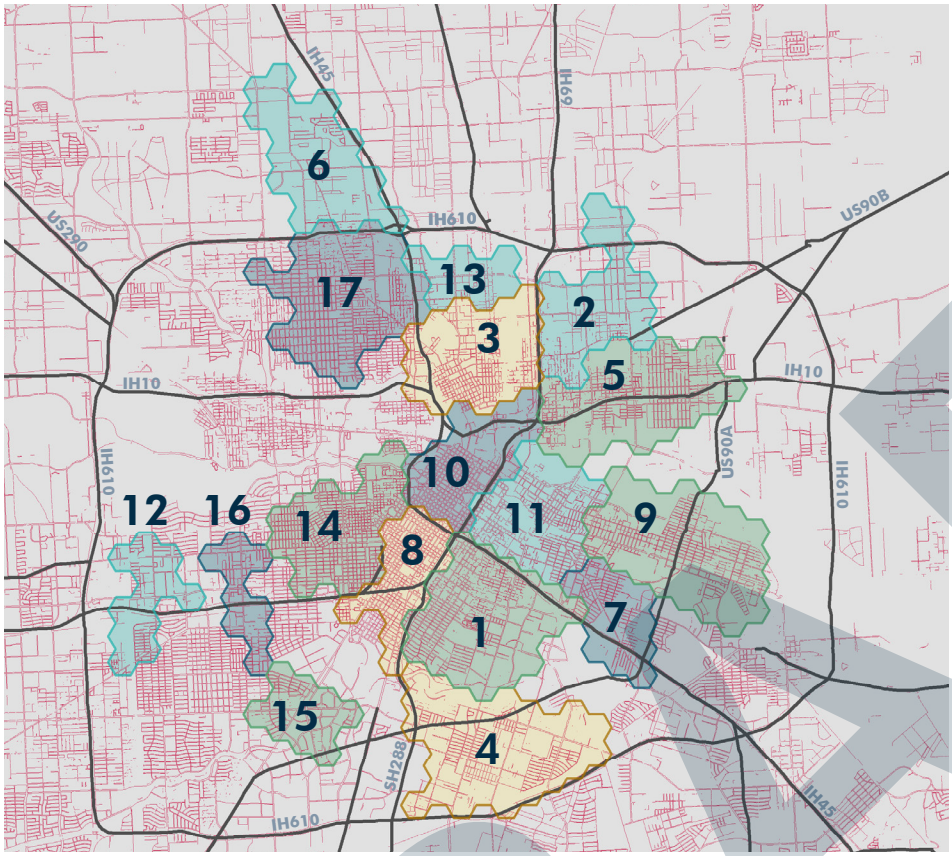
1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths and protected bike lanes within the county
4. Maintain the existing networks of bikeways and walkways in the county's north and in Galveston.

Encourage More Walking and Biking

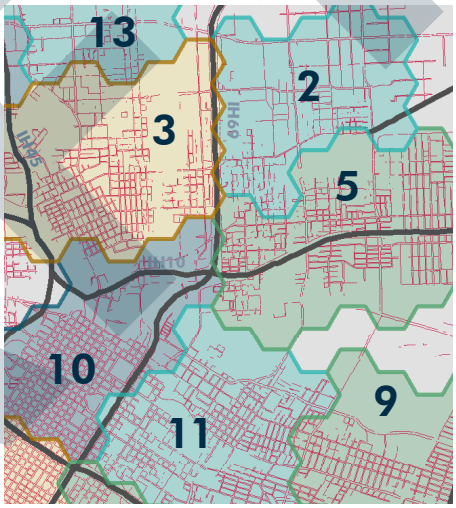
1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

CENTRAL HARRIS COUNTY PROFILE

WALKWAYS & PEDESTRIAN FOCUS AREAS



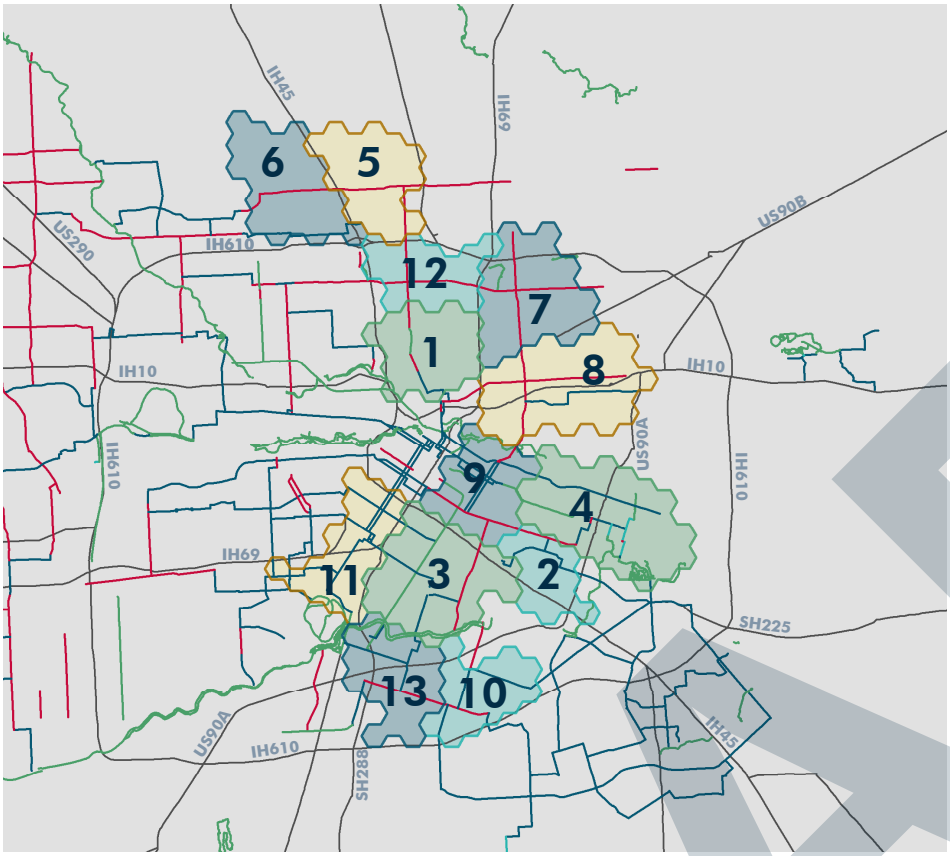
E IH610 PEDESTRIAN FOCUS AREAS



Pedestrian Focus Areas		Index*	Need**
1	Third Ward	98	School, Transit
2	Kashmere Gardens	98	EJ, Transit
3	Near Northside (Quitman St)	97	EJ, School, Transit
4	Old Spanish Trail/South Union	97	-
5	Fifth Ward	96	Transit
6	Independence Heights	96	EJ
7	Eastwood	96	School
8	Midtown/Museum District	96	Transit
9	Second Ward & Magnolia Park	96	EJ
10	Downtown	96	Transit
11	East Downtown	96	Transit
12	Upper Kirby & Rice Village	95	Transit
13	Near Northside (Cavalcade St)	95	-
14	Greater Montrose	95	Transit
15	Texas Medical Center	94	Transit
16	Greenway Plaza & Highland Village	94	-
17	Greater Heights	94	-

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas in Harris County.

BIKEWAYS & BICYCLE FOCUS AREAS



Bicycle Focus Areas

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Roadway

Bicycle Focus Areas		Index*	Need**
1	Near Northside (Quitman St)	99	EJ, School, Transit
2	Eastwood	98	School
3	Third Ward	98	School, Transit
4	Second Ward and Magnolia Park	98	EJ
5	Northline (Commons)	97	-
6	Independence Heights	97	EJ
7	Kashmere Gardens	97	EJ, Transit
8	Fifth Ward	97	EJ, Transit
9	East Downtown	97	School, Transit
10	Griggs Rd at Cullen Blvd	97	Transit
11	Midtown/Museum District	96	School, Transit
12	Near Northside (Cavalcade St)	96	Transit
13	South Side (Scott St)	96	Transit

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas in Harris County.

Existing Plan	Plan Partners	Year
Houston Bike Plan	City of Houston	2017
Houston Active Living Plan	Houston Health Department	2017
Greenway Plaza Special Districts Study	H-GAC	2016
Kashmere Gardens Livable Centers Study	H-GAC, Near Northside Mgmt. Dist., City of Houston	2016
Museum Park Livable Centers Study	H-GAC, Museum Park Super Neighborhood, Houston Southeast, City of Houston	2016
5th Ward/Buffalo Bayou/East End Livable Centers Study	H-GAC, Buffalo Bayou Partnership, 5th Ward CRC, Greater East End District	2015
Parks Master Plan	Houston Parks and Recreation Department, Trust for Public Land, Rice University Center for Civic Leadership	2015
Bike and Ride Access and Implementation Plan	METRO	2014
Heights-Northside Mobility Study	City of Houston, H-GAC, METRO	2014
Northwest Mobility Study	City of Houston, H-GAC, METRO	2014
Washington Avenue Livable Centers Study	H-GAC, City of Houston, TIRZ 13, Better Houston	2013
Inner West Loop Mobility Study	City of Houston	2013
East End Mobility Study	H-GAC, Greater East End District	2012
Near Northwest Livable Centers Study	H-GAC, Near Northwest Mgmt. Dist.	2012
Texas Medical Center Mobility Study	City of Houston	2012
Fifth Ward Pedestrian and Bicyclist Study	H-GAC, 5th Ward Community Redevelopment Corporation	2011
Downtown/EaDo Livable Centers Study	H-GAC, Downtown District, East Downtown Management District	2011
Fourth Ward Livable Centers Study	H-GAC, Fourth Ward Redevelopment Authority, City of Houston	2010
Midtown Livable Centers Study	H-GAC, City of Houston, Midtown Mgmt. Dist.	2010
Northside Livable Centers Study	H-GAC, Greater Northside Mgmt. Dist.	2010
Upper Kirby Livable Centers Study	H-GAC, Upper Kirby District	2010
East End Livable Centers Study	H-GAC, Greater East End District	2009
Bayou Greenways 2020	Houston Parks Board	2007
Montrose Pedestrian & Bicycle Plan	H-GAC, City of Houston	2005
Pedestrian and Bicycle Special Districts Study Phase 2 - Third Ward Pilot Project	H-GAC, City of Houston	2004
Bike & Ride Access & Implementation Plan	METRO	2004

CENTRAL HARRIS COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to central Harris County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Harris County should use this list as a starting point and tailor solutions to fit their specific needs.

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits – like those conducted by the City of Houston and FHWA in 2018 – to reveal potential design improvements at those locations.
2. Create a pedestrian and bicycle safety action plan for the City of Houston or at the county level.
3. Bring existing sidewalks into compliance with the Americans with Disabilities Act throughout central Harris County.
4. Fill the gaps in the sidewalk network, particularly in the Pedestrian Focus Areas with many discontinuous sidewalks like portions of the East End, the Northside, Third Ward, Kashmere Gardens, and Independence Heights.
5. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
6. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists, bicyclists and pedestrians.

Build for Impact

1. Conduct neighborhood-level active transportation studies that build on the recommendations from the Houston Bike Plan and identify walkway improvements. Use these plans to creation connections between population centers, schools, job centers, and transit.
2. Revisit the studies completed more than five years ago to determine progress and revamp the recommendations.
3. Use the upcoming Livable Centers Studies in Eastwood and Montrose to identify active transportation improvements.
4. Build the active transportation recommendations in the Houston Bike Plan, Bayou Greenways 2020, the Parks Master Plan, METRO's Bike and Ride Access and Implementation Plan, and the several Livable Centers and mobility studies.
5. Continue to invest in the growing bikeway network in Houston.
6. Identify and build bikeway connections between the county's population centers and tourist destinations like Memorial Park, Hermann Park, the Museum District, the Astrodome/NRG Stadium, Montrose, Rice Village, Buffalo Bayou Park, the Heights and others.

Build for Need

1. Build walkways and bikeways that connect focus areas to nearby job centers, particularly between environmental justice Census tracts and job centers in Downtown Houston, the Texas Medical Center, Greenway Plaza, Midtown, Third Ward, and Uptown.
2. Build walkways and bikeways that create first-mile/last-mile connections to METRO's high-frequency bus and rail stops.
3. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.
4. Identify specific strategies to improve walkway and bikeway connectivity in the county's environmental justice areas that fall outside of a Focus Area. These include the Clinton Dr corridor north of Buffalo Bayou and the area bounded by N IH610, Liberty Rd and Hempstead Rd.

CENTRAL HARRIS COUNTY RECOMMENDATIONS, CONTINUED

Maintain What's Built

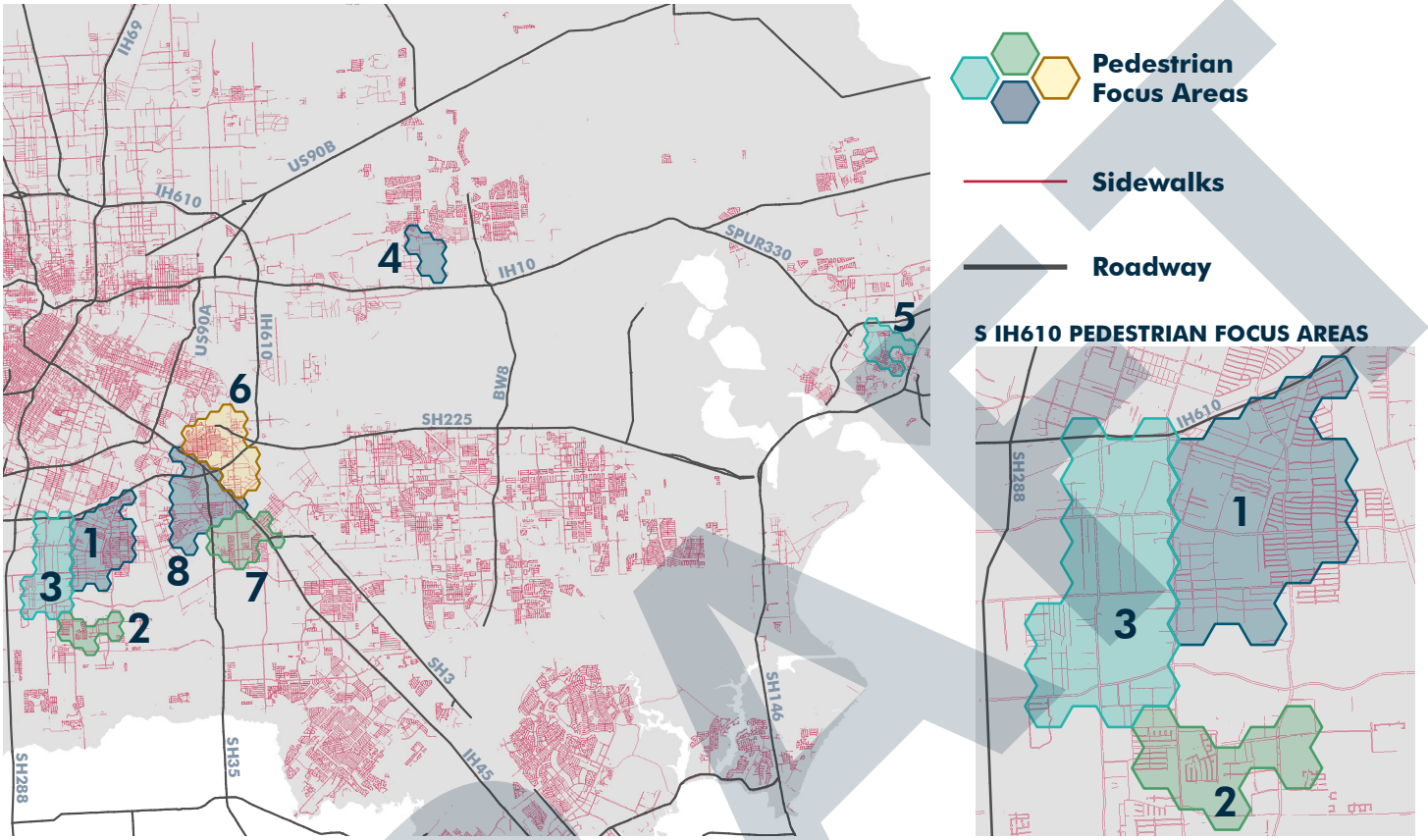
1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths and protected bike lanes within the county.
4. Maintain the existing networks of bikeways in the City of Houston.

Encourage More Walking and Biking

1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

SOUTH/EAST HARRIS COUNTY PROFILE

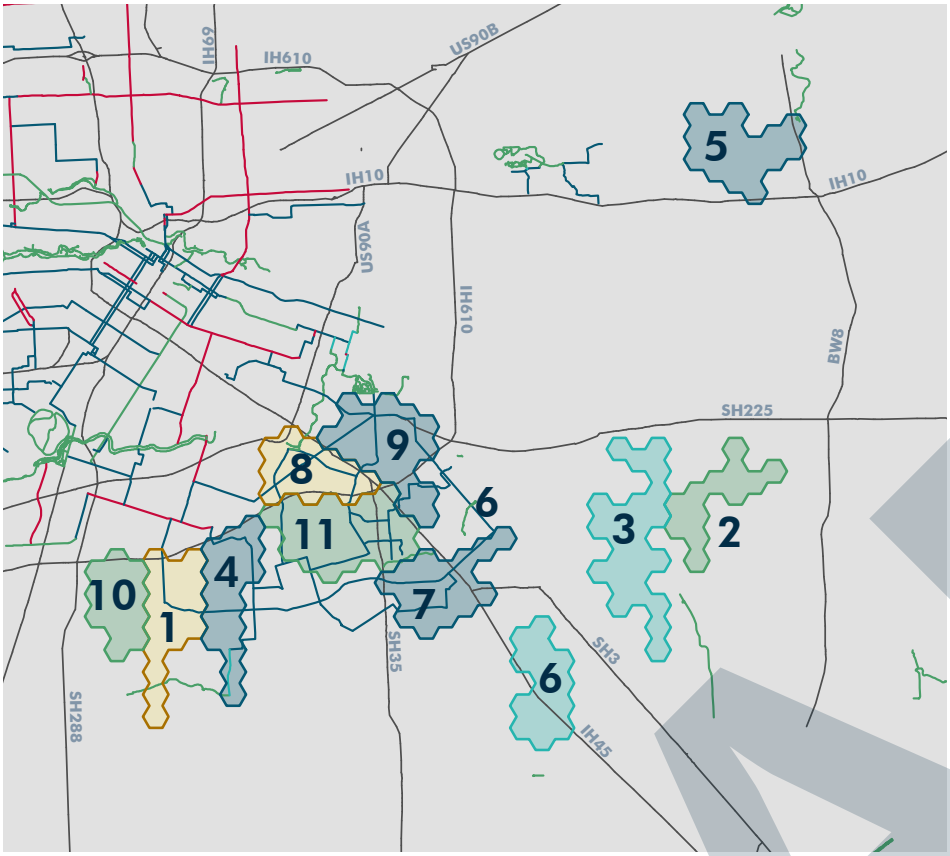
WALKWAYS & PEDESTRIAN FOCUS AREAS



Pedestrian Focus Areas		Index*	Need**
1	South Park	98	-
2	Crestmont Park	98	-
3	Sunnyside	98	EJ
4	Cloverleaf	97	-
5	Baytown	97	-
6	Pecan Park & Park Place	97	School
7	Hobby	96	-
8	Golfcrest	96	EJ

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas in Harris County.

BIKEWAYS & BICYCLE FOCUS AREAS



Bicycle Focus Areas

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Roadway

Bicycle Focus Areas		Index*	Need**
1	Sunnyside (Cullen Blvd)	99	-
2	Southmore Ave and Pasadena Blvd	98	School
3	Vince Bayou at Southmore Ave	98	-
4	South Park (MLK Blvd)	98	-
5	Cloverleaf	98	-
6	Edgebrook	97	-
7	Hobby	97	-
8	Gulfgate	97	EJ, School
9	Pecan Park and Park Place	97	-
10	Sunnyside (Scott St)	96	EJ
11	Golfcrest	96	EJ

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas in Harris County.

Existing Plan	Plan Partners	Year
Bicycle-Pedestrian Trail Master Plan	City of La Porte	N/A
Houston Bike Plan	City of Houston	2017
Houston Active Living Plan	Houston Health Department	2017
Hobby Area Livable Centers Study	H-GAC, Hobby District	2017
Bicycle Transportation Action Plan	City of Pasadena	2015
5th Ward/Buffalo Bayou/East End Livable Centers Study	H-GAC, Buffalo Bayou Partnership, 5th Ward Community Redevelopment Corporation, Greater East End District	2015
Parks Master Plan	Houston Parks and Recreation Department, Trust for Public Land, Rice University Center for Civic Leadership	2015
Bike and Ride Access and Implementation Plan	METRO	2014
East End Mobility Study	H-GAC, Greater East End District	2012
Texas Medical Center Mobility Study	City of Houston	2012
Clear Lake Pedestrian and Bicyclist Study	H-GAC, City of Houston	2011
Playbook 2020	City of Baytown	2010
East End Livable Centers Study	H-GAC, Greater East End District	2009
Bayou Greenways 2020	Houston Parks Board	2007
Bike & Ride Access & Implementation Plan	METRO	2004
Parks & Trails Master Plan	Greens Bayou Coalition	-

SOUTH/EAST HARRIS COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to south/east Harris County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Harris County should use this list as a starting point and tailor solutions to fit their specific needs.

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits – like those conducted by the City of Houston and FHWA in 2018 – to reveal potential design improvements at those locations.
2. Create local pedestrian and bicycle safety action plans at the city or county level, particularly in the cities with Pedestrian and Bicycle Focus Areas like Houston, Pasadena, Baytown, Cloverleaf, and South Houston.
3. Bring sidewalks into compliance with the Americans with Disabilities Act, particularly in places with an existing sidewalk network like South Park, Hobby, and Pecan Park & Park Place.
4. Fill the gaps in the county's sidewalk network, particularly in the Pedestrian Focus Areas with discontinuous sidewalks like Baytown, Cloverleaf, Sunnyside and Crestmont Park.
5. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
6. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists, bicyclists and pedestrians.

SOUTH/EAST HARRIS COUNTY RECOMMENDATIONS, CONTINUED

Build for Impact

1. Conduct local active transportation studies in the places that do not currently have one. Use these plans to guide investment in walkways and bikeways that connect population centers, schools, job centers, and transit.
2. Revisit the studies completed more than five years ago to determine progress and revamp the recommendations.
3. Use the upcoming Livable Centers Studies in Pasadena and Seabrook to identify active transportation improvements.
4. Build the active transportation recommendations in the Houston Bike Plan, Bayou Greenways 2020, the Pasadena Bicycle Transportation Action Plan, the Livable Centers Studies in the Hobby Area and 5th Ward/East End, and METRO's Bike and Ride Access and Implementation Plan.
5. Continue to invest in the growing bikeway network in Houston.
6. Identify and build bikeway connections between the county's population centers and tourist destinations like the Port of Houston, Lake Houston, Sheldon Lake, Battleship Texas/San Jacinto Monument, Sylvan Beach Park, Mason Park, and the Johnson Space Center.

Build for Need

1. Build walkways and bikeways that connect focus areas to nearby job centers, particularly between environmental justice Census tracts and job centers in Pasadena, Baytown, along SH225, the NASA area, near the Hobby Airport, near Gulfgate, and along IH45.
2. Build walkways and bikeways that create first-mile/last-mile connections to transit stops in the county, including:
    - Connections to METRO's high-frequency bus and rail stops in Houston.
    - Connections to Harris County Transit stops in Baytown.
3. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.
4. Identify specific strategies to improve walkway and bikeway connectivity in the county's environmental justice areas that fall outside of a Focus Area. These include area bound by US10, W Cedar Bayou Lynchburg Rd, and Wade Rd; parts of Jacinto City; the area bound by Allen-Genoa Rd, S Shaver St, and SH3; the area west of Hobby Airport; and the area bound by Almeda-Genoa Rd, Almeda Rd, SH288, and S Sam Houston Tollway.

Maintain What's Built

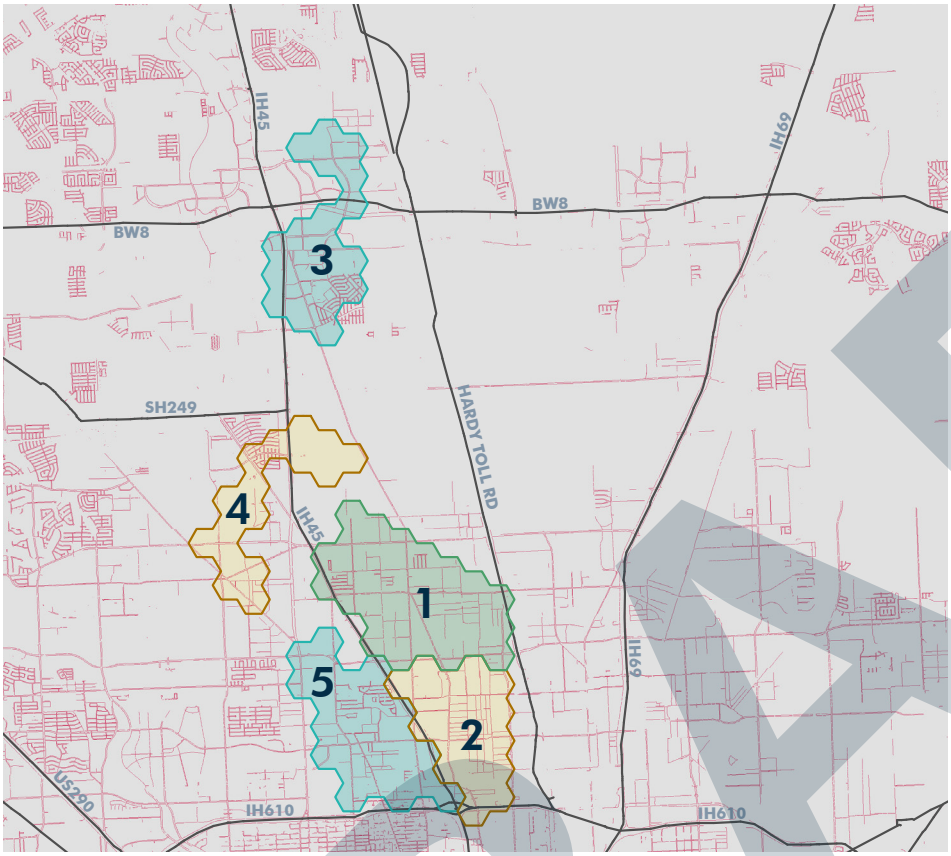
1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths and protected bike lanes within the county.
4. Maintain the existing networks of bikeways in the City of Houston.

Encourage More Walking and Biking

1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

NORTH HARRIS COUNTY PROFILE

WALKWAYS & PEDESTRIAN FOCUS AREAS

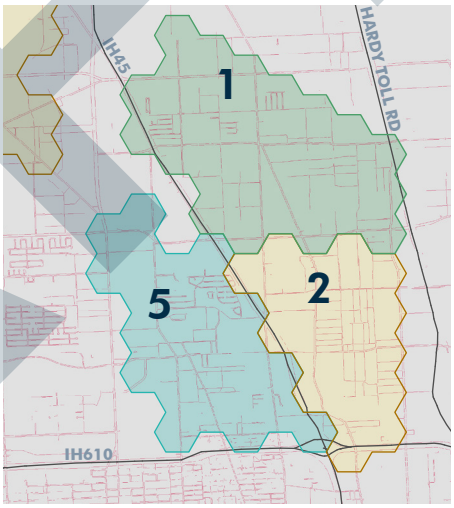


Pedestrian Focus Areas

Sidewalks

Roadway

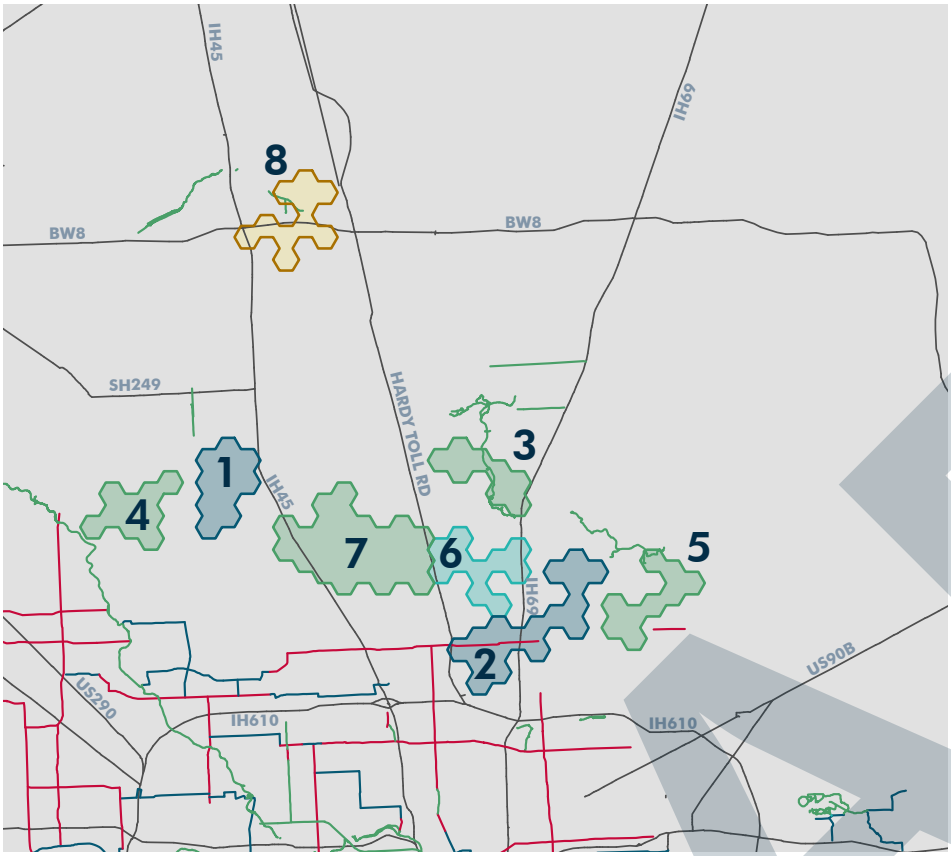
N IH610 PEDESTRIAN FOCUS AREAS



Pedestrian Focus Areas		Index*	Need**
1	Northline (Parker Rd)	97	EJ
2	Northline (Commons)	97	
3	Greenspoint	97	EJ, School
4	Acres Home at Gulf Bank	97	-
5	Independence Heights	96	EJ

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas in Harris County.

BIKEWAYS & BICYCLE FOCUS AREAS



Bicycle Focus Areas

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Roadway

Bicycle Focus Areas		Index*	Need**
1	Acres Home (East)	99	-
2	Crosstimbers St and Lockwood Dr	98	EJ
3	Halls Bayou at Little York Rd	98	-
4	Acres Home (West)	98	-
5	Trinity Gardens	97	-
6	Aldine Westfield Rd at Jensen Dr	97	EJ
7	Northline (Parker Rd)	97	EJ
8	Greenspoint	97	EJ

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas in Harris County.

Existing Plan	Plan Partners	Year
Houston Bike Plan	City of Houston	2017
Houston Active Living Plan	Houston Health Department	2017
Parks Master Plan	Houston Parks and Recreation Department, Trust for Public Land, Rice University Center for Civic Leadership	2015
Bike and Ride Access and Implementation Plan	METRO	2014
Cypress Creek Parkway Livable Centers Study	H-GAC, Ponderosa Forest Utility District, Houston Northwest Chamber of Commerce, Cypress Creek Parkway Property Owner's Association	2014
Heights-Northside Mobility Study	City of Houston, H-GAC, METRO	2014
Northwest Mobility Study	City of Houston, H-GAC, METRO	2014
Airline Livable Centers Study	H-GAC, Airline Improvement District, Harris County	2012
Independence Heights – Northline Livable Centers Study	H-GAC, Greater Northside Management District, Independence Heights Redevelopment Council, Northline Development	2012
Near Northwest Livable Centers Study	H-GAC, Near Northwest Management District	2012
Northside Livable Centers Study	H-GAC, Greater Northside Management District	2010
Airline Improvement District Pedestrian and Bicyclist Special District Study	H-GAC, Airline Improvement District	2009
City of Tomball Livable Centers Study	H-GAC, City of Tomball	2009
Bayou Greenways 2020	Houston Parks Board	2007
Bike & Ride Access & Implementation Plan	METRO	2004

NORTH HARRIS COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to north Harris County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Harris County should use this list as a starting point and tailor solutions to fit their specific needs.

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits – like those conducted by the City of Houston and FHWA in 2018 – to reveal potential design improvements at those locations.
2. Create local pedestrian and bicycle safety action plans at the city or county level.
3. Bring existing sidewalks into compliance with the Americans with Disabilities Act.
4. Fill the gaps in the sidewalk network in all five of the Pedestrian Focus Areas.
5. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
6. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists, bicyclists and pedestrians.

Build for Impact

1. Conduct neighborhood-level active transportation studies in the places that do not currently have one. Use these plans to guide investment in walkways and bikeways that connect population centers, schools, job centers, and transit.
2. Revisit the studies completed more than five years ago to determine progress and revamp the recommendations.
3. Use the upcoming Livable Centers Study in the Greenspoint area to identify active transportation improvements.
4. Build the active transportation recommendations in the Houston Bike Plan, Bayou Greenways 2020, METRO's Bike and Ride Access and Implementation Plan, and the several Livable Centers and mobility studies in the area.
5. Continue to invest in the growing bikeway network in Houston.
6. Identify and build bikeway connections between the county's population centers and tourist destinations like Old Town Spring, Meyer Park, Burroughs Park, and the Mercer Botanic Gardens.

Build for Need

1. Build walkways and bikeways that connect focus areas to nearby job centers, particularly between environmental justice Census tracts and job centers in Greenspoint, south of Bush Intercontinental Airport, along FM1960, and in Humble.
2. Build walkways and bikeways that create first-mile/last-mile connections to METRO's high-frequency bus and rail stops.
3. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.
4. Identify specific strategies to improve walkway and bikeway connectivity in the county's environmental justice areas that fall outside of a Focus Area. These include portions of the Aldine area, the northwest corner of Mesa Dr and Tidwell Rd, south of the N Sam Houston Tollway corridor, south of Humble, and the southeast corner of FM1960 and Kuykendahl Rd among other smaller Census tracts.

Maintain What's Built

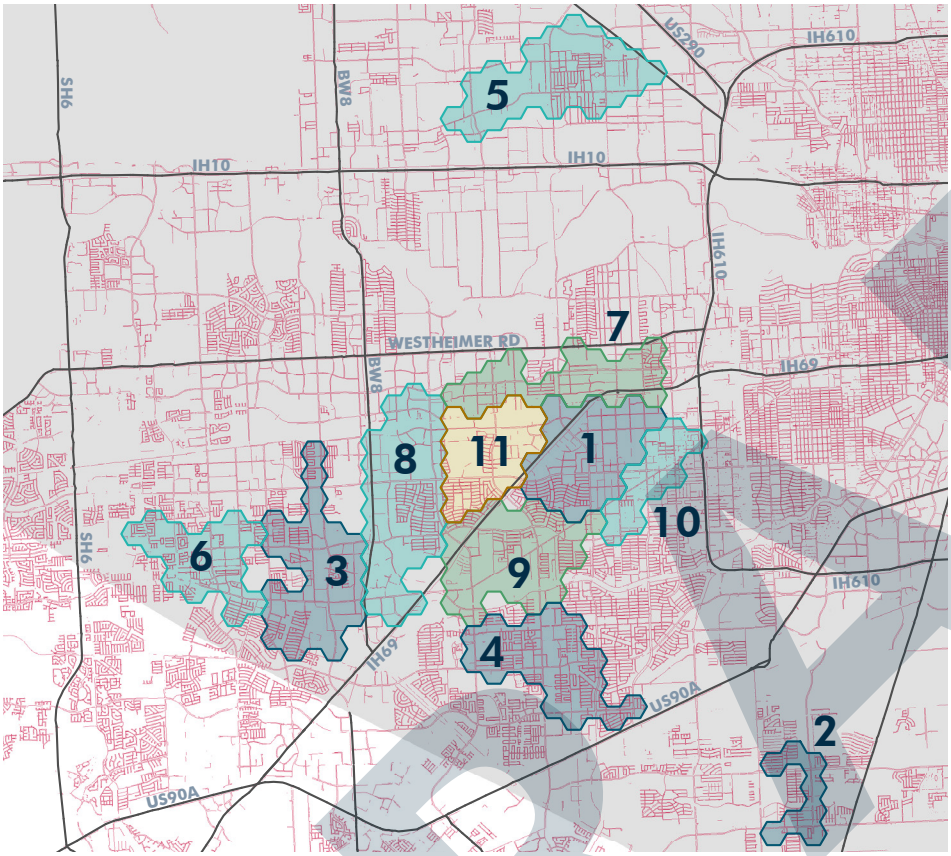
1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths and protected bike lanes within the county.
4. Maintain the existing networks of bikeways in the City of Houston.

Encourage More Walking and Biking

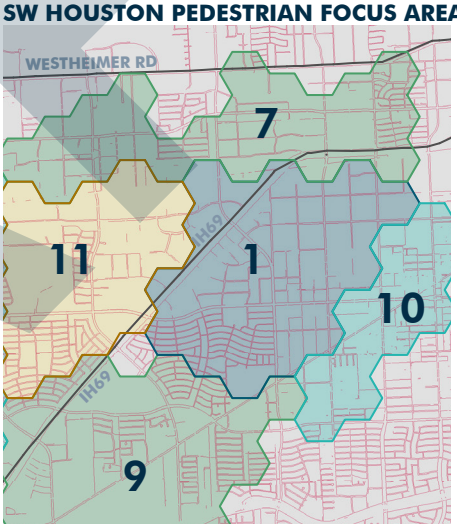
1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

WEST HARRIS COUNTY PROFILE

WALKWAYS & PEDESTRIAN FOCUS AREAS



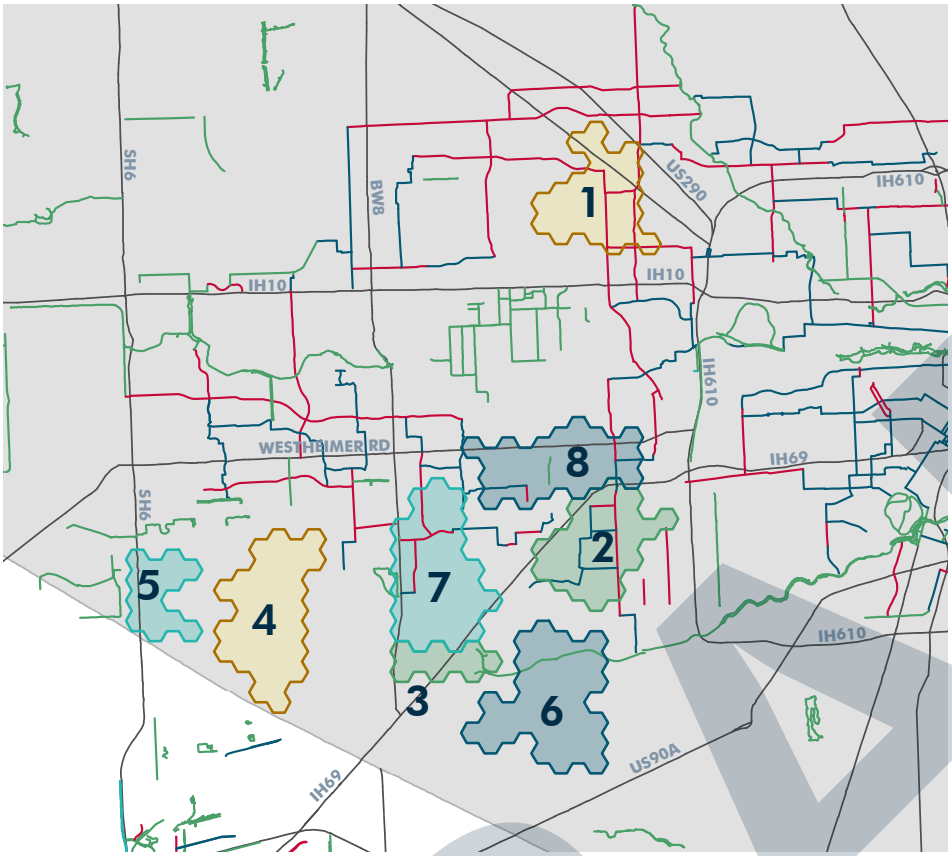
SW HOUSTON PEDESTRIAN FOCUS AREAS



Pedestrian Focus Areas		Index*	Need**
1	Gulfton	98	EJ, School
2	Buffalo Speedway SW	97	-
3	Alief (East)	97	School
4	Southwest (Fondren Rd)	97	-
5	Spring Branch	97	-
6	Alief (West)	96	-
7	Uptown (Richmond Ave)	96	School
8	Chinatown	96	EJ
9	Beechnut St at Bissonnet St	95	School
10	Bellaire	95	School
11	Sharpstown	91	-

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas in Harris County.

BIKEWAYS & BICYCLE FOCUS AREAS



Bicycle Focus Areas

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Roadway

Bicycle Focus Areas		Index*	Need**
1	Spring Branch	97	-
2	Gulfton	97	School, Transit
3	Bissonnet St at BW8	97	School
4	Alief (West)	97	School
5	Westpark Tollway at SH6	96	-
6	Southwest (Fondren Rd)	96	-
7	Chinatown	96	School
8	Uptown (Richmond Ave)	96	School

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas in Harris County.

Existing Plan	Plan Partners	Year
Spring Branch - Reimagine Long Point	H-GAC, Spring Branch Management District, City of Houston	2018
Westchase Livable Centers Study	H-GAC, Westchase District, City of Houston	2018
Houston Bike Plan	City of Houston	2017
Houston Active Living Plan	Houston Health Department	2017
Ped/Bike Plan	Westchase District	2016
West Houston Mobility Plan	H-GAC, City of Houston, Energy Corridor District, Memorial Management District, Westchase Management District	2015
Parks Master Plan	Houston Parks and Recreation Department, Trust for Public Land, Rice University Center for Civic Leadership	2015
Bike and Ride Access and Implementation Plan	METRO	2014
Northwest Mobility Study	City of Houston, H-GAC, METRO	2014
West Houston Mobility Plan	City of Houston	2011
Energy Corridor Livable Centers Study	H-GAC, Energy Corridor District	2011
Bicycle Master Plan	Energy Corridor District	2010
City of Tomball Livable Centers Study	H-GAC, City of Tomball	2009
Bayou Greenways 2020	Houston Parks Board	2007
Gulfton Pedestrian & Bicyclist Special District Study	H-GAC, City of Houston	2005
Bike & Ride Access & Implementation Plan	METRO	2004

WEST HARRIS COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to west Harris County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Harris County should use this list as a starting point and tailor solutions to fit their specific needs.

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits – like those conducted by the City of Houston and FHWA in 2018 – to reveal potential design improvements at those locations.
2. Create local pedestrian and bicycle safety action plans at the city or county level.
3. Bring sidewalks into compliance with the Americans with Disabilities Act where they currently exist.
4. Fill the gaps in the sidewalk network in all 11 of the Pedestrian Focus Areas.
5. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
6. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists, bicyclists and pedestrians.

Build for Impact

1. Conduct neighborhood-level active transportation studies in the places that do not currently have one. Use these plans to guide investment in walkways and bikeways that connect population centers, schools, job centers, and transit.
2. Revisit the studies completed more than five years ago to determine progress and revamp the recommendations.
3. Use the upcoming Livable Centers Study in Southwest Houston to identify active transportation improvements.
4. Build the active transportation recommendations in the Houston Bike Plan, Bayou Greenways 2020, METRO's Bike and Ride Access and Implementation Plan, and the several Livable Centers and mobility studies in the area.
5. Continue to invest in the growing bikeway network in Houston.
6. Identify and build bikeway connections between the county's population centers and tourist destinations like the Galleria, George Bush Park, Cullen Park, Terry Hershey Park, and Katy.

WEST HARRIS COUNTY RECOMMENDATIONS, CONTINUED

Build for Need

1. Build walkways and bikeways that connect focus areas to nearby job centers, particularly between environmental justice Census tracts and job centers in Uptown, the Energy Corridor, Westchase, and along the SH290 and US59 corridors.
2. Build walkways and bikeways that create first-mile/last-mile connections to METRO's high-frequency bus and rail stops.
3. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.
4. Identify specific strategies to improve walkway and bikeway connectivity in the county's environmental justice areas that fall outside of a Focus Area. These include the area west of Willow Waterhole Greenway; the Haviland Park area; the area south of the intersection of S Sam Houston Tollway and US59; and the area bound by Hempstead Rd and US290 east of Bingle Rd.

Maintain What's Built

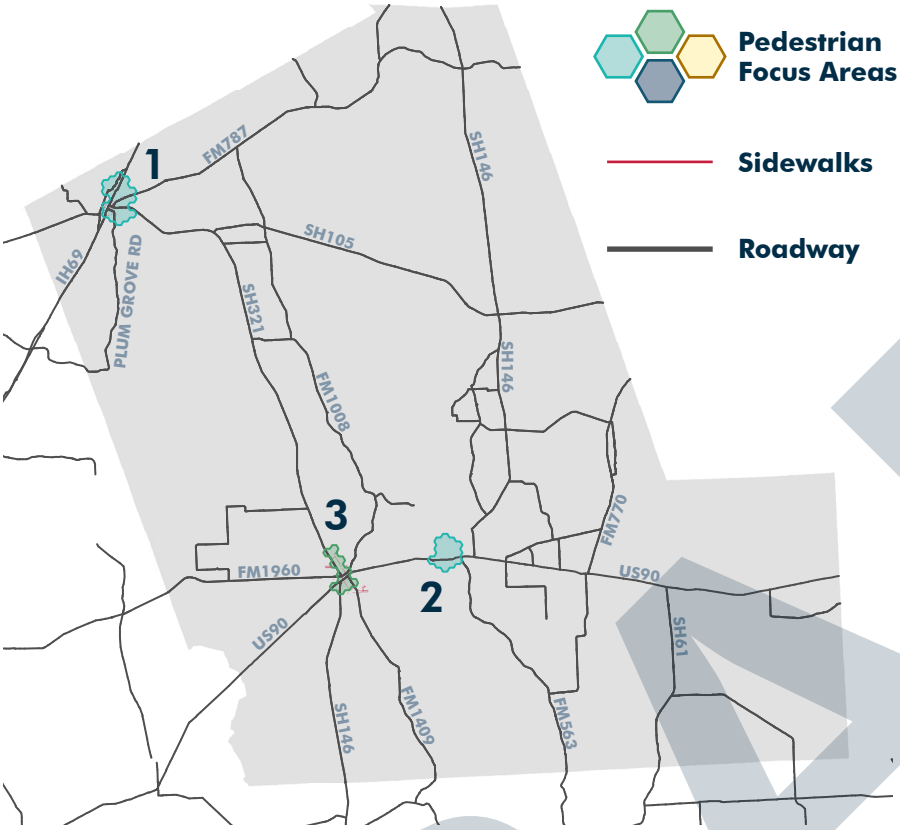
1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths and protected bike lanes within the county.
4. Maintain the existing networks of bikeways in the City of Houston.

Encourage More Walking and Biking

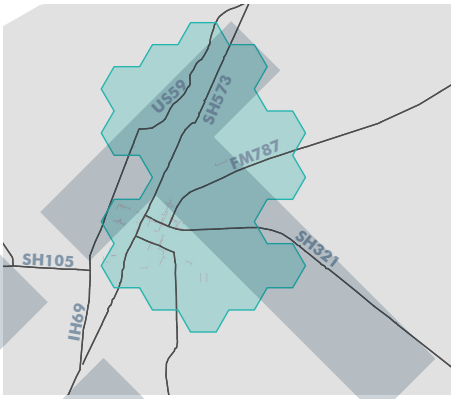
1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

LIBERTY COUNTY PROFILE

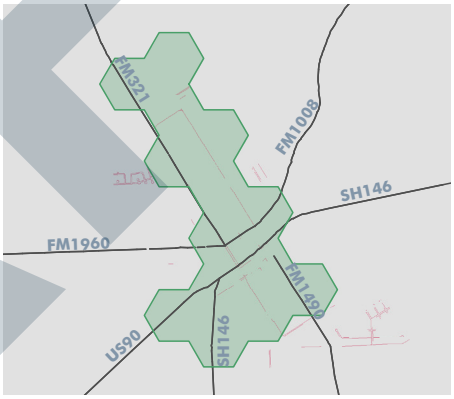
WALKWAYS & PEDESTRIAN FOCUS AREAS



CLEVELAND PEDESTRIAN FOCUS AREA



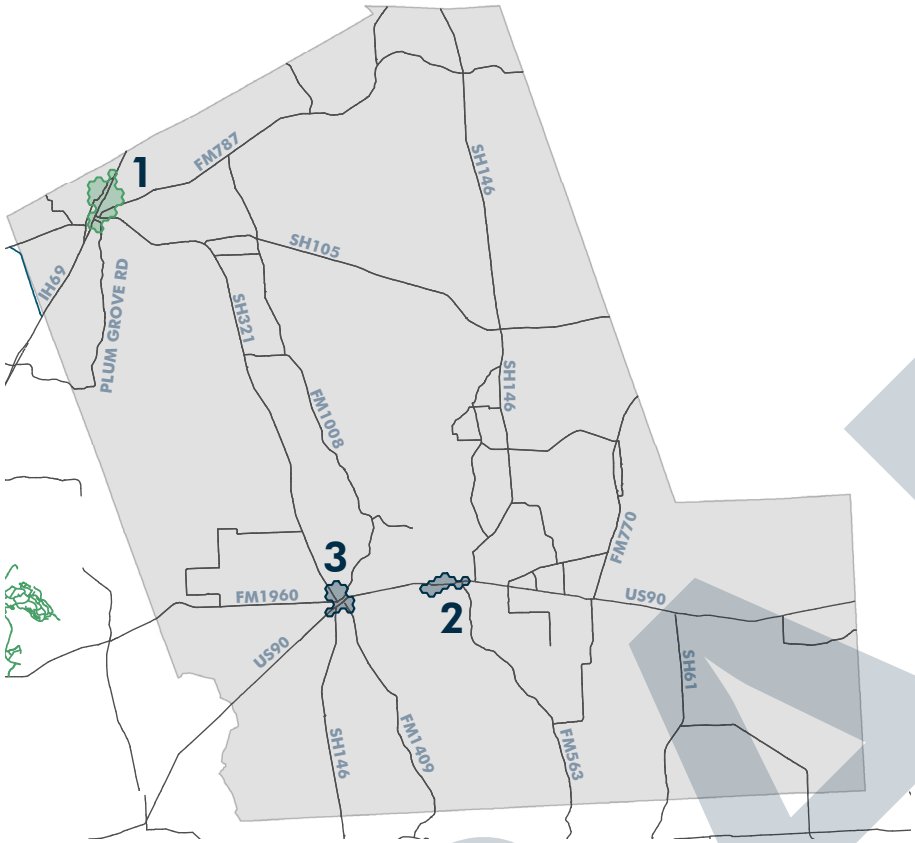
DAYTON PEDESTRIAN FOCUS AREA



Pedestrian Focus Areas		Index*	Need**
1	Cleveland	80	-
2	Liberty	78	-
3	Dayton	77	School

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

BIKEWAYS & BICYCLE FOCUS AREAS



Bicycle Focus Areas

Additional Bicycle Areas

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Roadway

Bicycle Focus Areas	Index*	Need**
1 Cleveland	81	EJ

Additional Bicycle Areas

These areas did not score within the Top 40 highest focus areas outside of Harris County, but they still represent areas of need relative to other places in Liberty County.

2 Liberty	77	-
3 Dayton	75	-

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

EXISTING PLAN	PLAN PARTNERS	YEAR
Parks Master Plan	City of Dayton	2018*
Comprehensive Transportation Plan	City of Dayton	2018

*Plan up for adoption in 2019

LIBERTY COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to Liberty County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Liberty County should use this list as a starting point and tailor solutions to fit their specific needs.

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits to reveal potential design improvements at those locations.
2. Create local pedestrian and bicycle safety action plans, particularly in the county's three Pedestrian and Bicycle Focus Areas: Cleveland, Liberty and Dayton.
3. Bring existing sidewalks in Cleveland and Dayton into compliance with the Americans with Disabilities Act.
4. Fill the gaps in the county's sidewalk network in its three Pedestrian Focus Areas.
5. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
6. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists and non-motorists.

Build for Impact

1. Conduct local active transportation studies that establish a vision for walkway and bikeway networks in the county's three Pedestrian and Bicycle Areas. Use these studies as a guide for investment in walkways and bikeways that connect residential areas to schools and commercial centers.
2. Build upon the active transportation recommendations included in the City of Dayton's 2018 Comprehensive Transportation Plan and 2018 Parks Master Plan.
3. Identify and build bikeway connections between the county's population centers and tourist destinations like Big Thicket National Reserve, Sam Houston National Forest, Picketts Bayou, Davis Hill State Park, and the Trinity River National Wildlife Refuge.

Build for Need

1. Build walkways and bikeways that connect focus areas to nearby job centers with a priority on bicycle connections between environmental justice areas and job centers in the Cleveland Bicycle Focus Area.
2. Build walkways and bikeways that create first-mile/last-mile connections to the Brazos Transit District transit lines in Cleveland, Dayton and Liberty.
3. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.
4. Identify specific strategies to improve walkway and bikeway connectivity in the county's environmental justice area in Ames that falls outside of a Focus Area.

Maintain What's Built

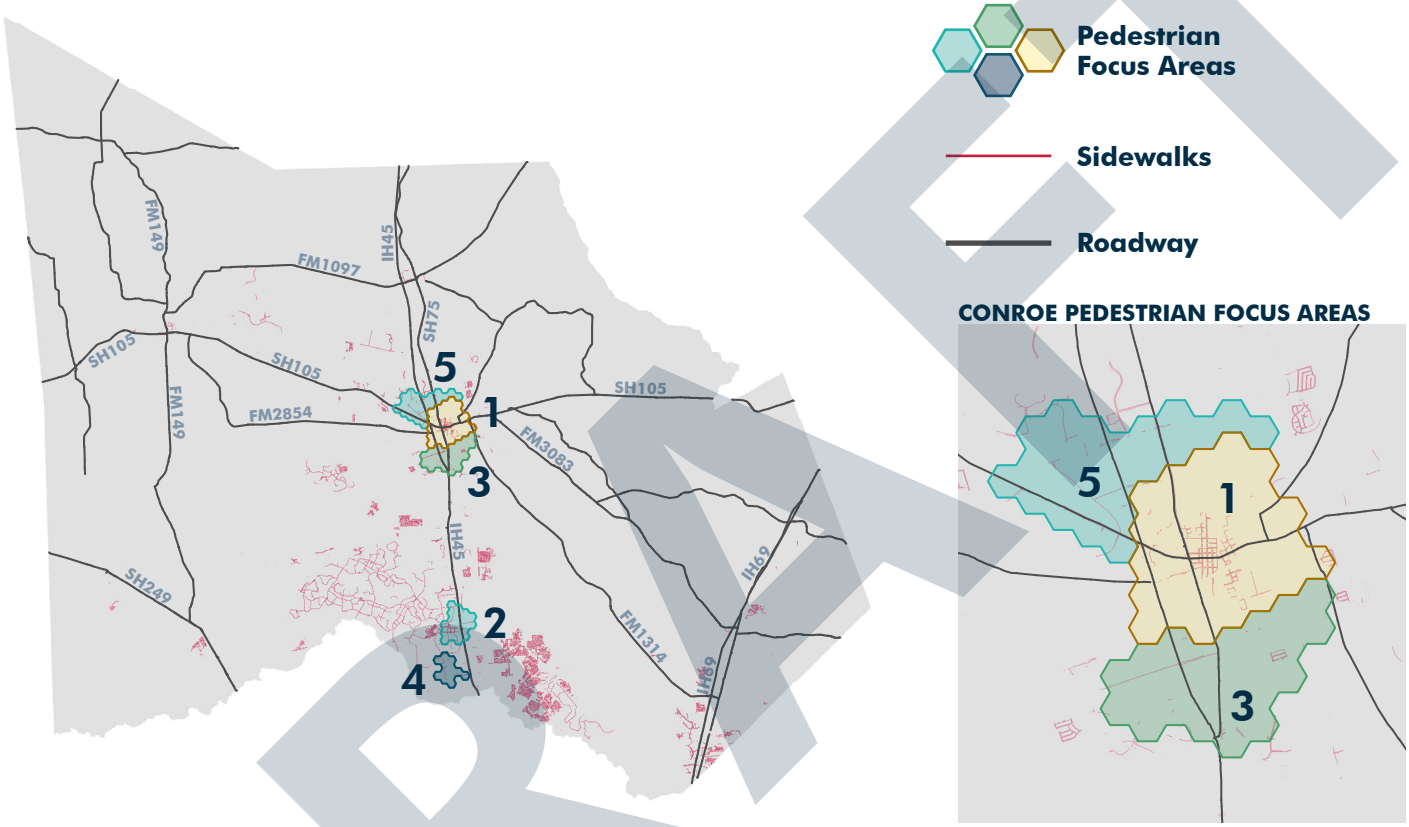
1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths/protected bike lanes within the county

Encourage More Walking and Biking

1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

MONTGOMERY COUNTY PROFILE

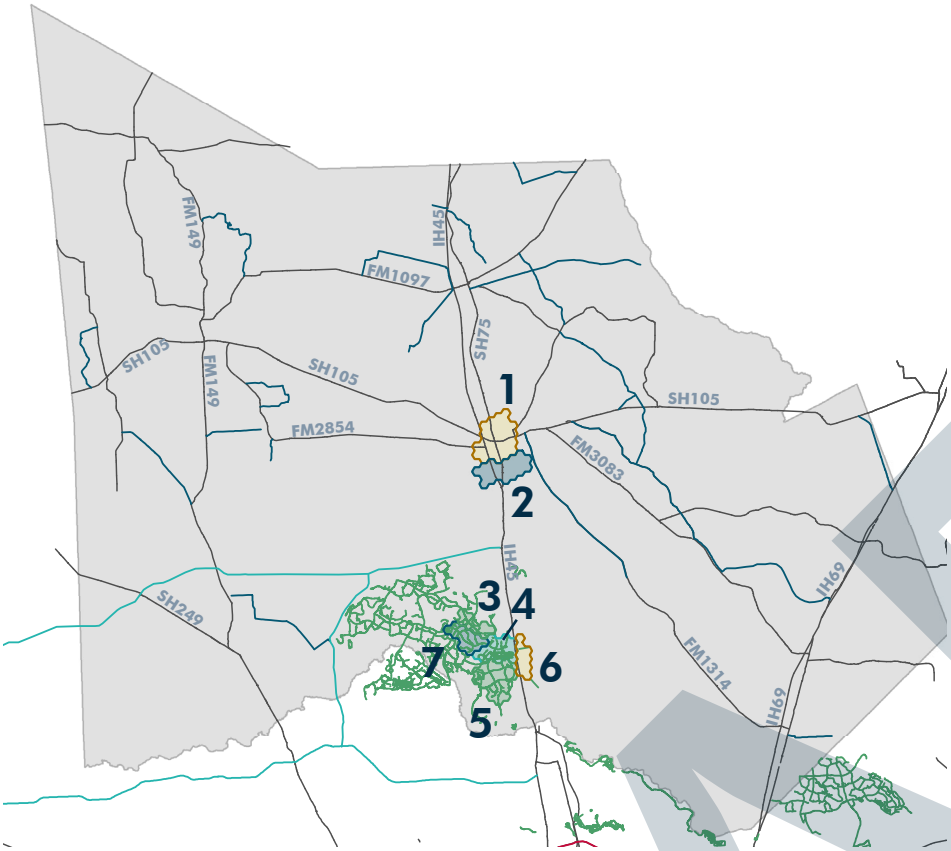
WALKWAYS & PEDESTRIAN FOCUS AREAS



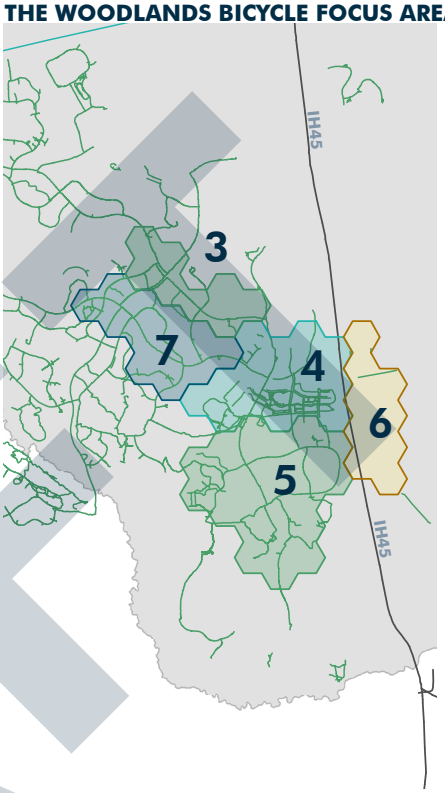
Pedestrian Focus Areas		Index*	Need**
1	Downtown Conroe	98	EJ, School
2	Downtown The Woodlands	97	-
3	Conroe (South)	97	School
4	Grogans Mill	97	-
5	Conroe (Northwest)	97	-

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

BIKEWAYS & BICYCLE FOCUS AREAS



THE WOODLANDS BICYCLE FOCUS AREAS



Bicycle Focus Areas

Roadway

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Bicycle Focus Areas		Index*	Need**
1	Downtown Conroe	87	EJ, Transit
2	Conroe (South)	80	-
3	Research Forest Dr	78	-
4	Downtown The Woodlands	78	-
5	Grogans Mill	78	Transit
6	Oak Ridge North	96	-
7	Lake Woodlands Dr	96	School

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

Existing Plan	Plan Partners	Year
Paths & Parkways	The Woodlands Township	2016

MONTGOMERY COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to Montgomery County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Montgomery County should use this list as a starting point and tailor solutions to fit their specific needs.

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits to reveal potential design improvements at those locations.
2. Create local pedestrian and bicycle safety action plans, particularly in Conroe, The Woodlands, and Oak Ridge North.
3. Bring existing sidewalks in The Woodlands and the neighborhoods around Fox Run Blvd into compliance with the Americans with Disabilities Act as needed.
4. Fill the gaps in the county's sidewalk network with a priority on the Pedestrian Focus Areas in and around Conroe.
5. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
6. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists, bicyclists and pedestrians.

Build for Impact

1. Conduct local active transportation studies for the Pedestrian and Bicycle Focus Areas without one. Use these plans to guide investment in walkways and bikeways that connect population centers, schools, job centers, and transit.
2. Fund and build the active transportation recommendations in the 2016 Paths & Parkways plan for The Woodlands.
3. Identify and build bikeway connections between the county's population centers and tourist destinations like the Sam Houston National Forest, Lake Conroe, Lake Houston Wilderness Park, WG Jones State Forest, Spring Creek Greenway, Old Town Spring, and Mercer Botanic Gardens.

Build for Need

1. Build walkways and bikeways that connect focus areas to nearby job centers with a priority on connections between environmental justice areas and job centers in the Conroe Pedestrian and Bicycle Focus Areas.
2. Build walkways and bikeways that create first-mile/last-mile connections to transit stops in the county, including:
    - Connections to Conroe Connection stops in Conroe
    - Connections to Park & Ride locations in The Woodlands
3. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.

Maintain What's Built

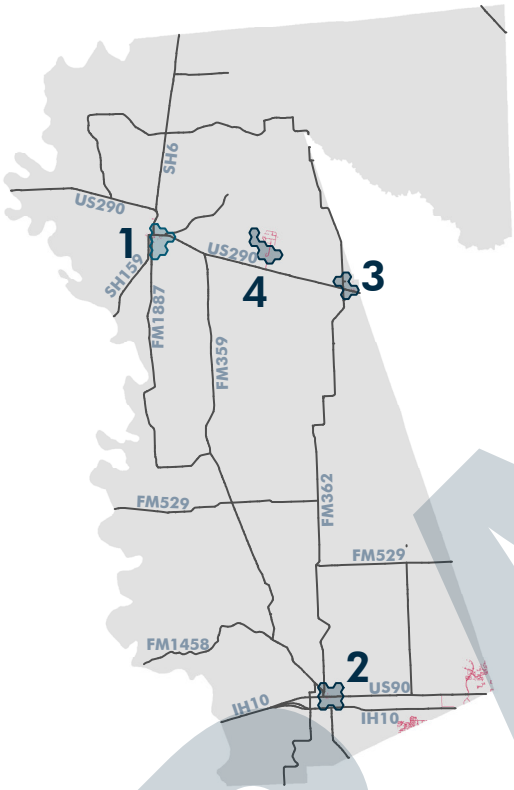
1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths/protected bike lanes within the county
4. Maintain the existing network of shared-use paths in The Woodlands.

Encourage More Walking and Biking

1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

WALLER COUNTY PROFILE

WALKWAYS & PEDESTRIAN FOCUS AREAS



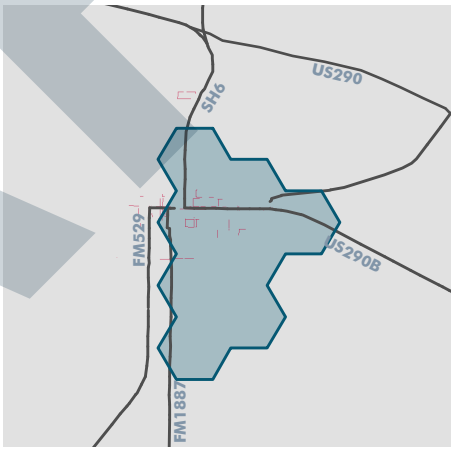
Pedestrian Focus Areas

Additional Pedestrian Areas

Sidewalks

Roadway

HEMPSTEAD PEDESTRIAN FOCUS AREAS



Pedestrian Focus Areas		Index*	Need**
1	Hempstead	79	EJ

Additional Pedestrian Areas

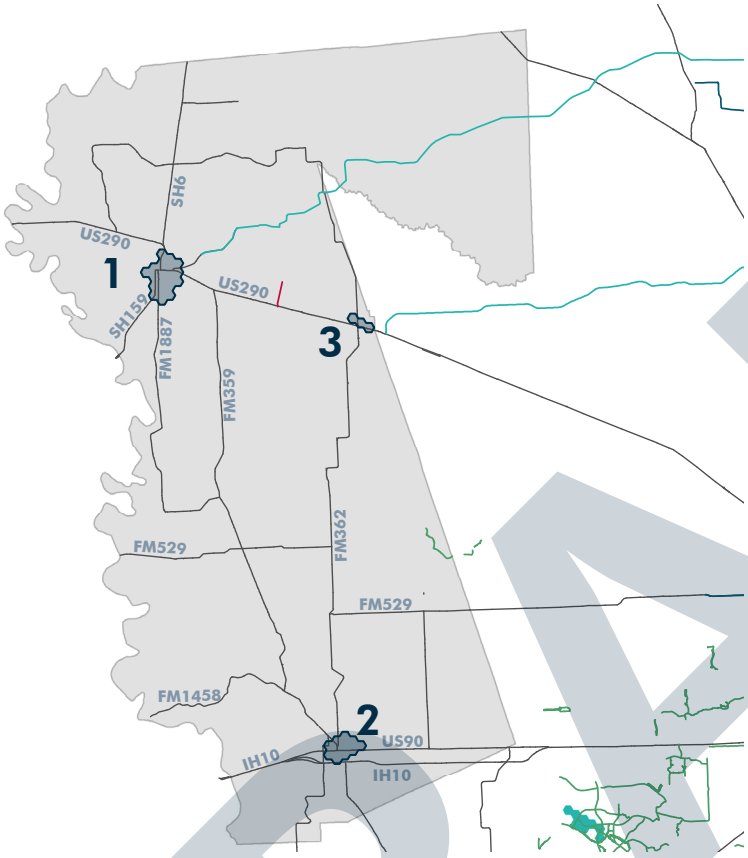
These areas did not score within the Top 40 highest focus areas outside of Harris County, but they still represent areas of need relative to other places in Waller County.

2	Brookshire	63	-
3	Waller	60	-
4	Prairie View	59	-

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

Note: Both the Waller Pedestrian Area and the Waller Bicycle Area are smaller than one square mile – the minimum geography used to identify and split focus areas. We included Waller here because the city straddles the Harris-Waller county line, so the city was not analyzed together fully. We included it here because it still showed a pattern of need similar to Brookshire and Prairie View.

BIKEWAYS & BICYCLE FOCUS AREAS



Additional Bicycle Areas

Bike Lane
Dedicated lane marked off with painted lines for use by bicyclists

Shared Use Path-Trail
Dedicated trail completely separated from auto traffic used by pedestrians and bicyclists

Signed Shared Roadway
Route with signs indicating cars and bicyclists need to share the travel lanes

Signed Shoulder Route
Route with signs indicating that bicyclists are permitted to use the shoulder as a travel lane

Roadway

Additional Bicycle Areas		Index*	Need**
1	Hempstead	74	-
2	Brookshire	73	-
3	Waller**	71	-

These areas did not score within the Top 40 highest focus areas outside of Harris County, but they still represent areas of need relative to other places in Waller County.

*Index: The index for each Focus Area is the average Focus Area score for all its hexagons.
**Need: Need is relative to other Focus Areas outside of Harris County.

Existing Plan	Plan Partners	Year
Hempstead Livable Centers Study	H-GAC, City of Hempstead	2012
City of Waller - Advance Plan	H-GAC, City of Waller, Waller Economic Development Corporation	2009

WALLER COUNTY RECOMMENDATIONS

The recommendations listed here offer a set of ideas specific to Waller County that can help its communities and the broader region achieve the 2045 vision. H-GAC's region-wide strategies for each goal (listed on pages 57-65) are intended to support the local recommendations listed here. Residents, local governments, and other stakeholders in Waller County should use this list as a starting point and tailor solutions to fit their specific needs.

Prioritize Safety

1. Identify corridors and intersections with a high number of crashes and conduct safety audits to reveal potential design improvements at those locations.
2. Create local pedestrian and bicycle safety action plans, particularly in the county's four Pedestrian and Bicycle Focus Areas: Hempstead, Brookshire, Waller and Prairie View.
3. Bring existing sidewalks into compliance with the Americans with Disabilities Act and fill the gaps in the county's sidewalk network with a priority on the county's four Pedestrian Areas.
4. Build high-comfort bikeways on roads with a history of crashes involving bicyclists.
5. Participate in H-GAC's Regional Safety Campaign to promote safe behaviors for motorists, bicyclists and pedestrians.

Build for Impact

1. Conduct local active transportation studies that establish a vision for walkway and bikeway networks in the Brookshire and Prairie View Pedestrian and Bicycle Areas. Use these studies as a guide for investment in walkways and bikeways that connect residential areas to schools and each community's major commercial centers.
2. Revisit the Livable Centers Studies in Hempstead and Waller to measure progress and revamp existing recommendations.
3. Identify and build bikeway connections between the county's population centers and tourist destinations like Prairie View A&M University, Katy, Brenham, and Fulshear.

Build for Need

1. Build walkways and bikeways that connect focus areas to nearby job centers with a priority on connections between environmental justice areas and job centers in the Hempstead Pedestrian Focus Area.
2. Ensure all schools have walkways within a one-half mile radius and bikeways within a two-mile radius.

Maintain What's Built

1. Keep updated local data sets on existing walkways and bikeways that include comfort level, crash data, and facility type.
2. Take advantage of H-GAC's active transportation count program and deploy temporary counters to the county's pedestrian and bicycle focus areas during planning studies, and before and after infrastructure improvements.
3. Purchase, install, and maintain permanent counters on shared-use paths and protected bike lanes within the county

Encourage More Walking and Biking

1. Participate in Bike Month, and National Walk and Bike to School Day.
2. When new walkways and bikeways are completed, provide information to nearby residents about where the new infrastructure connects and remind residents about safe habits for people driving, walking, biking, and rolling.
3. Encourage local employers to offer incentives for workers to walk, bike, or roll for their commute.
4. Obtain Walk Friendly and Bike Friendly community designations.

Appendices

2045 Active Transportation Plan

APPENDIX A: FOCUS AREA METHODOLOGY

As the region's existing condition maps show, high-quality walkways and bikeways are present in some communities, but not all. Similarly, regional residents use walkways and bikeways differently depending on their economic circumstances, age, and the availability of infrastructure in their community. For those reasons, some parts of the eight-county region have a higher need for active transportation planning and construction and a higher propensity of active transportation use.

STEP 1 IDENTIFY CRITERIA

We have identified those high-need places as the Pedestrian Focus Areas (see pages 48-51) and Bicycle Focus Areas (see pages 52-55). Focus Areas were determined using six criteria, shown below. The criteria are nearly identical for pedestrians and bicycles because walkway and bikeway users have similar needs and similar indicators of use.

Job + Resident Density

Density of Jobs + Residents (also known as Activity Population Density) totals the number of jobs per square mile and the number of residents per square mile. A high Density of Jobs + Residents defines places where the population gathers throughout the day and points to areas of high traffic for pedestrians, bicyclists, cars, and transit. Walkway and bikeway investments in these areas can reduce overall congestion and improve safety for all road users. Source: H-GAC Regional Growth Forecast, 2017

Intersection Density

Intersection Density measures the number of times one roadway intersects another per square mile. As an indicator, intersection density reveals areas where people will have a higher propensity to walk, bike or roll. Areas with high intersection densities typically have more connected street networks, slower vehicle speeds and a larger number of destinations. Source: Southeast Texas Addressing and Referencing Map (STAR*Map) 2017

School Proximity

The State of Texas does not require school districts to provide bus service to children living within two miles of their school, meaning many children walk and bike to class. People living within 2 miles of a grade school, technical school, college or university have a higher propensity to walk, bike or roll to class. Sources: Texas Education Agency 2018 (grade schools include all regular, charter, and alternative schools in the region); Integrated Post-Secondary Education System 2018 and National Center for Education Statistics 2018 (colleges, universities, and technical schools).

Transit Proximity

The recent origin-destination survey for regional transit users clearly shows that most transit users walk or bike to get to and from transit stops. Places near transit stops have a higher need for active transportation infrastructure that is safe and convenient for transit users. Sources: Transit stop data was gathered from the eight regional transit providers who have fixed-route service: Brazos Transit District, City of Conroe, Fort Bend County Transit, City of Galveston, Gulf Coast Center (Connect Transit), Harris County Transit, METRO, and The Woodlands Township.

Crashes

Crashes involving pedestrians and bicyclists are a key signal for identifying unsafe or insufficient active transportation infrastructure. The crashes used for this analysis do not include crashes in which one of the parties (motorist, bicyclist, or pedestrian) was intoxicated. Crashes where all parties were sober are more likely to occur because of issues that can be solved through design or policy. Source: TxDOT Crash Records Information System, 2009-2017

Environmental Justice Areas

Environmental Justice (EJ) Areas are defined as Census block groups in which the average population in a protected class is greater than the average across all eight counties*. Protected classes include low-income households, racial and ethnic minorities, people with low educational attainment, people with limited English proficiency, female-headed households, and zero-car households. These areas indicate need for active transportation because people in these protected classes are more likely to walk, bike, roll or use transit than non-protected classes. Source: Environmental Justice - H-GAC's Strategy for the Fair Treatment and Meaningful Involvement of All People, 2017

*For all protected classes except racial and ethnic minorities, EJ Areas are determined by a greater than regional average plus one standard deviation.

STEP 2 DEVELOP A STANDARD UNIT OF MEASUREMENT

A key purpose for developing Focus Areas is to compare distinct parts of the region with one another. To accomplish this, it is necessary to divide the eight counties into identical geographic units. Fortunately, the Activity Connectivity Explorer (ACE) – a tool to measure density and connectivity in the region – already uses a grid to split the region into hexagons that are one-seventh of a square mile each (see Map 21). Find information about the ACE tool at arcgis02.h-gac.com/ACE or type "H-GAC ACE Tool" into a search engine.

Why Hexagons?

What are the benefits of using a hexagon? Hexagons are the most complex regular polygon that can fill a plane without gaps or overlap. Hexagons reveal patterns in the data more easily than what squares would offer and are suitable for representing street-oriented development patterns like those found in the eight-county region.

Map 23

STEP 3 ASSIGN HEXAGONS A VALUE FOR CRITERIA

Each hexagon was assigned a score for all six criteria using GIS geoprocessing tools, shown in the table below.

Focus Area Criteria	Method for Assigning Value	Example
Job + Resident Density	This measurement was calculated in the Activity Connectivity Explorer (ACE) tool. To learn about the ACE methodology, visit arcgis02.h-gac.com/ACE or type "H-GAC ACE Tool" into a search engine.	A hexagon with 3,000 residents and 3,000 jobs per square mile has a Density of Jobs + Residents value of 6,000.
Intersection Density	This measurement was calculated for the ACE tool. To learn about their methodology, visit arcgis02.h-gac.com/ACE or type "H-GAC ACE Tool" into a search engine.	A hexagon with 20 intersections per square mile has an Intersection Density value of 20.
School Proximity	Spatial Join layer of school locations to hexagon layer	A hexagon with 3 schools within 0.5 miles and 12 schools within 2 miles has a School Proximity value of 3 for pedestrians and 12 for bicyclists.
Transit Proximity	Spatial Join layer of transit stop locations to hexagon layer*	A hexagon with 1 transit stop within 0.5 miles and 8 transit stops within 2 miles has a Transit Proximity value of 1 for pedestrians and 8 for bicyclists.
Crashes	Spatial Join layer of crash locations to hexagon layer	A hexagon with 5 pedestrian crashes and 1 bicycle crash between 2009 and 2017 has a Crash value of 5 for pedestrians and 1 for bicyclists.
Environmental Justice Areas	Spatial Join (one-to-many) layer of Environmental Justice Areas (Census block group) to hexagon centroid layer	A hexagon with a centroid in a Census block group that has a higher than average population for 5 out of the 7 Environmental Justice protected classes has an Environmental Justice Area value of 5.

* Brazos Transit District (BTD) uses a wave stop system, meaning that a passenger can hail the bus from any point along the bus route. For this reason, BTD does not have any designated stops. Transit stop density for hexagons using Fort Bend County Transit (FBCT) were used as a proxy for the BTD stops. Hexagons within 0.5 miles of a FBCT stop have a median of 2 stops within 0.5 miles. Hexagons within 2 miles of a FBCT stop have a median of 4 stops within 2 miles. The medians for the FBCT hexagons were applied to hexagons within .5 and 2 miles of a BTD line respectively.

STEP 4 ISOLATE HEXAGONS FOR ANALYSIS

Many hexagons in the region sit within large tracts of rural farmland or in the middle of a large body of water – places where active transportation infrastructure is not needed. The analysis eliminates any hexagons that do not meet at least one of the six Focus Area criteria before comparing them against one another.

The remaining hexagons meet at least one of the criteria, as shown in the table below.

This allowed us to reduce the number of hexagons useful for the analysis, but still left some that were unnecessary. For example, a school located along the Trinity Bay coastline captures all hexagons within 2 miles, including those located in the water. To eliminate those types of incidents, we removed all hexagons with 0 jobs + residents per square mile. After isolating all hexagons, we were left with 18,385 pedestrian hexagons and 26,962 bicycle hexagons.

Focus Area Criteria	Minimum Requirement for Analysis
Job + Resident Density	Hexagon has >5,000 jobs + residents per square mile (the top 40% of hexagons)
Intersection Density	Hexagon has >55 intersections per square mile (the top 40% of hexagons)
School Proximity	Hexagon is within 0.5 miles of a school (for Pedestrian Focus Areas) or 2 miles (for Bicycle Focus Areas)
Transit Proximity	Hexagon is within 0.5 miles of a transit stop (for Pedestrian Focus Areas) or 2 miles (for Bicycle Focus Areas)
Crashes	Hexagon contains at least one incident of a crash involving a pedestrian or bicyclist between 2009 and 2017 in which neither party was intoxicated
Environmental Justice Areas	Hexagon is within an Environmental Justice Area

Finally, we sorted the remaining hexagons into three groups: all hexagons, hexagons within Harris County, and hexagons outside of Harris County. By separating the hexagons in this way, we can roughly compare hexagons based on their location in the urban center of our region (in Harris County) versus in the suburban and rural places in our county.

STEP 5 CONVERT CRITERIA TO A 100-POINT SCALE

After all hexagons have assigned values for all criteria (see Step 3 above) and have been grouped (see Step 4 above), we normalized the assigned values for each criteria on a scale of 0 to 100. The hexagon with the highest scores in that criteria is given a value of 100 and the hexagon with the lowest score in that criteria is assigned a value of 0. For example, if a hexagon has an intersection density higher than 70 percent of all other pedestrian hexagons, then its value for Pedestrian Intersection Density is 70 on the 100-point scale.* Maps 4-15 on pages 34-45 show the six pedestrian and six bicycle criteria for the entire region.

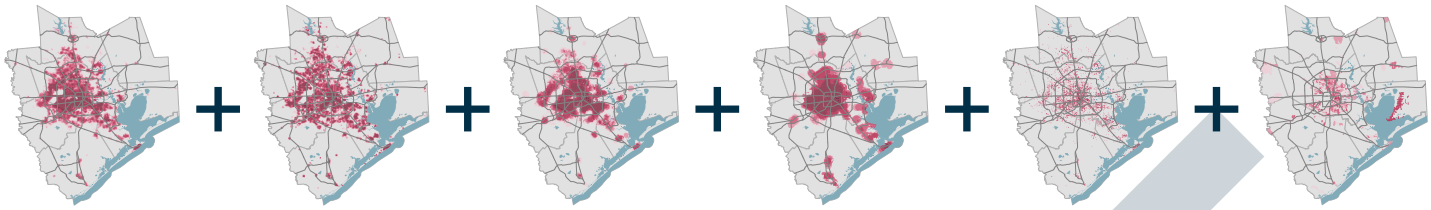
*One hexagon may have different scores for pedestrian and bicycle criteria since there are more bicycle hexagons than pedestrian hexagons. The same hexagon that has a Pedestrian Intersection Density value of 70 out of 100 may have a higher intersection density than 80 percent of all bicycle hexagons, giving it a Bicycle Intersection Density value of 80.

STEP 6 TOTAL ALL CRITERIA

After all pedestrian and bicycle criteria have been converted into a 100-point scale for each hexagon (see Step 5 above) all six criteria are totaled together for a raw Focus Area index score for both pedestrians and bicycles.

STEP 7 CONVERT FOCUS AREA TOTALS TO 100-POINT SCALE

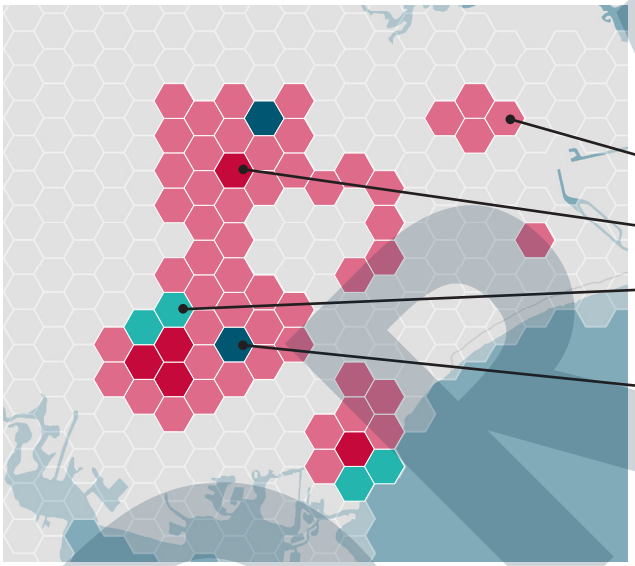
Once all hexagons have a raw Focus Area score (Step 6), the hexagons are again converted to a 100-point scale to calculate the final Pedestrian Focus Area score and Bicycle Focus Area score. See pages 46-53 for maps of the Pedestrian and Bicycle Focus Area Scores for the entire region, Harris County, and Non-Harris County hexagons.



Pedestrian and Bicycle Focus Area Indices

STEP 8 DEFINE FOCUS AREAS

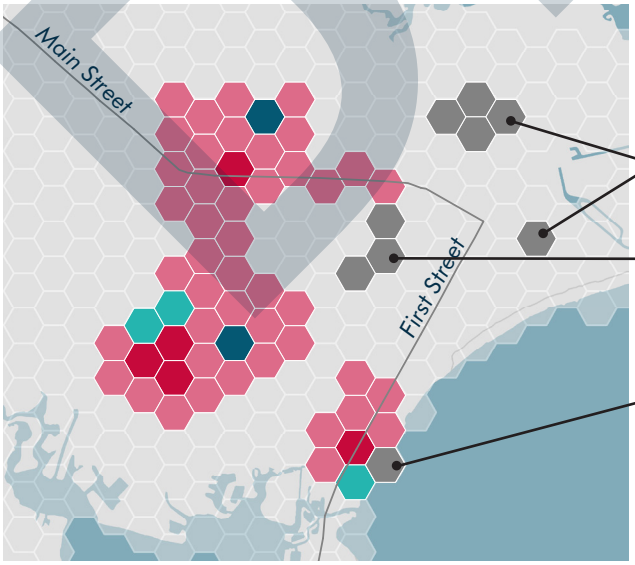
Now that all pedestrian and bicycle hexagons have their respective Focus Area scores, we need to group individual hexagons into distinct Focus Areas with three steps: (1) Selecting high-scoring Focus Area hexagons, (2) Eliminating hexagons that are not part of a clear pattern, (3) Split remaining hexagons into Focus Areas.



Select Hexagons

To identify Focus Areas, we first selected hexagons with high scores on a scale of 0 to 100.

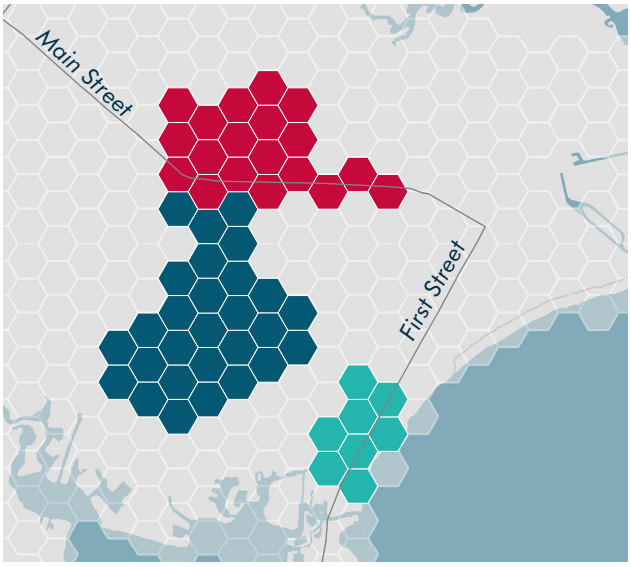
- Select all hexagons with a score of 90 or higher
- Select all hexagons with a score of 98 or higher
- Select any additional hexagons adjacent to hexagons with 98 or higher
- Select any additional hexagons that are surrounded on at least 5 sides by hexagons from the first three steps



Eliminate Hexagons

Next, we eliminated hexagons that were not part of a clear pattern or were in a group too small to be a Focus Area.

- Eliminate any hexagons part of a standalone group totaling one square mile or less (< eight hexagons)
- Eliminate any hexagons with only one adjacent hexagon or two non-touching adjacent hexagons unless those hexagons follow a corridor (ex: the hexagons along Main Street in the map to the left)
- Eliminate any hexagons that do not have roadway infrastructure (ex: the hexagon hovering over the waterway in the map to the left)



Split Hexagons

Finally, we split the hexagons into contiguous groups of five square miles or less (35 hexagons or fewer). Factors that influence hexagon splits included:

- Jurisdiction boundaries
- Roadways (ex: Main Street in the map to the left)
- Waterways
- Railroads

APPENDIX B: PEDESTRIAN FOCUS AREAS AND CRITERIA

This table includes a list of all 80 Pedestrian Focus Areas as well as the six additional Pedestrian Areas in Chambers and Waller counties. The numbers included for the Focus Area Index, Job + Resident Density, Intersection Density, School Proximity, Transit Proximity, Crashes, and Environmental Justice are the average of the scores for each of the hexagons that make up that Focus Area. For example, if Focus Area A has seven hexagons with Intersection Densities of 20, 24, 32, 18, 12, 42, and 20 intersections per square mile, its Intersection Density score is 24, the average of the seven hexagons.

Focus Area	County	City	Focus Area Index	Job + Resident Density	Intersection Density	School Proximity	Transit Proximity	Crashes	Enviro. Justice
Gulfton	Harris	Houston	98	21,415	58	10.4	55	7.2	3.5
Third Ward	Harris	Houston	98	8,120	147	4.8	72	4.9	2.9
South Park	Harris	Houston	98	6,527	100	3.3	49	4.1	2.9
Kashmere Gardens	Harris	Houston	98	6,779	134	3.6	65	3.0	4.0
Crestmont Park	Harris	Houston	98	6,001	95	3.4	32	2.0	3.2
Sunnyside	Harris	Houston	97	4,922	103	3.9	49	3.6	3.8
Near Northside - Quitman	Harris	Houston	97	6,785	179	4.8	66	3.2	3.9
Cloverleaf	Harris	Cloverleaf	97	9,809	99	2.3	19	3.5	2.8
Northline - Parker	Harris	Houston	97	8,231	82	3.3	43	3.3	3.7
Northline - Commons	Harris	Houston	97	8,608	82	3.2	42	3.4	3.2
Greenspoint	Harris	Houston	97	12,999	41	4.2	28	4.4	4.5
SW - Buffalo Speedway	Harris	Houston	97	6,015	77	3.4	30	3.3	2.4
Old Spanish Trail/ South Union	Harris	Houston	97	6,978	109	3.3	62	4.7	2.9
Baytown	Harris	Baytown	97	7,484	171	3.0	25	1.6	2.1
Acres Home - Gulf Bank	Harris	Houston	97	5,271	89	2.4	43	2.2	2.8
Alief - East	Harris	Houston	97	11,853	61	4.8	30	4.2	2.8
SW - Fondren	Harris	Houston	97	9,770	76	2.8	38	3.6	2.8
Spring Branch	Harris	Houston	97	9,514	89	3.5	35	2.6	2.9
Pecan Park/Park Place	Harris	Houston	96	8,880	101	5.7	34	2.4	3.1
Fifth Ward	Harris	Houston	96	6,424	155	3.6	75	2.8	3.4
Independence Heights	Harris	Houston	96	7,538	98	2.0	49	4.0	3.5
Eastwood	Harris	Houston	96	8,304	127	4.5	43	2.5	3.3
Hobby	Harris	Houston	96	9,629	76	2.3	32	4.7	3.4
Alief - West	Harris	Houston	96	9,824	91	3.1	26	2.3	1.9
Golfcrest	Harris	Houston	96	9,292	87	2.7	44	2.7	3.5
Midtown/Museum District	Harris	Houston	96	21,104	233	3.6	107	18.8	0.2
Uptown - Richmond	Harris	Houston	96	18,833	60	4.5	49	5.8	1.9
Second Ward/ Magnolia Park	Harris	Houston	96	7,150	119	3.6	48	2.6	3.6
Downtown Houston	Harris	Houston	96	63,899	178	2.4	157	26.9	0.8
Chinatown	Harris	Houston	96	18,140	42	3.2	39	6.5	3.5
East Downtown	Harris	Houston	95	10,374	189	3.7	65	1.9	2.1
Downtown Galveston	Galveston	Galveston	95	8,136	168	4.2	44	1.9	2.1

PEDESTRIAN FOCUS AREAS AND CRITERIA, CONT'D.

Focus Area	County	City	Focus Area Index	Job + Resident Density	Intersection Density	School Proximity	Transit Proximity	Crashes	Enviro. Justice
Beechnut at Bissonnet	Harris	Houston	95	11,661	70	4.7	46	3.6	2.4
Bellaire	Harris	Bellaire	95	12,450	103	5.7	58	3.0	1.0
Upper Kirby/Rice Village	Harris	Houston	95	20,881	129	2.8	74	7.7	-
Near Northside - Cavalcade	Harris	Houston	95	5,814	160	2.1	58	1.1	3.1
Greater Montrose	Harris	Houston	95	21,555	217	2.7	80	7.9	0.1
Greenway Plaza/ Highland Village	Harris	Houston	94	54,773	82	3.9	86	8.0	0.3
Texas Medical Center	Harris	Houston	94	23,595	96	3.9	47	4.8	-
Greater Heights	Harris	Houston	94	9,576	166	3.1	60	3.1	1.1
Sharpstown	Harris	Houston	91	14,711	61	2.7	47	3.7	1.9
Downtown Conroe	Montgomery	Conroe	87	5,434	105	1.9	18	1.4	2.5
UTMB/East Galveston	Galveston	Galveston	86	10,136	98	2.5	18	0.3	1.9
Briargate	Fort Bend	Houston	85	5,006	67	1.7	12	0.7	1.5
Mission Bend	Fort Bend	Mission Bend	84	8,156	98	2.4	3	0.7	1.0
Downtown Texas City	Galveston	Texas City	84	3,722	106	1.9	9	0.4	1.6
SH6 at Keegans Bayou	Fort Bend	-	84	7,269	86	2.2	2	2.0	1.0
Downtown Rosenberg	Fort Bend	Rosenberg	83	4,515	106	1.6	2	0.6	1.8
Ridgegate/Ridgemont	Fort Bend	Houston	83	5,024	63	1.4	10	1.1	1.6
Stewart Rd at 61st	Galveston	Galveston	83	5,705	114	2.2	19	1.4	0.6
Downtown LaMarque	Galveston	LaMarque	82	3,433	95	2.9	9	0.4	1.2
Missouri City - North	Fort Bend	Missouri City	82	5,343	83	1.8	3	0.8	1.4
Freeport - South	Brazoria	Freeport	81	3,265	76	2.2	8	0.1	1.4
Richmond	Fort Bend	Richmond	81	4,311	71	2.1	2	0.9	2.3
Fifth Street	Fort Bend	Fifth Street	81	3,857	67	4.8	1	0.6	1.1
Clute	Brazoria	Clute	81	4,359	50	1.4	13	0.9	0.9
Freeport - North	Brazoria	Freeport	80	3,538	68	1.5	8	0.5	2.7
Downtown The Woodlands	Montgomery	The Woodlands	80	13,615	59	1.7	7	1.3	-
SH6 at Airport Blvd	Fort Bend	Houston	80	5,988	78	1.4	-	1.2	1.0
Bellfort at Eldridge	Fort Bend	-	80	5,772	64	2.2	-	0.9	1.4
Dickinson - East	Galveston	Dickinson	80	3,901	102	1.4	6	0.6	0.9
Cleveland	Liberty	Cleveland	80	2,425	99	1.6	2	0.3	1.2
Texas City - SH3	Galveston	Texas City	79	3,025	55	1.3	6	0.8	2.2
Texas City - West	Galveston	Texas City	79	4,290	82	1.1	7	0.9	0.9
Lake Jackson - East	Brazoria	Lake Jackson	79	4,327	68	1.8	9	0.6	-
Rosenberg - East	Fort Bend	Rosenberg	79	4,467	44	2.5	2	0.5	1.2
Quail Valley	Fort Bend	Missouri City	79	4,998	78	1.3	1	0.4	1.2
Hempstead	Waller	Hempstead	79	3,291	150	1.5	-	0.8	2.6
Sugar Land - Southeast	Fort Bend	Sugar Land	79	5,488	87	1.8	1	0.4	0.1

PEDESTRIAN FOCUS AREAS AND CRITERIA, CONT'D.

Focus Area	County	City	Focus Area Index	Job + Resident Density	Intersection Density	School Proximity	Transit Proximity	Crashes	Enviro. Justice
Alvin	Brazoria	Alvin	78	5,069	113	2.9	-	1.4	0.7
Bacliff	Galveston	Bacliff	78	3,357	108	0.8	7	0.9	0.7
Angleton	Brazoria	Angleton	78	3,981	83	1.8	11	0.2	0.5
Conroe - South	Montgomery	Conroe	78	4,832	51	1.0	10	0.7	1.5
Grogans Mill	Montgomery	The Woodlands	78	6,920	67	2.0	0	0.8	0.2
Liberty	Liberty	Liberty	78	2,763	92	1.8	2	0.2	0.7
Conroe - Northwest	Montgomery	Conroe	78	5,142	44	1.5	12	1.1	0.3
Dayton	Liberty	Dayton	77	2,187	61	2.4	2	0.7	0.1
Dewalt	Fort Bend	Missouri City	76	3,705	53	1.6	1	0.4	0.6
Lake Jackson - West	Brazoria	Lake Jackson	76	5,265	69	1.0	12	0.6	0.1
Dickinson - West	Glaveston	Dickinson	76	4,036	71	1.3	7	0.7	-

Additional Pedestrian Areas

Pedestrian Area	County	City	Focus Area Index	Job + Resident Density	Intersection Density	School Proximity	Transit Proximity	Crashes	Enviro. Justice
Prairie View	Waller	Prairie View	63	2,544	89	-	-	0.4	2.0
Waller	Waller	Waller	60	2,349	107	1.6	-	-	0.6
Brookshire	Waller	Brookshire	59	907	27	1.3	-	-	2.7
Mont Belvieu	Chambers	Mont Belvieu	55	1,437	66	2.2	-	0.3	-
Anahuac	Chambers	Anahuac	49	1,115	25	5.4	-	-	-
Winnie	Chambers	Winnie	46	783	38	2.5	-	-	-

APPENDIX C: BICYCLE FOCUS AREAS AND CRITERIA

This table includes a list of all 80 Bicycle Focus Areas as well as the ten additional Bicycle Areas in Brazoria, Chambers, Liberty and Waller counties. The numbers included for the Focus Area Index, Job + Resident Density, Intersection Density, School Proximity, Transit Proximity, Crashes, and Environmental Justice are the average of the scores for each of the hexagons that make up that Focus Area. For example, if Focus Area A has seven hexagons with Intersection Densities of 20, 24, 32, 18, 12, 42, and 20 intersections per square mile, its Intersection Density score is 24, the average of the seven hexagons.

Focus Area	County	City	Focus Area Index	Job + Resident Density	Intersection Density	School Proximity	Transit Proximity	Crashes	Enviro. Justice
Near Northside - Quitman	Harris	Houston	99	6,913	184	29	721	2.2	4.2
Sunnyside - Cullen	Harris	Houston	99	5,654	106	26	396	2.3	3.3
Acres Home - East	Harris	Houston	99	4,703	97	23	339	2.1	3.1
Eastwood	Harris	Houston	98	8,141	124	33	469	1.2	3.1
Third Ward	Harris	Houston	98	8,047	144	34	701	2.6	2.9
Southmore and Pasadena	Harris	Pasadena	98	12,327	105	30	3	2.0	3.0
Crosstimbers and Lockwood	Harris	Houston	98	4,368	77	18	357	1.9	3.4
Vince Bayou at Southmore	Harris	Pasadena	98	8,779	102	26	30	1.6	3.0
Halls Bayou at Little York	Harris	Houston	98	6,418	68	15	164	2.1	2.8
South Park - MLK	Harris	Houston	98	6,455	93	27	366	1.3	3.0
Second Ward/ Magnolia Park	Harris	Houston	98	7,007	117	28	397	1.7	3.6
Cloverleaf	Harris	Cloverleaf	97	9,343	101	15	42	1.8	3.1
Acres Home - West	Harris	Houston	97	5,131	77	24	269	2.2	1.8
Northline - Commons	Harris	Houston	97	8,451	79	22	392	1.1	3.2
Trinity Gardens	Harris	Houston	97	4,231	72	12	340	2.4	3.0
Aldine-Westfield at Jensen	Harris	Houston	97	5,203	66	18	274	1.4	3.6
Northline - Parker	Harris	Houston	97	8,512	83	22	343	1.1	3.8
Greenspoint	Harris	Houston	97	19,009	24	18	129	1.6	4.7
Independence Heights	Harris	Houston	97	7,502	97	24	445	1.5	3.4
Edgebrook	Harris	Houston	97	10,768	78	21	82	1.9	2.1
Kashmere Gardens	Harris	Houston	97	6,387	111	26	515	1.3	3.9
Spring Branch	Harris	Houston	97	8,900	90	23	276	1.7	2.8
Hobby	Harris	Houston	97	9,517	77	23	210	1.4	3.3
Gulfgate	Harris	Houston	97	9,630	74	29	369	1.1	3.4
Gulfton	Harris	Houston	97	20,092	65	52	474	2.0	3.3
Fifth Ward	Harris	Houston	97	6,339	152	26	543	1.5	3.4
East Downtown	Harris	Houston	97	9,189	188	36	781	1.6	2.1
Griggs at Cullen	Harris	Houston	97	7,212	106	26	486	1.1	2.8
Bissonnet at BW8	Harris	Houston	97	15,716	31	35	310	2.3	3.0
Alief - West	Harris	Houston	97	9,608	83	27	206	1.3	2.3
Pecan Park/Park Place	Harris	Houston	96	9,504	107	26	302	0.8	3.1

BICYCLE FOCUS AREAS AND CRITERIA, CONT'D.

Focus Area	County	City	Focus Area Index	Job + Resident Density	Intersection Density	School Proximity	Transit Proximity	Crashes	Enviro. Justice
Westpark at SH6	Harris	Houston	96	8,430	65	21	141	2.2	2.7
Sunnyside - Scott	Harris	Houston	96	4,991	114	22	400	1.1	3.9
Midtown/Museum District	Harris	Houston	96	20,320	215	29	812	6.8	0.2
SW - Fondren	Harris	Houston	96	9,769	79	27	347	1.8	2.4
Chinatown	Harris	Houston	96	16,884	50	29	365	1.9	3.2
Golfcrest	Harris	Houston	96	8,843	99	27	313	0.7	3.6
Near Northside - Cavalcade	Harris	Houston	96	5,442	130	28	507	1.2	2.7
Uptown - Richmond	Harris	Houston	96	17,581	59	34	404	2.3	1.8
South Side - Scott	Harris	Houston	96	7,411	104	26	600	1.3	2.7
Downtown Galveston	Galveston	Galveston	95	8,136	168	15	171	2.7	2.1
Downtown Conroe	Montgomery	Conroe	91	5,548	109	11	92	1.3	2.3
Keegans Bayou at Fort Bend Co. Line	Fort Bend	-	90	7,032	81	19	81	0.1	1.2
Stewart Rd at 61st	Galveston	Galveston	89	6,075	121	11	120	1.6	0.7
Mission Bend	Fort Bend	Mission Bend	88	7,315	92	15	32	0.2	1.0
UTMB/East Galveston	Galveston	Galveston	87	7,087	74	7	77	1.3	2.3
Ridgegate/Ridgemont	Fort Bend	Houston	86	4,608	56	10	73	0.4	1.6
Downtown Texas City	Galveston	Texas City	86	3,691	106	8	40	0.8	1.6
Briargate	Fort Bend	Houston	86	3,993	53	11	71	0.4	1.5
Missouri City - North	Fort Bend	Missouri City	86	4,145	64	14	48	0.5	1.1
Brightwater	Fort Bend	Missouri City	86	5,947	79	15	4	0.1	1.1
Texas City - SH3	Galveston	Texas City	86	2,844	50	11	43	0.4	2.4
Downtown Richmond	Fort Bend	Richmond	85	3,874	79	10	9	0.4	2.4
Fifth Street	Fort Bend	Fifth Street	85	4,021	54	14	8	0.1	1.6
Texas City - SH146	Galveston	Texas City	85	4,222	85	8	49	0.9	1.0
Four Corners	Fort Bend	Four Corners	85	5,156	64	14	16	0.3	1.0
Sugar Land - North	Fort Bend	Sugar Land	85	5,719	69	13	15	0.4	1.0
Dickinson - East	Galveston	Dickinson	85	4,368	108	7	28	0.8	1.1
Quail Valley - West	Fort Bend	Missouri City	84	4,873	75	13	6	0.4	1.0
Meadows Place	Fort Bend	Meadows Place	84	7,491	88	20	63	0.0	0.3
Downtown LaMarque	Galveston	LaMarque	84	2,921	84	10	39	0.2	1.1
Downtown Rosenberg	Fort Bend	Rosenberg	84	3,912	96	9	9	0.5	1.8
Quail Valley - East	Fort Bend	Missouri City	84	4,090	67	10	12	0.4	1.0
Stafford - West	Fort Bend	Stafford	83	8,109	33	11	19	0.3	1.2
Rosenberg - East	Fort Bend	Rosenberg	83	4,074	39	13	10	0.5	1.1
Stafford - East	Fort Bend	Stafford	83	5,214	44	14	31	0.3	0.7
Conroe - South	Montgomery	Conroe	82	4,910	53	9	68	0.3	1.7
Freeport - North	Brazoria	Freeport	82	3,174	57	6	26	0.1	2.7
Research Forest	Montgomery	The Woodlands	82	6,444	47	9	12	1.3	0.0
Freeport - South	Brazoria	Freeport	82	2,702	65	6	26	0.5	1.3
Dickinson - West	Galveston	Dickinson	82	3,075	81	9	36	0.7	0.3

BICYCLE FOCUS AREAS AND CRITERIA, CONT'D.

Focus Area	County	City	Focus Area Index	Job + Resident Density	Intersection Density	School Proximity	Transit Proximity	Crashes	Enviro. Justice
Downtown The Woodlands	Montgomery	The Woodlands	81	14,852	66	9	18	0.7	0.0
Sugar Land - East	Fort Bend	Sugar Land	81	6,523	81	14	2	0.5	0.1
Grogans Mill	Montgomery	The Woodlands	81	6,703	81	8	17	0.6	0.1
Cleveland	Liberty	Cleveland	81	2,079	86	5	4	0.4	1.6
Dewalt	Fort Bend	Missouri City	81	3,838	61	8	5	0.4	0.8
Sugar Land - Southeast	Fort Bend	Sugar Land	81	5,164	87	13	3	0.4	0.3
Oak Ridge North	Montgomery	Oak Ridge North	81	5,926	54	8	17	0.6	0.0
Lake Woodlands	Montgomery	The Woodlands	80	5,283	87	8	13	0.8	0.0
Cinco Ranch - Westheimer Pkwy	Fort Bend	Katy	80	6,157	74	14	0	2.1	0.0

Additional Bicycle Areas

Pedestrian Area	County	City	Focus Area Index	Job + Resident Density	Intersection Density	School Proximity	Transit Proximity	Crashes	Enviro. Justice
Lake Jackson	Brazoria	Lake Jackson	80	4,432	69	8	56	0.5	0.1
Alvin	Brazoria	Alvin	80	5,331	132	13	0	1.4	1.0
Liberty	Liberty	Liberty	77	2,131	86	4	4	0.2	1.2
Dayton	Liberty	Dayton	75	2,489	73	7	4	0.5	0.1
Hempstead	Waller	Hempstead	74	2,568	122	3	0	0.5	2.2
Brookshire	Waller	Brookshire	73	2,195	74	5	0	0.5	2.0
Waller	Waller	Waller	71	2,439	115	4	0	0.7	1.0
Anahuac	Chambers	Anahuac	49	1,600	74	3	0	0.0	0.0
Mont Belvieu	Chambers	Mont Belvieu	49	1,078	26	7	0	0.1	0.0
Winnie	Chambers	Winnie	47	1,576	57	3	0	0.0	0.0

APPENDIX D: PROGRAMMED TIP PROJECTS

The tables in this appendix show the status of active transportation projects included in the Transportation Improvement Program (TIP). The TIP is a fiscally constrained financial plan of transportation projects approved to receive federal funding over the next four-years. H-GAC's Transportation Policy Council oversees development of and adopts the TIP. Following adoption, the TPC monitors implementation of the TIP and approves significant changes to projects contained in the TIP. New projects are added to the TIP on a periodic basis and a Call for Projects is conducted approximately every two years.

The projects listed here were added to the TIP prior to the most recent Call for Projects in 2018-2019. They range in scope, funding source, cost, and geography. Project information is based on data from January 2019 and includes projects funded by H-GAC, TxDOT, local governments, and a combination of the three.

COLUMN HEADER DEFINITIONS

Project Sponsor The entity that applied for and is responsible for execution of the project

Project Description Information related to the type of project; can include details such as infrastructure dimensions, location, material type, etc.

Street (From/To) The name of the streets where the project will be constructed; an alternative location description is noted in cases where the project is not on a street, or will involve multiple streets

Status The current state of the project

- **TIP** the project is scheduled in the TIP, but has not yet been let
- **LET** the funding for this project has been allocated to the project sponsor to begin execution of the project
- **COMPLETED** the project was fully executed

Funding Type The source of funds for this project; some projects have multiple sources and appear on multiple lines

- **3** Locally-funded project or state/federal project with funding not traditionally used for transportation projects
- **5** Congestion Mitigation/Air Quality improvement
- **7** Surface Transportation Program - Metro Mobility (STP-MM)
- **8** Safe Routes to School
- **9** Transportation Enhancements, Transportation Alternatives Program or Transportation Alternatives Set Aside
- **10** Miscellaneous
- **11** TxDOT District discretionary
- **TRANSIT** Transit funding

Federal (1,000s) The amount of dollars (in the thousands) from federal sources

State (1,000s) The amount of dollars (in the thousands) from state sources

Local (1,000s) The amount of dollars (in the thousands) from local sources

Total Cost (1,000s) The total cost of the project

Sub-category A description of the type of project

- **STUDY** A plan or study to identify active transportation improvements in a determined project area
- **STRIPED LANE** An active transportation facility (usually a bike lane) requiring road striping
- **SIDEWALKS** A sidewalk or network of sidewalks
- **SHARED-USE PATH** A shared-use path/trail or network of shared-use paths/trails
- **PED/BIKE SAFETY** Safety treatment, or set of safety treatments to a roadway or intersection (e.g., crosswalk improvements)
- **OTHER** Any other active transportation projects (e.g., bridge or bike share infrastructure)

MPO ID The reference ID used by H-GAC for TIP projects

Project Sponsor	Project Description	Street (From/To)	Status	Funding Type	Federal (1,000s)	State (1,000s)	Local (1,000s)	Total Cost (1,000s)	Sub-category	MPO ID
H-GAC	CONDUCT FIVE LIVABLE CENTER INITIATIVES STUDIES	CITY OF FULSHEAR; INTERNATIONAL MANAGEMENT DISTRICT; CITY OF MONT BELVIEU; SPRING BRANCH MANAGEMENT DISTRICT AND WESTCHASE MANAGEMENT DISTRICT	LET	7-STP-MM	$904	$-	$226	$1,130	STUDY	16309
UPTOWN HOUSTON DISTRICT	ON-STREET SHARED-USE LANES, SHARED-USE PATHS, IMPROVED CROSSINGS, A SHARED-USE BRIDGE OVER IH-10, A SHARED-USE CROSSING UNDER IH-610, A SHARED-USE BRIDGE CONNECTING SHARED-USE PATHS ALONG IH-610 AND A BRIDGE OVER BUFFALO BAYOU.	UPTOWN HOUSTON DISTRICT (Post Oak Blvd/Detering to Richmond Ave)	TIP	3-LOCAL	$-	$-	$27,700	$27,700	STRIPED LANE	13200
CITY OF WEBSTER	MILL AND ASPHALT OVERLAY OF SHOULDERS, SHOULDER WIDENING, PAVEMENT MARKINGS, STRIPING AND SIGNAGE FOR BIKE FACILITY	SH 3 (Richey St S to FM518)	TIP	9-STP-TAP	$6,741	$1,685	$-	$10,500	STRIPED LANE	17061
TXDOT HOUSTON DISTRICT	CONSTRUCT BRAZORIA COUNTY BICYCLE LOOP BY WIDENING SHOULDERS, MODIFYING TRAFFIC SIGNALS AND REMOVING SOME RAISED MEDIANS	FM 1462, FM 2403, FM 2917, FM 762, SH 332, FM 521, FM 2004, FM 523, FM 528 (Various)	TIP	9-STP-TAP	$3,226	$807	$-	$5,100	STRIPED LANE	17086
CITY OF CONROE	CONSTRUCT BIKE FACILITY	WILSON RD (Longmire Rd to Robinhood Dr)	COMPLETE	3-LOCAL	$-	$-	$2,000	$2,500	STRIPED LANE	15513
CITY OF CONROE	CONSTRUCT BIKE FACILITY	FM 3083 (FM105 to FM 1484)	TIP	3-LOCAL	$-	$-	$2,000	$2,000	STRIPED LANE	15504
CITY OF CONROE	CONSTRUCT BIKE FACILITY	LONGMIRE RD (LP336N to LP336S)	TIP	3-LOCAL	$-	$-	$2,000	$2,000	STRIPED LANE	15503
CITY OF CONROE	8' CONCRETE HIKE & BIKE TRAILS	LONGMIRE RD (FM3083 to League Line Rd)	LET	3-LOCAL	$-	$-	$1,744	$1,744	STRIPED LANE	15489
CITY OF GALVESTON	CONSTRUCT ON-STREET BICYCLE NETWORK (SIGNAGE, PAVEMENT MARKINGS AND STRIPING) AND INSTALL 200 BICYCLE RACKS	CITY OF GALVESTON (Various)	TIP	5-CMAQ	$286	$-	$72	$462	STRIPED LANE	16203

Project Sponsor	Project Description	Street (From/To)	Status	Funding Type	Federal (1,000s)	State (1,000s)	Local (1,000s)	Total Cost (1,000s)	Sub-category	MPO ID
CITY OF HOUSTON	DESIGN AND CONSTRUCTION OF NEIGHBORHOOD SIDEWALKS THROUGHOUT THE CITY. PROJECT INCLUDES SAFE SCHOOL SIDEWALK PROGRAM, MAJOR THOROUGHFARE SIDEWALK PROGRAM AND NEIGHBORHOOD SIDEWALK PROGRAM. This is an on-going program where the City of Houston lets approximately $6,000,000 for construction of sidewalks every year.	CITY OF HOUSTON (Various)	COMPLETE	3-LOCAL	$-	$-	$34,930	$34,930	SIDEWALKS	11866
WESTCHASE MANAGEMENT DISTRICT	RECONSTRUCT BACK OF CURB INFRASTRUCTURE (WIDER SIDEWALKS, STREET FURNITURE, BOLLARDS, PEDESTRIAN LIGHTING AND ENHANCED TRANSIT STOPS)	WESTHEIMER ST (Kirkwood Dr S to Westerland Dr)	TIP	9-STP-TAP	$10,321	$-	$2,580	$16,100	SIDEWALKS	17028
MIDTOWN MANAGEMENT DISTRICT	RECONSTRUCT BACK OF CURB INFRASTRUCTURE (SIDEWALKS, CURBS, ADA RAMPS, PEDESTRIAN LIGHTING AND LANDSCAPING)	MAIN ST (Truxillo St to Gray St)	LET	9-STP-TAP	$2,730	$-	$5,270	$8,000	SIDEWALKS	17029
MIDTOWN MANAGEMENT DISTRICT	RECONSTRUCT BACK OF CURB INFRASTRUCTURE (SIDEWALKS, CURBS, ADA RAMPS, PEDESTRIAN LIGHTING AND LANDSCAPING)	BRAZOS ST (Elgin St to Pierce St)	TIP	5-CMAQ	$4,115	$-	$1,029	$7,286	SIDEWALKS	17092
GREATER EAST END MANAGEMENT DISTRICT	PRELIMINARY ENGINEERING FOR INTERSECTION IMPROVEMENTS AND NEW SIDEWALKS (EAST END LIVABLE CENTER PLAN)	GREATER EAST END MANAGEMENT DISTRICT (Various)	COMPLETE	5-CMAQ	$412	$-	$103	$5,332	SIDEWALKS	16153
UPPER KIRBY DISTRICT	RECONSTRUCT AND WIDEN SIDEWALKS AND ADA RAMPS AND INSTALLATION OF LIGHTING, BENCHES AND BUS SHELTERS	SHEPHERD ST, FARNHAM ST (Westheimer St to US59)	TIP	9-STP-TAP	$2,818	$-	$705	$4,265	SIDEWALKS	17030
DOWNTOWN MANAGEMENT DISTRICT	REHABILITATE, RECONSTRUCT AND WIDEN SIDEWALKS	SE CENTRAL BUSINESS DISTRICT WITHIN A 56 BLOCK AREA BOUND BY POLK, PIERCE, HAMILTON AND FANNIN STREETS	TIP	5-CMAQ	$2,247	$-	$562	$3,952	SIDEWALKS	15321
NEAR NORTHWEST MANAGEMENT DISTRICT	RECONSTRUCT BACK OF CURB INFRASTRUCTURE (SIDEWALKS, CURBS, ADA RAMPS, PEDESTRIAN LIGHTING AND LANDSCAPING) AND MULTIUSE TRAIL CONNECTOR TO WHITE OAK BAYOU TRAIL	LITTLE YORK RD W (Hollister Dr to Houston-Rosslyn N)	TIP	5-CMAQ	$2,194	$-	$549	$3,500	SIDEWALKS	17078
CITY OF CONROE	CONSTRUCT SIDEWALKS	ALONG LEAGUE LINE RD, PLANTATION DR, SEMANDS AVE, LOOP 336 N, FM 2854 AND FOSTER DR (Various)	LET	3-LOCAL	$-	$-	$2,447	$3,083	SIDEWALKS	17131

Project Sponsor	Project Description	Street (From/To)	Status	Funding Type	Federal (1,000s)	State (1,000s)	Local (1,000s)	Total Cost (1,000s)	Sub-category	MPO ID
CITY OF CONROE	CONSTRUCT SIDEWALKS	ALONG SILVERDALE DR, SGT. ED HOLCOMB BLVD, RIVER POINTE DR, CAMELOT ST AND WESTVIEW BLVD (Various)	TIP	3-LOCAL	$-	$-	$2,209	$2,783	SIDEWALKS	17132
GREATER NORTHSIDE MANAGEMENT DISTRICT	RECONSTRUCT BACK OF CURB INFRASTRUCTURE (SIDEWALKS, CURBS, ADA RAMPS, PEDESTRIAN LIGHTING AND LANDSCAPING)	QUITMAN ST (South St to Gano St)	TIP	9-STP-TAP	$1,591	$-	$398	$2,500	SIDEWALKS	17065
UPPER KIRBY DISTRICT	RECONSTRUCT SIDEWALKS AND INSTALL PEDESTRIAN AMENITIES (LIGHTING, BENCHES, AND BUS SHELTERS)	BISSONNET ST (Buffalo Speedway to Kirby Dr)	LET	9-STP-TAP	$1,908	$-	$477	$2,385	SIDEWALKS	17032
CITY OF SOUTH HOUSTON	CONSTRUCT NEW 5 FT CONCRETE SIDEWALKS ALONG CITY OWNED ROADWAYS (APPROX 33,000 LINEAR FT)	SOUTH HOUSTON ROADWAYS (Various)	TIP	5-CMAQ	$1,242	$-	$310	$2,000	SIDEWALKS	17119
MIDTOWN MANAGEMENT DISTRICT	RECONSTRUCT BACK OF CURB INFRASTRUCTURE (SIDEWALKS, CURBS, ADA RAMPS, PEDESTRIAN LIGHTING AND LANDSCAPING)	WHEELER ST (SS527 to Caroline St)	TIP	5-CMAQ	$1,250	$-	$312	$2,000	SIDEWALKS	5050
CITY OF MONT BELVIEU	CONSTRUCT SIDEWALKS	VA (On FM565, SH146, Eagle Dr, Wilburn Ranch Dr, Perry Ave)	TIP	9-STP-TAP	$1,194	$-	$298	$1,492	SIDEWALKS	16121
CITY OF WALLER	SIDEWALK AND ADA RAMP CONSTRUCTION	FARR ST, CHERRY ST TO BRAZEAL ST & WALLER ST, FM 362 TO FARR ST	TIP	9-STP-TAP	$1,107	$171	$106	$1,485	SIDEWALKS	5055
CITY OF MONT BELVIEU	CONSTRUCTION OF SIDEWALKS	FM 565/FM 3360 (FM3360 to Fisher Rd/ Cherry Point to Eagle Pointe)	LET	9-STP-TAP	$849	$-	$212	$1,298	SIDEWALKS	17097
CITY OF WEST COLUMBIA	CONSTRUCT SIDEWALKS (NEW LOCATION)	SH 35 (SH36 to 17th St)	COMPLETE	5-CMAQ	$480	$-	$120	$790	SIDEWALKS	16166
CITY OF WEST COLUMBIA	PRELIMINARY ENGINEERING FOR CONSTRUCT SIDEWALKS (NEW LOCATION)	SH 35 (SH36 to 17th St)	COMPLETE	5-CMAQ	$37	$-	$9	$790	SIDEWALKS	16165
CITY OF GALVESTON	DOWNTOWN PEDESTRIAN TRANSIT CONNECTIVITY IMPROVEMENTS	CITY OF GALVESTON (Various)	TIP	9-STP-TAP	$402	$-	$101	$649	SIDEWALKS	17006
TXDOT HOUSTON DISTRICT	PEDESTRIAN WAY IMPROVEMENTS/ SIDEWALKS, CHANNELVIEW ISD, HARRIS COUNTY PRECINCT 2	AT ALICE JOHNSON JR HIGH SCHOOL	COMPLETE	8-SAFE	$454	$-	$-	$454	SIDEWALKS	15232
CITY OF HOUSTON	CITY OF HOUSTON REGIONAL BIKE/ PEDESTRIAN CONNECTIONS TO TRANSIT (TIGER)	CITY OF HOUSTON (Various)	COMPLETE	10-MISC	$15,000	$-	$3,750	$29,890	SHARED-USE PATH	16011

Project Sponsor	Project Description	Street (From/To)	Status	Funding Type	Federal (1,000s)	State (1,000s)	Local (1,000s)	Total Cost (1,000s)	Sub-category	MPO ID
CITY OF HOUSTON	CITY OF HOUSTON REGIONAL BIKE/ PEDESTRIAN CONNECTIONS TO TRANSIT (TIGER)	CITY OF HOUSTON (Various)	COMPLETE	3-LOCAL CONT	$-	$-	$11,140	$29,890	SHARED-USE PATH	16011
CITY OF HOUSTON	CONSTRUCT 10FT MULTI-USE TRAIL WITHIN CENTERPOINT UTILITY CORRIDOR	CENTERPOINT EASEMENT HIKE & BIKE TRAIL (Memorial Dr to San Felipe St)	TIP	9-STP-TAP	$9,107	$-	$2,277	$14,200	SHARED-USE PATH	17103
CITY OF WEBSTER	CONSTRUCT 6-FOOT WIDE SHARED USE PATH	NASA 1 W (NASA Blvd to Kobayashi St)	LET	9-STP-ENH	$1,160	$-	$290	$11,330	SHARED-USE PATH	16163
CITY OF PEARLAND	CONSTRUCT 10 FT MULTIUSE TRAIL	CLEAR CREEK TRAIL (UH Clear Lake Pearland Campus to N of Hughes Rd)	TIP	9-STP-TAP	$6,478	$-	$1,620	$10,100	SHARED-USE PATH	7641
CITY OF PEARLAND	ENGINEERING FOR CONSTRUCTION OF 10 FT MULTIUSE TRAIL	CLEAR CREEK TRAIL (UH Clear Lake Pearland Campus to N of Hughes Rd)	TIP	9-STP-TAP	$788	$-	$197	$10,100	SHARED-USE PATH	7127
CITY OF HOUSTON	CONSTRUCT FOUR PEDESTRIAN/BIKE BRIDGES OVER BRAYS BAYOU	W BRAYS BAYOU PED/ BIKE TRAIL (At Bob White Dr, Atwell Dr, Hermann Park and Tierwester)	COMPLETE	9-STP-ENH	$7,554	$-	$1,889	$9,097	SHARED-USE PATH	9902
CITY OF HOUSTON	CONSTRUCT HIKE & BIKE TRAIL	KEEGANS BAYOU TRAIL (Kirkwood Dr to Gessner Dr)	COMPLETE	5-CMAQ	$5,238	$-	$1,309	$7,129	SHARED-USE PATH	9351
CITY OF HOUSTON	CONSTRUCT HIKE & BIKE TRAIL	KEEGANS BAYOU TRAIL (Kirkwood Dr to Gessner Dr)	COMPLETE	3-LOCAL CONT	$-	$-	$321	$7,129	SHARED-USE PATH	9351
CITY OF LEAGUE CITY	CONSTRUCT 10-FT WIDE SHARED USE PATH ADJACENT TO HOT WATER CANAL WITH a "T" INTERSECTION EAST OF FM 2094 AND PATH TO FM 518	FM 518 BYPASS BIKEWAY (FM270 to South Shore Blvd & FM518)	TIP	9-STP-TAP	$4,195	$-	$1,049	$6,200	SHARED-USE PATH	15318
CITY OF HOUSTON	BIKE TRAIL ON BUFFALO BAYOU PARALLEL TO MEMORIAL DR & ALLEN PKWY	BUFFALO BAYOU TRAIL (Shepherd Dr to Sabine St)	COMPLETE	5-CMAQ	$4,605	$-	$1,151	$5,607	SHARED-USE PATH	3064
HOUSTON PARKS BOARD	CONSTRUCT MULTI-USE PATH	HALLS BAYOU TRAIL (Jensen Dr to Hirsh Rd; Bretshire Dr to Tidwell/ Wayside Dr)	TIP	5-CMAQ	$3,183	$-	$796	$5,012	SHARED-USE PATH	16126
TIMBER LANE UTILITY DISTRICT	CONSTRUCT HIKE AND BIKE TRAIL, BENCHES, LIGHTING AND BRIDGES	CYPRESS CREEK HIKE & BIKE TRAIL (Rambling Brook to Timber Lane Park)	COMPLETE	5-CMAQ	$3,665	$-	$1,194	$4,947	SHARED-USE PATH	13600
CITY OF PEARLAND	CONSTRUCT BIKE/PED TRAIL	GREEN TEE TERRACE BIKE/PED TRAIL (Various)	TIP	7-STP-MM	$568	$-	$142	$4,940	SHARED-USE PATH	16171

Project Sponsor	Project Description	Street (From/To)	Status	Funding Type	Federal (1,000s)	State (1,000s)	Local (1,000s)	Total Cost (1,000s)	Sub-category	MPO ID
CITY OF PEARLAND	CONSTRUCT BIKE/PED TRAIL	GREEN TEE TERRACE BIKE/PED TRAIL (Various)	TIP	9-STP-TAP	$2,338	$-	$585	$4,940	SHARED-USE PATH	16171
CITY OF PEARLAND	PRELIMINARY ENGINEERING AND ROW FOR BIKE/PED TRAIL	GREEN TEE TERRACE BIKE/PED TRAIL (Various)	COMPLETE	7-STP-MM	$433	$-	$108	$4,940	SHARED-USE PATH	16170
HARRIS COUNTY	CONSTRUCT MULTIUSE TRAIL	SPRING CREEK HIKE & BIKE TRAIL (US59 to Townsen Park & Ride)	TIP	5-CMAQ	$2,662	$-	$665	$4,200	SHARED-USE PATH	7814
CITY OF HOUSTON	LANDSCAPE WITH PED/BIKE IMPROVEMENTS ADJACENT TO ROADWAY WITHIN MEDIANS AND INTS. BOUND BY TMC, RICE, MFA AND HERMANN PARK	FANNIN/MAIN STREETS ESPLANADES (Cambridge St to Mecom Fountain)	COMPLETE	9-STP-ENH	$3,000	$-	$750	$3,453	SHARED-USE PATH	15324
CITY OF HOUSTON	CONSTRUCT SHARED USE PATH	BUFFALO BAYOU HERITAGE CORRIDOR (McKee St to W of Jensen Dr)	LET	9-STP-TAP	$2,422	$212	$394	$3,402	SHARED-USE PATH	10348
AIRLINE IMPROVEMENT DISTRICT	AIRLINE IMPROVEMENT DISTRICT BICYCLE/PEDESTRIAN IMPROVEMENTS	AIRLINE IMPROVEMENT DISTRICT (Various)	COMPLETE	5-CMAQ	$2,545	$-	$636	$3,323	SHARED-USE PATH	14656
CITY OF HOUSTON	DESIGN FOR 10-FOOT MULTIUSE TRAIL AND ASSOCIATED INTERSECTION, SAFETY, SIGNAGE, AND AMENITIES (LANDSCAPING, BENCHES, ETC.)	HCFCD CHANNEL (Dairy Ashford Rd to BW8 at Arthur Storey)	TIP	9-STP-TAP	$351	$-	$88	$3,200	SHARED-USE PATH	17123
CITY OF HOUSTON	HIKE AND BIKE TRAIL (HOUSTON HERITAGE CORRIDOR BAYOU TRAILS WEST, SEGMENT 1)	HOUSTON HERITAGE CORRIDOR BAYOU TRAIL (Houston Heritage Corridor Railroad Trestle to Johnny Goyen Park along White Oak Bayou Hike & Bike Trail)	COMPLETE	5-CMAQ	$3,079	$-	$770	$3,186	SHARED-USE PATH	3066
CITY OF HOUSTON	HIKE AND BIKE TRAIL (HOUSTON HERITAGE CORRIDOR BAYOU TRAILS WEST, SEGMENT 1)	HOUSTON HERITAGE CORRIDOR BAYOU TRAIL (Houston Heritage Corridor Railroad Trestle to Johnny Goyen Park along White Oak Bayou Hike & Bike Trail)	COMPLETE	7-STP-MM	$353	$-	$88	$3,186	SHARED-USE PATH	3066

Project Sponsor	Project Description	Street (From/To)	Status	Funding Type	Federal (1,000s)	State (1,000s)	Local (1,000s)	Total Cost (1,000s)	Sub-category	MPO ID
CITY OF HOUSTON	HIKE AND BIKE TRAIL (HOUSTON HERITAGE CORRIDOR BAYOU TRAILS WEST, SEGMENT 1)	HOUSTON HERITAGE CORRIDOR BAYOU TRAIL (Houston Heritage Corridor Railroad Trestle to Johnny Goyen Park along White Oak Bayou Hike & Bike Trail)	COMPLETE	3-LOCAL CONT	$-	$-	$172	$3,186	SHARED-USE PATH	3066
GULF COAST CENTER	CONSTRUCT SHARED USE PATH AND ENHANCE EXISTING PATH	BAY STREET, FROM 5TH AVE TO DIKE RD AND BETWEEN BAY ST AND SKYLINE DR	TIP	9-STP-TAP	$410	$-	$103	$3,168	SHARED-USE PATH	5054
CITY OF LEAGUE CITY	CONSTRUCT BIKE LANE (MILLING AND ASPHALT OVERLAY OF SHOULDERS, SHOULDER WIDENING, PAVEMENT MARKINGS, STRIPING) WITH SIGNAGE, SIDEWALK AND ASSOCIATED INTERSECTION IMPROVEMENTS	VA (On SH96, FM270, and FM2094)	TIP	9-STP-TAP	$1,959	$-	$490	$3,100	SHARED-USE PATH	17118
CITY OF HOUSTON	CONSTRUCT 10 FT SHARED USED PATH AND 5-6 FT SIDEWALKS IN SECTIONS	FM 526 (Woodforest Blvd to IH10); FM 526 (Greens Bayou along IH10 and Normandy St)	TIP	9-STP-TAP	$1,967	$492	$-	$3,100	SHARED-USE PATH	17074
CITY OF PEARLAND	CONSTRUCT BIKE/PED TRAIL	SHADOW CREEK BIKE/ PED TRAIL (Various)	TIP	7-STP-MM	$208	$-	$52	$2,278	SHARED-USE PATH	16169
CITY OF PEARLAND	CONSTRUCT BIKE/PED TRAIL	SHADOW CREEK BIKE/ PED TRAIL (Various)	TIP	9-STP-TAP	$1,092	$-	$273	$2,278	SHARED-USE PATH	16169
CITY OF PEARLAND	PRELIMINARY ENGINEERING AND ROW FOR BIKE/PED TRAIL	SHADOW CREEK BIKE/ PED TRAIL (Various)	COMPLETE	7-STP-MM	$249	$-	$62	$2,278	SHARED-USE PATH	16167
CITY OF HOUSTON	10-FOOT WIDE SHARED USE PATH ON SOUTH BANK OF BRAYS BAYOU W/ ON-STREET CONNECTIONS, CROSSINGS, AND ACCESS TO METRO	BRAYS BAYOU PATH (75th St to Old Spanish Trail)	COMPLETE	9-STP-ENH	$1,970	$-	$657	$2,040	SHARED-USE PATH	15323
GREATER GREENSPOINT MANAGEMENT DISTRICT	12' WIDE CONCRETE SHARED USE PATH IN GREATER GREENSPOINT MANAGEMENT DISTRICT	GREENS BAYOU TRAIL (Knobcrest Dr to Greens Rd; Imperial Valley Dr to Bradfield Rd)	COMPLETE	9-STP-ENH	$1,600	$-	$400	$1,755	SHARED-USE PATH	10347
HARRIS COUNTY	CONSTRUCT BIKE/PEDESTRIAN TIE-IN AT TERRY HERSHEY PARK IN HOUSTON	TERRY HERSHEY PARK	COMPLETE	9-STP-ENH	$1,005	$-	$-	$1,412	SHARED-USE PATH	7068
HARRIS COUNTY	CONSTRUCT BIKE/PEDESTRIAN TIE-IN AT TERRY HERSHEY PARK IN HOUSTON	TERRY HERSHEY PARK	COMPLETE	5-CMAQ	$971	$-	$243	$1,412	SHARED-USE PATH	7068
CITY OF SUGAR LAND	CITY OF SUGAR LAND PEDESTRIAN/ BICYCLE IMPROVEMENTS	CITY OF SUGAR LAND TOWN CENTER (Various)	COMPLETE	3-LOCAL	$-	$-	$998	$1,300	SHARED-USE PATH	14658

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CITY OF HOUSTON	CONSTRUCT CONNECTOR BIKEWAY	MKT BIKEWAY (Existing MKT Spur Bikeway to Heritage West Trail)	LET	10-MISC	$800	$-	$200	$1,260	SHARED-USE PATH	16047
TXDOT HOUSTON DISTRICT	BICYCLE/PEDESTRIAN IMPROVEMENTS	FM 270 (Harris County line to S of Hot Water Canal)	COMPLETE	5-CMAQ	$648	$162	$-	$1,113	SHARED-USE PATH	14488
TXDOT HOUSTON DISTRICT	BICYCLE/PEDESTRIAN IMPROVEMENTS	FM 270 (Harris County line to S of Hot Water Canal)	COMPLETE	11-ST DIST DISC	$76	$19	$-	$1,113	SHARED-USE PATH	14488
CITY OF HOUSTON	CONSTRUCT MULTI-USE PATH CONNECTORS/MISSING SEGMENTS	HERMANN PARK/ BRAYS BAYOU TRAIL (Almeda Rd to Holcombe Blvd)	LET	9-STP-ENH	$598	$-	$149	$1,079	SHARED-USE PATH	16158
HOUSTON PARKS BOARD	CONSTRUCT MULTI-USE PATH	HUNTING BAYOU TRAIL (Falls St to Lockwood Dr)	LET	9-STP-ENH	$607	$-	$152	$979	SHARED-USE PATH	16120
TXDOT HOUSTON DISTRICT	BICYCLE/PEDESTRIAN IMPROVEMENTS	FM 270 (Henderson St to Harris County line)	COMPLETE	5-CMAQ	$680	$170	$-	$900	SHARED-USE PATH	13850
TXDOT HOUSTON DISTRICT	BICYCLE/PEDESTRIAN IMPROVEMENTS	FM 270 (Henderson St to Harris County line)	COMPLETE	11-ST DIST DISC	$40	$10	$-	$900	SHARED-USE PATH	13850
CITY OF HOUSTON	ENGINEERING FOR 10FT MULTI-USE TRAIL WITHIN CENTERPOINT UTILITY CORRIDOR	CENTERPOINT EASEMENT HIKE & BIKE TRAIL (Memorial Dr to San Felipe St)	LET	9-STP-TAP	$644	$-	$161	$805	SHARED-USE PATH	17102
CITY OF HOUSTON	CONSTRUCT 6-8 FT SIDEWALK	SL 8 (Memorial Dr to Briar Hill Dr)	COMPLETE	9-STP-TAP	$466	$116	$-	$751	SHARED-USE PATH	17040
CITY OF WEBSTER	CONSTRUCT 10' SHARED USE PATH	FM 270 (Henderson Rd to NASA 1)	LET	9-STP-ENH	$739	$-	$185	$748	SHARED-USE PATH	16129
WESTCHASE MANAGEMENT DISTRICT	CONSTRUCT 10-FOOT WIDE HIKE AND BIKE TRAIL	CENTERPOINT HIKE & BIKE TRAIL (Westheimer St to Richmond Ave)	COMPLETE	9-STP-TAP	$461	$-	$115	$743	SHARED-USE PATH	17039
CITY OF HOUSTON	CONSTRUCT SHARED USE PATH	FM 1960 (Mills Rd to SH249)	TIP	9-STP-TAP	$424	$106	$-	$684	SHARED-USE PATH	17087
TXDOT HOUSTON DISTRICT	WHITE OAK BAYOU MULTI-USE TRAIL, WEST HARRIS COUNTY MUD NO 9	WHITE OAK BAYOU SAFE ROUTE TO SCHOOL TRAIL (At Bang Elementary School)	COMPLETE	8-SAFE	$500	$-	$-	$590	SHARED-USE PATH	15233
CITY OF PEARLAND	CONSTRUCT SIDEWALKS, INTERSECTION, AND SIGNAGE IMPROVEMENTS IN VICINITY OF CARLESTON ELEMENTARY, COCKRELL ELEMENTARY AND PEARLAND JUNIOR HIGH (SAFE ROUTES TO SCHOOL)	CITY OF PEARLAND (Various)	TIP	9-STP-TAP	$2,698	$-	$674	$4,200	PED/BIKE-SAFETY	17117

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CITY OF CONROE	CONSTRUCT PEDESTRIAN INFRASTRUCTURE: CURB AND GUTTER, PLANTING STRIP BARRIERS, SIDEWALKS, ADA-COMPLIANT RAMPS, STRIPED CROSS WALKS AND SIGNAGE (SAFE SCHOOL ACCESS PROGRAM)	CITY OF CONROE (Various)	LET	9-STP-TAP	$1,136	$-	$284	$1,800	PED/BIKE-SAFETY	17031
CITY OF GALVESTON	SEAWALL BLVD TRANSIT/PEDESTRIAN ACCESS PLAN FY 2013	SEAWALL BLVD (Various)	LET	TRANSIT	$2,000	$-	$500	$7,393	OTHER	16030
CITY OF HOUSTON	CONSTRUCT PEDESTRIAN AND BIKE BRIDGE OVER BRAYS BAYOU AND ASSOCIATED INFRASTRUCTURE	MASON PARK PED/ BIKE BRIDGE (Tipps St at Evergreen Dr to 75th St)	LET	9-STP-ENH	$3,545	$-	$866	$6,698	OTHER	16208
CITY OF HOUSTON	CONSTRUCT PEDESTRIAN AND BIKE BRIDGE OVER BRAYS BAYOU AND ASSOCIATED INFRASTRUCTURE	MASON PARK PED/ BIKE BRIDGE (Tipps St at Evergreen Dr to 75th St)	LET	7-STP-MM	$722	$-	$181	$6,698	OTHER	16208
CITY OF HOUSTON	CONSTRUCT PEDESTRIAN AND BIKE BRIDGE OVER BRAYS BAYOU AND ASSOCIATED INFRASTRUCTURE	MASON PARK PED/ BIKE BRIDGE (Tipps St at Evergreen Dr to 75th St)	LET	3-LOCAL CONT	$-	$-	$562	$6,698	OTHER	16208
CITY OF HOUSTON	CAPITAL COSTS FOR EXPANSION OF HOUSTON BIKE SHARE B-CYCLE PROGRAM (BIKES, STATIONS AND VEHICLES): YEAR 3	CITY OF HOUSTON (Various)	LET	9-STP-TAP	$1,232	$-	$308	$5,400	OTHER	17019
CITY OF HOUSTON	CAPITAL COST FOR EXPANSION OF HOUSTON BIKE SHARE B-CYCLE PROGRAM (BIKES, STATIONS AND VEHICLES): YEAR 2	CITY OF HOUSTON (Various)	COMPLETE	9-STP-TAP	$1,249	$-	$312	$5,400	OTHER	17018
CITY OF HOUSTON	CAPITAL COSTS FOR EXPANSION OF BIKE SHARE B-CYCLE PROGRAM (BIKES, STATIONS AND VEHICLES): YEAR 1	CITY OF HOUSTON (Various)	COMPLETE	9-STP-TAP	$1,281	$-	$320	$5,400	OTHER	17011
CITY OF HOUSTON	CONSTRUCT UNIVERSITY CONNECTION BIKE/PED PATH (SHARED USE PATH WITH BRIDGE OVER BRAYS BAYOU)	BRAYS BAYOU (MacGregor Park to University of Houston)	LET	9-STP-ENH	$1,845	$-	$461	$3,900	OTHER	16209
CITY OF HOUSTON	CONSTRUCT UNIVERSITY CONNECTION BIKE/PED PATH (SHARED USE PATH WITH BRIDGE OVER BRAYS BAYOU)	BRAYS BAYOU (MacGregor Park to University of Houston)	LET	3-LOCAL CONT	$-	$-	$1,048	$3,900	OTHER	16209
ENERGY CORRIDOR DISTRICT	CONSTRUCT INTERSECTION ENHANCEMENTS AT 6 LOCATIONS (PEDESTRIAN RAMPS, CROSSWALKS, SIGNAL IMPROVEMENTS, SAFETY & AESTHETICS)	IH 10 W (Barker Cypress Rd to Kirkwood Rd N)	COMPLETE	9-STP-ENH	$2,088	$-	$522	$3,572	OTHER	16157
CITY OF SUGAR LAND	CITY OF SUGAR LAND PEDESTRIAN/ BICYCLE IMPROVEMENTS	CITY OF SUGAR LAND TOWN CENTER (Various)	COMPLETE	3-LOCAL	$-	$-	$998	$1,300	SHARED-USE PATH	14658

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UPPER KIRBY DISTRICT	TRANSIT ACCESS IMPROVEMENTS AND PEDESTRIAN ENHANCEMENTS(RECONSTRUCT AND WIDEN SIDEWALKS WITH LIGHTING, BUS SHELTERS, BENCHES AND LIMITED LANDSCAPING)	WESTHEIMER ST (Buffalo Speedway to Kirby Dr)	LET	5-CMAQ	$2,062	$-	$515	$2,577	OTHER	16132
CITY OF WALLER	PRELIMINARY ENGINEERING FOR CITY OF WALLER LCI (INTERSECTION, PED/ BIKE, DRAINAGE IMPROVEMENTS)	DOWNTOWN CITY OF WALLER (Various)	COMPLETE	3-TMF	$-	$320	$-	$2,335	OTHER	16127
CITY OF WALLER	PRELIMINARY ENGINEERING FOR CITY OF WALLER LCI (INTERSECTION, PED/ BIKE, DRAINAGE IMPROVEMENTS)	DOWNTOWN CITY OF WALLER (Various)	COMPLETE	3-LOCAL CONT	$-	$-	$80	$2,335	OTHER	16127
METRO	TRANSIT CENTER MODIFICATIONS (FY 2020)	METRO SERVICE AREA	TIP	LOCAL TRANSIT	$-	$-	$1,420	$1,420	OTHER	15296
CITY OF HOUSTON	CONSTRUCT PEDESTRIAN BRIDGE AT BRINGHURST STREET IN HOUSTON TO SEPARATE PEDESTRIAN AND RR TRAFFIC FROM AMTRAK	BRINGHURST ST (At Amtrak RR)	COMPLETE	10-MISC	$1,100	$-	$-	$1,368	OTHER	15446
CITY OF TEXAS CITY	LANDSCAPE AND PEDESTRIAN IMPROVEMENTS WITH FREEWAY EMBANKMENTS, MEDIANS, AND ROADWAY BORDER WIDTHS	FM 1764 (Century Blvd & 14th St to 21st St)	COMPLETE	9-STP-ENH	$651	$-	$163	$877	OTHER	15319
GREATER EAST END MANAGEMENT DISTRICT	DESIGN AND CONSTRUCT PED/ BIKE IMPROVEMENTS INCLUDING CONNECTIONS BETWEEN EXISTING SHARED-USE PATHS, LIGHT RAIL LINES AND RAILROAD CROSSINGS	GREATER EAST END MANAGEMENT DISTRICT (Various)	COMPLETE	5-CMAQ	$312	$-	$78	$493	OTHER	16123