



Goal 4: Transportation Choices That Promote a Healthy, Active Lifestyle

The City of Sugar Land has consistently ranked as one of the Fittest Cities in Texas by the Texas Round-Up Governor's Challenge. The community takes pride in its overall fitness level. On a broader scale, overall community health is becoming an increasingly important concern for public officials nationwide. Over the past several decades, many important indicators for the health of Americans have been declining. Consider these trends for the general population of America:

- The percentage of Americans with diabetes increased from 8% in 1988-1994 to 10% in 2003-2006.
- For adults, obesity rates have more than doubled from 15% in 1976-1980 to 35% in 2005-2006.
- For all children, obesity rates have more than doubled between 1976-1980 and 2005-2006. For adolescents, obesity rates have more than tripled, from 5% to 18%¹.

Improving mobility opportunities for healthy, active lifestyles can help address the serious public health concerns associated with illnesses including heart disease, stroke, diabetes, cancer, and hypertension. These ailments compromise quality of life and incur substantial costs for treatment. According to the Centers for Disease Control, "the health care costs associated with obesity and its associated conditions are thought to be substantial, and a recent study suggests that the health care costs associated with obesity are rising for both private and public payers." The CDC estimates the cost of treating the health effects of obesity in the United States to be approximately \$147 billion per year².



Source: Jonathan Maus on Flickr

Transportation choices can promote a healthy, active lifestyle

The United States Surgeon General noted in *The Surgeon General's Vision for a Healthy and Fit Nation 2010* that "Americans need to live and work in environments that help them practice healthy behaviors³." Both the CDC and the United States Surgeon General agree that exercise is a critical component of the healthy behaviors that can combat the ailments of obesity. Exercise can take many shapes, including jogging through the park, playing basketball at the gym, or swimming at the local pool. Sugar Land provides an excellent array of opportunities for recreational exercise, including a growing network of hike and bike trails and neighborhood recreation facilities.

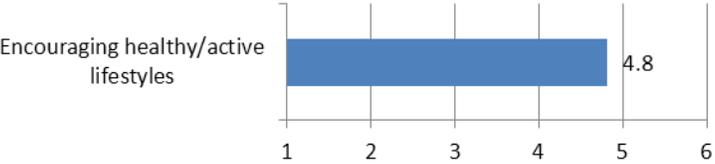
In addition to recreational activities, transportation can provide opportunities for exercise. Researchers at Rutgers, Virginia Tech, and the CDC found "statistically significant negative relationships between active travel and self-reported obesity."⁴ In other words, walking and biking to a destination have the same health benefits as walking or biking recreationally. These forms of "active transportation" have been shown to lower cholesterol,

lower blood pressure, and reduce the risk of Type 2 diabetes⁵. Additionally, bicycle commuting has been shown to increase life expectancy.

Providing infrastructure that supports multiple transportation choices would give residents a means of realizing the health benefits of active transportation. Several studies have drawn correlations between the availability of infrastructure that supports active transportation and health. Research from the University of British Columbia found a negative correlation between the interconnectedness of a neighborhood’s roadway network and rates of obesity in the neighborhood⁶. Other research shows that improvements to bicycle and pedestrian infrastructure can encourage people to be more active. Since 2003, New York City has expanded its bicycle infrastructure by approximately 111%, and during that time the number of people bicycle commuting to work increased by 126%^{7,8}.

Residents of Sugar Land have indicated a desire for healthy, active transportation options. The Sugar Land Mobility Survey conducted for this study revealed that 48% of respondents agreed or strongly agreed that they would walk more if the sidewalks were improved and that 52% of respondents agreed or strongly agreed that bicycles can be a useful way to travel for more than just recreational trips or exercise.

Q1. How important is the following goals for the Comprehensive Mobility Plan in Sugar Land?



However, infrastructure for active transportation such as walking and biking is often lacking, which makes using these modes difficult. According to the Center for Houston’s Future, the percentage of Sugar Land residents living within 1/4th mile of parks or trails – approximately the distance people would consider using the facilities for transportation – was less in Sugar Land (56%) than in other suburban communities such as the Woodlands (91%). While some infrastructure exists, connections to activity centers and across major barriers are sometimes limited. As a result, only 16% of survey respondents agreed or strongly agreed that they feel safe riding a bicycle in the City of Sugar Land. On the other hand, a majority of respondents agreed that they would ride their bicycle more often if the bicycle network was improved.

Sugar Land can become a model for biking and walking

The City of Sugar Land is strongly positioned to realize the health benefits of bicycle and walking transportation in the community. The City enjoys many advantages that could make bicycling and walking important parts of the transportation system:

- The landscape is flat and does not inherently impede walking or biking.
- The weather is amenable to walking or biking. For six months out of the year, the daily average high temperature does not exceed 80 degrees Fahrenheit; the daily average low temperature rarely falls beneath 40 degrees Fahrenheit. The high temperature exceeds 90 degrees Fahrenheit for fewer than three months out of the year. By contrast, Minneapolis, which was named Bicycle Magazine’s *Best City*



for Bicycling in 2010, has an average high temperature below 45 degrees Fahrenheit for five months of the year. **Figure 7.1** shows the average monthly temperature in Sugar Land

- The City of Sugar Land has a potent toolbox of land-use regulations and incentives that it can apply to encourage biking and walking and create a multi-modal transportation network.
- The City has an extensive network of drainage and utilities easements and roadway right-of-ways that could potentially provide excellent connectivity to activity centers.

Additionally, as discussed in Chapter 10, the types of land use that currently exist within and around Sugar Land are amenable to biking. **Figure 7.2** shows the location of land uses within the City that are of the type that can be accessed by bicycle (green), can possibly be accessed by bicycle (orange), and are difficult to access by bicycle (purple). As shown in the figure, the majority of land uses in Sugar Land are of the type that can be comfortably accessed by bicycle. To unlock that potential for bicycle transportation, however, those bicycle-friendly land uses must be connected with appropriate infrastructure so that residents can feel safe make the trip by bike from home to work, grocery store, or school.



Fig 7.1 - Average Temperature in Sugar Land; (Source: www.weather.com)

BICYCLE

Bicycling is flexible; you can leave at any time. It is good for short-to-medium distances. User cost is low and there can be little or no incremental infrastructure cost when riding on roads.

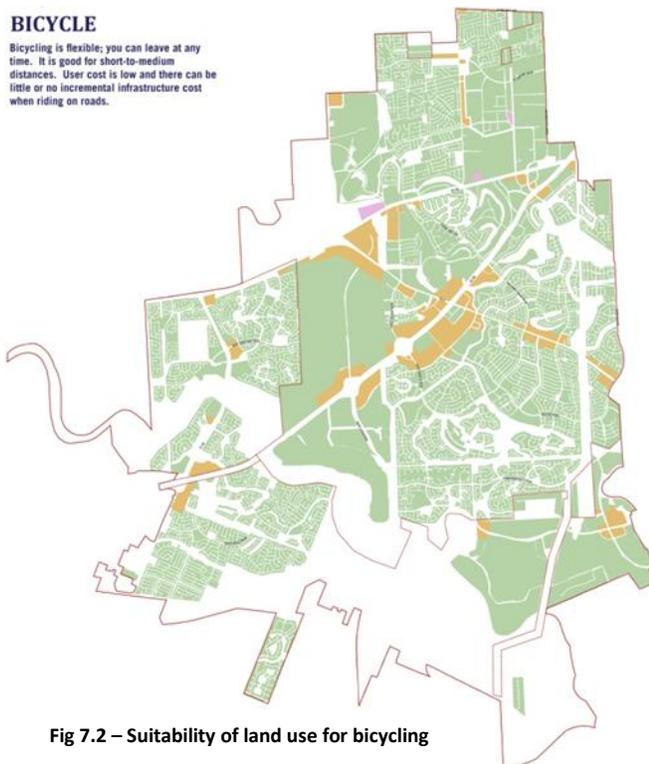


Fig 7.2 – Suitability of land use for bicycling

Strategies to Increase Transportation Choices that Promote a Healthy Active Lifestyle

The League of American Cyclists presents their annual “Bicycle Friendly Community” award to communities that have demonstrated a commitment to bicycling. The award is judged on five criteria, known as the “five Es”: engineering, education, encouragement, enforcement, and evaluation. The five Es apply equally well to promoting walking. These criteria assure that communities are not only committed to healthy transportation but are also thinking holistically about enabling it. The following Strategies and Initiatives are aligned with the five Es for Sugar Land to identify ways to promote healthy transportation options in the City.



Strategy #1: Expand bicycle and pedestrian infrastructure to serve all trips (recreational and nonrecreational) and increase safety.

Initiative 1A: Implement Hike and Bike Master Plan with focus on bikeway “arterials”

The 2007 Hike and Bike Master Plan recommended extensive implementation of bicycle and pedestrian infrastructure in Sugar Land. This infrastructure includes off-road trails, sidewalks, and sidepaths (trails located adjacent to roads). The projects identified as having the highest priority were those that connected various neighborhoods in Sugar Land to each other and to major retail and employment centers. Many of the projects utilized the extensive network of drainage and utility corridors present in the City, which provide an opportunity to create bikeway “arterials” for medium- to long-distance active transportation trips. It is recommended that all projects identified in the Hike and Bike Master Plan be implemented.

Initiative 1B: Enhance connections of trail network to destinations, including transit facilities

The Hike and Bike Master Plan identified projects that could form a strong backbone for bicycle and pedestrian infrastructure. However, much of the development and many of the important destinations in Sugar Land are not located directly along these backbones but are instead clustered around major roadways such as US 90 and SH 6. Existing and proposed sidewalks along these roadways are often sufficient for pedestrians but insufficient for bicyclists. In order to accommodate and encourage pedestrian and bicycle traffic to and from Sugar Land’s major destinations, bicycle and pedestrian facilities should be considered along major roadways or parallel facilities. Additionally, as transit operations are expanded in Sugar Land, it will be important to make connections to these facilities for bicycles and pedestrians. Every person walking and biking to a park and ride, for example, is equivalent to one fewer car on congested local roads during peak traffic hours.

Town Square, the larger Town Center area, and the future baseball park are unique districts that could be defined as centers for active transportation with focused infrastructure improvements. The straight-line distance from Town Square to the proposed ballpark site is approximately 2.5 miles, or a 15 minute bike ride at a comfortable 10 mph pace. If infrastructure improvements at the three sites are coordinated, a corridor of bicycle- and pedestrian-friendly development would be created. Families could readily decide to take a ride from home to lunch at Town Square, do some shopping around Town Center, and finish the afternoon with a baseball game at the ballpark. The corridor would become known for more than just the stores and restaurants at the end of the trip; it could also become popular for the trip itself.

Opportunities to support healthy active transportation choice have been developed to provide some guidelines of what can be possible to achieve the goal. These types of improvements can also be applied to other locations in the City.

Town Square and Town Center South

Sugar Land Town Square, at the southwest quadrant of the interchange of SH 6 and US 59, is designed with a mix of land uses, a regular street grid with comfortable sidewalks, and a variety of development densities. The urban form of Town Square makes walking within the development a very appealing option. Additionally, Town Square embraces the surrounding roadway system without a surrounding parking lot that would form a barrier to walking and cycling visitors. However, there are significant gaps in bicycle and pedestrian accommodations in the infrastructure connecting Town Square with the rest of Sugar Land. Until these gaps are addressed, the

majority of visitors to Town Square will forego walking or biking there and drive instead, thereby missing out on one of the most unique attractions of the development.

Traffic to and from Town Square utilizes one of the surrounding thoroughfares: Lexington Boulevard, Town Center Boulevard North, SH 6, or US 59 NBFR. In the vicinity of Town Square, Lexington Boulevard and SH 6 has sidewalk accommodations for pedestrians; US 59 NBFR has no pedestrian accommodations, although sidewalks are planned for construction and funding has been identified. None of the three roads has accommodations for bicyclists, who must therefore share the road travel lanes with vehicles or sidewalks with pedestrians (or choose to avoid the area). There is an existing trail along Ditch C southeast of Town Square with proposed additions, but existing trails do not connect directly to Town Square.

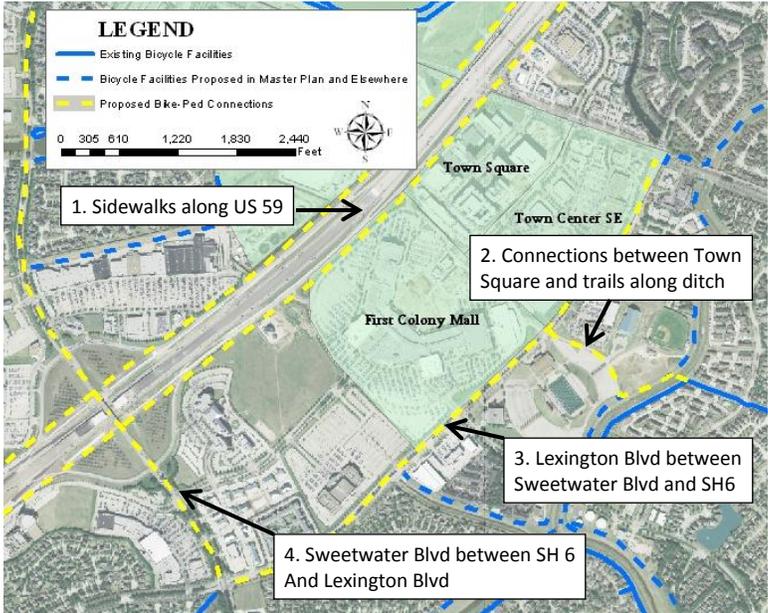
In 2007, Sugar Land partnered with the Houston-Galveston Area Council to create the *Sugar Land Town Center Pedestrian and Bicyclist Special District Study*. Since then, Sugar Land has continued to refine its approach to the Town Square area. The following opportunity corridors and connections, summarized in **Figure 7.3**, have been identified to continue improving bicycle and pedestrian connectivity to Town Square and Town Center South:

1. **US 59 Frontage Road in the vicinity of Town Square.** A sidewalk has been proposed for this section of the frontage road. This sidewalk will provide mobility for the entire Town Center area and is recommended for construction.

2. **Connection between Town Square and the proposed/existing trails along the ditch southeast of Town Square.** This drainage easement could enable residents in the neighborhoods southeast of Town Square to safely access Town Square if a connection is created between Town Square and the trails, possibly along the northeast side of Mercer Stadium. A bridge over the ditch may be considered to connect the north and south trails.

3. **Lexington Boulevard between Sweetwater Boulevard and SH 6.** Residents bicycling to the Town Square and First Colony Mall area have no dedicated route to move between the many local destinations; dedicated bicycle facilities would provide a safer way for residents to bicycle in this destination-rich environment. It would also provide a route to the area for residents living in the communities lying to the southwest and those coming from the north side of US 59 along Sweetwater Boulevard. The City is considering constructing a wide sidepath along Lexington Boulevard; this improvement is recommended for implementation.

Fig 7.3 – Opportunities for bike/ped improvements around Town Square



4. **Sweetwater Boulevard / First Colony Boulevard between SH 6 on the north and SH 6 on the south.** Many communities south of Town Square can be accessed solely from Sweetwater Boulevard; therefore, most residents choosing to bike to and from those communities will likely use Sweetwater Boulevard for most or all of their trips. Many of the communities north of US 59 use First Colony Boulevard to access the Town Square area. A bicycle/pedestrian facility along these roads could connect to existing and planned trails in the area, thereby providing a safe and direct route from a wide variety of Sugar Land neighborhoods to a number of destinations.

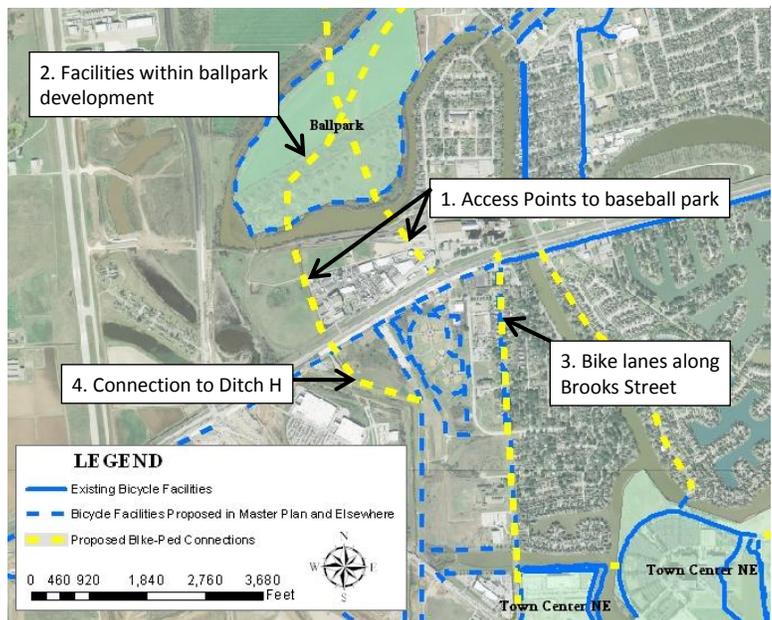
Baseball Park

The proposed baseball park development has the potential to be a bicycle and pedestrian-friendly destination from its inception. According to the 2007 Hike and Bike Trails Master Plan, proposed bicycle and pedestrian accommodations for the development will be sidewalks along the proposed Ulrich Boulevard and trails following the inside contour of the peninsula formed by Oyster Creek. Although these accommodations will provide access to surrounding neighborhoods and circulation within the development, both access and circulation could be further improved by including bicycle infrastructure in the proposed cross section for the University Boulevard extension and Ulrich Street construction. Many tracts along University Boulevard within the overall development are planned for mixed-use development, which visitors on foot and on bike will likely desire to patronize. Furthermore, parkway sidewalks are proposed for University Boulevard south of US 90, and proposed trails along Ditch H will intersect US 90 near University Boulevard; to fully maximize the utility of these accommodations, consideration should be given to how to connect them to the ballpark.

The following opportunity corridors and connections, summarized in **Figure 7.4**, have been identified to improve bicycle and pedestrian connectivity to the proposed ballpark development:

1. **Consider bicycle and pedestrian infrastructure on access points to the baseball park.** Ulrich Street and University Boulevard are planned to provide the main points of access to the ballpark development. Facilities such as sidewalks, sidepaths, and/or bike lanes along these roads would ensure that pedestrians and bicyclists can safely access the development. They would also provide important connections to the existing and planned trails south of US-90, including Ditch H. Pedestrian/bicycle facilities should also be considered at RR crossings.

Fig 7.4 – Opportunities for bike/ped improvements around the ballpark



2. **Provide facilities and amenities within the ballpark development.** An extension of University Boulevard and Ulrich Street are proposed to provide circulation mobility within the ballpark facility. These roads



could be designed as “complete streets” to create a Town Square-like environment where pedestrians and bicyclists feel safe and comfortable using the street. Facilities along these streets could tie into the hike and bike trails planned for construction along Oyster Creek.

3. **Develop bike lanes along Brooks Street.** Brooks Street is a north-south running street that runs between US 90 and SH 6 and continues south of SH 6 as First Colony Boulevard. It could serve as an important route for bicyclists between Town Center and the proposed ballpark. Bike lanes are currently planned for Brooks Street, and their implementation is recommended. Consideration should be given to how these bike lanes ultimately tie into the ballpark development
4. **Provide a connection between the trails planned for Ditch H to the ballpark development.** Ditch H is planned to create an important north/south bicycle and pedestrian arterial. There is an opportunity to connect this future trail with any bicycle/pedestrian facilities provided along the extension of University Boulevard to provide a direct route into the ballpark area.

Town Center North/Fluor Corporation

North of US 59, Town Center and adjacent developments consist of a rich assortment of destinations, including major shopping centers like Whole Foods and Target. There is an existing trail system around Brooks Lake and Fluor Daniel as well as around Ditch F, south of SH 6. However, these trails are primarily designed for recreational use as they largely lack connections to local or regional destinations. The trails around Ditch F provide a good route from residences to the Town Center area but are hindered by a lack of “last-mile” connections into the retail developments of Town Center.

There is currently no direct route for bicyclists to access the area from neighborhoods to the north. SH 6 provides the principle route for vehicular traffic through the area. The existing 6-ft sidewalk north of SH 6 is sufficient for low bicycle and pedestrian volumes, but at higher volumes the width will be insufficient for the substantial speed differential between bicyclists and pedestrians. The interchange of SH 6 with the US 59 Frontage Roads is difficult for bicyclists and pedestrians.

North of First Colony Boulevard/Brooks Street, the sidewalk along SH 6 disappears completely and bicyclists are forced to join heavy traffic in the mainlanes. Pedestrians are not provided for at all. Brooks Street provides an alternate route for northern destinations, but its current cross-section does not specifically provide for bicycles and lacks a consistent sidewalk for pedestrians.

Lake Pointe Parkway and Creekbend Drive provide sidewalks and are suitable for bicycles because of low traffic volumes, but that infrastructure could be improved, especially in how it connects to surrounding infrastructure.

The following opportunity corridors and connections, summarized in **Figure 7.5**, have been identified to improve bicycle and pedestrian connectivity to destinations in the Town Center area north of US 59:

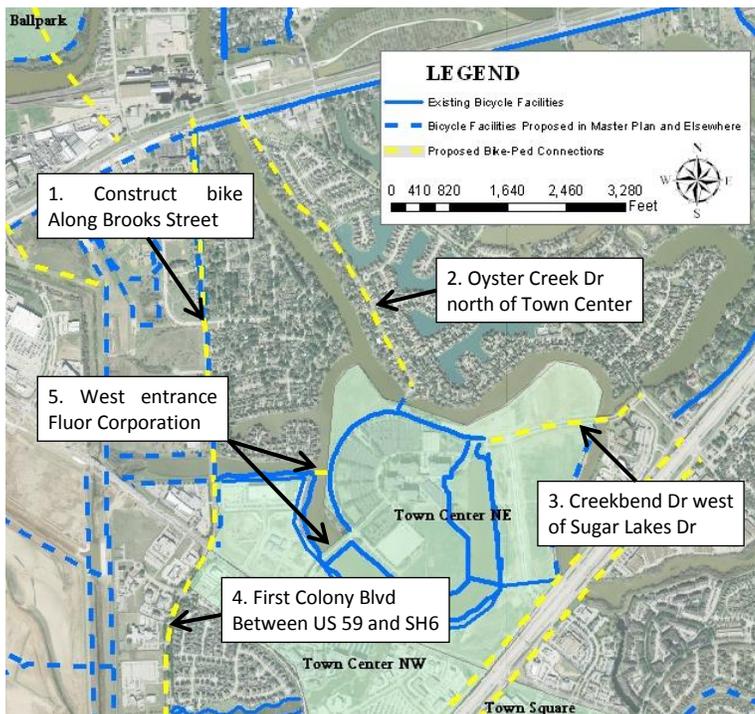
1. **Construct bike lanes along Brooks Street.** The bike lanes that are planned for implementation along Brooks Street would provide a route between Town Center and the proposed developments at the Imperial Sugar redevelopment and the ballpark.
2. **Oyster Creek Drive north of Town Center.** Oyster Creek Drive is a local street that is discontinuous for vehicle traffic which tends to keep traffic volumes and speeds low, making it an attractive route for



bicyclists. The 2007 Hike and Bike Master Plan recommended construction of a trail across the dam at the southern terminus of Oyster Creek Drive; Oyster Creek Drive would be the natural northern continuation for that trail, connecting Town Center to the Imperial Sugar redevelopment and neighborhoods north of US 90. The street could be signed as a bike route, emphasizing the right of cyclists to use the road, and signs could be installed to provide directional information to cyclists.

- 3. **Creekbend Drive west of Sugar Lakes Drive.** Bicycle facilities along Creekbend Drive from Sugar Lakes Drive to the existing bicycle lanes on Fluor Daniel Drive would connect bicycle traffic from Sugar Lakes Drive to Fluor Corporation as well as the mixed-use development along Creek Way Drive and Lake Pointe Parkway. It would also connect cyclists to the extensive trail network on and around the peninsula and to the proposed bridge to Oyster Creek Drive.

Fig 7.5 – Opportunities for bike/ped improvements around Town Center North



- 4. **First Colony Boulevard between US 59 and SH6.** First Colony Boulevard is an important north-south route for residents to access stores and restaurants at Town Center, Town Center Square, and, via Sweetwater Boulevard and Lexington Boulevard, First Colony Mall and Town Square.

The City of Sugar Land is planning to widen the existing sidewalk into a sidepath; this widening is recommended to accommodate bicyclists as well as pedestrians along this important route.

- 5. **Accessibility at the west entrance of Fluor Corporation.** There are relatively few connections between Fluor Corporation across the creek to surrounding development and trails. The main bridge across the creek provides a relatively narrow sidewalk and no bike facilities. It is recommended that Sugar Land explore options for improving bicycle and pedestrian accessibility on this side of the Fluor Corporation. These could include the reallocation of space on the existing bridge or even the construction of a dedicated pedestrian and bicycle bridge.

Initiative 1C: Implement on-street bicycle facilities to supplement the hike and bike trail network

Many of the recommended bicycle and pedestrian improvements identified above could be implemented using a variety of specific routes and infrastructure – including on-street bicycle facilities such as bike lanes. On-street facilities can be a low-cost way of providing needed bicycle infrastructure by using existing or proposed pavement. Studies have shown that properly designed bike lanes can be safer than other types of bicycle facilities, such as sidepaths adjacent to the road. On-street bicycle facilities also offer a significant advantage over other types of facilities in that they offer the most direct route to stores, businesses, schools, and other



destinations that front the road; a bike lane can fill the gap to areas inaccessible to off-street facilities. It is recommended that the City of Sugar Land explore opportunities to utilize on-street bicycle facilities to supplement the existing and proposed hike and bike trail network.

Initiative 1D: Explore use of technology to improve pedestrian and bicycle safety, e.g., in-pavement lighting, pedestrian heads

Technology exists that can assist pedestrians and bicyclists cross busy roads. Examples of such technology include pedestrian signal heads, in-pavement lighting, and motion-actuated pedestrian detection. It is recommended that Sugar Land implement a program to explore use of this technology to improve pedestrian and bicycle safety.

The *Sugar Land Town Center Pedestrian and Bicyclist Special Districts Study* identified pedestrian signal heads as an important element of assisting pedestrians determine “when to safely cross the street, especially at busy intersections, unusual geometry, or with complex signal phasing like split phasing.” Count-down signal heads, which display the amount of time remaining for a pedestrian to safely cross the road, are particularly effective.



Fig 7.6 - Lighted pedestrian crosswalk with automatic detection at Hobby Airport

The clear demarcation of pedestrian crosswalks is also critical to ensuring safe roadway crossings.

Effective demarcation at unsignalized pedestrian crossing is particularly important, especially during low-light times of the day. In-pavement lighting can be effective at alerting drivers of the presence of a crosswalk at dusk and dawn. When these are tied to automatic, motion-actuated pedestrian detection -- as is the system at Hobby Airport, shown in **Figure 7.6** -- use of the system is greatly simplified and can ensure that the crosswalk is only illuminated when a pedestrian is crossing.

Strategy #2: Use policy, regulatory, and planning tools to ensure that public and private developments are consistent with the City’s bicycle and pedestrian infrastructure plans.

The reasons for the high quality of life that Sugar Land offers and which continues to define it as a premier community in the Houston region are many, but chief among them is the City’s policy, regulatory, and planning toolbox that it uses to achieve consistency and harmony among residential and commercial developments. Many of these tools could be used to ensure bicycle and pedestrian infrastructure at trip destinations that would complement the City’s existing and proposed pedestrian and bicycle infrastructure.

Initiative 2A: Incorporate complete streets in design of roadway projects

Sugar Land enjoys many existing hike and bike trails throughout the community, and many more of these trails are planned for the future. These facilities provide excellent routes for medium- to long-distance travel. However, trails by themselves are unable to completely enable walking and bicycle modes without



Source: Charmeck.org

complementary facilities along roadways and in private development. Most bicycle and walking trips begin at end at the same origins and destinations as other trips, and because these locations are frequently located along major roadways, making roads as safe as possible for bicyclists and pedestrians – in other words, providing “complete streets” – is essential to ensuring the availability of multiple modes of transportation. Retrofitting bicycle and pedestrian infrastructure into existing roadway cross sections is often much more difficult and costly than building that road with that infrastructure from the beginning. Furthermore, because of the expense of

retrofitting, routes must be selectively chosen and prioritized to maximize use of limited funds. On the other hand, building roads with sidewalks, bicycle lanes, and other elements of bicycle and pedestrian infrastructure at the start adds nominal costs to constructions and can ensure that *all* new roads are bicycle and pedestrian routes.

Chapter 5 discusses complete streets in more detail.

Initiative 2B: Partner with the private sector to ensure provision of pedestrian/bicycle amenities

Bicycle and pedestrian infrastructure cannot end at the property line and instead must be provided up to the front door of destinations. Ideally, end-of-trip amenities including bike racks, showers, and lockers for personal items would be provided at major destinations (see **Figure 7.7**). These amenities improve the comfort of walking and biking and increase the likelihood that residents will choose these active forms of transportation. Regulations requiring on-site bicycle amenities and incentives to reward volunteered provisions can both be effective methods for ensuring that private infrastructure complements public infrastructure. Potential incentives include:

- **Decreased parking requirements.** Destinations located on or near trails and complete streets and that provide end-of-trip amenities and infrastructure have the potential to replace automobile traffic with bicycle and pedestrian traffic. Locations that generate less automobile traffic do not need as much automobile parking, and the cost of parking infrastructure can be substantial. Lessening the parking requirements for these developments can be a strong incentive to attract as much bicycle and pedestrian traffic as possible. As an added benefit, fewer and smaller parking lots can make an area much more attractive and also put more destinations within walking or biking distance.



Source: illuminatela.org

Source: meadowlink.org

Source: dexioner.com

www.dexioner.com

Fig 7.7 – Types of end-of-trip bicycle amenities



- **Adjustments to Traffic Impact Analyses.** For the same reason that developments that use voluntary infrastructure and amenities to attract bicyclists and pedestrians may have decreased need for automobile parking, the same developments may have decreased traffic impacts on the roadway network. Allowing developers to account for potential bicycle and pedestrian traffic in Traffic Impact Analyses may reduce the need for expensive roadway and intersection improvements thereby creating a cost incentive to provide bicycle and pedestrian amenities.

Initiative 2C: Require on-site bicycle/pedestrian connections and amenities through site plan review process

Parking lots and driveways can be chaotic and hazardous to a pedestrian or cyclist attempting to access business destinations. In Sugar Land, pedestrian and bicycle accommodations are frequently not fully thought through for businesses, and patrons on foot or bike often must share driveway access points with cars and trucks. For bicycle and pedestrian infrastructure to be most useful, it cannot end at the property line – it must be provided up to the front door of residences, businesses, and other destinations. It is recommended that Sugar Land consider new and rebuilt developments provide direct, safe, and dedicated access routes for pedestrians and cyclists to ensure that publicly-funded infrastructure can be used for transportation in addition to recreation.

Initiative 2D: Adopt policy that recognizes differences between bicycle and pedestrian needs

Although pedestrians and bicyclists share many similarities – their relative vulnerability, for example – their needs are not always the same. In particular, although their speeds are low compared to motor vehicles, their relative speeds can create conflict on a shared facility. Pedestrian, walking at approximately 3 mph, can feel very uncomfortable when being passed by a bicyclist going three to seven-times as fast (10 mph-20 mph). A collision between a fast-moving cyclist and a pedestrian can result in serious injury to either party. Therefore, it is important that any facility shared by both pedestrian and cyclists provide sufficient space for passing maneuvers, not just to ensure comfort but also safety. Sidewalks, with a typical width of 4 feet to 6 feet, do not provide sufficient space for safe and comfortable passing maneuvers and should not normally be considered appropriate facilities for bicycle usage. It is recommended that the City of Sugar Land adopt a policy to provide appropriate facilities in addition to or in place of sidewalks in corridors where bicycle usage is observed or expected.



Strategy #3: Foster a culture of support for bicyclists and pedestrians

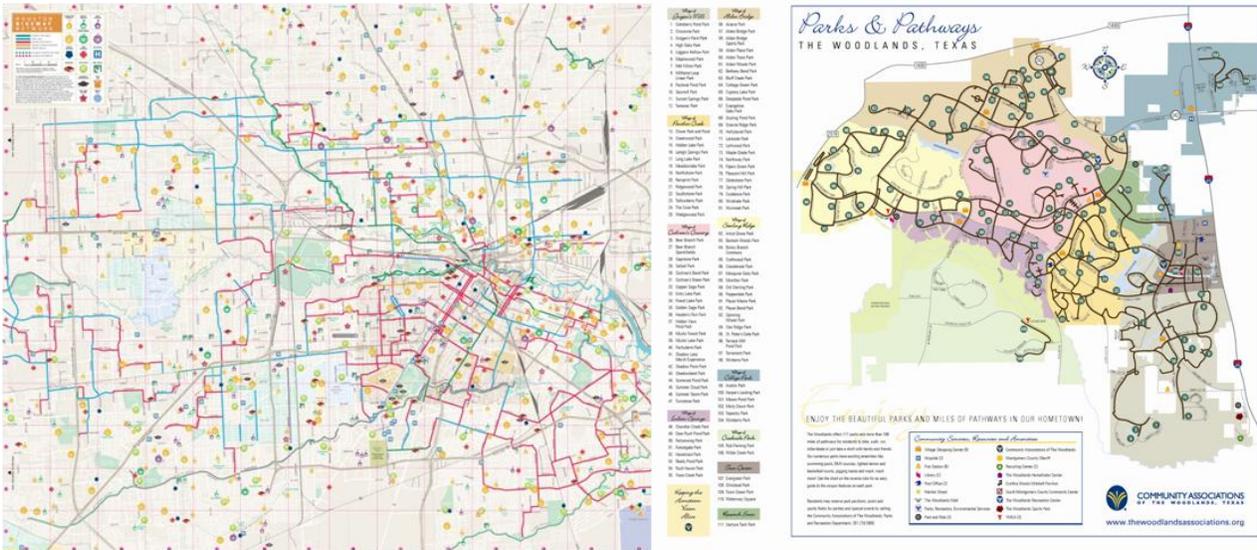
Initiative 3A: Create and distribute a bike routes map.

Trails, sidewalks, bike lanes, and other infrastructure that promotes healthy, active lifestyles will only be used if residents know about them. A bicycle map is a crucial for promoting investments in bicycle infrastructure, and it is recommended that Sugar Land develop a map of bicycle routes and update it on a regular basis to reflect the addition of new roads, trails, and development. Bicycle maps identify safe routes for bicyclists to popular destinations. They also demonstrate a citywide culture that embraces bicycling as a valid and safe form of



transportation. **Figure 7.8** shows bike and trail maps from the City of Houston and the Woodlands. Both maps include popular destination for cyclists in addition to infrastructure.

Fig 7.8 – Examples of bike maps from the City of Houston and the Woodlands



Initiative 3B: Explore need for Safe Routes to School Plan with school districts

Safe Routes to School (SRTS) is a federally-funded program with the goal of increasing the number of students that walk and bike to school. SRTS funds can be used to create a wide variety of local programs custom-tailored to the community. These projects can include sidewalk and crosswalk improvements, education for such topics as safe bicycle riding, and various forms of encouragement including bike-to-school events. SRTS plans can be created for any level of the school system, from individual school to the entire state level.



Source: Safe Kids USA

Many elements of a SRTS plan can be implemented quickly and at low cost. These can include after-school classes to teach kids proper bicycling and street-crossing techniques and “walking school buses,” where a group of children, typically with an adult chaperone, bikes or walks to school, stopping by houses on the way to add more children to the group. If more capital-intensive projects are identified in the plan, such as sidewalks, traffic signal modifications, or crosswalks, the projects can be submitted as candidates for funding when the State periodically puts out calls for projects. It is recommended that the City of Sugar Land team with Fort Bend ISD to explore the need for a SRTS plan for the district and for individual schools within the City.



Initiative 3C: Implement programs that encourage use of alternative modes of transportation, such as “Bike-to-Work Day”

Encouragement programs for bicycling and walking can be a very cost-effective way to send the direct message that bicycling can be an important part of the City’s transportation system. Historically, the culture in Sugar Land has been that bicycles do not belong on the streets with automobiles. Implementation of programs that encourage bicycle ridership are needed to educate residents and change the culture. Examples of encouragement programs include public bike rides, bike rack design competitions, and bike-sharing programs.

Public bike rides. Organized public bike rides can be a very popular type of encouragement program. Rides that are most effective at promoting bicycles as transportation are typically programmed around a destination. For example, Bike-to-Work Day, celebrated on the third Friday in May across the United States, encourages people to bike to work. The City of Houston sponsors a public ride to City Hall. Former Mayor Bill White participated in this ride and was able to draw substantial media attention to it. The City of Sugar Land could host a similar ride to its City Hall. It could also work with major places of employment and schools to organize their own rides for the same day. Encouraging as many people as possible to ride a bike to work or school on the same day at the same time will help send a powerful message that both the City Administration, as well as City residents, value bicycling.



Bike rack competitions. Several cities have used bike rack-design competitions to encourage residents to think about bicycling in their community while simultaneously resulting in a unique bicycle rack that can showcase the community’s commitment in perpetuity. Successful competitions have been held in Washington DC, San Francisco, New York City, and many other cities within the United States. In addition to adding valuable bicycle parking around the City, the bike racks that result from the competition serve as public art. **Figure 7.9** shows examples of winning entries in similar competitions.



Fig 7.9 – Winning entries from bike-rack design competitions

Bike-sharing programs, such as the Vélib program in Paris or B-Cycle in Chicago and planned for Houston, provide multiple stations where shared bikes can be rented by credit card. Town Center and the proposed ballpark development would make excellent candidates for bike-sharing programs. They both have or will have a relatively dense mix of land uses and are likely to serve a high proportion of visitors to the City who may desire



to park once and explore the City's offerings by bike. Many spectators of the baseball games may even decide to make the game part of a longer stay in Sugar Land. After the game, the family may want to bike along the nature trails planned for the surrounding land, or they may choose to bike together to a nearby restaurant. Bike-sharing makes these types of visits possible by making rental bikes convenient and accessible.



Source: malias on Flickr



Source: Sally Mahoney on Flickr

According to the Houston Advanced Research Center, the group pursuing a bike-share program in Houston, the most important key to attracting a bike-share program is to identify a champion for the program. This champion must engage community leaders and help them understand the opportunities associated with bike-sharing and lead them in approaching vendors as well as government entities for accessing various funding options.

Initiative 3D: Implement educational programs regarding pedestrian and bicycle safety

Some of the most cost-effective strategies for promoting bicycling and walking within a community involve education of children, parents, drivers, employers, and other members of the community. Some of the fears that keep people from biking or walking result from a misunderstanding of the true threats that exist. Other fears are based on real risks, but these risks can be effectively minimized with understanding and practice. As Sugar Land continues to build pedestrian and bicycle infrastructure, education can play a crucial

role in helping residents feel comfortable taking advantage of that infrastructure. Types of educational programs that could be considered include after-school classes that teach basic bicycling, walking, and street-crossing skills to children and "bicycle rodeo" events that are open to the community and which host a variety of bicycle-related activities.

Initiative 3E: Explore the potential for standing City/Resident Bicycle Committee

It is recommended that the City of Sugar Land explore the potential for a standing committee dedicated to bicycle and pedestrian issues. This committee would provide members of the community a clearly-defined channel for communicating bicycle and pedestrian needs and desires. It could also be tasked with developing a strategy for winning a "Bicycle Friendly Community" award from the League of American Cyclists. This coveted designation honors the winners with a very visible write-up in the League of American Cyclists' annual publication *Bicycle Friendly America Yearbook*. Membership of the standing committee could be composed of City staff, elected officials, business leaders, and interested residents from the community.

METRICS

The following metrics are recommended to measure the progress of providing transportation choices that promote a healthy, active lifestyle in the City of Sugar Land:



- **Population within 1/4 mile of a Trail/Path:** People living close to a trail or path are more likely to use it; tracking the total population and percentage of population that lives within ¼ mile of a trail or path will provide a measure of the accessibility of the trail network to the residents of Sugar Land.
- **Off Road Trail Miles:** This metric would count the total number of off-road trail miles and would reflect the percentage of the population that can take advantage of the trail network as well as the number of destinations accessible by the trail network.
- **Trail Utilization (Selected Locations):** This metric would count the number of trail users over a set amount of time at selected locations to measure trail utilization. This count would provide a direct manner of measuring growth of utilization of trails from year to year. It would also enable comparisons of utilization of different trails to learn what trail characteristics most appeal to trail users. Existing pedestrian/bicycle counter technologies could be used to conduct the counts, including technology that uses an infrared beam that is broken when the pedestrian/biker passes the counter.
- **Bike Racks:** Every bicycle trip ends with a need to secure the bicycle. This metric would count the total number of publicly-accessible bike racks on public and private properties and would provide a metric for estimating the bicycle accessibility at trip ends. The metric could be defined by the number of either bike rack structures or individual bike securing spots.
- **Sidewalks in Good Condition:** This metric would compute the percentage of sidewalk miles rated to be in good condition. It would provide a measure of the condition of pedestrian infrastructure in Sugar Land. Even the most extensive infrastructure network can grow ineffective at providing mobility as it ages and deteriorates, and this goes for sidewalk networks as well.
- **Pedestrian/Bicycle Mode Share (ACS):** The American Community Survey (ACS) prepared by the United States Census provides detailed data about the population on an annual basis, including data related to transportation mode share. The ACS mode share estimate would provide a metric of the percentage of the population utilizing walking or biking as a primary mode of transportation.
- **Children walking/biking to school:** This metric would estimate the percentage of children biking or walking to school. The school district or individual school may already collect this data; in that case, the metric would simply require collecting it from the district.

¹ *Health, United States, 2008*, National Center for Health Statistics, 2008.

² *Vital Signs: State-Specific Obesity Prevalence Among Adults*, National Center for Health Statistics, 2011.

³ *The Surgeon General's Vision for a Healthy and Fit Nation 2010*, U.S. Department of Health and Human Services, Jan 2010

⁴ *Walking and Cycling to Health: A Comparative Analysis of City, State, and International Data*, American Journal of Public Health, 8/19/2010.

⁵ *Type 2 diabetes: Prevention*, Mayo Clinic website, accessed 3/31/2010.

⁶ *The Unintended Consequences of Cul-de-sacs*, Harvard Business Review, May 2010.

⁷ *2009 Sustainable Streets Index Report*, New York Department of Transportation, 2009.

⁸ John Pucher, Lewis Thorwaldson, Ralph Buehler, and Nicholas Klein, *Cycling in New York: Innovative Policies at the Urban Frontier*, *World Transport Policy and Practice*, Vol. 16, summer 2010.