



## Transportation

### *5.1 Introduction*

One of the defining characteristics of a city is its transportation system, which includes a variety of components, such as roadways, streetscape, sidewalks, bike paths, trails, landscaping, lighting, mobility, and aesthetics. The City of Webster strives to maintain its roadways so that they are in good repair, free of potholes and uneven pavement, and works with both Harris County and Texas Department of Transportation on initiatives that benefit the region and the municipality – street lights, landscaping, sidewalks, widening projects, and emergency vehicle preemption. While the City of Webster owns all of the residential streets, along with NASA Parkway, Blossom, Orchard, a portion of Texas Avenue, and others, Harris County owns major corridors, such as Bay Area Boulevard, Medical Center Boulevard, and El Camino Real. Texas Department of Transportation (TxDOT) owns Interstate 45, Highway 3, FM 270/Egret Bay Boulevard, and NASA Road 1 Bypass. (Figure 5.1)

Opportunities exist to improve the City of Webster’s transportation system, which can result in enhanced “curb appeal,” economic vitality, branding and multi-modal activities (walking, bike riding, driving, and skating).

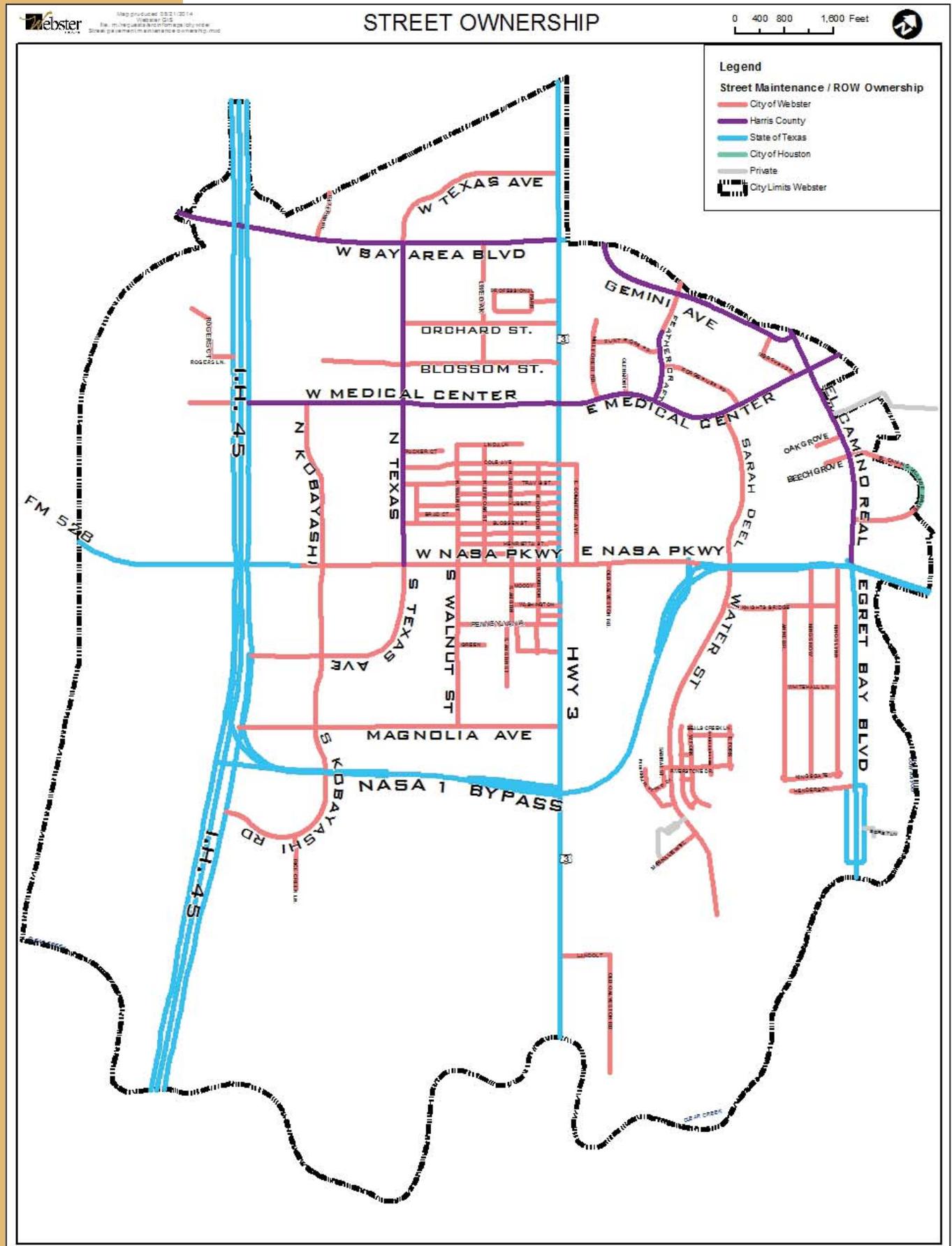
### *5.2 — Current Transportation Patterns and Projects*

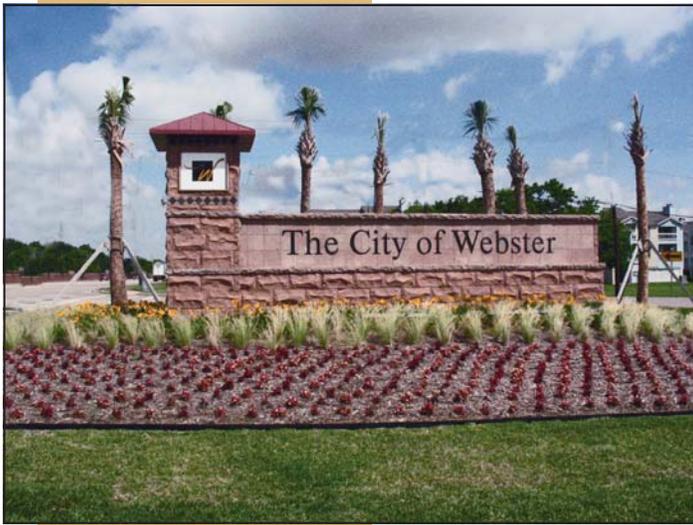
Webster’s primary corridors each accommodate between 45,000 to 250,000 vehicles daily due to the City’s prime location midway between downtown Houston and Galveston and its position as the central business district of Clear Lake. Interstate 45, Bay Area Boulevard, NASA Parkway, Highway 3, Medical Center Boulevard, Texas Avenue, FM 270/Egret Bay Boulevard, and NASA Road 1 Bypass constitute the most heavily traveled arteries in Webster.



ATTRACTIVE, WELL-MAINTAINED LANDSCAPING CAN ENHANCE THE CITY’S VISUAL APPEAL.

FIGURE 5.1: CITY OF WEBSTER'S MAJOR STREETS





ENTRANCE MONUMENT ON FM270/EGRET BAY BLVD. GREATLY AUGMENTS THIS WELL-TRAVELED MINOR ARTERIAL.

Webster's Public Works Department improves and maintains City-owned streets, sidewalks, and easements, as well as signage, street lights, and landscaping. Since the City features roadways that are not owned by Webster, partnerships with Texas Department of Transportation and Harris County are essential in enhancing and maintaining the most traveled arteries in the municipality.

In recent times, joint projects, such as the mobility and sidewalk project on Bay Area Boulevard in 2008 with Harris County, or the sidewalk and bridge project on El Camino Real with Harris County and TxDOT in 2010, or the current widening of Interstate 45 and relocation of utilities and structures with TxDOT are examples of Webster's working in concert with other entities to improve the transportation system.

Shared-use paths are becoming more and more in vogue, as biking, walking, running, and skating are beneficial both to society's physical and mental health and the environment. In 2014, two shared-use path projects, one on NASA Parkway that extends from the western boundaries of the City to Kobayashi Road and another on FM 270/Egret Bay Boulevard that spans from NASA Parkway to the FM 270/Egret Bay Boulevard bridge, were approved with TxDOT.

#### **5.2.1 — Thoroughfare System Planning**

Thoroughfare system planning is the process that ensures coordination and development of the most efficient and appropriate street and sidewalk systems to meet existing and future transportation demand, as the primary objective is to secure and plan for adequate rights-of-way and easements needed for expansion, redevelopment, enhancement, and new development. Thoroughfare planning is interrelated with nearly every component of comprehensive planning, including the land use plan, overlay districts, and parks plan.

### 5.3 — Thoroughfare Plan

Webster’s Thoroughfare Plan accounts for the various road types and routes that the municipality currently accommodates and serves as a template to accommodate projected mobility and transportation needs that accompany future growth and development locally, regionally, and state-wide.

#### 5.3.1 — Thoroughfare Plan

Webster’s existing and future thoroughfare system is displayed in Figure 5.2-Thoroughfare Plan. This network of freeways, arterials, and collectors is designed to facilitate current and future mobility in the City and region. For future growth, the Plan depicts approximate alignments for prospective thoroughfares that should be considered in platting of subdivisions, dedication of rights-of-way, and construction of roadways. This plan does not focus on residential streets or minor commercial roadways, as City ordinances dictate design criteria, and development dictates where local roads will ultimately connect to arterials and collectors.

#### 5.3.2 — Types of Roadways

Within its 6.7 square miles, Webster features five types of roadways—freeway, major arterial, minor arterial, major collector, and minor collector. In hierarchical form, roadways are categorized by traffic volume, dimensions, access, and purpose. A definition of each type of roadway with accompanying examples reveals attributes of Webster’s thoroughfare system.

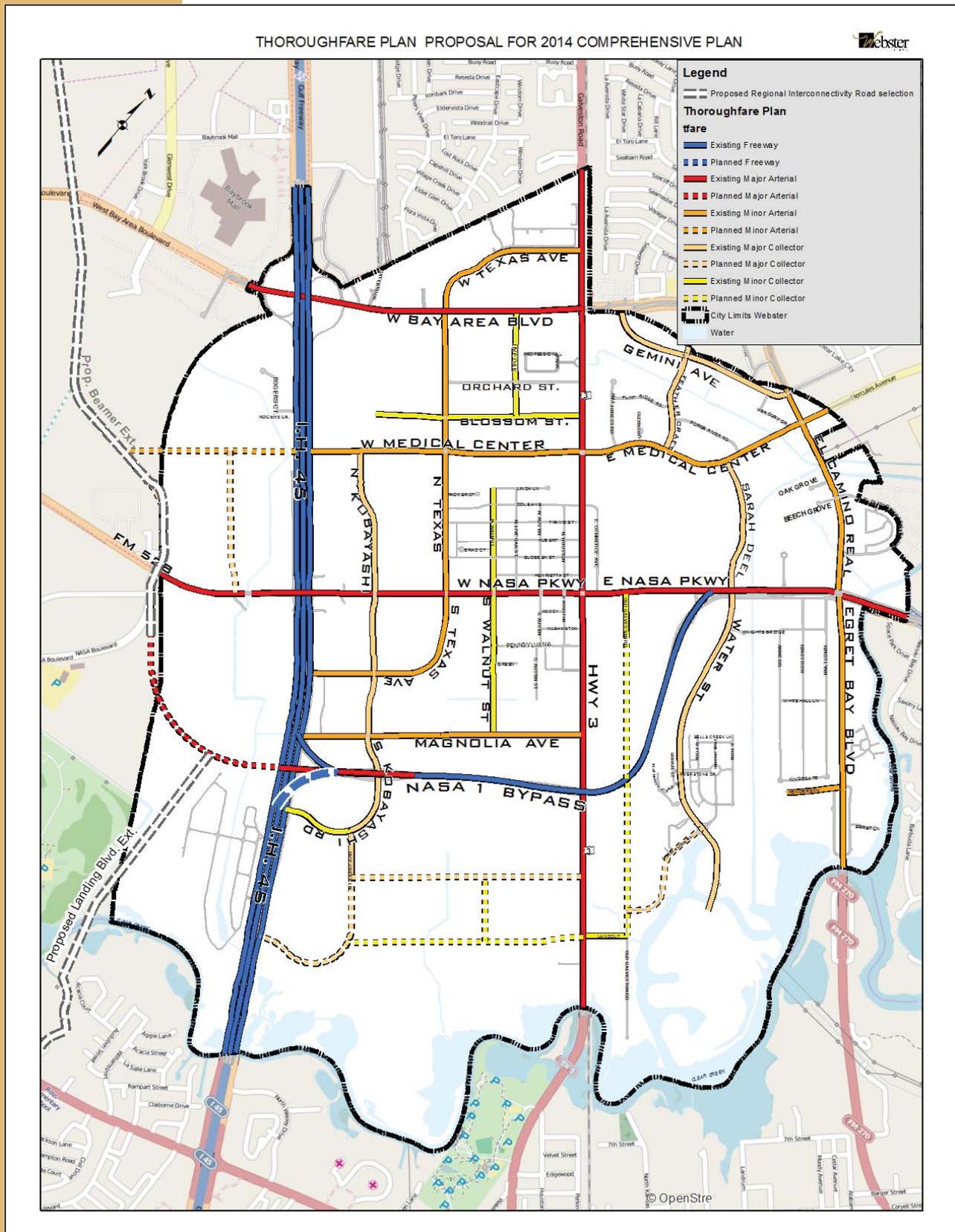
#### 5.3.3 — Freeway

Webster encompasses 3.08 miles of Interstate 45 with three exits: Bay Area Boulevard, NASA Parkway, and NASA Road 1 Bypass. The Freeway accommodates the largest volume of traffic in the City, as the average daily traffic count is 250,000 vehicles per day, and the speed limit is 65 miles per hour. Currently, TxDOT is embarked on a widening and enhancement project that will lower the Bay Area Boulevard bridge, reconfigure the intersection, and expand both the main lanes of I-45, as well as the feeder roads.



INTERSTATE 45, THE GULF FREEWAY, IS WEBSTER’S MAIN TRANSPORTATION CORRIDOR WITH OVER 250,000 VEHICLES PER DAY.

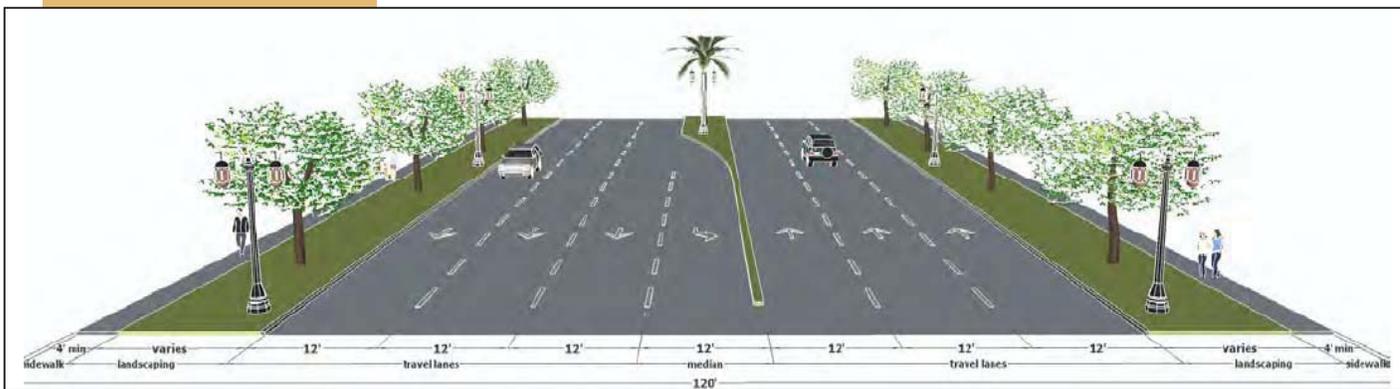
FIGURE 5.2: THOROUGHFARE PLAN  
PLAN



### 5.3.4 — Major Arterial

At 120 feet of right-of-way, a *major arterial* is the second largest roadway section within the City and accommodates the second largest volume of traffic. (Figure 5.3) Bay Area Boulevard, NASA Parkway, and Highway 3 are examples of major arterials. While Bay Area Boulevard features a landscaped median, which enhances aesthetics, safety, too, is augmented as the risk of head on collision is reduced. Both Bay Area Boulevard and NASA Parkway offer left turn lanes; however, Bay Area Boulevard features dedicated offset left turn options; whereas, NASA Parkway provides a continuous center turn from I-45 to Highway 3. Certainly, businesses depend on the mobility and access afforded by left turn lanes on major arterials. This type of roadway contributes to the City’s image and economic vitality. Streetscape, lighting, sidewalks, landscaping, medians, signage, mobility, and access for major arterials play a significant role in business retention, expansion, and recruitment.

FIGURE 5.3: MAJOR ARTERIAL



### 5.3.5 — Minor Arterial

At 100 feet of right-of-way, a *minor arterial* is the third largest roadway section in Webster. (Figure 5.4) As its name connotes, a minor arterial is not as heavily trafficked as a major arterial. Examples of minor arterials that connect to major arterials include Medical Center Boulevard, Texas Avenue, and FM 270/Egret Bay Boulevard. As with major arterials and any category of roadway, many factors contribute to the “curb appeal” of the corridor, and these components can influence planning and business decisions.

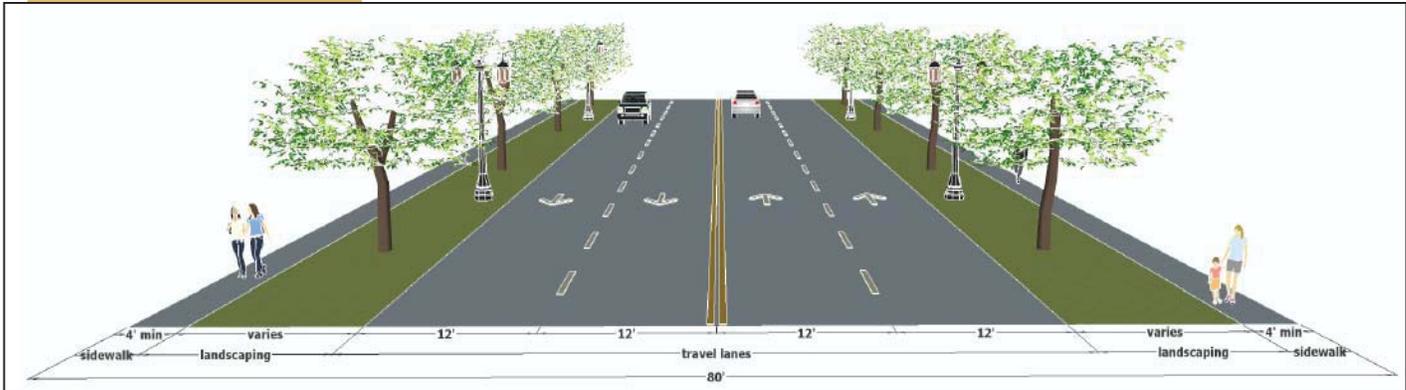
FIGURE 5.4: MINOR ARTERIAL WITH MEDIAN



### 5.3.6 — Major Collector

At 80 feet of right-of-way, a **major collector** is designed to distribute traffic from roadways that accommodate more vehicular volume. (Figure 5.5) Examples of major collectors include Kobayashi Road, Feathercraft Lane, Sarah Deel Lane, and Gemini Avenue. Based on its right-of-way width, major collectors can accommodate a landscaped median. It is incumbent in the planning stages, however, to dictate components, such as medians, sidewalks, distance between driveways, shared driveways, etc.

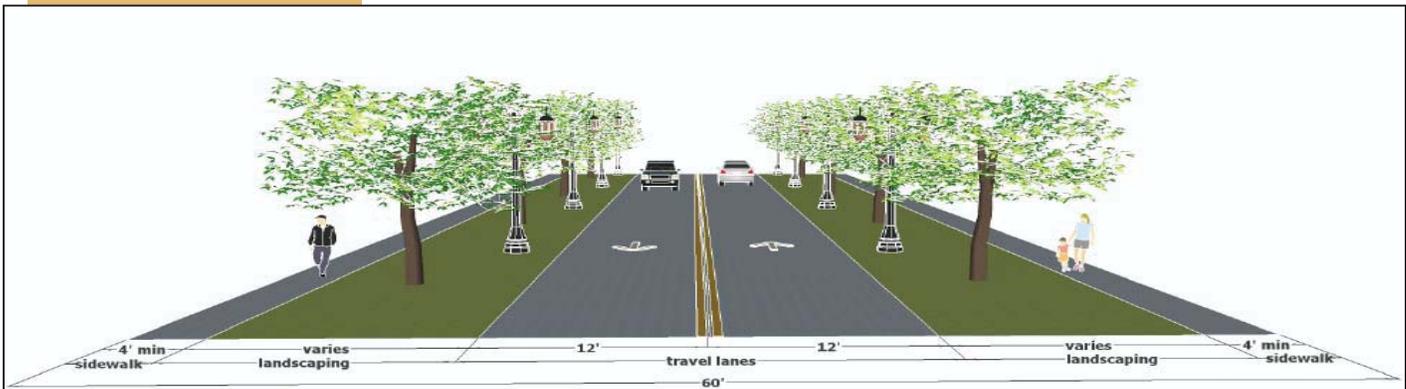
FIGURE 5.5: MAJOR COLLECTOR  
NO MEDIAN



### 5.3.7 — Minor Collector

At 60 feet of right-of-way, a **minor collector** conveys traffic to and from major collectors, minor arterials, and major arterials. (Figure 5.6) Examples of minor collectors include Blossom Street and Live Oak Street. These roadways afford only one travel lane in either direction. As is the case with most urban roadways, economic development and population growth outpace antiquated corridors—and this is viewed not only with I-45 but also with major arterials like Highway 3 or minor collectors like Blossom Street.

FIGURE 5.6: MINOR COLLECTOR  
NO MEDIAN

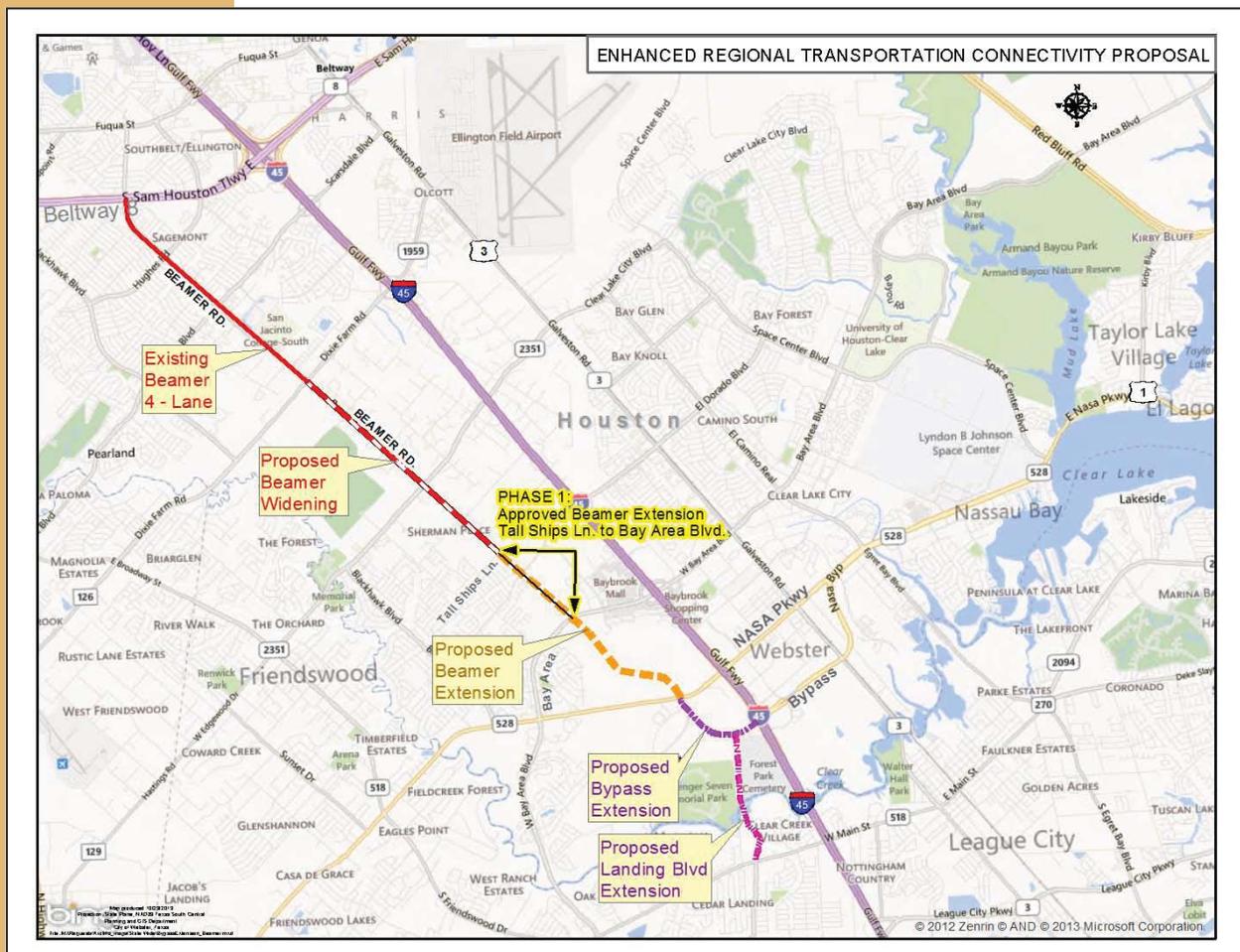


## 5.4 — NASA Road 1 Bypass Extension and Beamer Road NASA Road 1

A local and regional mobility project that has been planned since 2000 is Webster's connection to Beamer Road via the NASA Road 1 Bypass Extension. This corridor would join NASA Road 1 Bypass to the west side of I-45, connect to the north to Beamer Road, and intersect with NASA Parkway, Bay Area Boulevard, El Dorado, and Tall Ships. League City has planned for a connection to the NASA Road 1 Bypass Extension (via Landing Boulevard), and Houston has planned for Beamer Road to extend south. In preparation for Webster's portion of the NASA Road 1 Bypass Extension, a tax increment reinvestment zone (TIRZ) was created in 2003 to help fund the roadway. (Figure 5.7)

The initial phase of the NASA Road 1 Bypass, a TxDOT project, in which the City of Webster provided extensive assistance in utility relocations, was completed in 2008. The second phase, which is planned for the near future, is the NASA Road 1 Bypass Extension. Both the NASA Road 1 Bypass Extension and the Beamer Road Extension are considered key for mobility, economic development, and emergency evacuation, as they provide an additional north/south route for a growing super-regional population.

FIGURE 5.7: NASA ROAD ONE BYPASS EXTENSION AND BEAMER ROAD EXTENSION





### 5.5—*Bikeways and Pedestrian Routes*

Eliminating barriers to bicycle and pedestrian mobility is one of the most important features in bicycle and pedestrian planning. Freeways, major arterials, railroads, water features, and topography can impose significant barriers to access and mobility. As cities grow and multi-modal improvements become more feasible, designated bicycle routes, on-street bikeways, and off-street hike and bike trails should be developed to link major attractions and destinations throughout the community. In this way, bicycle/pedestrian routes not only provide an alternative mode of transportation but also serve the recreational needs of constituents.

BIKEWAYS FOSTER HEALTHIER, MORE LIVABLE COMMUNITIES WHILE INCREASING AWARENESS OF BICYCLE SAFETY.



### 5.6—*Pedestrian Walkways and Sidewalks*

Pedestrian walkways, sidewalks, and crosswalks are part of the City's existing transportation system that accommodate pedestrian activity in residential neighborhoods, commercial business areas, and around schools, parks, and other community facilities. Opportunities exist to increase the amount of sidewalks while enhancing pedestrian and bicycle safety throughout the community. (Figure 5.8) When it comes to planning for pedestrians and bicyclists in Webster, safety is of foremost importance.

SIDEWALKS ARE A MAJOR COMPONENT IN THE MOBILITY PLAN. PICTURED ABOVE IS A SIDEWALK INSTALLATION ON NASA PARKWAY.



## 5.7 — Bikeways and Pedestrian Routes

A bikeway plan is an important component of the City’s transportation plan, as it promotes bicycle commuting and recreation, provides linkages among community facilities, employment centers, and adjacent municipalities, and ensures safe routes with adequate striping and right-of-way for a growing number of cyclists. While the City has had a bicycle plan, just like the other sections of the transportation plan, this plan, too, must be updated.

The State recognizes a bicycle as a vehicle, with all responsibilities and rights for roadway use that are provided to motor vehicles. As such, cyclists—advanced, basic, or beginner—can ride legally on any street in Webster, with the exception of the I-45 freeway (which is off limits to both bicyclists and pedestrians).

Just as there are five types of roadways in Webster for motor vehicles, these same types exist for cyclists. Certain types of roadways are more attractive to cyclists than others due to factors such as traffic volume, speed, street design, and location. Whereas skilled cyclists generally prefer to travel along the street system and are not as concerned with striped lanes or extra wide curb lanes, the majority of cyclists are less skilled and need to be separated from high volume, and high speed traffic via off-street bike lanes and paths.

Local and collector streets are suitable for use by most adult bicycle riders while minor arterial streets are suitable for limited use by bicyclists due to higher traffic volumes and speeds. Arterials, especially those with shoulders wider than four feet, attract sport cyclists interested in longer-distance travel with fewer interruptions. Typical sections for different bikeway classifications are displayed in Figure 5.9-5.12. Webster has many natural amenities found in its creeks, parks, and recreation areas, as well as various other rights-of-way and easements that represent opportunities for future development of bicycle and pedestrian facilities. These opportunities can be incorporated as transportation enhancement projects, such as multi-use trails and scenic beautification areas.

Another factor for consideration in further developing a bikeway plan for the City of Webster is the integration of bike facilities with adjacent communities and entities, such as League City, Harris County, Houston, Nassau Bay and Friendswood. By connecting Webster’s bike facilities with other communities, a regional bike system is created.

### 5.7.1 Bike Lane

The most commonly used bike facility in Webster is a bicycle lane. A bicycle lane typically consists of a 4-foot to 5-foot wide lane adjacent to the slow lane. An example of a bicycle lane in Webster is found on NASA Parkway. (Figure 5.11)



DESIGNATED BIKE LANES ALLOW MORE PREDICTABLE MOVEMENT OF BICYCLISTS WHILE IMPROVING AWARENESS AND SAFETY FOR RIDERS.



FIGURE 5.9: PEDESTRIAN & BIKE CONNECTIVITY PLAN

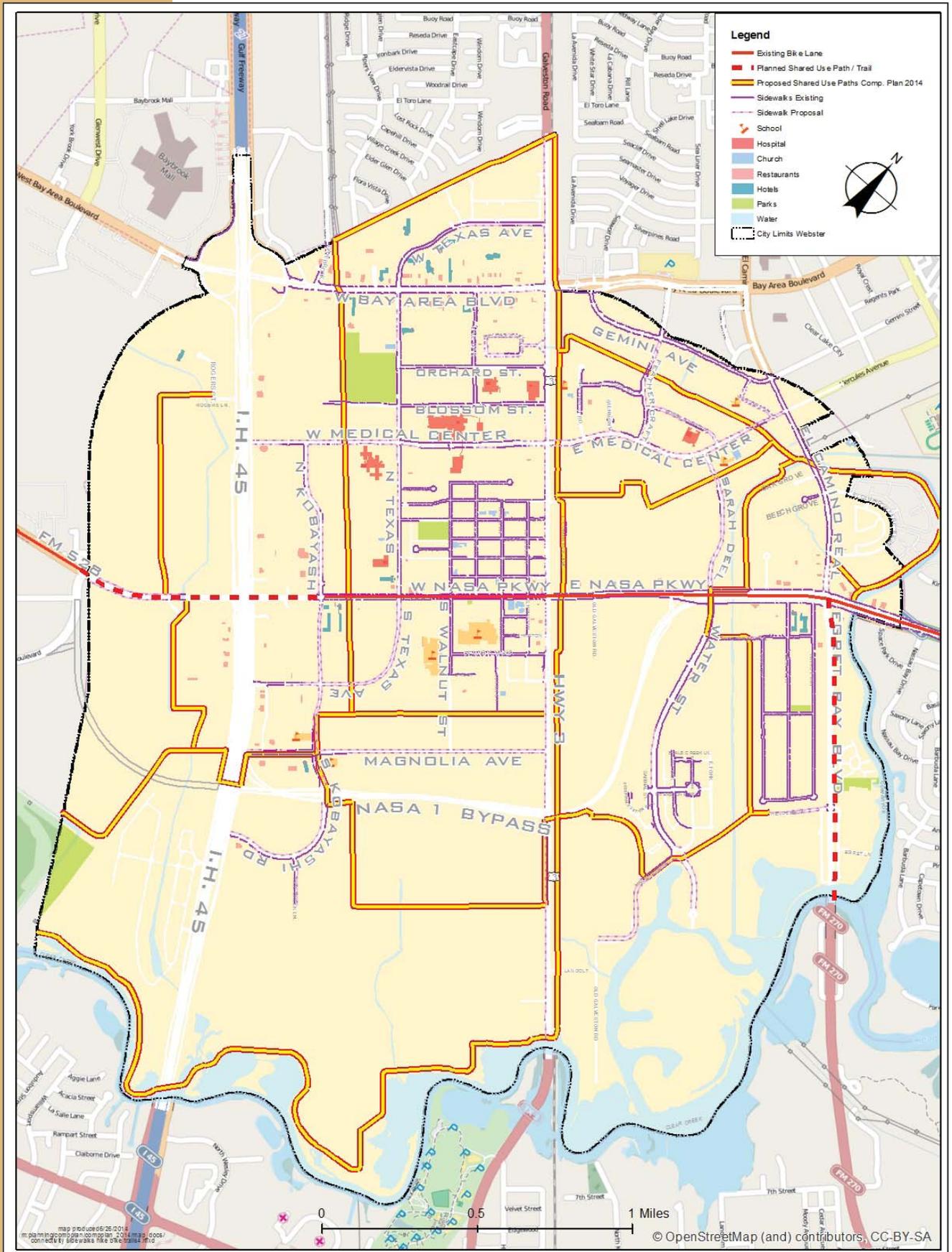
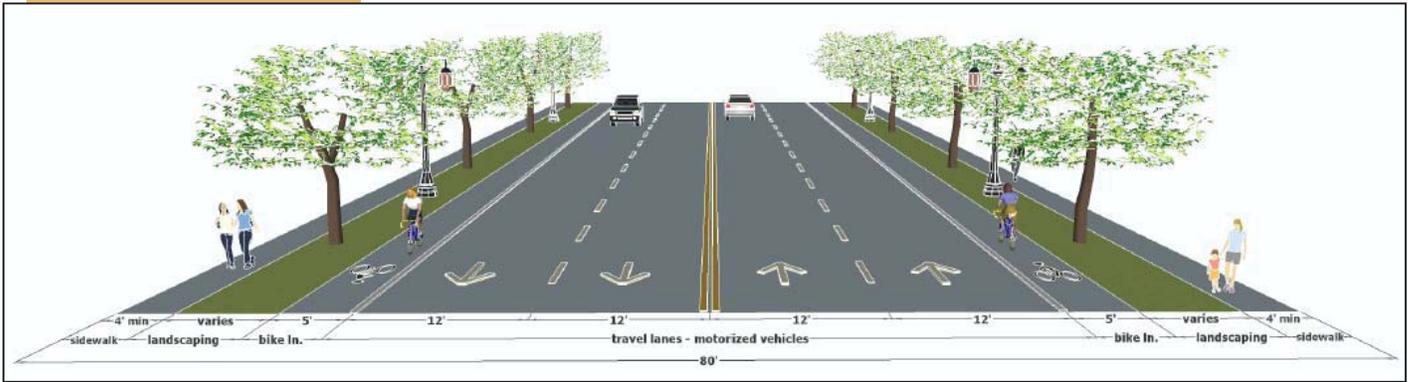


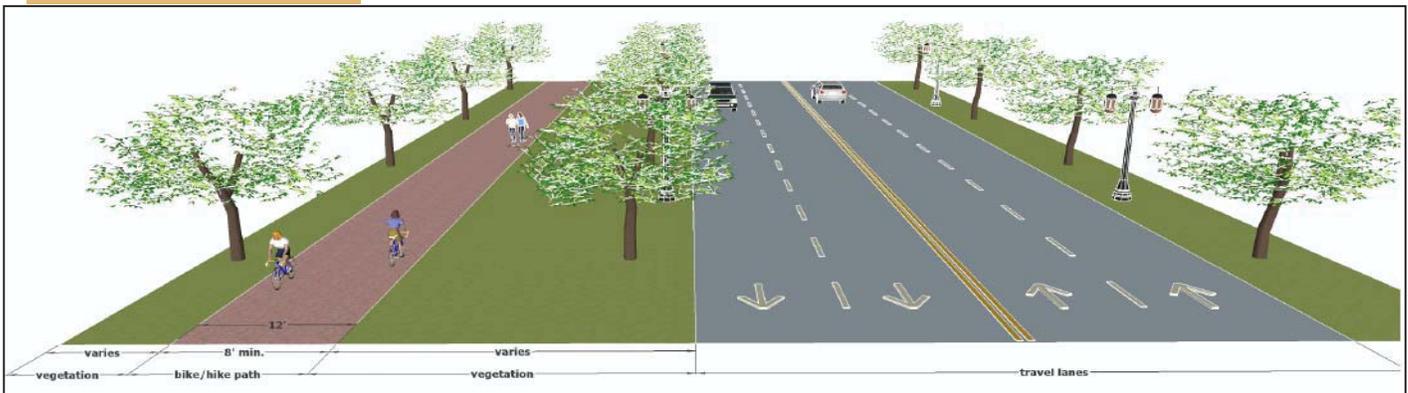
FIGURE 5.10: BICYCLE LANE.



### 5.7.2 — Hike and Bike Trail

A hike and bike trail (Figure 5.11) facilitates recreational needs of constituents within the City. This type of trail is commonly found adjacent to bayous or creeks and can be used by walkers, joggers, runners, and bicyclists. The ideal width of these trails is 12 feet, so that pedestrians and bicyclists can coexist comfortably. There are currently no hike and bike trails in Webster, funding has been obtained for a hike and bike trail on Egret Bay/FM-270 and a portion of NASA Parkway. (Figure 5.13) The City of Webster will have the beginning stage of a hike and bike system similar to those already existing throughout Houston, including the now famous trail system of Buffalo Bayou.

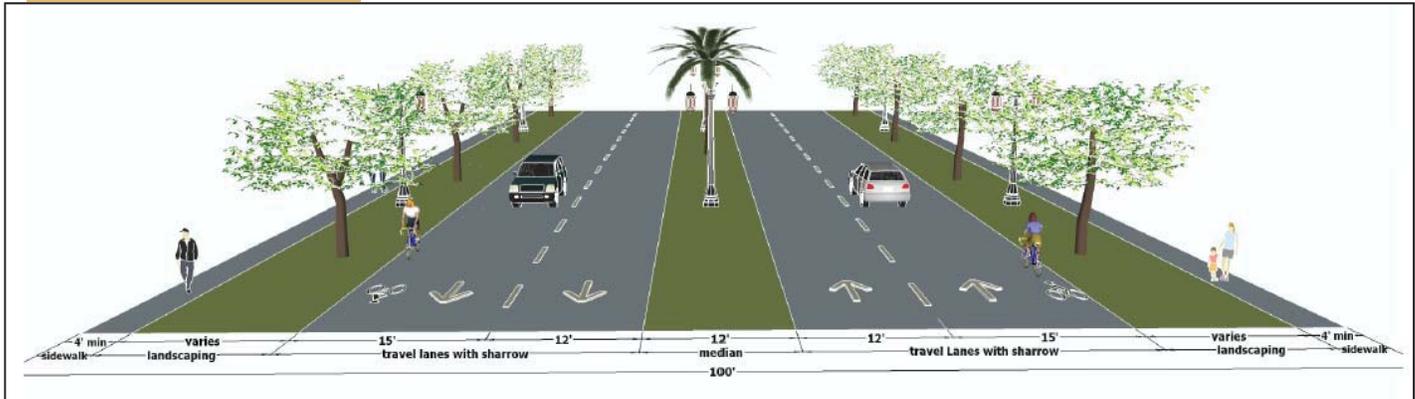
FIGURE 5.11: HIKE AND BIKE TRAIL



### 5.7.3 — Sharrow

Another option for bicycle facilities in Webster is a wide curb lane, also known as a sharrow (shared lane pavement marking). This extra wide 15-foot traffic lane can be utilized in places where there is not enough right-of-way for a bicycle lane. Sharrows afford the rider the ability to safely ride within the lane, while still allowing a motorist an opportunity to pass. This type of bike facility has not yet been developed in Webster, but it is currently being used in the Houston region. (Figure 5.12)

FIGURE 5.12: WIDE CURB LANE OR SHARROW



### 5.8 — Public Transportation

The Metropolitan Transit Authority (METRO) provides fixed route bus service throughout the region. The City of Webster, although not a participating member, has a small park and ride facility located at I-45 and Bay Area Boulevard and a large park and ride facility located just outside of the City of Webster at 801 Bay Area Boulevard. These facilities provide transportation to downtown Houston, NASA, Fuqua Park and Ride, and the Eastwood Transit Center.

Webster does not have any other public transit within its boundaries but is a part of Houston-Galveston Area Council (H-GAC), which is the metropolitan transportation planning organization in the 13-county Houston-Galveston area. H-GAC's

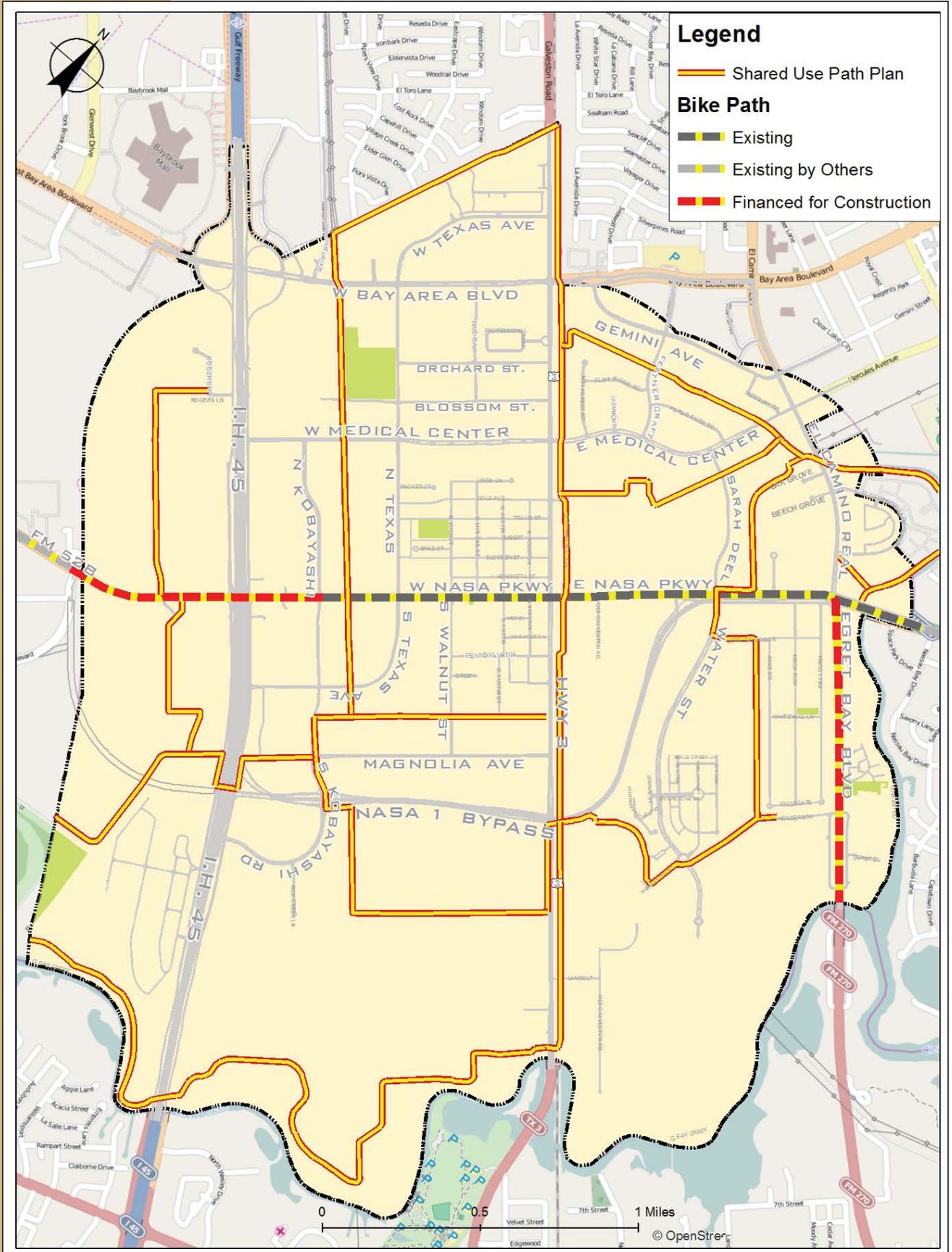
Transportation Policy Council approves the Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). H-GAC is involved in thoroughfare planning, hurricane evacuation planning, mobility, and air quality programs for the region.

Webster, too, is member of Bay Area Transportation Partnership (BAYTRAN). This organization, which serves three counties, over 30 communities, and 1,000,000 residents, provides information to communities and businesses regarding transportation initiatives.



IN THE REGION, METRO SERVES A PARK & RIDE LOT ON BAY AREA BLVD. AND A PARK & CARPOOL LOT AT I-45 AND BAY AREA BLVD.

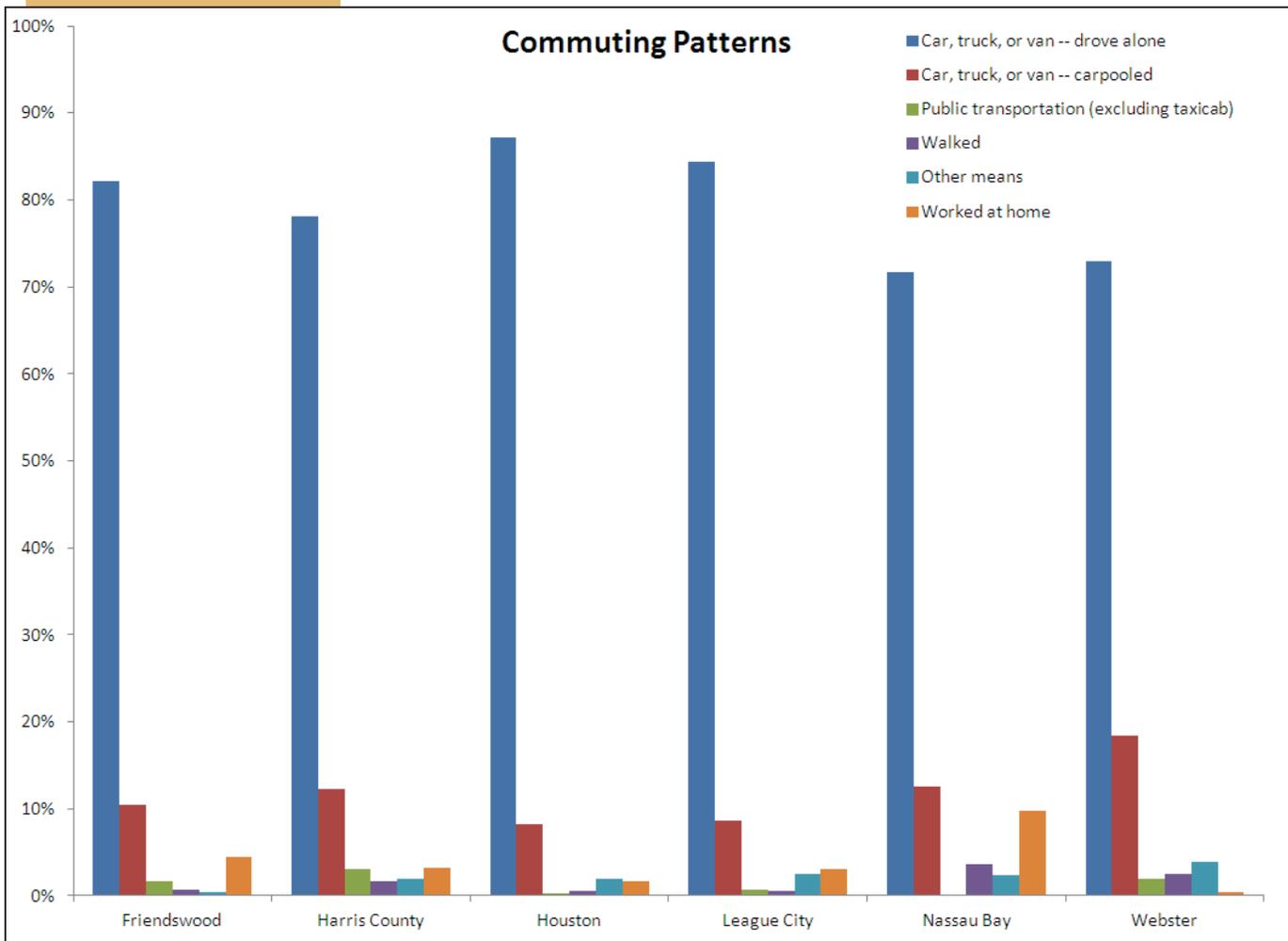
FIGURE 5.13:  
HIKE AND BIKE PLAN



### 5.8.1 — Commuting Patterns

While the dominant form of transportation within the City of Webster is an individual commuting in a car, truck, or van, the Webster community utilizes carpooling more than other adjacent communities, according to the U.S. Census American Community Survey. (Figure 5.14) Additionally, a substantial number of individuals commute to work by other means.

FIGURE 5.14: CITY OF WEBSTER'S MAJOR STREETS.



SOURCE: U.S. CENSUS 2009-2011 AMERICAN COMMUNITY SURVEY.

## 5.9 — Vision, Goals and Actions

The Comprehensive Plan stakeholders formulated a vision, series of goals, and actions to serve as a framework for implementation of the transportation chapter. The vision statement below was prepared as the foundation for the goals and actions that follow. These goals and actions are numbered for reference purposes only and do not suggest a priority.

### Vision

*Foster a thoroughfare system that provides for safe and efficient movement of goods and people, provide alternative modes of transportation, and protect the integrity and security of neighborhoods.*

### Mobility: Goal 5.1

*Establish a hierarchy of thoroughfare classifications that facilitate safe and convenient flow of traffic throughout the community.*

#### **Action 1**

Acquire additional right-of-way, as needed, to facilitate turn lanes and acceleration/ deceleration lanes to provide increased traffic capacity and mobility at intersections.

#### **Action 2**

Adopt access management regulations for arterial roadways pertaining to driveways, street connections, medians and median openings, auxiliary lanes, on-street parking, traffic signals, turn lanes, and pedestrian and bicycle facilities.

#### **Action 3**

Require traffic impact studies and mitigation actions for large scale development proposals.

#### **Action 4**

Collaborate with TxDOT, H-GAC, and Harris County in achieving desired infrastructure improvements in conformance with the Thoroughfare Plan.

## Multi-Modal Transportation: Goal 5.2

*Promote alternative modes of transportation and related facilities including pedestrian and bicycle routes.*

### **Action 1**

Fund and construct a comprehensive pedestrian and bicycle system to serve both recreational and alternative transportation needs.

### **Action 2**

Pursue Federal and State financial assistance grants for pedestrian and bicycle transportation projects.

### **Action 3**

Continue aggressive enforcement of speed limits and other traffic laws near schools, parks, and residential areas.

### **Action 4**

Prioritize sidewalk projects to promote connectivity.

## Branding and Beautification: Goal 5.3

*Plan for the increasing demand for transportation facilities while preserving and enhancing the attractiveness of the environment.*

### **Action 1**

Plan and acquire right-of-way for thoroughfares to include open space areas, buffer zones, and aesthetic enhancements.