



## Goal 5: Integrated Regional Transit Services Connecting To and From Sugar Land via Convenient, Efficient Trips

New residential developments and redevelopments are planned and underway in Sugar Land and the ETJ. The City is also the headquarters to several large corporations. Businesses are choosing to locate in Sugar Land and the City of Sugar Land is working with developers to bring more attractions to the area, including the new baseball park at the Imperial Sugar site, a concert venue and mixed use development near the intersection of US 59 and University (Tract 5), and a festival site at Memorial Park.

Currently, many residents in Sugar Land work at employment centers in Houston with heavy concentrations of area commuters traveling to work in Downtown Houston, the Galleria/Uptown area, Greenway Plaza and the Texas Medical Center. There are also a growing number of commuters from outside the City traveling to Sugar Land to reach employment. Large employers, such as Fluor Daniel, Schlumberger, Minute Maid, the Methodist Hospital, Memorial Hermann Hospital and St. Luke's Episcopal Hospital all have employees that reside outside of Sugar Land and travel to the City for work.

Sugar Land has grown extensively from a small industrial town to a regional hub of a residential, commercial and light industrial, and entertainment/recreational development. Traffic volumes and congestion have also increased with the growth and development of the City. The City is well connected to the region by a system of highways and major thoroughfares; and, although residents are typically pleased with their ability to move around the City, many roadways experience congestion during commuter peak hours. Transit can provide a travel choice and help reduce congestion at critical times. Implementing an integrated regional transit network connecting Sugar Land with other regional destinations would enhance area mobility and be an attractive alternative to the single passenger automobile. An integrated regional transit network also provides a convenient and cost saving alternative that is attractive to many residents.

### Regional Transit Services Are Part of the Solution for Superior Mobility

When meeting with stakeholders to discuss mobility concerns in Sugar Land, interviewees agreed that the park and ride service from Sugar Land to other regional destinations is a successful program and supported the continued operation of service. The majority of the interviewees felt improved park and ride service and regional transit connectivity are critical to providing Superior Mobility in the City. At workshops with the City Council, Planning and Zoning Commission, and Parks and Recreation Advisory Board, there was also consensus in advocating for regional transit connectivity in the form of continued and expanded park and ride bus service. Many members of the Mobility Advisory Committee suggested that regional transit connectivity be included as a measurement of success in achieving improved mobility in Sugar Land.

Findings from the on-line survey conducted in Fall 2010 indicated that the provision of regional transit connectivity and commuter services is an important goal to include in the comprehensive mobility plan. The majority of respondents agreed that they would use bus or rail transit to access locations outside of Sugar Land and most of those respondents also strongly supported the development of commuter rail linking Sugar Land to



other employment and regional destinations. In addition, the majority of the respondents strongly agreed that Sugar Land would benefit from commute services linking Houston and the surrounding areas to jobs in Sugar Land.

The existing Sugar Land Park and Ride service provided by Fort Bend County has been successful with approximately 500 Sugar Land area residents riding transit via TREK Express/Fort Bend County Express for all or part of the commute trip to work destinations in Houston. Recently, additional trips and a new route were added to the TREK Express service in an effort to reduce travel time and meet patron demand to high density employment destinations. Parking at the two Sugar Land park and ride lots are almost at capacity and Fort Bend County is analyzing opportunities to expand commuter service and park and ride lots to other sites within Sugar Land. Fort Bend County is about to take delivery of new buses with plans to augment commuter services in Sugar Land and other locations in the county.

## Strategies for Providing Integrated Regional Transit Service Connecting To and From Sugar Land via Convenient, Efficient Trips

### Strategy #1: Encourage Alternative Commute Strategies such as Carpool/Vanpool, Telecommuting, Reverse Commuting, Flexwork

#### Initiative 1A – Work with H-GAC’s Commute Solutions, METRO and private sector to encourage residents/employers to use alternative commute strategies

A number of alternative strategies already exist that would improve conditions for daily commuters traveling to and from Sugar Land. Ridesharing, either in carpools or vanpools, is a popular and easily implemented option for commuters. The Houston-Galveston Area Council (HGAC) coordinates a number of rideshare initiatives through the Commute Solutions program to encourage commuters to seek alternatives to single occupancy vehicle travel.

The regional vanpool and rideshare program, METRO STAR, is another rideshare program for regional employers and employees. The METRO STAR Program is the third largest rideshare program in the nation. According to METRO STAR, there are currently 62 carpools traveling from the Sugar Land area. In addition to the vanpools traveling from Sugar Land to other regional destinations, there are 5 vans carrying 36 riders that commute to the Sugar Land area. An additional 650 employees have registered with METRO



STAR expressing an interest in vanpooling to Sugar Land area employers.<sup>1</sup> A more aggressive approach and program incentives may be needed to encourage greater use of the vanpools and other commuting alternatives.

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<sup>1</sup> Sugar Land Area Vanpool, METRO Star Vanpool Summary, August 2010



H-GAC and the METRO Star Program have offered to work with Fort Bend County to reach out to employers and residents and coordinate the marketing efforts.

There are additional rideshare incentives aimed at companies to encourage their workforce to carpool or vanpool. H-GAC has established the Best Workplace for Commuters initiative in which companies are recognized nationally for their efforts to promote alternative commuter choices. These companies may even receive tax benefits or grants for their participation in various commuter programs. H-GAC and Commute Solutions have identified Fort Bend County and the Sugar Land area as candidates for an integrated campaign with residents and area employers to increase awareness about commuting alternatives and encourage a greater commitment to ridesharing.

Other innovative approaches to address commuting congestion are to encourage employers to implement flex work hours, telecommuting and reverse commuting opportunities for their employees. More and more companies are expanding and relocating to Sugar Land resulting in a growing number of workers making the reverse commute to Sugar Land. As the volume of reverse commuters increases, the City of Sugar Land may consider providing special traffic management treatments to support reverse commute travel.

The City of Sugar Land would incur a minimal cost for marketing alternative commuting options and coordinating with residents and area agencies to implement services. H-GAC, through the Commute Solutions and METRO STAR Vanpool Programs, would play a major role in reaching out to employers and residents and would fund specific marketing and awareness efforts. METRO STAR would be responsible for soliciting potential vanpool users, organizing vanpool groups, coordinating incentives with the employers, and providing the vehicles. The City of Sugar Land should continue to encourage residents and employers to pursue innovative commuting opportunities and more actively market ridesharing, telecommuting and FlexWork alternatives through existing communication and outreach sources.

The advantage of encouraging alternative commuting strategies is that it is relatively easy to coordinate and implement. Much of the promotional material already exists and Commute Solutions and METRO STAR both have experience educating the public about commuting opportunities and administering a variety of ridesharing and incentive programs.

## **Strategy #2: Identify Short-Range and Long-Range Park & Ride Facility Requirements For Sugar Land**

**Initiative 2A – Conduct a comprehensive study to assess the demand for and optimal locations for Park & Ride services in Sugar Land, taking advantage of studies being conducted by regional partners (Fort Bend County, METRO) and the recommended Bus Rapid Transit (BRT) in Sugar Land (Strategy #3)**

Ridership from Sugar Land on the existing Fort Bend County commuter bus routes averages approximately 500 daily riders. In the short term, the transit routes provide an effective commuter service for Sugar Land residents. However, the two park and ride lots in Sugar Land (AMC 24 Theater and University of Houston) are both leased facilities and parking spaces for transit users are limited. It is possible that changes in the lease and ownership arrangements may impact the County's continued use of lots for park and ride purposes. Fort Bend

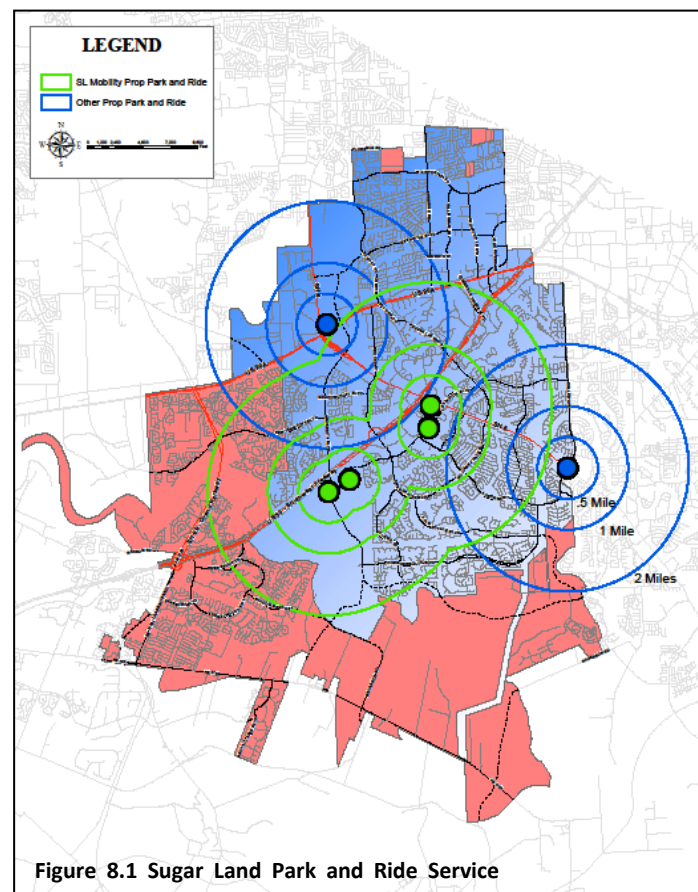


County may soon be faced with the task of finding alternative locations for staging park and ride service to replace the existing park and ride lots.

Fort Bend County is currently conducting a park and ride analysis to identify specific locations for additional park and ride facilities, based on growth projections and current commute patterns in the county. Targeted locations include sites in and adjacent to the City of Sugar Land. In particular, areas under consideration include the Imperial Sugar/Telfair developments in the vicinity of the US 90A/SH 6 intersection and the Riverstone/Missouri City area off of SH 6 in the eastern section of the County. The Riverstone/Missouri City park and ride facility will be a joint project with METRO and the service will operate on the Fort Bend County Parkway. Neither METRO or Fort Bend County are studying development of new park and ride facilities along the US 59 corridor.

As part of the development of the Comprehensive Mobility Plan for Sugar Land, the City is examining transit options, improved commuting opportunities, and park and ride development both in the short term and long term. As noted in earlier sections of this report, there is significant demand for expanded commuter transit services from Sugar Land to other regional destinations. An ultimate goal in providing Superior Mobility in Sugar Land is to have the existing commuter park and ride service evolve into a high capacity transit service that provides a more efficient connection to and from Sugar Land and the rest of the region. In the short term, park and ride facilities with greater parking capacity are needed to meet the demand in Sugar Land. These facilities should be in locations that also conform to long-term plans for transit development in Sugar Land. Opportunities exist to integrate new park and ride facilities with existing and planned mixed use developments that promote a more pedestrian, bicycle and transit friendly environment. Potential locations for larger capacity park and ride facilities in Sugar Land include sites where the parking can be shared with other uses. Sites in the vicinity of Town Square, the future Tract 5 development near the intersection of University and US 59, and Memorial Park/future Festival area all offer shared use opportunities and are easily accessible from the residential communities.

With Fort Bend County, METRO and Sugar Land all planning to develop new park and ride facilities and expanded commuter service, the commuter market may be saturated with service and the associated routes may be competing for some of the same riders. The market areas of the proposed park and ride locations include many of the same communities. Based on current Park and Ride planning activities, **Figure 8.1** provides a map of the Sugar Land area and the existing sites and potential locations for future park and ride development.





Concentric circles are drawn around the sites indicating market areas at ½ mile, 1 mile and 2 mile distances. While the lots serve varying communities within Sugar Land and Fort Bend County, the distance between lots is not that significant and the proposed sites draw from the same service areas. To avoid duplication and/or competing commuter services, the City of Sugar Land, in coordination with Fort Bend County and METRO, should conduct a Park and Ride Feasibility Study. The study would not only evaluate projected demand, lot location, and potential for shared use development, it would also examine route options and the employment centers to be served by the lots. The study would also identify potential service providers and the most cost effective options for the delivery of park and ride service.

The product of the study would be a Park and Ride Master Plan addressing both short term needs and long term objectives. The study would recommend a park and ride service plan that most effectively maximizes demand and collectively minimizes costs. The study would also address the growing demand for reverse commute services and how to integrate the service to and from Sugar Land during the peak periods. A challenge of the study will be to determine the location the park and ride facilities and the allocation of resources to efficiently provide service to multiple regional destinations. Coordination with Fort Bend County will be critical in both conducting the study and implementing the findings. Input from METRO will help in assessing the commuter markets and creating a comprehensive plan to meet the demands in the region. Both Fort Bend County and METRO could be partners in implementing the plan and providing the transit service.

Given the uncertainty of the future of the Federal Surface Transportation Bill and also the review and approval process required to qualify for transportation planning funding, FTA funding for a Park and Ride Feasibility Study may not be an option in the short term. By coordinating and partnering with Fort Bend County, some supplemental funding may be available through the resources they have to conduct planning studies.

The study will address the long term goal of growing the commuter transit service into a regional high capacity transit system. In particular, the park and ride feasibility study will include a discussion of integrating transit improvements with future land use decisions and the opportunity to accommodate multimodal mobility choices.

***Initiative 2B – Consider preferential treatment for buses on major Park and Ride routes (e.g. diamond lanes and signal preemption) to enhance attractiveness of transit***

For much of the commuter transit trip, the buses operate in the diamond and HOV lane on US 59. Presently, commuter buses leave the park and ride locations and access the freeway in mixed flow with all the peak period traffic. To make transit an attractive alternative to the single passenger auto travel, Sugar Land should consider implementing priority treatment for transit on local thoroughfares, including but not limited to diamond lanes, signal pre-emption and queue jumpers. Priority transit treatment will allow the commuters buses to avoid the choke points and heavily congested intersections that characteristically impede mobility during the peak periods. The preferential transit improvements on local roadways will enhance the transit trip and complement the special transit treatments that are already in place on the US 59. The result will be a reduction in travel time on transit; a major incentive to attracting commuters to switch to transit.

Preferential transit treatment would be implemented on the local roadways in Sugar Land. Coordination between the City's Transportation and Public Works Departments will be required to plan and install the

improvements. If signal preemption is one of the improvements selected, then coordination with the transit service provider will also be required to arrange for the installation and maintenance of the preemption devices.

Implementation of preferential transit treatment on local streets is a component of the Bus Rapid Transit system (Strategy 3) and is essential in the operation of a high capacity transit service. These preferential transit improvements represent the first phase in the development of a high capacity transit service and lay the ground work for advancing to the next phase of transit improvements.

### Strategy #3: Implement Regional Rapid Transit Phase 1: Bus Rapid Transit

#### **Initiative 3A – Develop premium, branded Bus Rapid Transit (BRT) service for the City with preferred station location at the intersection of US 59 at University Boulevard, with initial service to Downtown**

In conjunction with the development of a Park and Ride Master Plan, plans should also be developed for a future high capacity transit (BRT/Rail) facility connecting Sugar Land with other regional destinations. Initially, a feasibility and planning study should be conducted to assess high capacity transit options for Sugar Land and define the process for planning, constructing and operating a high capacity transit facility. The feasibility study would address the phased development of high capacity service from the implementation of a Bus Rapid Transit facility to the eventual development of passenger rail connecting Sugar Land and other Fort Bend County cities to a network of regional destinations. H-GAC supports the need for a High Capacity Transit Feasibility Study and has offered to provide funding for the study.

Following the successful completion of the Feasibility Study, the next phase is to develop a branded BRT service that will offer commuters a premium, high capacity transit option. Conceptually, a park and ride/station facility would be developed in conjunction with other new developments near the intersection of US 59 at University.



Based on current demand and employment statistics, it is proposed that the initial BRT service would be destined to Downtown Houston. Other employment destinations may also be accommodated, depending on available resources, equipment needs, and existing transit options in Sugar Land.

The BRT buses would enter

and exit the freeway facility on an exclusive transit T-ramp allowing the buses to bypass congested areas when entering and exiting the freeway. The BRT service will offer a greatly improved trip to Downtown by providing a controlled access facility for bus operations which will in turn reduce travel times.



Bus Rapid Transit has been implemented in cities all over the world and operates similar to rail transit, but is more flexible and often less expensive to construct. The Orange Line in Los Angeles, California operates in an exclusive right of way (except for a small segment that operates in mixed flow) with station spacing farther apart and a pre board



payment program similar to a rail system. The Orange Line buses are specially branded and have a different look; easily recognized as Orange Line BRT buses. These buses provide low floor boarding and multiple doors for quicker boardings and alightings. A bike and pedestrian path run adjacent to the BRT route, offering users numerous multi-modal options along the corridor. Each station has bike amenities, including bike lockers and racks, and the buses feature racks on the front that accommodate up to three bikes. The BRT Orange Line is heavily used by residents in the San Bernardino Valley and ridership continues to grow on the line.

Ultimately, US 59 could be improved and modified to provide exclusive right of way for BRT, as congestion and capacity needs warrant. The feasibility study will address the service plan and operations and the threshold for implementing an exclusive high capacity transit facility.

In addition to the BRT bus operations, a major component of the BRT service in Sugar Land would be the park and ride station for Sugar Land commuters. Two potential sites have been identified for a BRT station location in Sugar Land (see **Figure 8.2**): 1) the intersection of US 59 and University Boulevard (exact location unknown) 2) the parking lot for the future Festival Site. The benefits and challenges of each site will be influenced by the City's goals for the facility. Potential benefits and challenges for the two potential sites have been identified including the following:



#### **Location #1: US 59 at University Boulevard/Tract 5**

##### **Benefits**

- Higher potential to serve a wider range of trip types such as reverse commute and peak and off-peak trips, thus, increasing the viability of transit as an alternative transportation mode for more users
- Catalyst for Transit Oriented Development (TOD) and economic development; provides improved access and benefit to adjacent Sugar Land activity (e.g., convention center, indoor concert venue)
- Superior access to existing Sugar Land neighborhoods, with minimal backtracking (e.g., Telfair, Avalon Commonwealth, First Colony).
- Easy access to the northbound US 59 on-ramp for express service
- Easy access via bicycle/pedestrian connections, i.e., Ditch H Trail, Town Center Ped/Bike Project with possible Lexington Boulevard shared-use path, Telfair Neighborhood Trails and University Boulevard bike lanes and path
- Potential transit linkages to Town Center, University of Houston, Memorial Hospital
- Access to Town Center employers for reverse commute trips; potential impetus for Town Center redevelopment
- Opportunity to integrate intracity circulator connection with the commuter service and station/stop
- Potential reduction in structured parking costs for concert venue and/or convention center by using federal funding, if parking is shared with transit
- Higher potential for federal funding due to integration of transit facility in mixed-use development



- Improved future commuter rail accommodations due to enhanced access to more locations such as potential route through Town Center to Tract 5.

### Challenges

- Cost of structured parking
- Coordination with developer and builder(s); City has limited control over developer plans for remainder of Tract 5
- Timing necessary to meet needs of development partners
- Perception that transit is not a suitable land use on highly developable property

### Location #2: US 59 at Festival Site

#### Benefits

- Increased level of City control
- Reduction in cost of construction for Festival parking facility
- Direct access on US 59 frontage road from west (e.g., Greatwood)
- Availability of site/Lease Agreement
- Ability for expansion
- Access to Brazos River Park
- Shared parking with festival site; potential for shared funding opportunities
- Bike/pedestrian connections, i.e., US 59 Corridor Trail and Brazos Trail
- Opportunity for site to serve as satellite hub for remote parking and intracity shuttle for special events
- Simple design and layout as surface parking lot, i.e., not incorporated into dense development

#### Challenges

- Circuitous access and locations that would require backtracking/U-Turn at Brazos River from major residential communities (e.g., Telfair, Avalon)
- Coordination with U of H including future development planning
- Relocation of Park & Ride from this location before useful life may require funding reimbursement if funded with Federal dollars
- Limited access and minimal mutual benefit/synergy with other major activity centers (further from Town Center, current U of H site)
- Planned roadway access limited to US 59 frontage road

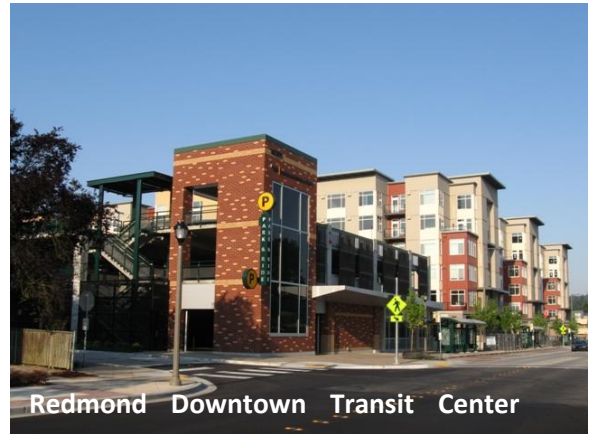
The City will have to decide if it would like the Park and Ride Station/Transit Center to serve as a catalyst for economic development and TOD or if it wants the Station/Transit Center to be a typical Park and Ride where people park their car and get on the bus in the morning and then they get off the bus and drive away in the evening. Once the City decides on the desired role of the Park and Ride Station/Transit Center, a preferred Park and Ride Station/Transit Center site can be identified. Coordination with area developers and institutions is needed to reach a consensus on a plan that maximizes joint use development. The US 59 at University Boulevard location has been identified as the preferred site for a Park and Ride Station in this study due to the economic development benefits.





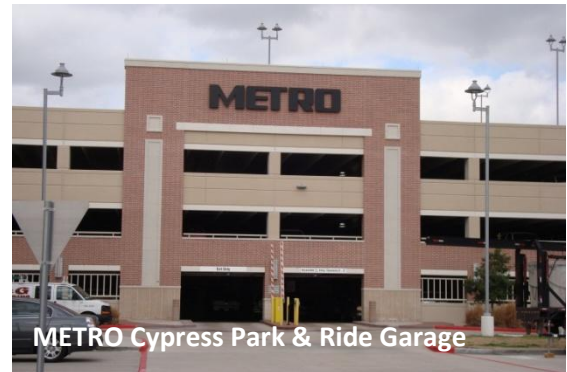
## Chapter 8

In many cities across the country, bus and rail stations have been integrated into mixed use developments where the parking is shared and the area development is supportive of transit activity. The TOD sites are attractively designed to enhance pedestrian movements and support the surrounding land uses. In Redmond, Washington, a suburban community outside of Seattle, there are four bus transit TOD park and ride facilities. At each of these facilities, all the parking for transit is shared and most of the parking is provided in a garage. The Redmond Transit Center is located in downtown Redmond and the TOD development includes a garage, housing, city park and future electric charging station. All the parking at the development has more than one use. At other TOD developments in Redmond the transit centers share access and parking with office developments, retail facilities, and movie theaters.



Redmond Downtown Transit Center

In Northwest Houston, METRO and NewQuest Development operate the Cypress Park & Ride TOD which is a 21 acre development and includes a 1500 space garage, bus platform and shelter, 75,000-square-foot commercial/retail center and 300-unit multi-family housing complex. The Park and Ride facility, which began operation in fall 2007, uses 8.5 acres of the development for the garage and the transit station. The 1,500 space garage cost \$14.7 million to construct. METRO received funding support from the Federal Transit Administration to build the facility. Currently, the park and ride averages between 800 to 850 daily riders. METRO owns the entire site and NewQuest leases the remaining 12.5 acres for the retail and housing activity. The garage is shared between METRO and the apartments. There is surface parking is available adjacent to the retail establishments. During the day, 80 percent of the spaces in the garage are reserved for METRO and the remaining spaces are reserved for the apartments. However, at this time parking restrictions are not enforced in the garage. METRO incurs the costs for maintaining the transit related facilities, e.g. the transit station canopy, platform, driveways and 75 percent of the garage. NewQuest is responsible for the remaining maintenance costs.



METRO Cypress Park &amp; Ride Garage

There are three parts to the BRT program; the bus service, the controlled access BRT alignment and the BRT Park and Ride Station. To develop the complete BRT operation, Sugar Land most likely will need to have several partners. For the provision of service, Sugar Land could partner with Fort Bend County and/or METRO to coordinate bus operations and service to downtown and other destinations in region. FTA and H-GAC could also be funding partners to support the high capacity transit operations, particularly given the new service would help with regional air quality improvements and congestion mitigation. TxDOT and FTA/FHWA along with METRO and/or Fort Bend County would be a partners with Sugar Land in the planning and construction of the BRT facility, which would connect to the existing Southwest Freeway HOV. Currently, there are federal funding opportunities that would support the capital investment of a new BRT service, but securing future funding may

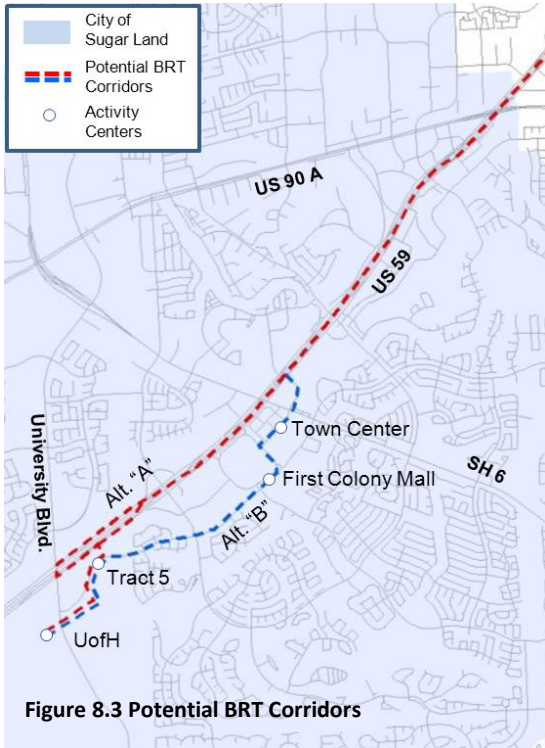


Figure 8.3 Potential BRT Corridors

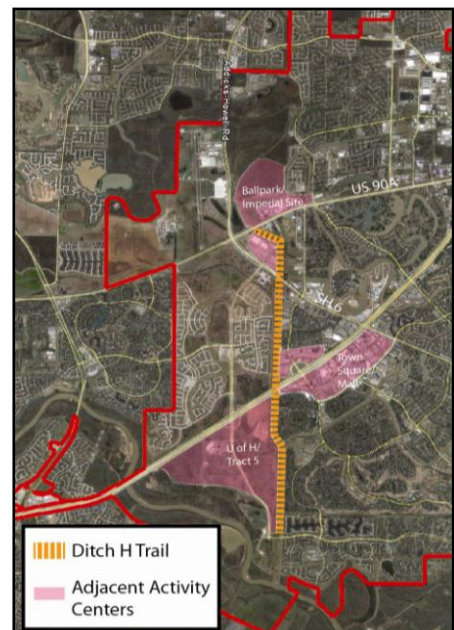
be more challenging depending on future transportation legislation. Sugar Land would most likely partner with a developer to coordinate the design, construction and operation of station and shared use garage as part of the TOD development.

The implementation of the BRT service will provide the residents of Sugar Land with a direct, fast, reliable transit trip to Downtown Houston and other regional destinations. Development of BRT is the first phase of the Regional Rapid Transit Service. With successful operation of the service, demand for high speed regional transit service will grow and eventually warrant an expansion in both service capacity and connectivity. Growth of the service will lead to the development of Regional Rapid Transit Phase 2: Commuter Rail and the ability to provide improved speed and connections to and from Sugar Land and multiple locations in the region. **Figure 8.3** shows potential corridors for a BRT service from Sugar Land operating

on US 59.

**Initiative 3B – Provide connections between station and surrounding land uses via other modes such as bicycles, e.g. Ditch H Trail**

The BRT service and new park and ride station will heighten the transit presence in Sugar Land and provide an improved mobility choice to the community. In conjunction with the construction of the BRT park and ride/station, accommodations for connections with other modes of transportation also need to be considered. Surrounding neighborhoods and developments should be connected to the station site through a network of sidewalks and bike paths. Connections to the station from the planned Ditch H Hike and Bike trail could easily be integrated into the layout of the site. Appropriate amenities to accommodate bike access, such as bike racks and lockers, should also be installed at the station site. The planned Ditch H Hike and Bike Trail is a major component of the Sugar Land Hike and Bike Trail Master Plan. When completed, the 5 mile trail will connect a number of residential areas with major destinations in Sugar Land and can conveniently connect to a proposed BRT station. The connection of Ditch H and other Hike and Bike trails to the transit station will provide residents with the opportunity to make the complete work trip without the use of a car.



**Initiative 3C – Consider route and operation of transit service to reinforce activity centers between Town Center and Tract 5 (Tract 5 development)**

Plans are being refined and finalized for the the development of Tract 5 and the area adjacent to the intersection of US 59 and University Boulevard. The route from a BRT station in the area adjacent to University Boulevard could be designed to connect to employment centers and attractions in Town Center just east of the Tract 5 development. Lexington Boulevard is scheduled to be extended from Sweetwater Boulevard to University Boulevard in conjunction with the Tract 5 development. The extension of Lexington will provide the means for connecting a number of destinations along Lexington and Town Center Boulevard, allowing transit to serve these activity centers between Town Center and the newer developments to the west. The final design of the Lexington extension would include accomodations to support transit operations.

The park and ride/commuter service originating in the Tract 5 area would be routed along Lexington Boulevard and Town Center Boulevard and would include stops at First Colony Mall and/or Town Square to pick up or drop off riders before the service destined to Downtown enters the BRT facility on US 59. The route connecting Town Center and Tract 5/University Boulevard would serve two purposes; the route would offer Sugar Land residents multiple locations to access the BRT service, and the route would provide a transit option for local connections between area activity centers. The route would establish a transit connection in the City and serve as the precursor to a local bus service that would operate between the activity centers. The BRT service would also promote redevelopment at locations along the route and enhance access to these locations.

The City of Sugar Land would take the lead in designing and implementing the infrastructure to support transit operations. Sugar Land would partner with the service provider to develop the route and identify stops locations. Including additional stops in Sugar Land will increase the travel time of the route, but will also provide greater access to the service and attract more riders. In designing the route, coordination between the City, developers and the service providers will be needed to reach a balance between offering efficient travel times and the potential to attract riders.

**Initiative 3D – Coordinate with TxDOT/METRO, e.g. potential 2-way HOV/HOT lane for commuter and off-peak service between Houston and Sugar Land**

One goal in creating Superior Mobility in Sugar Land is to provide an efficient connection between Sugar Land and Houston in both directions throughout the day. While many residents commute from Sugar Land to downtown Houston and other major activity centers in Houston. There is also a growing number of commuters traveling to Sugar Land for work purposes. There are a number of major corporations and medical facilities located in Sugar Land and more more of their employees are reverse commuting to get to employment centers in Sugar Land. During stakeholder interviews and at the Mobility Advisory Committee meetings, a desire to establish a transit connection for those commuters was expressed.

Sugar Land should take an active role in lobbying for the conversion of the US 59 HOV lane from one-direction to two-direction. The City would need to partner with TxDOT and METRO to initiate plans to convert the one-directional reversible HOV lane on Freeway (US 59) to bi-directional HOV/HOT lane providing express service between Sugar Land and Houston.



On IH-10 (Katy Freeway), the one-way HOV lane was recently expanded and converted to two-way managed HOT Lanes. The managed lanes allow transit vehicles and other vehicles paying a toll to travel in both directions in controlled access express lanes within the freeway between the Katy area and destinations in Houston. As traffic in the lanes increases, the tolls for using the lanes also increase, thus helping to maintain the desired speed in the lanes. Transit vehicles do not pay a toll to use the HOT lanes. Improvements are also in the final stages of design and engineering for the conversion of the one-way reversible HOV lane to two directional HOT lanes on US 290.

The conversion of the one-way US 59 HOV to two-directional HOV/HOT lanes will be a major project and will require coordination between Sugar Land, Fort Bend County, TxDOT, FTA/FHWA, METRO, H-GAC and other regional cities and agencies. Additional analysis and planning is needed to conceptually determine the length of the facility, operating plan, access points, right-of-way impacts, costs and overall feasibility of the project. Feasibility analysis of the two-directional HOV/HOT lanes should be conducted in conjunction with the feasibility study assessing opportunities for BRT and passenger rail in the corridor (discussed in Strategy 4). The potential may exist to develop two-directional HOV/HOT lanes which can be converted or transitioned to passenger rail service as demand warrants. Upon completion of the feasibility study, coordination among regional partners will be needed to support the study recommendations and ensure that the project is included in the Regional Transportation Plan (RTP) for consideration of future funding opportunities.

### **Initiative 3E – Identify optimal operating partner: Fort Bend County, METRO or other**

The BRT route from Sugar Land to Houston will introduce a new, premium branded service to area residents and will require new buses and an operating partner to provide the service. Currently, Fort Bend County Public Transportation Department provides all the transit service for Sugar Land and the remainder of the county. For the park and ride service originating from Sugar Land, Fort Bend County uses 32-passenger buses and operates on an average headway of 20 to 25 minutes with 10 trips to and from Greenway Plaza and 12 trips to and from Galleria/Uptown during each peak period. A high capacity BRT system could require larger buses and a service plan with greater frequency of service. Further discussions with Fort Bend County are required to determine if they have the interest or capability to provide the BRT service in addition to the existing service to Greenway Plaza and Galleria/Uptown.

Currently, the City of Pearland is working with METRO to develop a Park & Ride facility and provide commuter service along the SH 288 corridor to employment centers in Houston. METRO and Pearland are working out the arrangements for site development and the operating plan. Other government entities and agencies including the City of Manvel, Brazoria County, Connect Transit, Houston-Galveston Area Council, and the Texas Department of Transportation have also been involved planning and coordinating the future park and ride lot development and service.

At present, Fort Bend County and METRO appear to be the most likely candidates to provide the BRT service. However, there may be other cost effective options available. In the Woodlands, the Woodlands Express park and ride service is provided by The District, a public transportation agency serving cities and rural communities in the Brazos Valley area. A regional transportation agency could be established in the Fort Bend County area to



serve the growing transportation needs in the region. Creating a regional transportation agency in the short term could be beneficial to consolidate conflicting demands on transportation services. Over time, as greater demands are placed on the transit system and neighboring jurisdictions compete for services and limited sources, the regional transportation agency could play a larger role in obtaining and distributing transportation funds. The agency could also serve as coordinating entity responsible for the future development of the passenger rail system operating in Fort Bend County and beyond.

There may also be opportunities to engage in a public private partnership in which private bus companies, such as AFC Transportation or First Transit, could be contracted to provide the service with either the City of Sugar Land or Fort Bend County responsible for program administration.

### Strategy #4: Plan for Regional Rapid Transit Phase 2: Commuter Rail

**Initiative 4A – Conduct a feasibility study in conjunction with regional partners (e.g. H-GAC, Fort Bend County and Cities, METRO, and Gulf Coast Rail District) to determine preferred rail corridor, i.e. US 59, US 90A or other)**



As Regional Rapid Transit Phase 1 – High Capacity BRT matures and additional service on the facility is augmented, plans should be underway to transition from BRT to passenger rail transit when a threshold level of demand is met. Currently, METRO is conducting an environmental analysis of the US 90A corridor for the extension passenger rail from the Fannin South station to Beltway 8 in Missouri City. Missouri City and the cities of Stafford and Rosenberg are very supportive of the proposed US 90A passenger rail service and are engaged in discussions about the potential

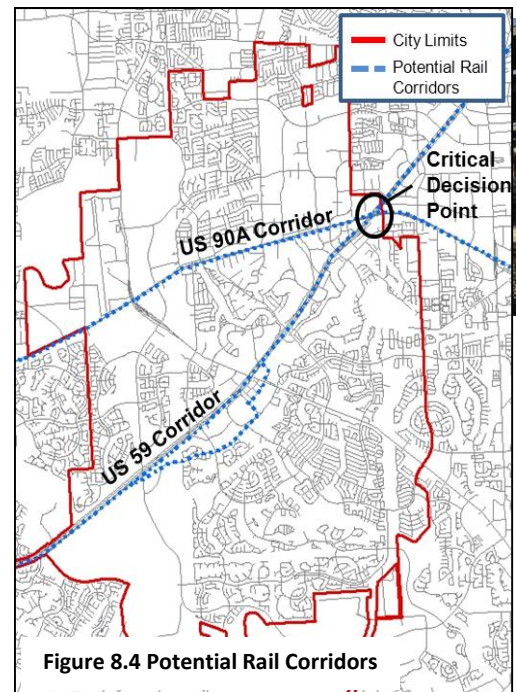
for the extension of the rail into Fort Bend County.

The proposed rail line extension would operate through the City of Sugar Land and would have a major impact on future development in the City. Sugar Land is the largest city in Fort Bend County and potentially would generate the greatest amount of ridership in the County on the rail line. Sugar Land should take an active role now in the discussion regarding the proposed passenger development and initiate analysis in determining the best location and operation of the rail service.



The rail feasibility study would be the second phase of the High Capacity Transit Study discussed as part of Strategy 3. This phase of the study would specifically address passenger rail development and the transition from BRT to rail service. Of critical concern will be where the rail alignment should be located. Historically, many have assumed that the rail line would extend from the terminal station at Beltway 8 and operate along the US 90A corridor adjacent to the active freight rail line. However in Sugar Land, the US 59 corridor may provide a better transit connection and serve the more densely developed areas of the region. The potential rail corridors are illustrated in **Figure 8.4**. The feasibility study would address the many issues related to the rail alignment, technology, and operation and would provide a forum for the many interested parties to participate in the examination and debate regarding the options for rail implementation. Sugar Land would play an instrumental role in coordinating the study analysis and establishing evaluation priorities.

From Sugar Land's standpoint, two potential alignments for rail are worthy of consideration: US 90A and US 59 (see **Figure 8.4**). Although there are many unknowns until a feasibility study is conducted, the potential benefits and challenges of constructing and operating rail in each corridor are included in **Table 8.1**. However, a detailed assessment of potential commuter rail corridors should be conducted in cooperation with regional partners





**Table 8.1  
Benefits and Challenges of US 90A and US 59 Rail Corridors**

US 90A Corridor	
Benefits	Challenges
<ul style="list-style-type: none"> <li>Existing rail traffic in corridor</li> <li>Potential connection to Sugar Land’s ballpark, providing shared parking facilities</li> <li>Potential Transit Oriented Development (TOD) at Imperial Sugar Property</li> <li>Corridor has been studied as high capacity transit corridor by others</li> <li>Reduction in traffic on US 59 corridor</li> </ul>	<ul style="list-style-type: none"> <li>Heavy volume of freight rail traffic; UPRR does not want rail relocated or impacted</li> <li>Potential subsidies required to offset costly relocation of freight rail lines</li> <li>Existing spur lines to businesses along north side will impact freight and passenger operations.</li> <li>Potential reconstruction of US 59/US 90A interchange, SH6/ US 90A interchange, and SH 99/ US 90A interchange for new passenger service rail bridge</li> <li>If passenger service is located north of UPRR, right-of-way would be acquired; disruptive to businesses and residences</li> <li>If right-of-way required, new track construction and signals needed along corridor</li> <li>If passenger service is located north of UPRR, potential shortening of Sugar Land Regional Airport runway</li> <li>Creates additional north/south barrier, OR requires costly construction to grade separate (depressed or elevated)</li> </ul>
US 59 Corridor	
Benefits	Challenges
<ul style="list-style-type: none"> <li>Potential shared use of public right-of-way for high capacity transit</li> <li>New transportation mode within an existing corridor with existing activity centers</li> <li>Potential Transit Oriented Development (TOD) at University and US 59 intersection</li> <li>Potential connection to existing development, e.g., Town Center, proposed Tract 5 and medical facilities.</li> <li>Existing commuter corridor; improved commuter options should generate demand</li> <li>Relieves commuter congestion on US 59</li> </ul>	<ul style="list-style-type: none"> <li>New transportation mode within an existing corridor</li> <li>Additional vehicular traffic on US 59 to access stations</li> <li>Rail overpass at US 59/US 90A interchange</li> <li>Higher costs for stations along corridor</li> <li>Corridor not identified as high capacity transit corridor by others</li> <li>If constructed within US 59 median, high construction costs</li> <li>Require coordination and cooperation with TxDOT and other regional entities</li> </ul>



#### **Initiative 4B – Initiate and influence regional decisions regarding management, funding, implementation, and operation of a rail system in Fort Bend County**

Sugar Land must take a proactive position in determining what is best for Sugar Land with regards to passenger rail development. The location and operation of passenger rail in Fort Bend County will have a major impact on Sugar Land both from an economic and transportation/mobility perspective. Sugar Land has the largest population of any jurisdiction in Fort Bend County and offers a number of major employment and recreational destinations in the region. Therefore, Sugar Land will be a principal partner in planning and designing the passenger rail project and in determining cost and implementation strategies.

A number of stakeholders have noted that Sugar Land's support of the rail system is critical to the successful implementation of the project. The City of Sugar Land is an innovative and economically strong leader in the region and should take advantage of its position to influence decisions regarding the passenger rail management, funding, implementation, and operation. Along with regional partners, the City will need to address what agency or governing body would be the best equipped to take the lead in orchestrating the design, construction, and ultimately the operation of the region rapid transit system. A regional organization that serves multiple communities would most likely assume a leadership role. There are a number of regional agencies that potentially could provide the service, including METRO, Fort Bend County, and the Gulf Coast Rail District. However, there are a number of jurisdictional and political issues that will need to be addressed before an operating entity is identified. An option that a number of metropolitan areas have implemented is the formation of a new regional agency created with the authority to raise revenue, build, operate and manage a regional transit system across multiple municipalities and counties, such as the Trinity Railway Express (TRE) in the Dallas/Fort Worth area or Valley METRO in the Phoenix area.

#### **Initiative 4C – Identify and preserve locations for future rail alignments and stations for potential corridors, i.e., US 59 at University, Imperial development, Sugar Land Town Center and Lexington Boulevard**

Following the completion of the High Capacity Transit Feasibility Study, Sugar Land will be in better position to determine what facilities to plan and implement and where these facilities should be located. In the case of rail rapid transit, implementation and construction of the facility may not occur for a number of years. However, in order not to preclude future development, the City of Sugar Land Transportation, Public Works, Planning, and Economic Development departments should work together with area developers to identify and preserve alignment and station locations for transit corridors.

A transit development plan should be prepared that identifies and defines proposed transit alignment and station locations and supporting infrastructure. The purpose of the plan is to preserve property and right of way for future transit use and incorporate in future plans those transit elements that will be part of the development. Future transit improvements should be anticipated and addressed as part of any new development or redevelopment project. Preserving locations and incorporating accommodations for future transit improvements help direct the land use development in the area. Identifying and preserving property may also be a cost savings, as it is easier to preserve available property for future transit alignments and





stations, than it is to retrofit transit improvements or acquire property in an area that is already well developed and the surrounding infrastructure is optimized.

#### **Initiative 4D – Implement Regional Rapid Transit Phase 2 when congestion and demand warrant construction**

The implementation of Regional Rapid Transit Phase 2 – Passenger Rail connecting Sugar Land to a regional network of destinations should occur when demand warrants a system that can provide greater capacity and a higher level of service. The advantage of a passenger rail service is the system’s ability to provide a high transit capacity service at a lower operating cost. The rail service also operates in a separate right of way and offers an alternative to traveling in congested roadway conditions. The rail service has broad appeal to many residents in the community and could attract many more new riders.

As the passenger rail system will most likely be an extension of the proposed US 90A rail project originating in Houston, the City of Sugar Land will not be the service provider for the passenger rail service. However, the City will play an integral part in working with regional partners to implement the service and coordinate with the appropriate agency to operate the service. By working through the initiatives for integrating a regional transit service to connect Sugar Land to regional destinations, plans should be in place to support the construction and operation of passenger rail service. Together with regional partners a feasibility study will have been conducted to determine the preferred rail corridor and service application. Sugar Land will have assessed its position regarding the passenger rail alignment, station locations, and operating plan and will have been actively involved in planning and identifying locations for the future service. Funding scenarios will have been studied and evaluated and a regional implementation strategy will have been prepared reflecting the efforts of a coordinated planning process. With the advanced planning and implementation strategies negotiated and agreed upon, Sugar Land and its regional partners will be able to facilitate the construction and implementation of the regional rapid transit passenger rail line when the timing is right for the transit improvement.

### **Strategy #5: Assess Transit Opportunities that Allow Non-Sugar Land Residents to Access Sugar Land**

#### **Initiative 5A – Provide transit service to major employers and off-peak service to major destinations**

Recent data suggest that in addition to providing Sugar Land commuters with service from Sugar Land to employment centers in Houston, there is also a growing demand to provide transit service for commuters traveling to employment locations in Sugar Land. Many of the regional hospitals and major employers located in Sugar Land view reverse commute transit service as a needed incentive to attract employees to their work destinations. There is significant congestion on the local roadways in Sugar Land during peak periods and employees coming to Sugar Land are also impacted by the congestion. A transit option for trips to Sugar Land could help commuters avoid the stress of navigating through the congestion and adding to the problem. Over 70 percent of the on-line survey respondents felt the Sugar Land would benefit from commute services from Houston and other surrounding areas to jobs located in Sugar Land.

In addition, there is also demand for off-peak service to major non-work destinations in Sugar Land. With a number of existing attractions and plans for a new minor league baseball stadium and concert and



entertainment venue scheduled to open in the next few years, Sugar Land is also a regional destination. Travel to Sugar Land by non-Sugar Land residents is expected to continue to increase, warranting future transit connections to Sugar Land.

Sugar Land should coordinate with area employers to assess the volume of work trips currently being made to Sugar Land and evaluate appropriate transit options for the reverse commuter. Though more challenging to assess, Sugar Land also should work with area developers to monitor traffic volumes and non-Sugar Land attraction levels at major destinations and entertainment centers in the City. In conjunction with the augmentation of more bus service to serve Sugar Land residents, options should also be examined for providing transit service to major employers and off-peak attractions in Sugar Land. Initially, service could be specialized to serve specific employers or special events in the City.

The High Capacity Transit (BRT/Rail) Feasibility Study will include an analysis of service needs and opportunities to accommodate a reverse commute and off peak trips to Sugar Land. In the long term, trips to Sugar Land will most likely be accommodated with the conversion to two-way HOV/HOT lanes and the implementation of passenger rail transit. Interim options should also be explored to accommodate transit trips in and out of the City. Implementation of an intracity circulator may also coincide with the implementation of transit service to Sugar Land. Once non-Sugar Land residents arrive in Sugar Land on transit, a circulator would provide the distribution function to multiple destinations in the City.

Sugar Land's partners in providing transit service to area employers and major destinations would include private sector employers and developers. Fort Bend County may also be a partner in providing county residents with enhanced service to Sugar Land. In the long term, other transit providers (public and private) may also become partners in providing transit service to Sugar Land and promoting a regional network of destinations.

## Metrics

The following metrics are proposed for tracking the progress towards achieving the goal of providing integrated regional transit services connecting to and from Sugar Land via convenient, efficient trips:

**Trek Ridership for Sugar Land Park and Ride Lots** - The best metric for evaluating park and ride success is to examine ridership counts on the transit service and taking into account the percentage of all commuters that use transit for their work trip.

**High Capacity Transit Boardings** – The number of boardings for the BRT system should be tracked to evaluate success and determine when to move to implementation of rail service. Prior to implementation, ridership projections and patronage benchmarks should be established to evaluate the service at various intervals following service initiation. The City of Sugar Land may want to consider establishing a ridership goal that clearly confirms the City's position regarding transit as part of Superior Mobility mix.

In conducting ridership counts, the evaluation should also determine where the trips originate and terminate and how, when and where the rider accesses the transit service. The ridership counts should also provide an



accounting of scheduled trips and corresponding demand for service. Once rail service is implemented, the ridership should be tracked as it was for BRT service.

**Cost per Trip** - Another measure of success is to assess how closely actual costs compare to projected costs. Cost effectiveness is also a metric that can be applied to rate of success. Cost effectiveness compares increase in ridership over time versus operating expenses over the same period. The project is considered cost effective the greater the ratio is between ridership numbers and operating expenses.

**Vanpool Ridership** – Vanpool ridership can be tracked to evaluate the effectiveness of the marketing efforts designed to increase ridership. Ridership should be tracked for vanpools that initiate in Sugar Land as well as vanpools that terminate in Sugar Land.

**Mode Share/Commuter** – The modal split (single occupancy vehicles/transit) can be calculated for commuter trips. Ideally the percentage of transit trips as a percentage of the total number of commuter trips would continue to increase as higher levels of transit service are provided.