



FULSHEAR TRANSIT FEASIBILITY STUDY

Final Report

February 2021

FULSHEAR



Transit Feasibility Study

Acknowledgments

The study team would like to thank the many citizens who contributed their input and time to the Fulshear Transit Feasibility Study. The study greatly benefited from their interest and dedication in planning for the future of Fulshear.

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1 EXECUTIVE SUMMARY

1.1 Study Goals and Purpose

The City of Fulshear is located in northwest Fort Bend County and is rapidly transforming from a rural to a suburban community. During the past decade, Fulshear was one of the fastest-growing cities in Texas in terms of population. The Fulshear extraterritorial jurisdiction¹ (ETJ) population has also increased substantially, and both the city and ETJ populations are expected to continue increasing. This growth will contribute to the already significant amounts of daily trips originating in the Fulshear area to Houston activity centers, especially the Energy Corridor, Westchase District, and Downtown Houston. Most of these trips use Westpark Tollway and I-10 to travel to and from these activity centers. To assess the feasibility of transit service in the Fulshear area, the City of Fulshear (city), Fort Bend Transit (FBT), and the study team initiated the Fulshear Transit Feasibility Study.

The Fulshear Transit Feasibility Study is a comprehensive study conducted to identify existing and future transit opportunities within the city and from the city to the Greater Houston area. The objectives of the study are to:

- Develop transit options to connect Fulshear to regional employment centers
- Develop transit options to bring employers and visitors to Fulshear
- Determine the feasibility of local bus service in Fulshear
- Enhance multimodal transportation in Fulshear
- Explore transit-oriented development (TOD) and public-private partnership (P3) opportunities

1.2 Plan Overview and Development Process

The Fulshear Transit Feasibility Study utilized planning resources, datasets, and public input to draw conclusions and develop the recommendations in the Fulshear Transit Plan. The plan serves as a guide for the short and long-range implementation of transit service within the Fulshear area as well as to and from the area and regional destinations. The recommended routes, service levels, and modes in the plan were developed to meet the following goals:

- Provide transit choices for Fulshear residents, employees, and visitors
- Provide high-quality commuting services to major activity centers in Houston
- Enhance the quality of life in Fulshear
- Support traffic and parking congestion mitigation
- Improve multimodal connectivity
- Build partnerships to share transit costs and benefits
- Result in short-range and long-range actionable transit projects

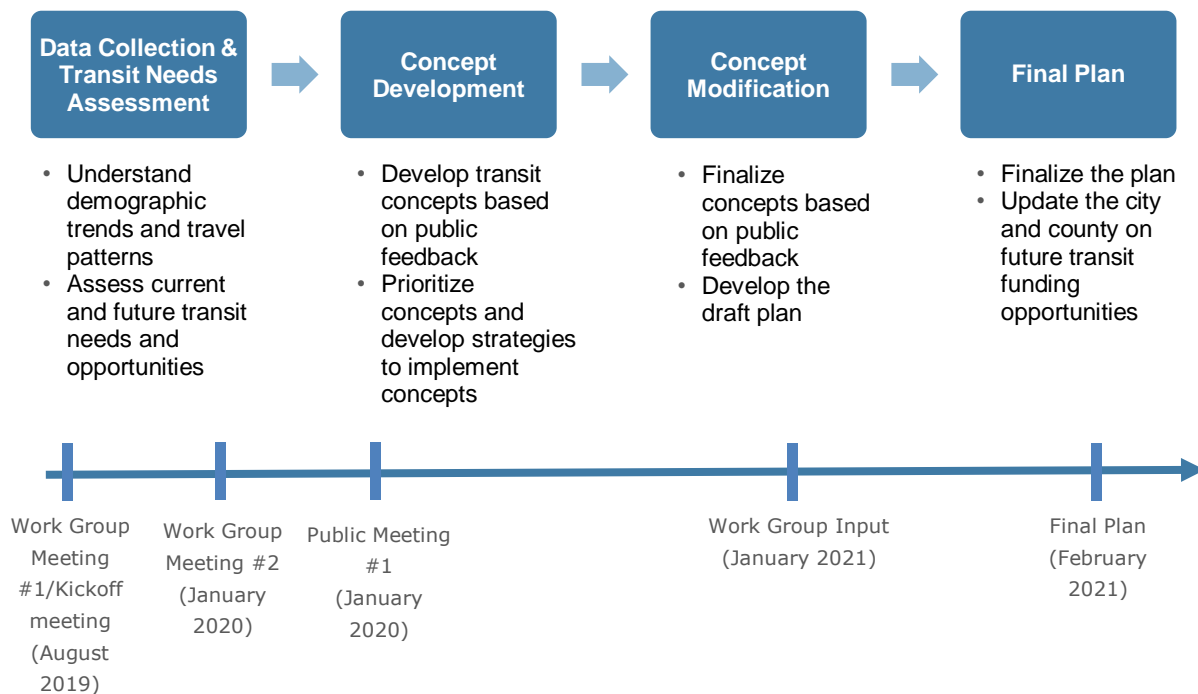
¹ The extraterritorial jurisdiction (ETJ) is an unincorporated area adjacent to a city boundary. In 1963, the Texas Legislature created the concept of the ETJ and granted cities the legal capability to exercise authority beyond their corporate boundaries in their respective ETJs.

Figure 1 and the following section summarizes each phase of the planning process.

Work Group

To ensure that the plan was developed with extensive input from local stakeholders, a Work Group was formed comprised of 11 members representing Fort Bend County, City of Fulshear, Fulshear City Council, and the study consultants. The Work Group convened at major milestones to obtain feedback and to build a consensus on the Fulshear Transit Plan, as illustrated in Figure 1. The first meeting took place in August 2019 and served as a kickoff for the study process. The second meeting was held in January 2020. At this meeting, the Work Group shared updates on the study progress and prepared for the first public meeting that occurred later that month. Due to COVID-19, the third meeting was canceled, but the Work Group will have the opportunity to review and provide input on the draft study report and transit plan in January 2021. With input from the Work Group, the study team will finalize the plan in February 2021.

Figure 1: Plan Development Process



Study Review

The initial phase of the study involved evaluating plans, reports, and studies that provided data on existing and projected conditions, outlined strategies for regional development, or defined projects related to the local and regional transportation network. The existing and projected conditions include economic development, land use, population, roadways, transit services, and travel patterns. The relevant information from these documents was used to form the recommendations in the Fulshear Transit Plan. In particular, the population,

employment, and travel pattern data indicate the City of Fulshear and its ETJ area could support local and commuter transit services.

Existing and Projected Conditions

The existing and projected conditions analysis was based on data from the study review and additional data collection. The analysis included, but was not limited to, existing and projected trends in the following categories:

- Land use
- Size, density, and distribution of population, including the transit-dependent population, employment, housing, and development
- Transportation network
- Travel patterns, travel time reliability, travel safety, and transit demand
- Transit facilities and services provided in Fort Bend Transit's and the Metropolitan Transit Authority of Harris County's (METRO) service areas

Peer Review

A peer review was conducted transit systems in cities with similarities to the Fulshear area's current and projected conditions. The purpose was to better understand the transit market, transit services that would be suitable for the study area, and potential obstacles to implementing these services. The review consisted of a qualitative review of transit services in the selected cities and a quantitative review of key performance indicators. The importance of having a strong anchor near at least one end of a route was a key finding from the review. Several transit agencies also demonstrated the advantages of coordination and partnerships with regional transit providers.

Public Engagement

Public engagement efforts were conducted to gain a better understanding of transit needs and preferences among residents, workers, and stakeholders. An online survey targeting residents and employees in the Fulshear area was made available from October 2019 to November 2019 and from February 2020 to March 2020. The survey was designed to discern the types of transit services and destinations of interest to residents and employees. A total of 272 responses were received. Key takeaways from the survey include:

- About 8% of respondents currently use METRO park-and-ride service to Houston employment centers.
- 53% indicated an interest in express commuter bus service from Fulshear to Houston employment centers. Top destinations included the Energy Corridor, Galleria, Texas Medical Center, and Downtown Houston.
- 35% of respondents indicated an interest in intercity bus service between Fulshear and surrounding communities. Major destinations identified from the survey include Katy, Sugar Land, Rosenberg, Richmond, and Simonton.
- 18% of respondents indicated an interest in local bus service within the Fulshear area.

Two public meetings were planned for the study. The first meeting was held on January 30, 2020, at the Irene Stern Community Center to introduce the study process and goals and to gather public input regarding transit preferences and needs in the study area. The second public meeting was planned to occur at the final stage of the study to gather public input on the draft transit concepts. Due to the COVID-19 pandemic, the second public meeting was not held.

The initial public engagement plan also anticipated outreach to key stakeholders not involved in the Work Group to gain a more thorough understanding of the local context and transit issues facing communities and businesses in the study area. As with the second public meeting, the stakeholder outreach was unable to occur due to the COVID-19 pandemic.

Transit Needs Assessment

Based on the existing and projected conditions analysis, public input, and stakeholder coordination among the Work Group, a transit needs assessment was conducted to identify the existing transit service gaps and needs within Fulshear and its ETJ. Gaps include a lack of commuter bus service for the hundreds of residents who travel between northern Fort Bend County to Houston activity centers for work, recreation, shopping, healthcare, and other purposes. Given that the existing FBT demand response service is often over capacity, study findings include the need for new local bus services, such as fixed route, point deviation, or increased capacity on FBT's existing demand response service, within the Fulshear area and its ETJ and with connections to surrounding communities.

2 INTRODUCTION

2.1 Fulshear

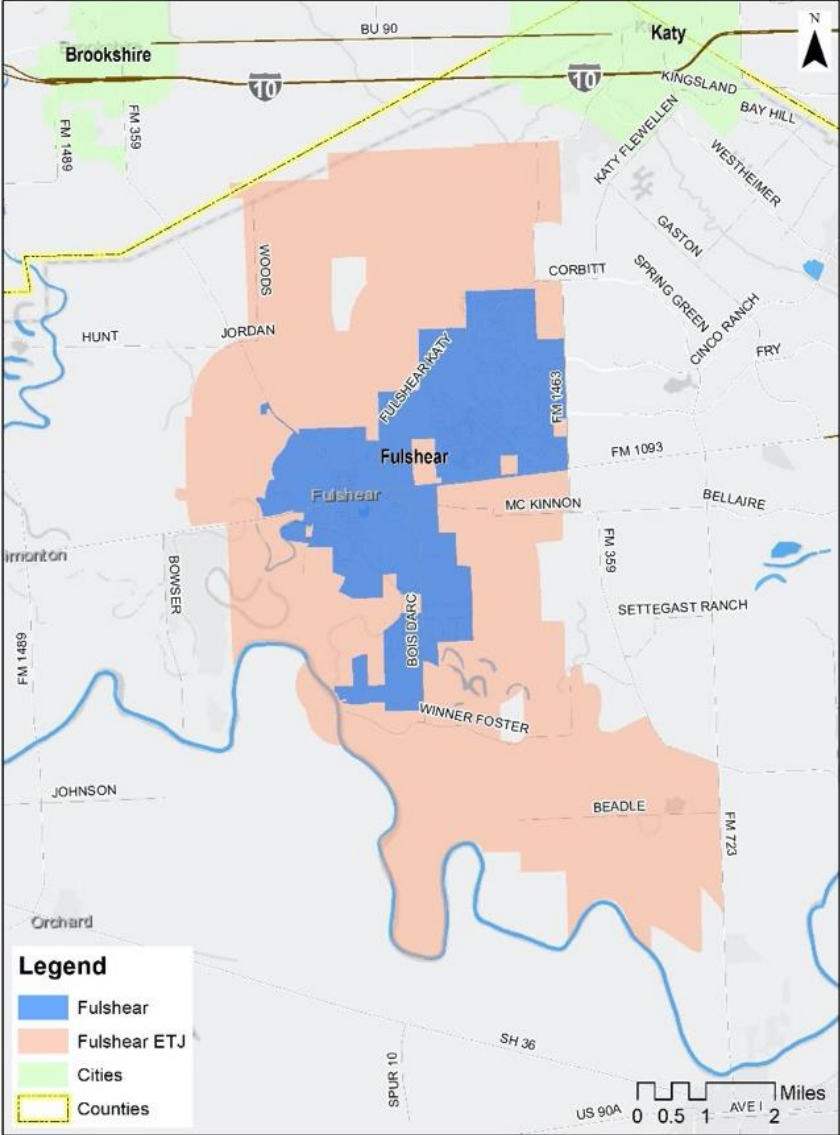
Fulshear is located at the intersection of Farm to Market Road 359 (FM 359)/Main Street and Farm to Market Road 1093 (FM 1093) in northwest Fort Bend County, approximately 33 miles west of Houston. Fulshear was established in 1824 and by 1898, the town was home to 250 residents. The population grew slowly up until the rapid growth of the Houston metropolitan area starting in the 1970s. Since then, the Fulshear area's population has quickly grown alongside the population of Houston and the broader Fort Bend County. As of 2020, an estimated 36,352 individuals reside in the city and ETJ, and this number is anticipated to continue growing over the next 20 years.

The Fulshear area has rapidly transitioned over the past decade from a predominantly rural farming and ranching community to a suburb. Fulshear's high growth in population and housing development, and the resultant pressure on roadways and commute times to Houston job centers, were cited as indicators of the need for new and improved travel options in the area.

2.2 Study Area

The Fulshear Transit Feasibility Study area is comprised of the City of Fulshear and the Fulshear ETJ (Figure 2). The city boundary currently encompasses approximately 10 square miles while the ETJ boundary encompasses 40 square miles. As a home rule city with a large ETJ, Fulshear is positioned for continued growth and development.

Figure 2: Study Area



Source: City of Fulshear, 2020

3 STUDY REVIEW

The Fulshear Transit Feasibility Study considered relevant information from the following local, county, and state plans and studies:

- Fulshear Comprehensive Plan (2014)
- Houston-Galveston Area Council Regionally Coordinated Transportation Plan (2017)
- Fort Bend County Transit Long-Range Plan (2017)
- City of Fulshear Economic Development Strategy (2019)
- City of Fulshear Livable Center Study (2019)
- City of Fulshear Major Thoroughfare Plan (2020)
- Texas Statewide Transportation Improvement Program (STIP) (2019-2022)

The data, strategies, and goals from each document pertaining to transportation are summarized below.

Fulshear Comprehensive Plan (2014)

The Fulshear Comprehensive Plan provides a framework for future development and enhancement in the City of Fulshear. The plan evaluated the near- and longer-term needs and desires for key aspects of the community including land use, city character, mobility, economic development, neighborhoods, parks, and public amenities. Recommendations were provided on how to best accommodate forecasted growth while improving residents' quality of life.

The goals of the mobility section of the Comprehensive Plan are to provide connectivity and mobility options, develop a transportation system that supports the local economy, promote a positive image of the city, and accommodate all modes of travel including transit if and when possible. The priority projects recommended in the plan are primarily focused on expanding and rehabilitating roads to accommodate traffic and improve safety. Other potential projects include seeking funding and partnerships for vehicle trip reductions and air quality management through park-and-ride, vanpool, carpool, flexible work hours, and telework opportunities.

Houston-Galveston Area Council Regionally Coordinated Transportation Plan (2017)

The Houston-Galveston Area Council Regionally Coordinated Transportation Plan (RCTP) provides recommendations that address challenges to coordination and regional transit gaps and needs, including those among population groups such as persons with disabilities, individuals aged 65 and older, individuals with lower incomes, persons with limited English skills, youths, and veterans. Due to the regional scope of the RCTP, several recommendations pertain to FBT and the Fulshear Transit Plan. The RCTP identified the following four strategies for addressing transit gaps and needs:

- Develop broad regional connectivity of transportation services along major travel corridors.
- Develop new and innovative local transit services in urban and rural areas that are currently unserved or underserved.
- Continuously improve and expand existing services

- Enhance coordination between adjacent agencies to build coordinated services at the sub-regional level.

As part of these strategies, the RCTP recommends:

- Promoting cross-agency collaboration to promote seamless fare and cross-boundary travel. A survey of regional transit and social service providers found that universal fare was viewed as an important goal.
- Initiating a regional shared maintenance program.
- Developing local revenue sources to enhance service or leverage federal funds.
- Considering an arrangement where flexible route or fixed route service is provided in the Mission Bend and Four Corners areas of Fort Bend County, including coordination with METRO to connect riders to transit services in Harris County.

Fort Bend County Transit Long-Range Plan (2017)

The Fort Bend County Transit Long-Range Plan serves as a guide for optimizing the county's transit investments over the next 23 years. The plan was designed to help meet increasing transportation demand for access to employment, services, and recreation centers; improve the customer experience, and increase cost-efficiency. To achieve these objectives, the plan recommended transit projects, funding options, and strategies for communicating, optimizing, and growing FBT's services.

The recommendations address the following transit opportunities and challenges:

- As the number and density of residents and jobs increase in Fort Bend County, the area is approaching the critical mass for higher capacity transit services that can carry more passengers with faster and more frequent service.
- Rural areas, particularly Fulshear and Simonton, and Sienna Plantation are underserved by transit but are also the fastest growing in terms of population and housing development.
- Fort Bend County is expected to experience an increase in its transit-dependent population including among elderly, low-income, and minority residents.
- The survey results indicate many respondents are unaware of the transit services provided by FBT.

The development of the plan was supported by an analysis of existing and forecasted demographic and travel trends, public outreach, and stakeholder input. The plan recognizes that while Fort Bend is the wealthiest, youngest, highest-educated, and fast-growing county in the region comprised of Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Waller Counties, disadvantaged and transit-dependent communities can be found throughout the county, including in Richmond, Rosenberg, and unincorporated rural areas. In addition, the existing and forecasted conditions analysis indicates the county population is forecasted to grow westward towards the rural areas and to continue growing in urban areas and master-planned communities such as Sienna Plantation, now known as Sienna, and Cinco Ranch. Travel demand within the county to major employment centers in Houston is projected to increase with the population growth.

The plan recommendations are centered on improving public awareness of FBT services, optimizing the quality of existing service, and increasing opportunities for new service. The recommendations include, but are not limited to, adding signage and wayfinding; coordinating FBT's demand response and fixed route services and

METRO's commuter service to reduce overlaps; providing reverse commute opportunities; adding commuter bus services to Downtown Houston, the Energy Corridor, and Westchase; constructing permanent park-and-ride facilities in Fulshear, Missouri City, and Sugar Land; and providing high capacity transit service on I-69, Westpark Tollway, Fort Bend Parkway Toll Road, and FM 521.

City of Fulshear Economic Development Strategy (2019)

The City of Fulshear Economic Development Strategy provides an analysis of the city's strengths, weaknesses, opportunities, and threats (SWOT). The SWOT analysis was based on a detailed economic assessment, community survey, extensive stakeholder interviews, analysis of workforce and industry trends, organizational benchmarking, a visioning workshop, and a town hall meeting. Among the city's identified strengths are its human capital, small-town charm, public schools, and position to absorb Houston's growth. Weaknesses include a lack of community connection between Cross Creek Ranch and Downtown Fulshear, low walkability in Downtown Fulshear, mobility and traffic issues, and low daytime population.

As part of the economic development planning process, a community survey was conducted to gauge perceptions of Fulshear, its trajectory, and options for future development. Respondents were asked two survey questions about current and future challenges facing Fulshear. For both questions, respondents frequently cited growth management, long-term planning, preservation of Fulshear's character, and investment in infrastructure, particularly in transportation infrastructure, as challenges for the city. In response to another question about Fulshear's future, respondents ranked The Woodlands, Sugar Land, and Fredericksburg as the top suggested role models for Fulshear. The survey also asked respondents to score the characteristics that attract and keep them in Fulshear. Proximity to public transportation received the lowest score for attraction and retention. Ease of commute, proximity to employment, and proximity to childcare also received low scores.

City of Fulshear Livable Center Study (2019)

The City of Fulshear Livable Center Study is part of the Houston-Galveston Area Council's (H-GAC) Livable Centers Program. The program is part of the H-GAC 2040 Regional Transportation Plan to improve multimodal mobility in the region's eight counties, including Fort Bend County, with the purpose of assisting communities with planning studies and implementation of transportation projects. The goal is to provide multimodal transportation options, encourage walkable and mixed-use development, create environments with a sense of place, and promote economic development.

From the evaluation of existing transit service and facilities, the study notes there are no FBT or METRO park-and-rides served by transit near Fulshear and that within Fulshear, most users of the FBT demand response service travel to and from the Fulshear Senior Center. Although the study did identify an existing park-and-ride adjacent to Fulshear City Hall, this park-and-ride is not served by a transit route but rather functions as a meeting location for carpoolers and vanpoolers.

The study also examined active transportation amenities. There is significant local interest for on-roadway regional bicycling using existing roadway shoulders and lanes, and many regional bicyclists use Fulshear as a key designation point. Although there are sidewalks and paths in the newer residential developments south and east of the study area, there are no pedestrian accommodations within the study area except for those along the retail storefronts on one block of Main Street.

City of Fulshear Major Thoroughfare Plan (2020)

The City of Fulshear Major Thoroughfare Plan (MTP) shows the general alignment of existing and proposed roadways in and near the Fulshear city and ETJ limits. The plan is designed to accommodate existing and projected travel needs and represents a long-term outlook on the city's roadway system. The purpose of the plan is to guide transportation planning and right-of-way (ROW) acquisition and preservation for future transportation corridors, particularly when land development occurs near existing and proposed roadways.

As noted in the MTP, the City of Fulshear only has jurisdiction over roadway planning and alignment within its ETJ. ROW for certain segments of Westpark Tollway, FM 1093, Texas Heritage Parkway, and other major existing and planned roads outside the ETJ would need to be set by other entities. The MTP served as the basis for identifying potential transit corridors in the Fulshear Transit Feasibility Study.

Texas Statewide Transportation Improvement Program (STIP) (2019-2022)

The STIP is the state's four-year capital improvement program that includes the metropolitan planning organization (MPO) and rural area Transportation Improvement Programs (TIPs), and contains all phases of transportation projects to be built during the four-year period. Projects must be consistent with the state and metropolitan long-range plans. The STIP also includes federal, state, and other funds for FBT's capital, planning, administrative, and operating expenditures. In non-attainment areas (Houston, Dallas-Fort Worth, Beaumont and El Paso), projects must conform to the State Implementation Plan (SIP).

Several projects in and near study area were listed in the Texas 2019-2022 STIP. These projects include:

- FM 1463 widening to 6 lanes from I-10 to north of Westridge Creek Lane
- FM 1463 widening to 6 lanes from north of Westridge Creek Lane to FM 1093
- FM 723 widening to 4 lanes from north of Brazos River to FM 1093
- FM 1093 widening to 4 lanes from James Lane to FM 1093/FM 359

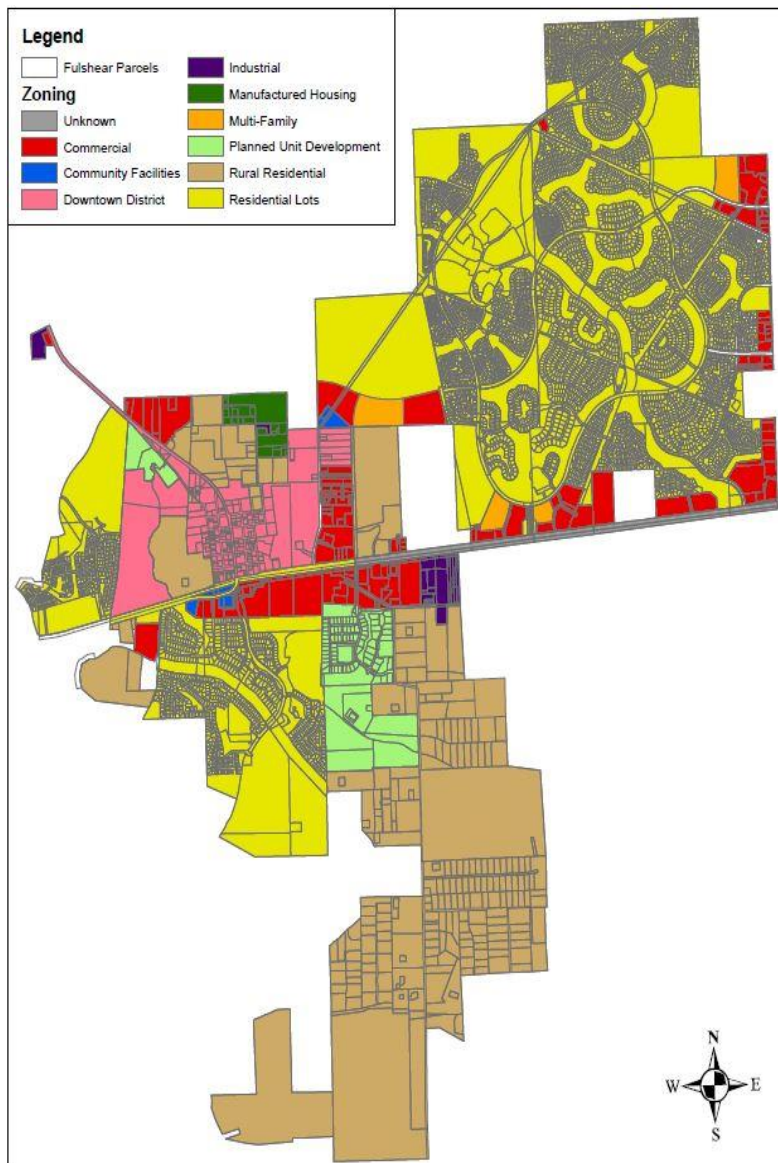
4 EXISTING AND PROJECTED CONDITIONS

A critical step in transit planning is understanding the characteristics of the study area to develop transit plans and recommendations that meet the interests and needs of the community. This section presents the existing and projected demographics, socioeconomic conditions, and development in the Fulshear city and ETJ limits. The data are based on conditions prior to the COVID-19 pandemic unless otherwise noted. This report will also be updated as new data become available.

4.1 Land Use

Land use and development in Fulshear are shaped by the city's zoning designations (Figure 3). The majority of the land area, particularly in the northern and southern portions of Fulshear, is zoned for residential, rural residential, and multifamily use. Much of this residential development is either complete or under development. Commercial zones are located along the northern edges of the city, FM 1093, and the planned Texas Heritage Parkway. The downtown Fulshear area is zoned as the Downtown District for the purpose of allowing a mixed-use town center to develop in the area. The Downtown District regulations were designed to create a more urban environment and allow for dense development while maintaining the traditional, small-town feel of Fulshear. A few parcels of community facility zoned land can be found adjacent to FM 1093 and Texas Heritage Parkway. A small area of industrial zoned land is also located along FM 1093.

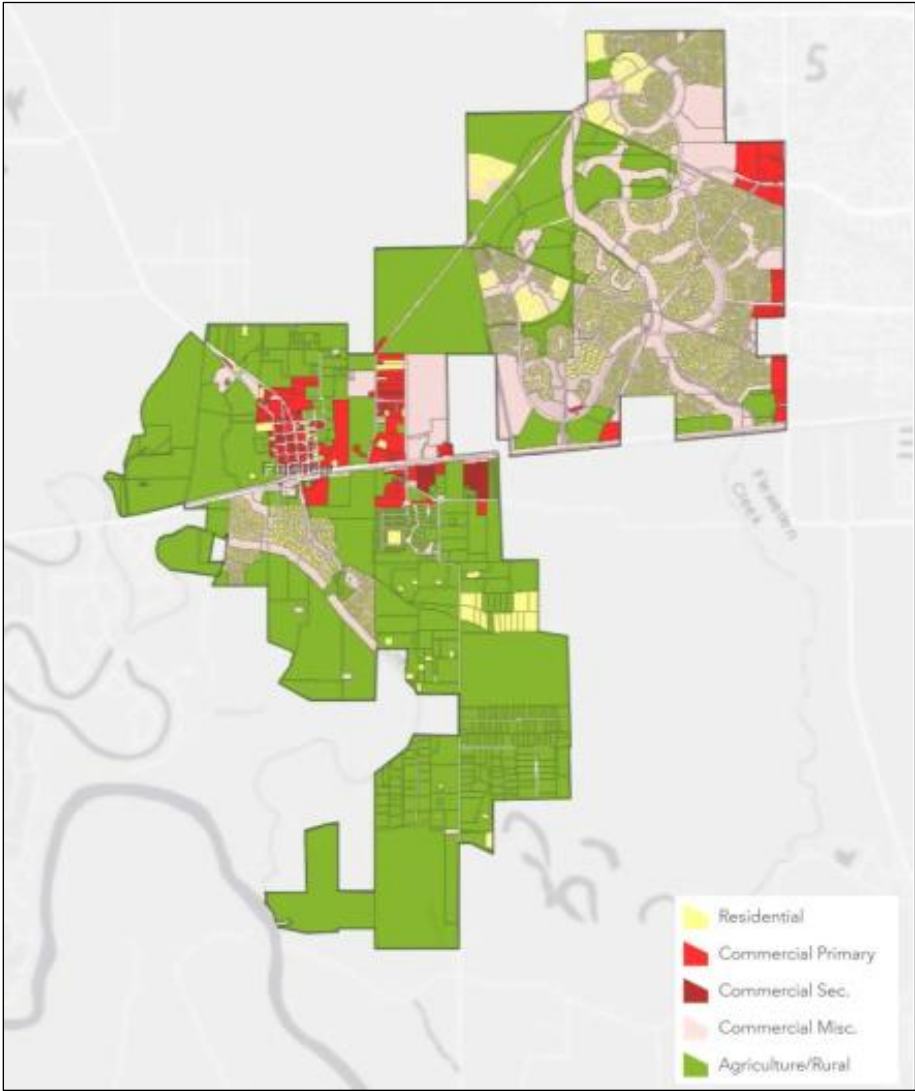
Figure 3: Zoning Designations



Source: City of Fulshear, 2020

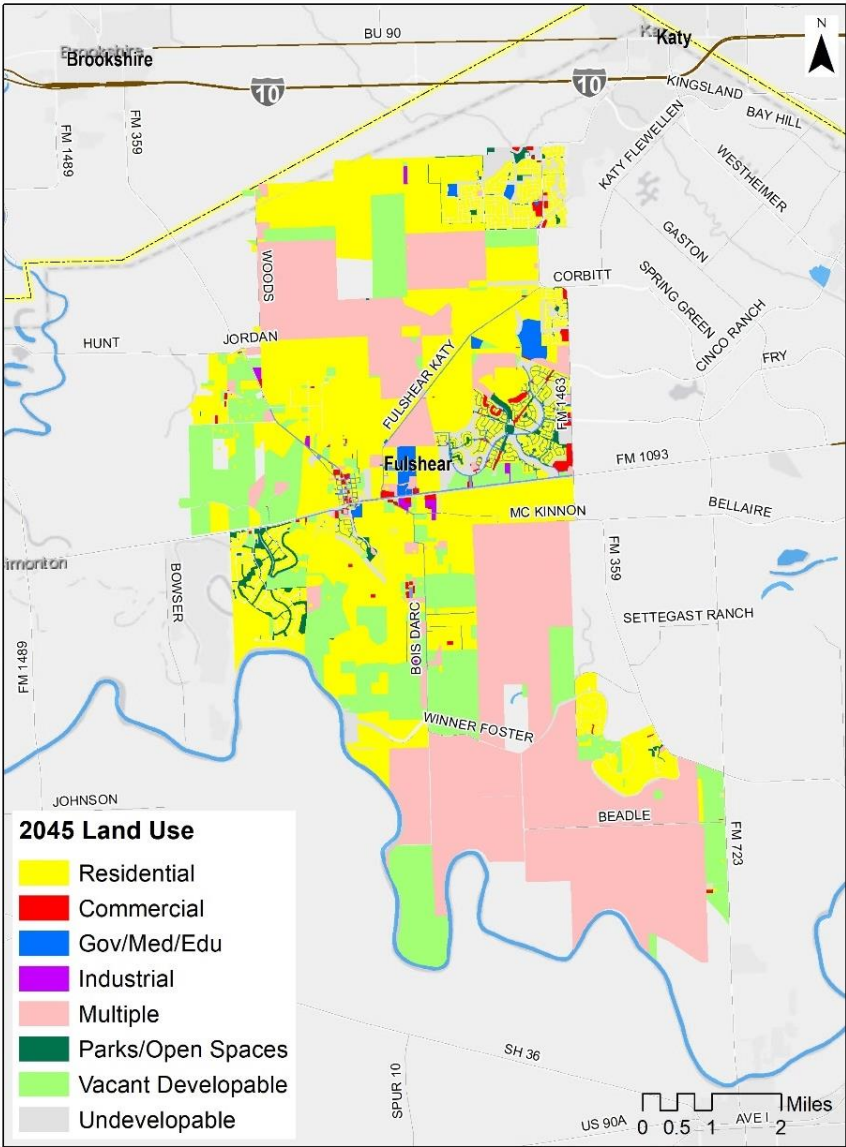
The existing land use map for the city area indicates that the largest land use category is developable vacant land followed by residential and mixed-use (Figure 4). The developable vacant land is largely located in the western portion of the city and southern portion south of FM 1093. Existing residential development is located near Downtown Fulshear and in the northeastern portion of the city. By 2045, much of the developable vacant land is projected to become residential and mixed-use (Figure 5). The residential development in Downtown Fulshear and the northeast will continue expanding, and the southern portion of the ETJ is projected to undergo a significant shift from vacant to mixed-use development.

Figure 4: Existing Land Use



Source: City of Fulshear, 2020

Figure 5: Projected Land Use



Source: H-GAC, 2019

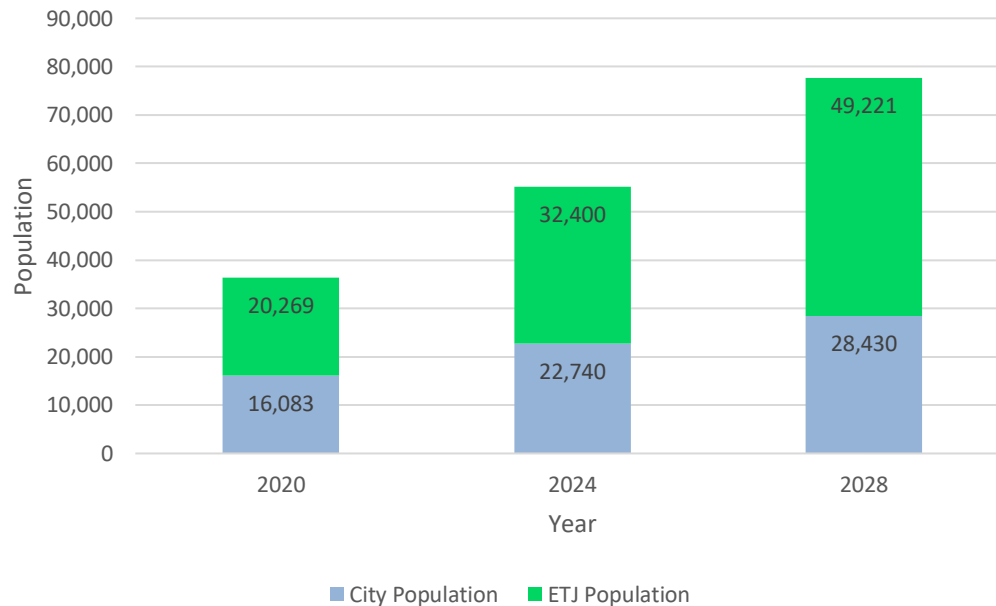
4.2 Population

Population Size

The City of Fulshear and the surrounding ETJ have experienced significant population growth over the past 20 years. From 2010 to 2018, the city’s population increased from 1,134 to 12,025 residents, a 960% increase that gave Fulshear the distinction of being the fastest-growing city in Texas during this time.

Population projections for October 2020 estimate 16,083 individuals reside in the city and 20,269 individuals reside in the ETJ for a total city and ETJ population of 36,352 (Figure 6).

Figure 6: City and ETJ Population (2020 – 2028)



Source: Fulshear Demographic Update Spring 2020

Population Density

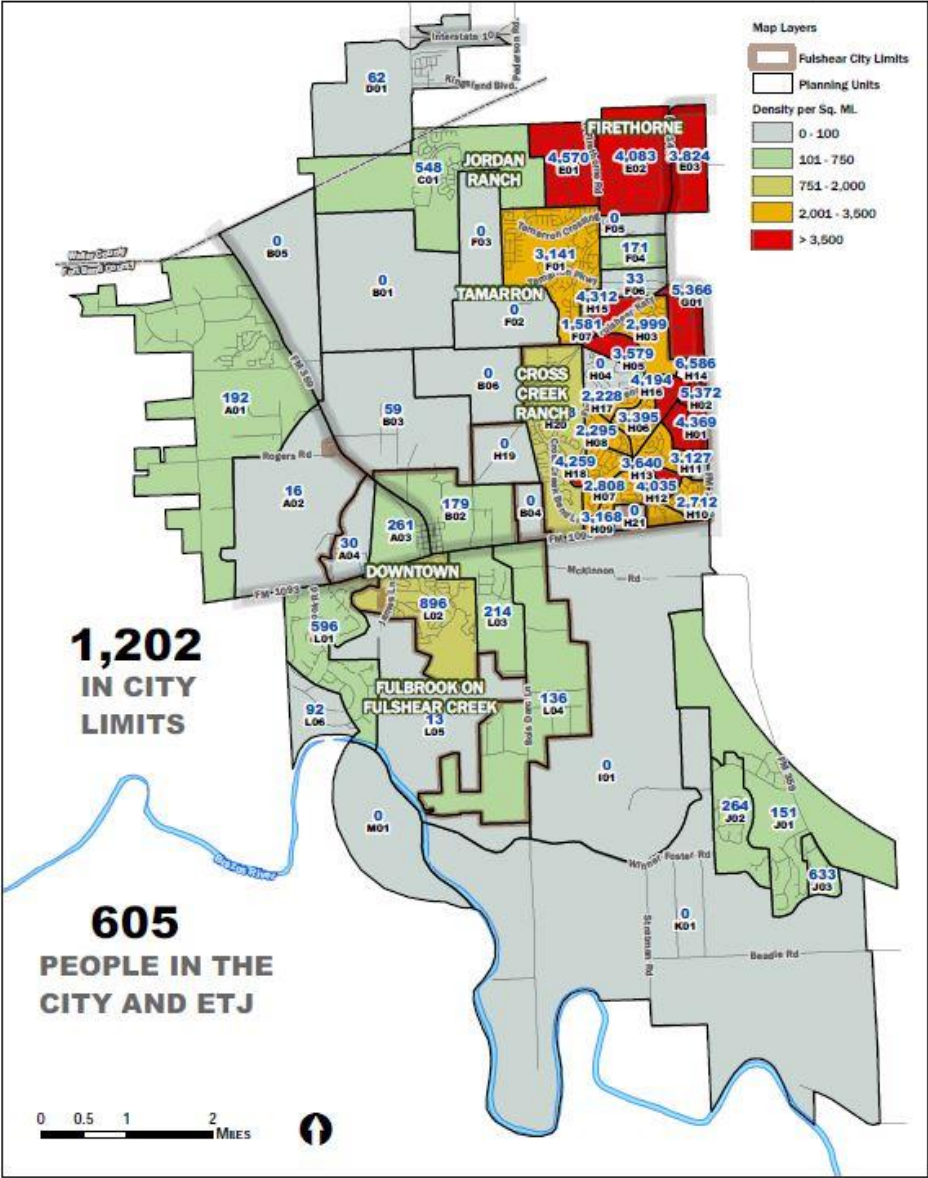
Figure 7 below shows the current population density in the study area. The highest population density is in the northeastern part of the ETJ where several master-planned communities such as Cross Creek Ranch, Firethorne, and Jordan Ranch are located. Areas with moderate population density include the northwestern limits of the ETJ, Downtown Fulshear, and the southeastern limits of the ETJ along FM 359. The population densities in these areas are partially attributable to a recent influx of residents. As shown in Figure 8, the northern and downtown areas experienced the largest population growth in the ETJ from 2018 to 2019.

The population density in the northern, downtown, and southeastern parts of the ETJ is expected to increase as existing neighborhoods build-out and as planned communities are constructed (Figure 9). From 2019 to 2024, approximately 7,299 housing units will be built in the city and ETJ. 2,880 of these units, which comprise 40% of the total new units, will be located in the city.

Figure 7: Current Population Density

Population Density by Planning Unit

October 2019

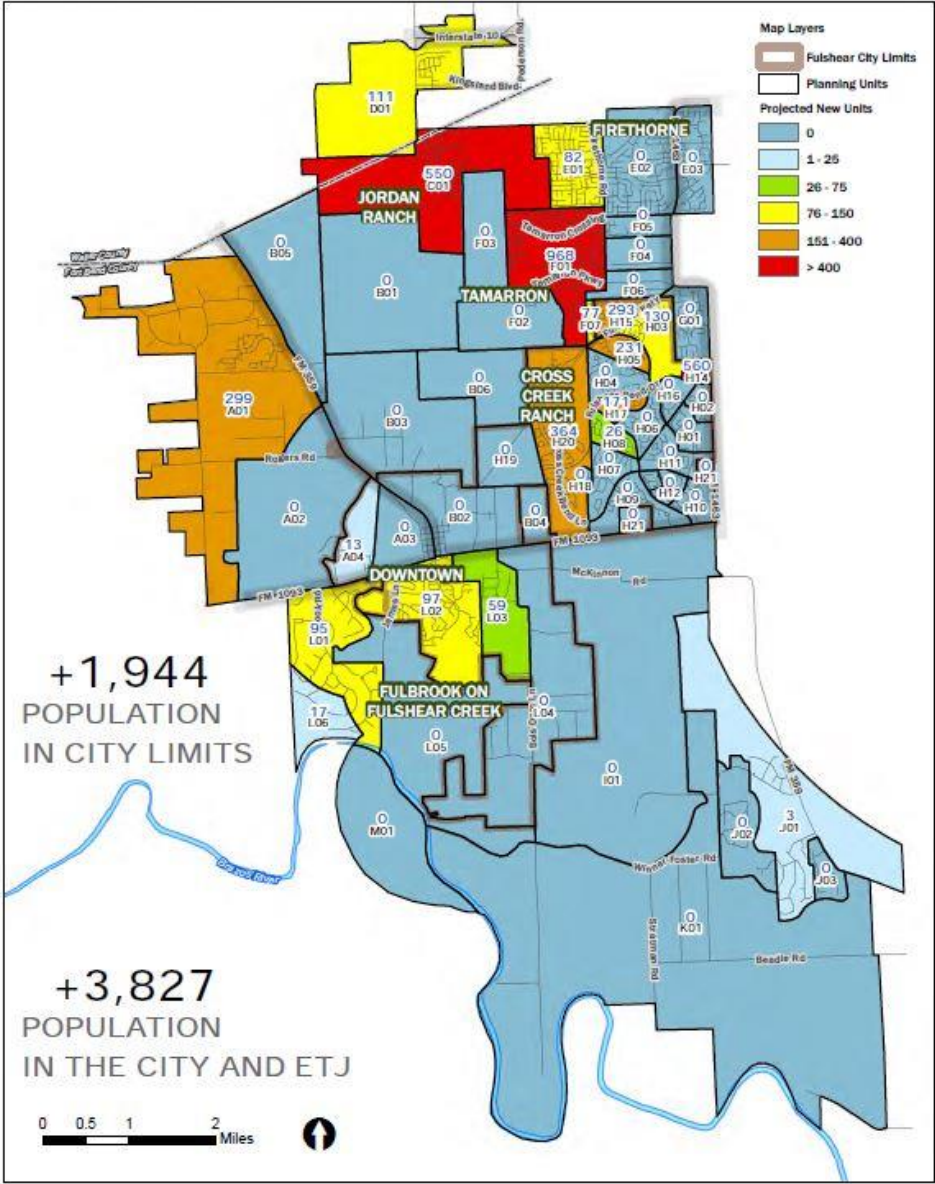


City of Fulshear Demographic Update - Spring 2020 - Population and Survey Analysts

Figure 8: Population Change

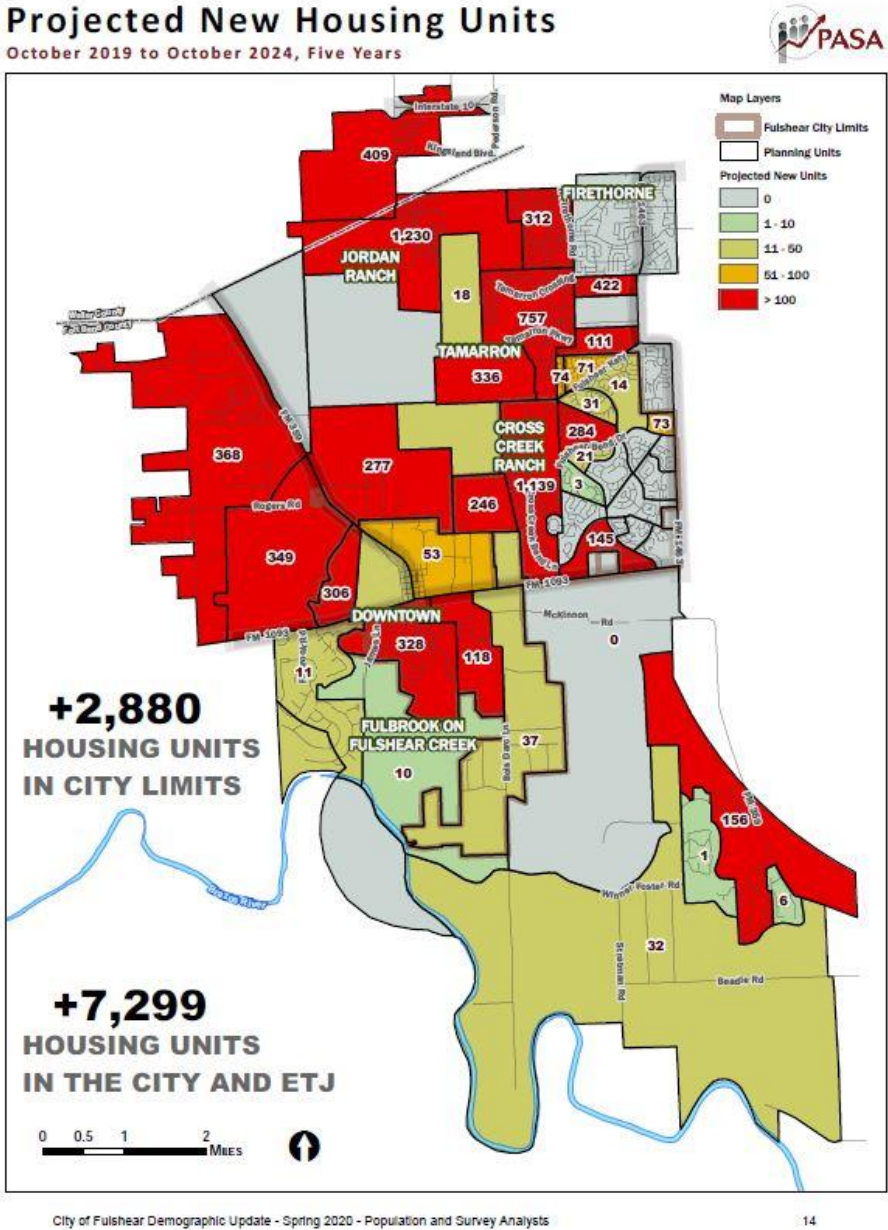
Population Change by Planning Unit

October 2018 to October 2019



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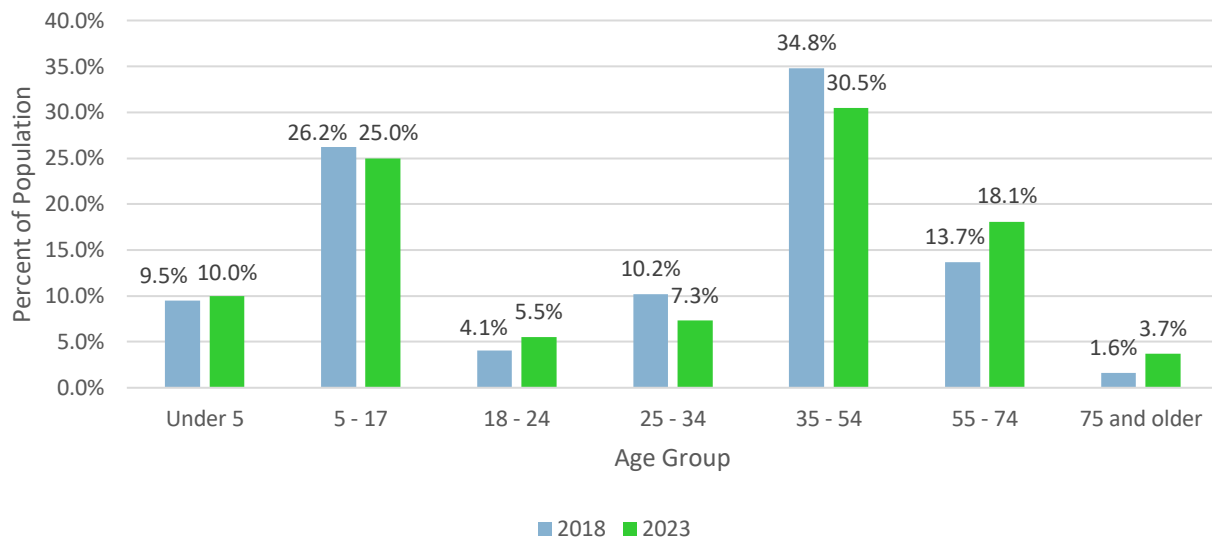
Figure 9: Projected Housing Units



Age

Figure 10 shows the City of Fulshear’s current and projected age distributions. By 2023, the city’s population will remain relatively young with a projected 47.8% of residents under 35 years old. Approximately one-third (30.5%) will be 35 to 54 years old, one-fifth (18.1%) will be 55 to 74 years old, and 3.7% will be 75 years of age or older. Although the proportion of elderly adults in Fulshear and Fort Bend County is relatively low compared to regional levels, this age group is the fast-growing in the county.

Figure 10: Current and Projected Age Distribution



Source: 2018 values from the ACS 2017 5-Year Estimates; 2023 values from the Fulshear Demographic Update Spring 2019

Socioeconomic Conditions

This section assesses the socioeconomic conditions in the study area that affect travel behavior and transit demand. Although the study area population generally has high levels of educational attainment and high incomes, a range of conditions can be found throughout the community.

This assessment is focused on the following groups that define the potentially transit-dependent population.

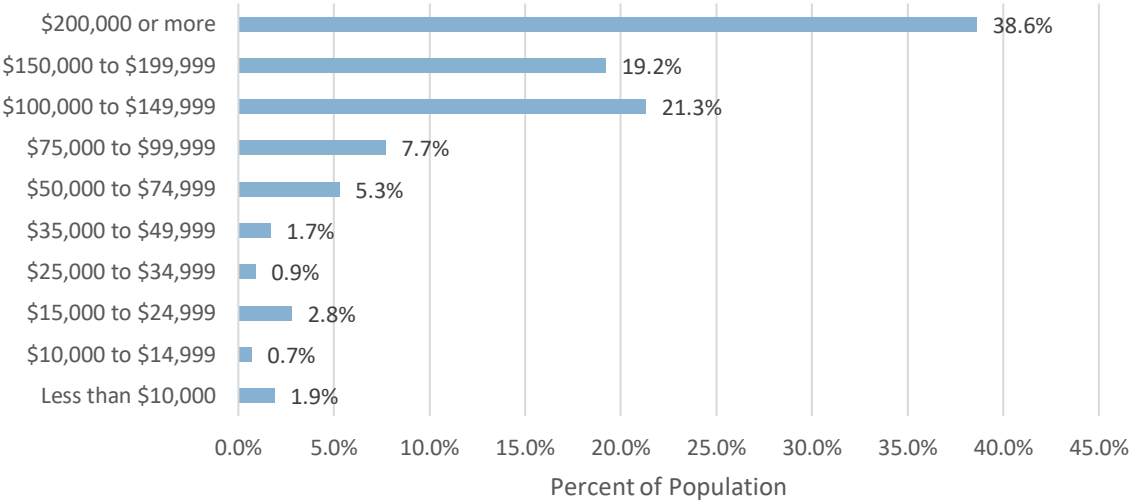
- Elderly adults 65 years and older
- Youth under 18 years old
- Individuals with disabilities
- Low-income individuals
- Individuals without access to a vehicle

Youth and elderly adults, which were discussed in the previous section, are potentially transit-dependent due to multiple factors such as driving regulations, lack of vehicle access, and personal choice. The data on individuals with disabilities encompasses disability status based on six aspects: hearing, vision, cognitive, ambulatory, self-care, or independent living difficulty. Disabilities related to these six aspects can hinder an individual’s ability to drive and their financial ability to own a vehicle. Low-income individuals are also prone to transit dependency due to financial difficulties related to purchasing and maintaining a vehicle. Lastly, the lack of access to a vehicle is a significant factor contributing to transit need.

Income and Poverty

From 2010 to 2018, the median household income in the city increased by 153% from \$66,667 to \$168,388, and the median household income in 2019 is estimated at \$175,242. Figure 11 below shows the current income distribution for city households.

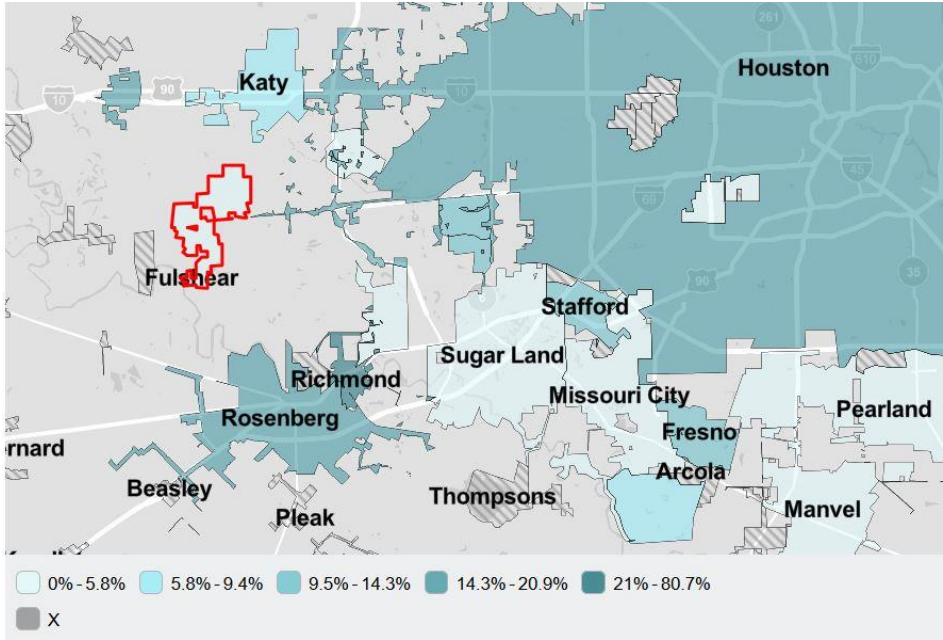
Figure 11: Fulshear Household Income Distribution



Source: ACS 2017 5-Year Estimates

The low-income population is defined as the number of individuals living in households at or below the poverty level. According to the latest ACS estimates from 2018, 2.9% of the City of Fulshear population experiences poverty. Figure 12 shows the poverty levels in the City of Fulshear and other cities in the region. Fulshear’s poverty rate is among the lowest in the region and is similar to the rates present in highly suburban cities such as Sugar Land, Missouri City, Manvel, and Pearland.

Figure 12: Poverty Rate in Regional Cities

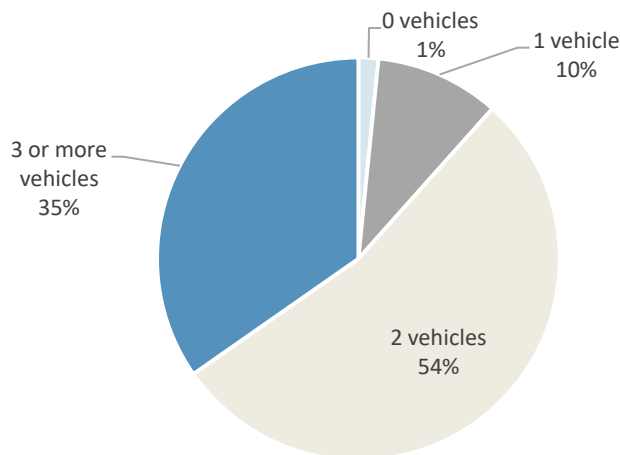


Source: ACS 2018 5-Year Estimates

Household Vehicle Access

Approximately 99% of Fulshear households have at least one household vehicle (Figure 13). 10% of households have one vehicle, over half (54%) have two, and approximately one-third (35%) have three or more. The remaining 1% do not have a household vehicle. The high levels of vehicle access correspond with Fulshear's high-income levels and low poverty rate.

Figure 13: Fulshear Household Vehicles



Source: ACS 2017 5-Year Estimates

4.3 Roadways

The Fulshear ETJ is intersected and bordered by several major existing and planned roadways and smaller roads as shown in the Fulshear MTP map (Figure 14). The MTP presents the general alignment of these existing and planned roadways by classification which are relevant in determining the feasibility of roadways and transit routes. The following classifications used in the map are based on traffic volumes, traffic directions, trip distances, and corridor uses:

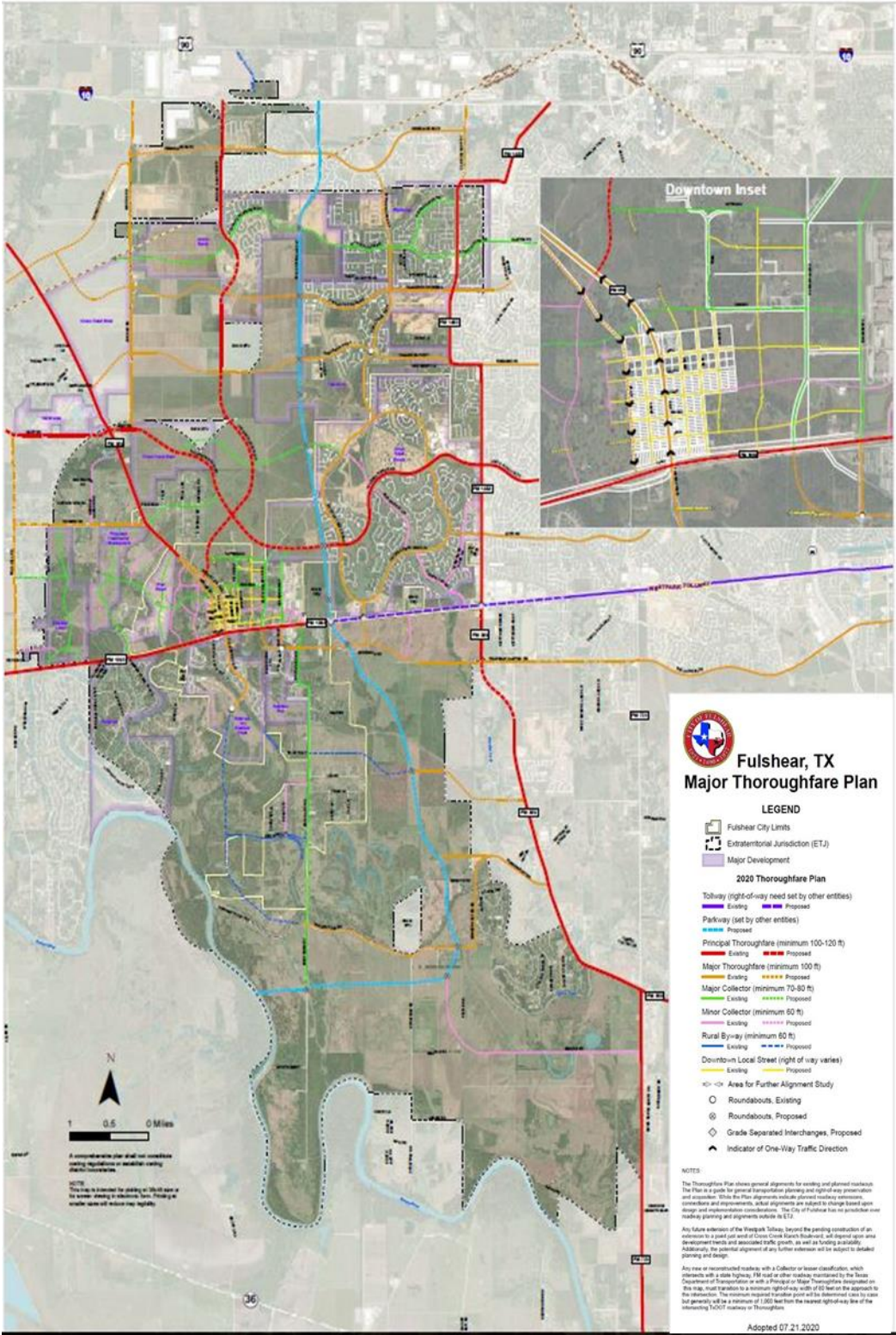
- Tollway (ROW needs to be set by other entities)
- Parkway (set by other entities)
- Principal thoroughfare (minimum 100-120 ft)
- Major thoroughfare (minimum 100 ft)
- Major collector (minimum 70-80 ft)
- Minor collector (minimum 60 ft)
- Rural byway (minimum 60 ft)
- Downtown local street (ROW varies)

Currently, the area is primarily served by the east-west FM 1093, Westpark Tollway, and I-10 as well as the north-south FM 1463 and FM 359. Smaller roads are concentrated in Downtown Fulshear, Cross Creek Ranch, and the southeastern portion of the ETJ.

The Texas Heritage Parkway is planned to run north-south in the center of the ETJ with connections to I-10 and FM 1093. The connection to I-10 will provide a valuable link for Fulshear residents to Katy and Houston as current roads connecting to I-10 have a lower vehicular capacity and lower posted speeds than the planned Parkway. The Texas Heritage Parkway will also improve connectivity for existing and future residents in the southern half of the ETJ.

Major thoroughfares, major collectors, and Downtown local streets are planned in Downtown Fulshear and will provide more links between downtown and future residential areas. Several new and extended roads are planned in the southern half of the ETJ that will serve the future mixed development in the area.

Figure 14: Major Thoroughfare Plan



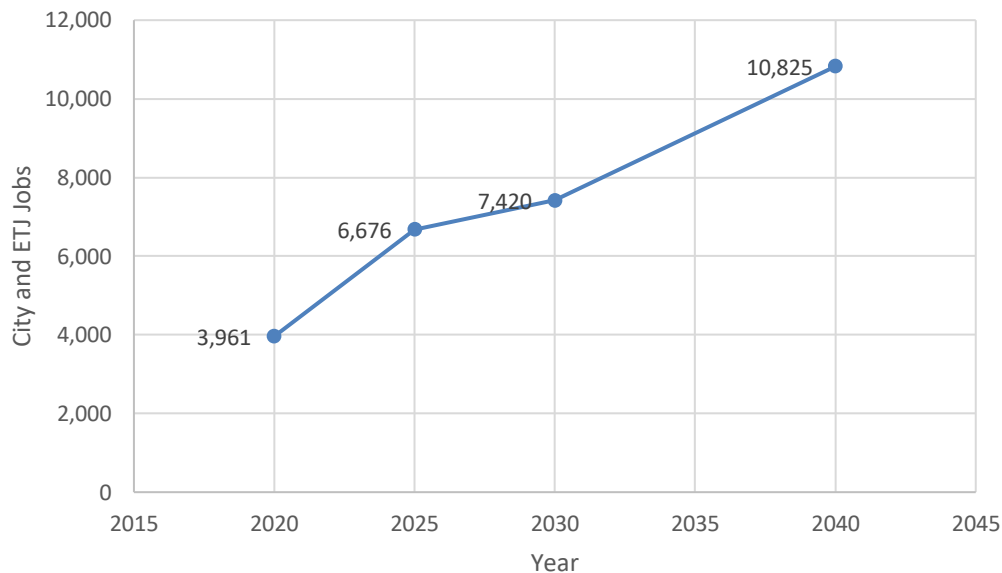
Source: City of Fulshear Major Thoroughfare Plan, 2020

4.4 Employment, Commute, and Travel Patterns

Employment

Examining current and projected employment conditions can help inform us of travel behavior trends, areas where transportation needs are inadequately met, and opportunities for new and expanded transit services. Over the next 20 years, the number of jobs located in the Fulshear city and ETJ limits is projected to increase by 173% from 3,961 to 10,825 (Figure 15). This increase will lead to additional travel activity and transportation demand within the ETJ as well as between the ETJ and surrounding communities.

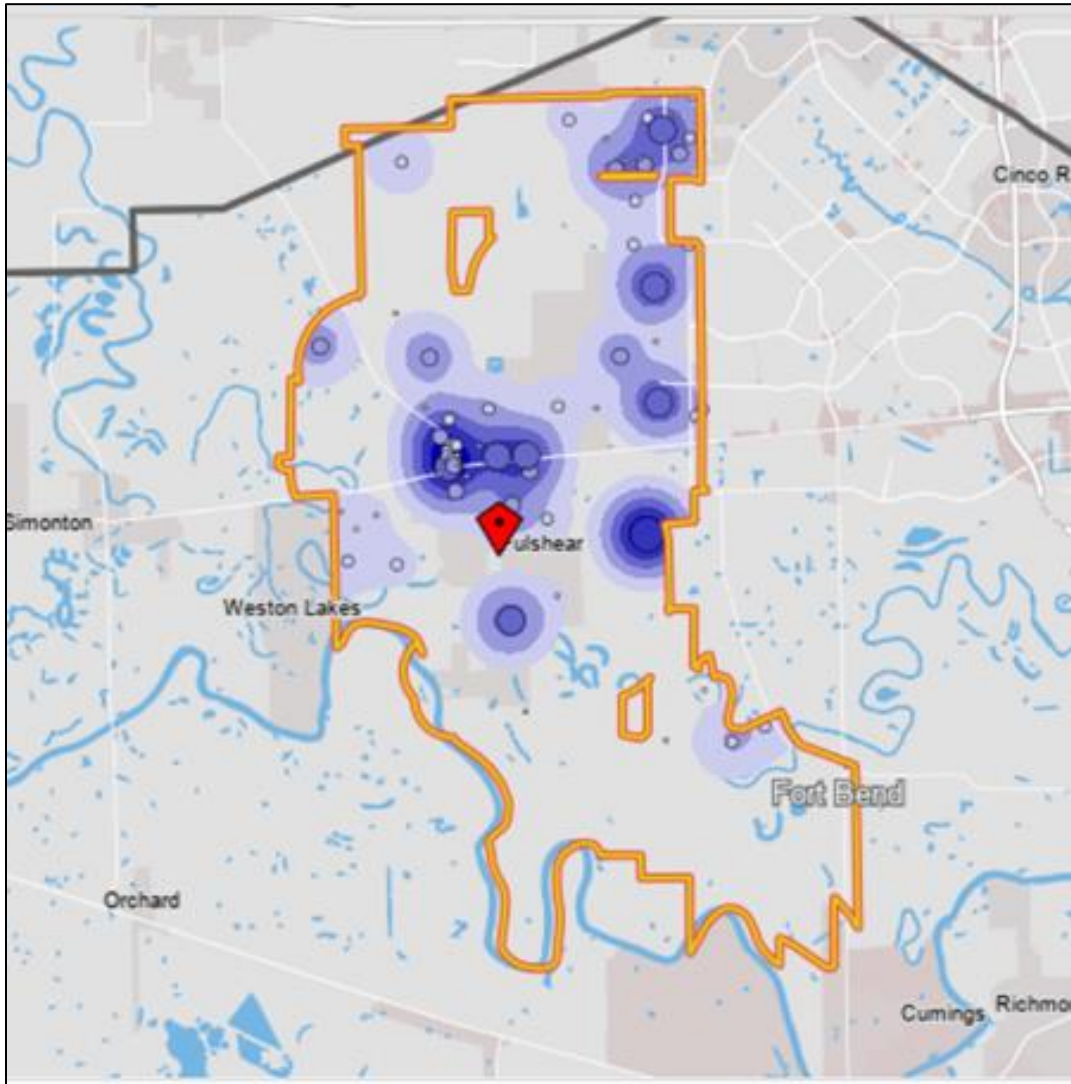
Figure 15: Fulshear City and ETJ Jobs



Source: H-GAC Regional Growth Forecast 2018

Figure 16 shows the existing job density in the Fulshear ETJ. The construction, personal services, and manufacturing industries are the largest sources of jobs in Fulshear, and most jobs are concentrated in Downtown Fulshear and the southeastern portion of the ETJ near FM 359 and along FM 1463, where many retail and commercial stores are located.

Figure 16: Existing Job Density

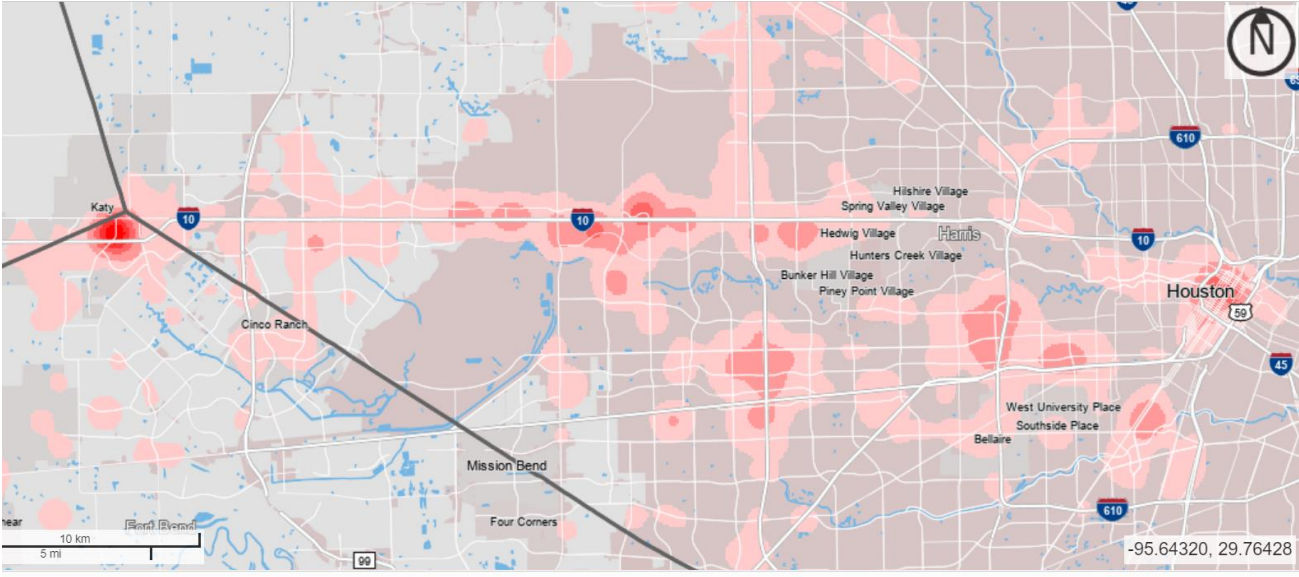


Source: Longitudinal Employer-Household Dynamics (LEHD) 2017

Where Fulshear Residents Work

Most Fulshear residents do not work in the study area and primarily commute eastward to Katy and Houston major activity centers such as the Energy Corridor, Galleria, Texas Medical Center, and Downtown Houston (Figure 17). These major activity centers are concentrated in central and western Houston along major east-west transportation corridors.

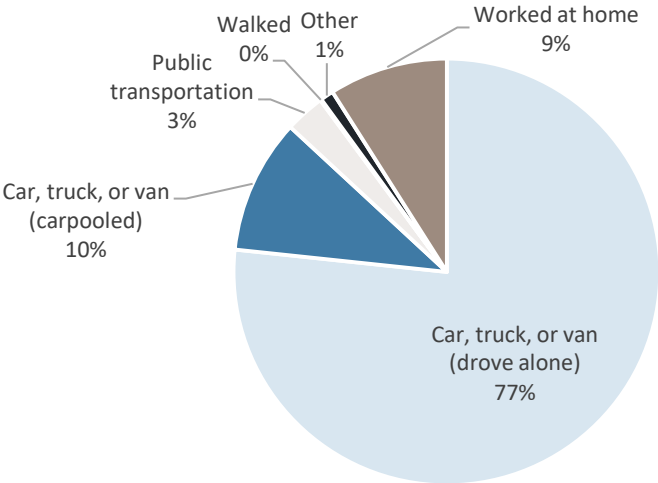
Figure 17: Where Fulshear Residents Work



Source: LEHD 2017

According to the ACS 2017 5-Year Estimates, 77% of Fulshear city residents commuted to work alone by vehicle (Figure 18). Meanwhile, 10% carpooled, 9% worked from home, 3% used public transportation, and the remaining 1% used other means of transportation.

Figure 18: Fulshear Commute Mode

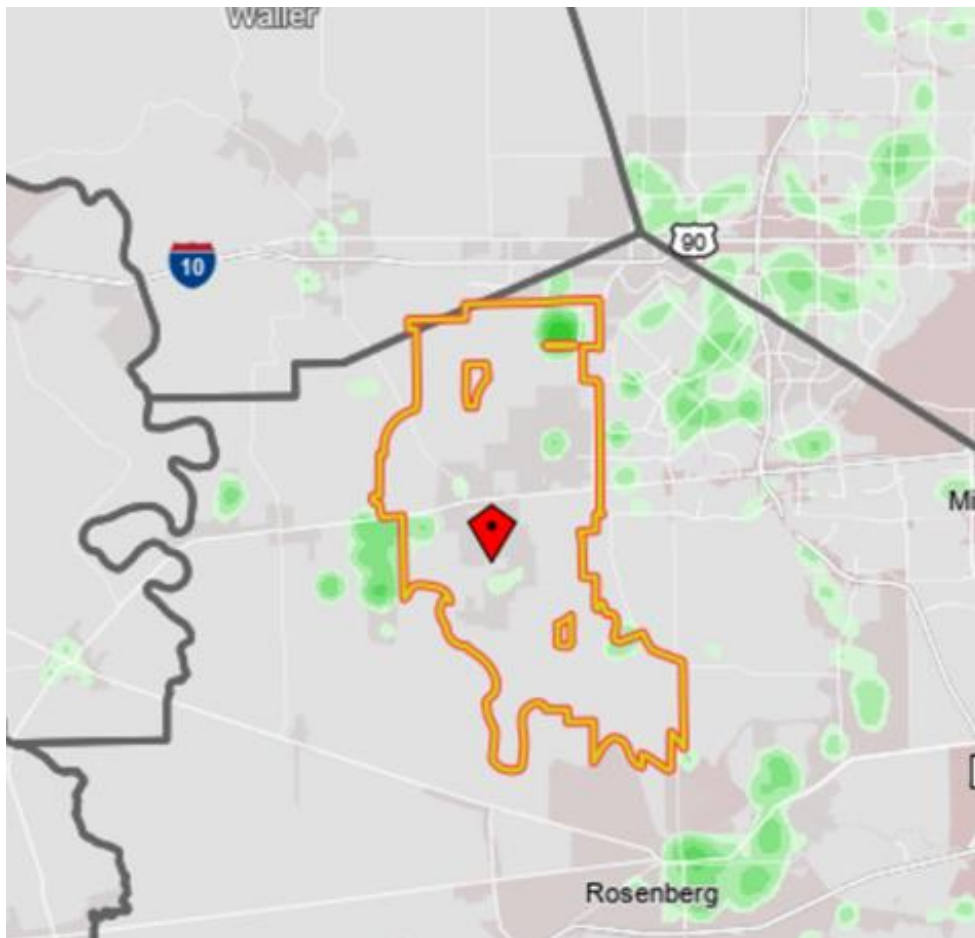


Source: ACS 2017 5-Year Estimates

Where Fulshear Workers Live

Individuals who work in Fulshear predominately reside outside the ETJ in neighboring communities with more affordable housing. The location and density of these residences are shown below in Figure 19. These workers are most highly concentrated in Weston Lakes, Rosenberg, Richmond, Katy, Cinco Ranch, and the northernmost portion of the ETJ. Other areas include Simonton, the southeast portion of the ETJ near FM 359, and Cross Creek Ranch. As businesses and public institutions in the ETJ increase, more workers are anticipated to commute into the study area.

Figure 19: Where Fulshear Workers Live

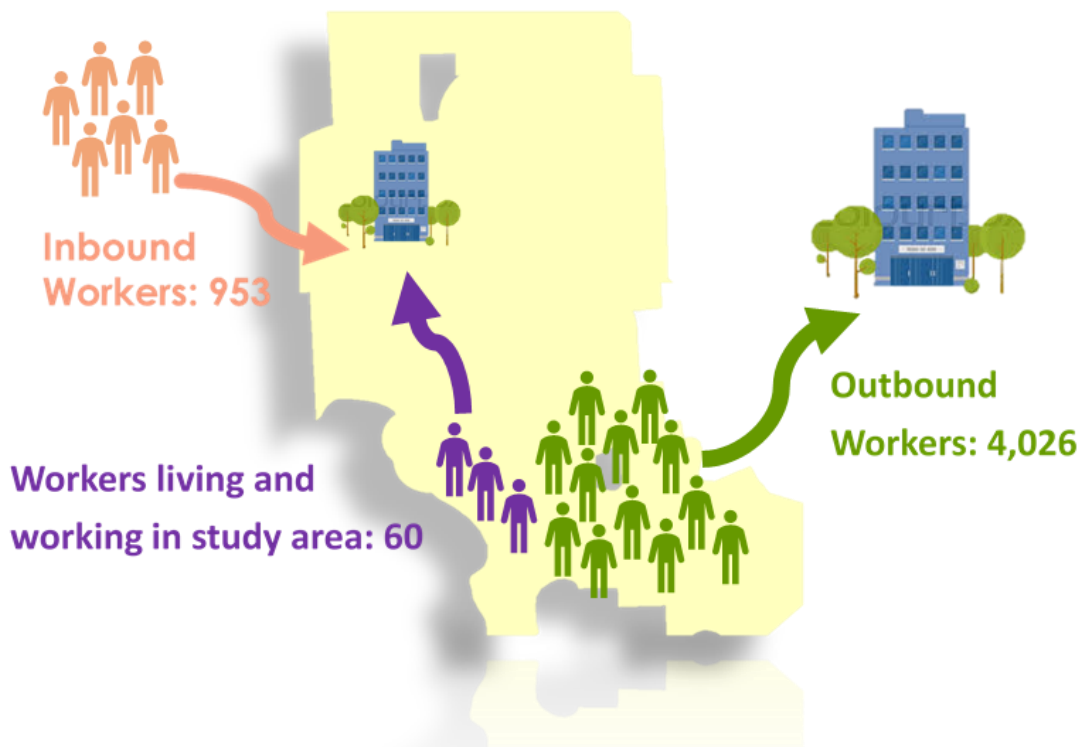


Source: LEHD 2017

Commute Patterns

Figure 20 depicts the commuting pattern to, from, and within the study area. Currently, a greater number of ETJ residents commute to jobs outside of the area than workers commute into the area. Nearly 1,000 individuals commute from outside the study area into the area for employment, while approximately 60 individuals live and work in the area.

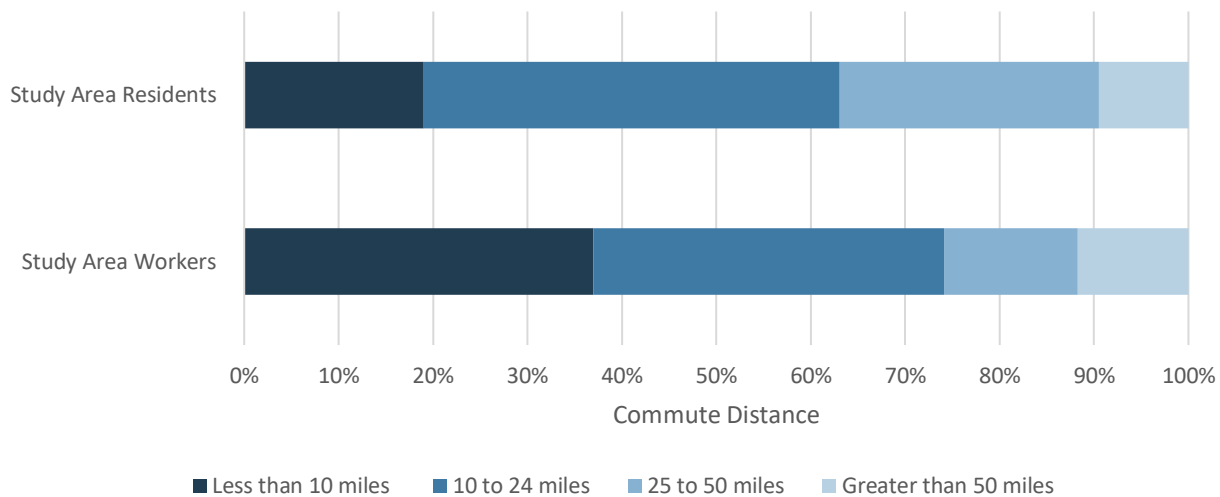
Figure 20: Commute Pattern To, From, and Within Fulshear



Source: LEHD 2017

In line with the employment locations and commute patterns previously discussed, Fulshear ETJ residents tend to commute for longer distances than Fulshear ETJ workers (Figure 21). 19% of ETJ residents have a commute of less than 10 miles, whereas 37% of ETJ workers have a commute of less than 10 miles. In addition, 44% of residents commute for 10 to 24 miles, 27% for 25 to 50 miles, and 10% for more than 50 miles.

Figure 21: Commute Distance



Source: LEHD 2017

Travel Time and Patterns

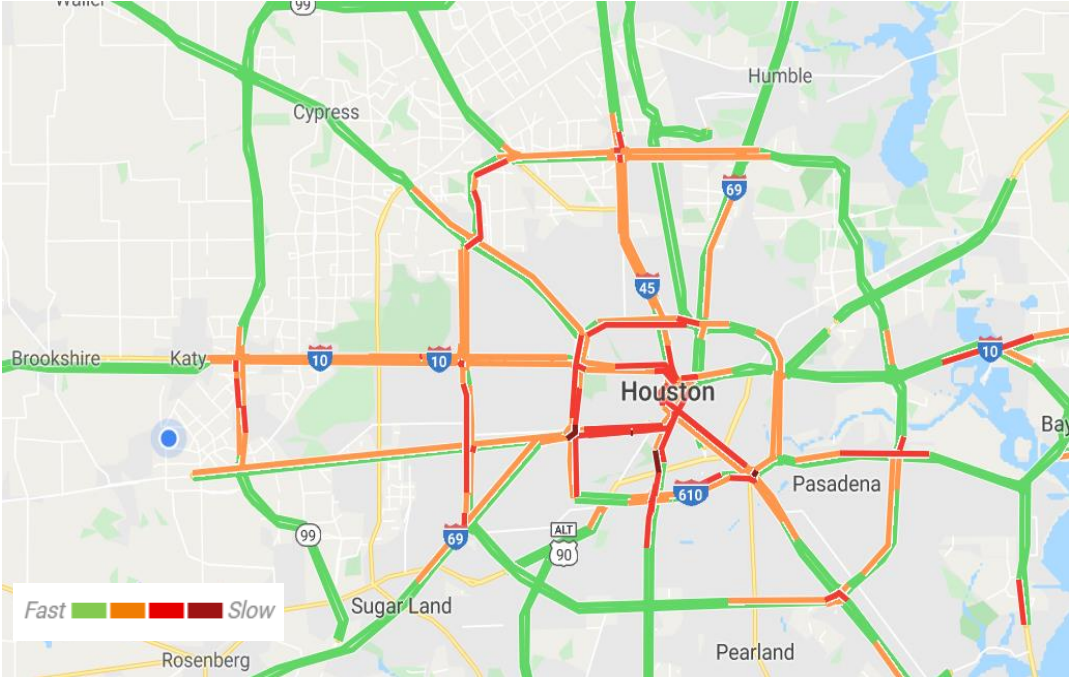
The Houston metropolitan area has experienced significant population and employment growth over the past decade. This has contributed to congestion and long travel times on corridors during peak hours, and these conditions are expected to worsen as population and employment levels continue to grow.

Long commutes, both in terms of time and distance, can contribute to a number of negative health conditions, particularly for those who drive alone. Several studies have shown that individuals with long travel times and distances experience psychosomatic disorders at a much higher rate than those with shorter travel times and distances. Symptoms of these disorders include stress, fatigue, high blood pressure, headaches, and concentration problems. These negative health impacts can then hinder one’s ability to drive safely, thereby contributing to increased health and safety risks for both the commuter and other commuters near them.

Public transportation can mitigate the negative health impacts of long commutes through several means. In areas in which transit vehicles can use high-occupancy vehicle (HOV) lanes or transit-dedicated lanes, commuters can experience shorter travel times by switching from driving to riding transit. In addition, commuters using transit have the option to relax during their trip or engage in work or recreational activities.

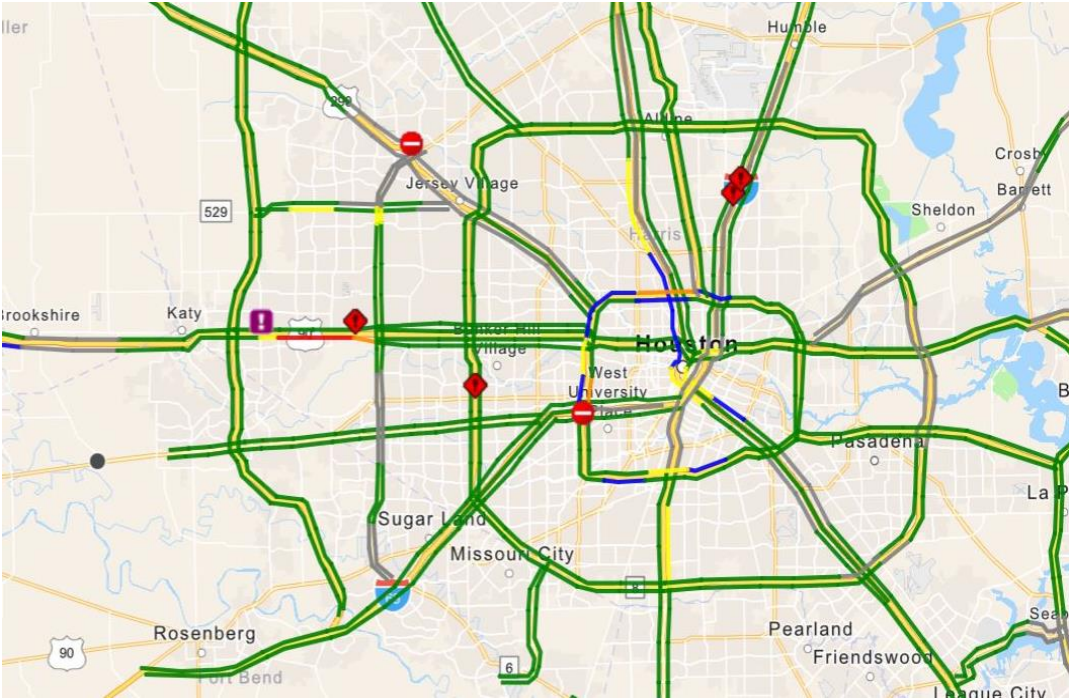
The distance between Fulshear residents’ homes and workplaces, as well as congestion on east-west corridors such as I-10 and Westpark Tollway, can contribute to long travel times. According to the 2017 ACS 5-Year Estimates, the average travel time to work for Fulshear residents is 40 minutes. This is longer than the average travel time for residents of Harris County (29.2 minutes), the State of Texas (26.4 minutes), and the United States (26.6 minutes). As shown in Figure 22, the corridors which Fulshear residents use for commuting were highly congested during peak hours before the COVID-19 pandemic. In October 2020, six months after an initial stay at home orders were issued in the region, congestion has remained relatively low (Figure 23).

Figure 22: Pre-COVID-19 Traffic Levels (November 2019)



Source: Google Traffic

Figure 23: COVID-19 Impact on Traffic Levels (October 2020)

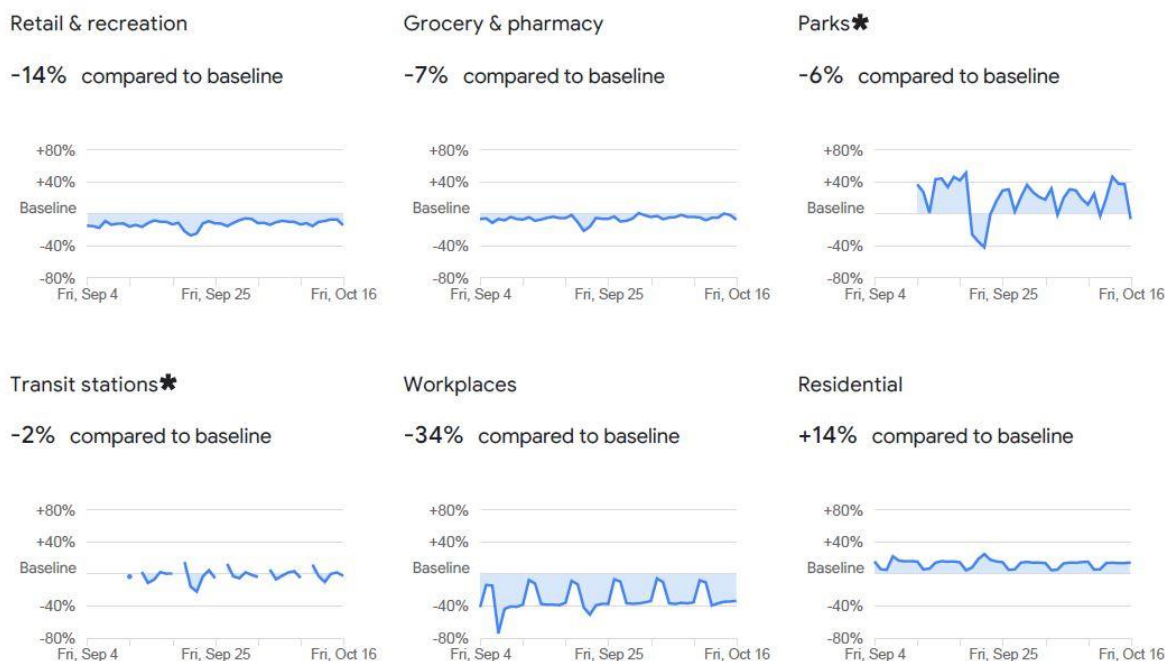


Source: Houston TranStar

Figure 24 and Figure 25 show how current travel levels during the COVID-19 pandemic in Fort Bend County and Harris County from September 2020 to October 2020 compared to the baseline pre-pandemic levels from January 2020 to early February 2020. The data, which was obtained from Google’s COVID-19 Community Mobility Report, presents travel trends over time by geography and within six categories of place. Among the categories of place, travel to workplaces in Fort Bend experienced the largest drop in the county – a 34% decline. Travel to retail and recreation in Fort Bend decreased by 14%, and visits to grocery stores decreased by 7%. Meanwhile, the number of trips made to and time spent in residential areas increased by 14%. Due to data limitations identified by Google, the data for travel to Fort Bend transit stations did not meet data quality standards for interpretation.

Travel in Harris County underwent similar changes during this time with a 33% decrease in mobility to workplaces, an 18% decrease to retail and recreation, and an 11% increase to residences. Travel to transit stations decreased by 36%, the largest decrease among the six categories for Harris County.

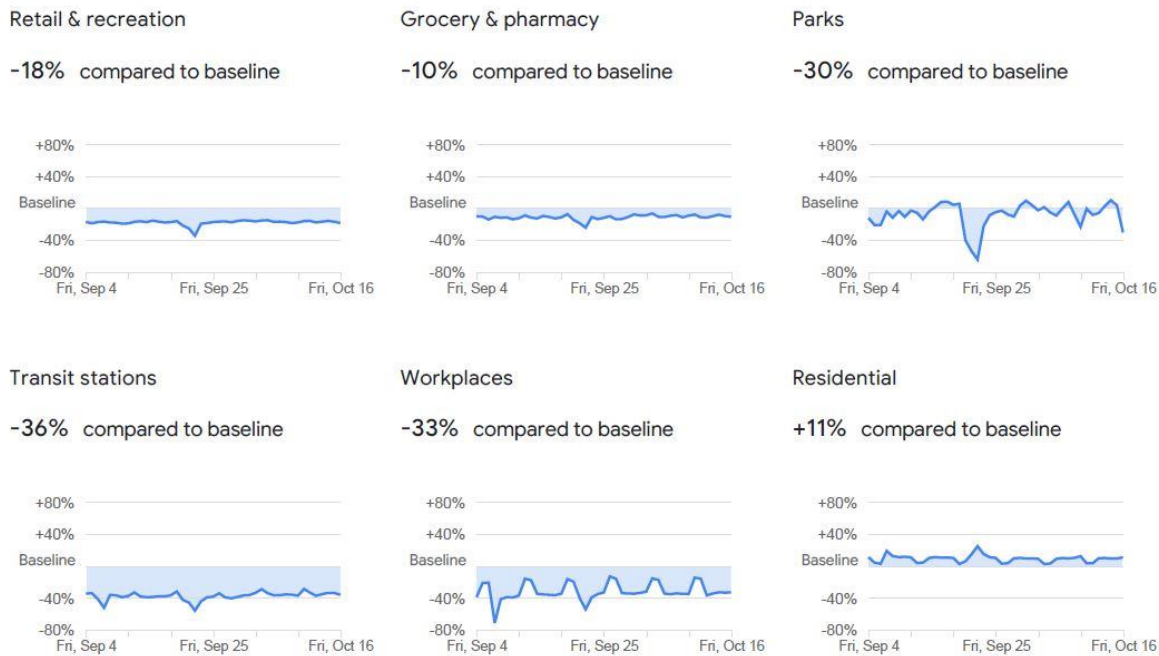
Figure 24: Fort Bend County Mobility Changes



* According to Google, the data for parks and transit stations did not meet Google’s quality and privacy thresholds for every day shown in the chart.

Source: Google COVID-19 Community Mobility Report

Figure 25: Harris County Mobility Changes



Source: Google COVID-19 Community Mobility Report

4.5 Transit Service

4.5.1 Fort Bend County

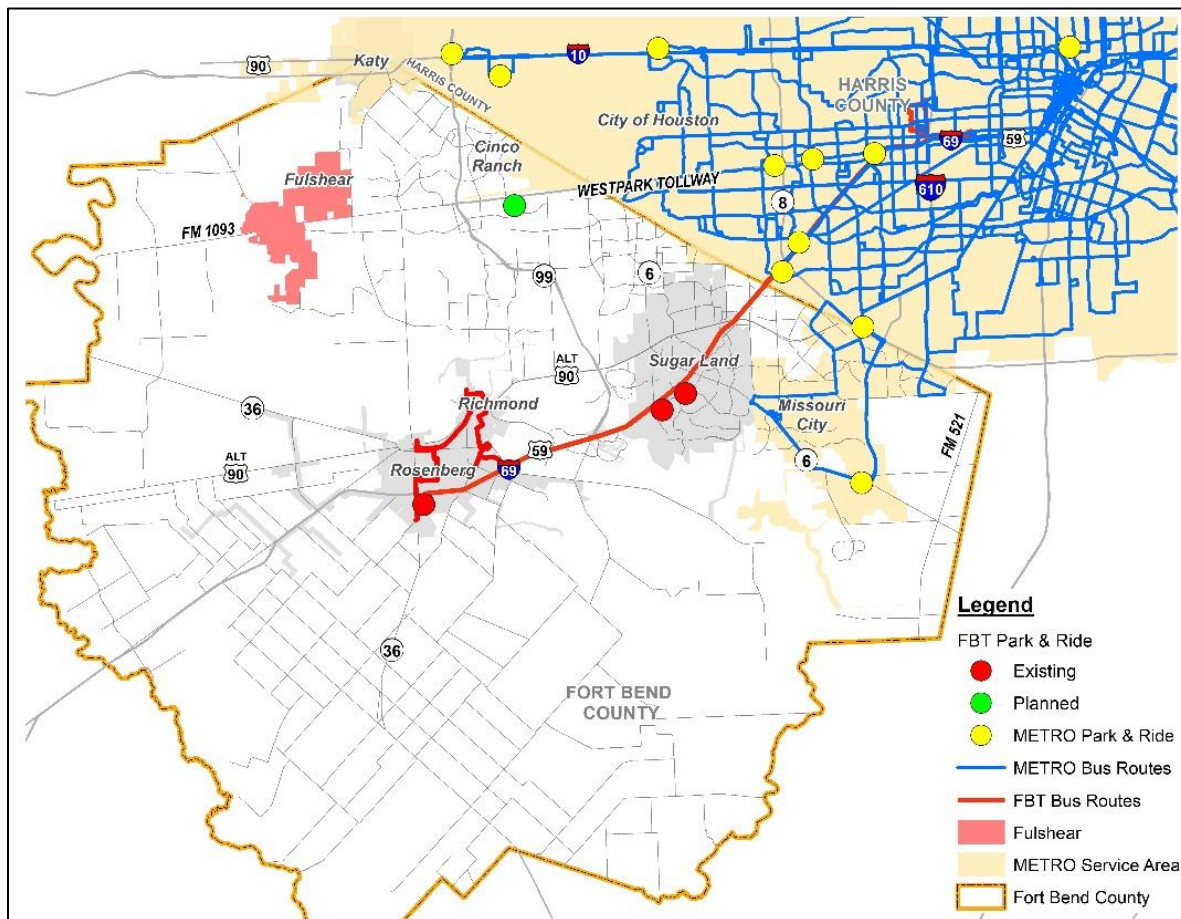
Existing Services

Established in 2005, FBT is the county’s public transportation department and provides rural and urban transit services to county residents. FBT currently provides service within Fort Bend County’s 875-square mile area and to major employment centers in Harris County. In the fiscal year 2019, FBT provided approximately 392,000 passenger trips from operating three types of transit service:

- Commuter park-and-ride service along I-69 to the Galleria, Greenway Plaza, and Texas Medical Center from one facility in Rosenberg and two facilities in Sugar Land.
- Demand response, an in-advance reservation bus service available to all county residents, serves the entire county area. This service is frequently used to travel between residential, work, shopping, medical, and recreational destinations. This is currently the only FBT service geographically convenient for Fulshear residents. The Irene Stern Community Center in Fulshear is a popular local destination.
- Point deviation bus service began in Richmond and Rosenberg in 2015. This service was discontinued in 2020 after ridership did not meet the level needed to continue service. This service provided specific stops along a fixed route with the ability to deviate up to 0.75 miles from the route if scheduled in advance.

This section presents an overview of FBT’s existing and planned services. Figure 26 shows the existing and planned FBT and Metropolitan Transit Authority of Harris County (METRO) fixed route and commuter bus routes and facilities. In addition to the three existing FBT park-and-rides located along the I-69 corridor, FBT plans to construct a fourth park-and-ride at the intersection of Mason Road and Westpark Tollway. The new park-and-ride will be located 18 miles east of Fulshear and will primarily serve Cinco Ranch and Aliana residents. This facility aligns with the 2017 FBT Long-Range Plan that recommended FBT using the Westpark corridor as an east-west artery for expanded transit services and adding a permanent park-and-ride in Fulshear.

Figure 26: Existing and Planned Commuter and Local Bus Routes



Commuter Bus

FBT operates three park-and-ride locations with service to the Galleria, Greenway Plaza, and the Texas Medical Center. Service is available on weekdays from as early as 4:30 a.m. and end as late as 9:00 p.m. One-way trip fares range from \$1.00 to \$3.50, depending on the start and end locations. Some commuter bus routes stop at METRO’s West Bellfort Park & Ride, where riders can then connect to a METRO Park & Ride bus service to Downtown Houston or to other METRO local bus services. FBT also provides a reverse commute service from the Galleria, Greenway Plaza, and the Texas Medical Center during certain times of the schedule.

The existing FBT park-and-ride locations are located at:

- Fort Bend County Fairgrounds – Rosenberg (4310 State Highway 36S)
- University of Houston Sugar Land – Sugar Land (14000 University Blvd.)
- AMC Theater First Colony – Sugar Land (3301 Town Centre Blvd. South)

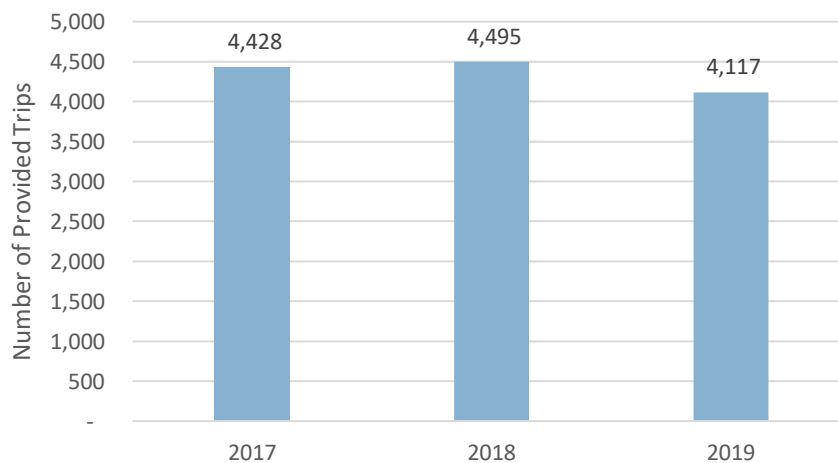
Demand Response

The demand response service is a shared bus, curb-to-curb service for travel within county limits. The service is operated on weekdays with the earliest destination drop-off at 8:00 a.m. and last pick-up no later than 5:00 p.m. A one-way trip fare is \$1.00.

The service is available to all residents of Fort Bend County and is the only service that is geographically convenient for Fulshear residents. The service is also a particularly important transit option for elderly adults, individuals with disabilities, and low-income residents. The service had not expanded since 2013, and since 2016, the service is overcapacity. Reservations for weekday trips can be made up to 30 days in advance, and up to 160 appointment requests are denied each day.

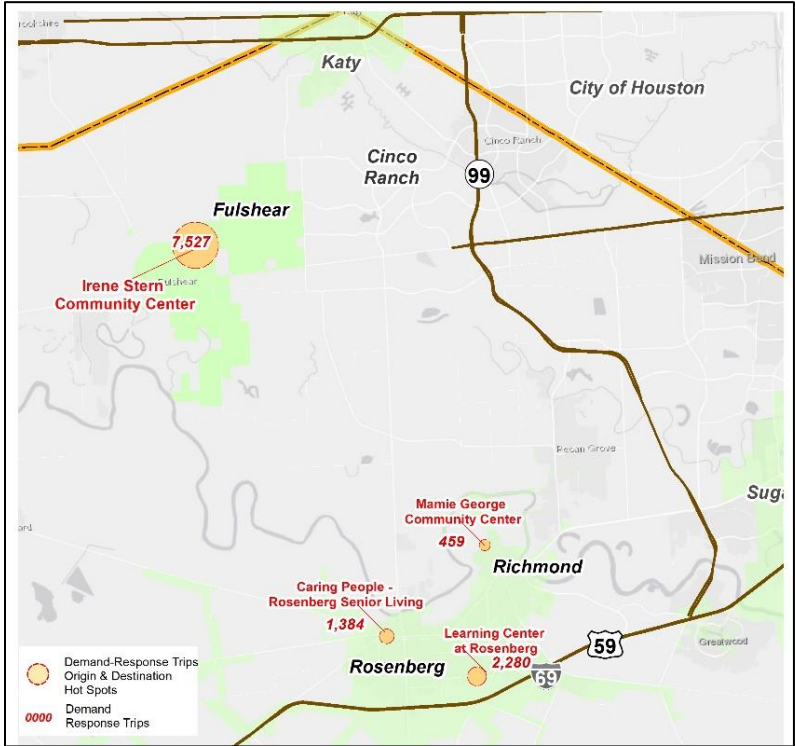
The annual demand response ridership in Fulshear has remained relatively steady from 2017 through 2019 (Figure 27). Figure 28 and Figure 29 show the top demand response origins and destinations, excluding individual households, from 2017 to 2019 in and near Fulshear. The top origins and destinations include the Irene Stern Community Center, Learning Center at Rosenberg, Caring People Senior Living Facility in Rosenberg, and the Mamie George Community Center. The Irene Stern Community Center is shown in Figure 30.

Figure 27: Annual Demand-Response Service Ridership in Fulshear



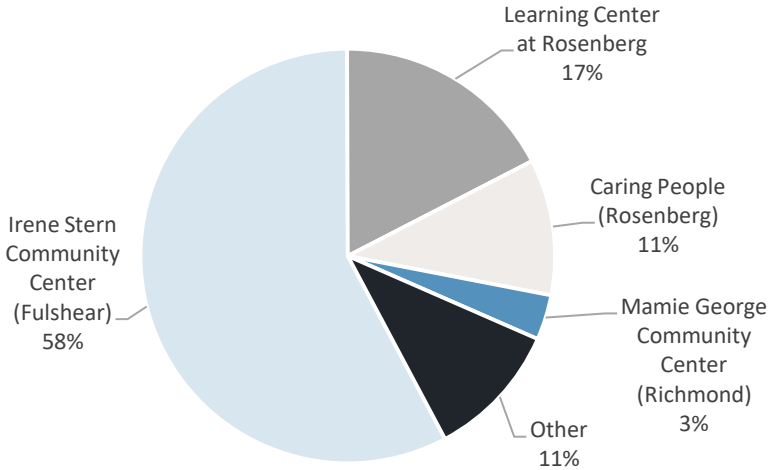
Source: Fort Bend County

Figure 28: Top Demand Response Service Origins and Destinations in the Fulshear Area



Source: Fort Bend County

Figure 29: Top Demand Response Origins and Destinations in the Fulshear Area



Source: Fort Bend County

Figure 30: Irene Stern Community Center



Ambassador

FBT offers Ambassador services for all existing FBT services – commuter bus and demand response. Ambassadors are individuals who assist transit riders from the rider’s door to the transit vehicle and from the vehicle to the destination.

Subscription Ride

FBT provides subscription ride service to riders who request routine trips to the same destination on a regular schedule. The service allows these riders to reserve trips without having to individually schedule each trip.

Planned Services

The Westpark Park & Ride will be Fort Bend County’s fourth park-and-ride facility and first location not located along the I-69 corridor. The Westpark facility is planned to be located in Cinco Ranch on Westpark Tollway near Mason Road, approximately 10 miles east of Fulshear. Fulshear residents will be eligible to use this facility which will provide service to the Energy Corridor. This service is expected to begin in the summer of 2022.

FBT is working with Central Houston Inc. and the Houston Galveston Area Council (H-GAC) to provide direct commuter service from Sugar Land to Downtown Houston from FBT’s existing park-and-rides. This service is expected to begin fall of 2021.

4.5.2 METRO

Existing Services

The Metropolitan Transit Authority of Harris County (METRO) operates throughout Harris County, in Missouri City located in southeast Fort Bend County, and in Conroe in Montgomery County and provides the following five transit services within the METRO service area:

- Commuter bus
- Local bus
- Light rail
- Demand response (METROLift paratransit and Community Connectors)
- Vanpool and carpool

Commuter Bus

METRO provides commuter bus service from 28 METRO Park & Ride facilities. The Grand Parkway, Kingsland, and Addicks Park & Rides are the closest facilities to Fulshear and are located along the 1-10 corridor. The Grand Parkway Park & Ride is 13 miles east of Fulshear and provides commuter bus service to Downtown Houston. This facility has been at or over capacity since 2018, which prompted METRO to consider parking expansion options at and near the facility. The Kingsland and Addicks Park & Rides are approximately 15 to 20 miles east of Fulshear and also offer commuter bus services to Downtown Houston. In addition, users of the Addicks facility have the option to transfer to a local bus with stops along 1-10.

Local Bus

METRO's local bus network spans throughout Harris County with routes connecting to METRO Park & Ride facilities, bus rapid transit (BRT) stations, light rail stations, and Community Connectors as well as private transportation hubs such as airports and regional bus providers.

Light Rail

The Red, Purple, and Green Lines comprise the METRORail system. The three lines are not in close proximity to the study area nor to the three METRO Park & Rides near Fulshear. The Red Line runs north-south with termini at Northline Transit Center and Fannin South Station. Fulshear residents who intend to use the Red Line have the option to use METRO's commuter and local bus services to connect to the line. The Purple and Green Lines are located in southeast Houston. Both lines have termini in Downtown where the routes connect to the Red Line. The Purple Line's second termini are located at Palm Center Transit Center, and the Green Line's second termini are at Magnolia Park Transit Center.

Vanpool and Carpool

The METRO STAR vanpool and carpool program serves eight counties in the region: Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Walker. The program matches individuals with similar travel times and locations, and for groups larger than a carpool, METRO provides a METRO van ranging in size from a minivan to a 15-passenger van for each group's use.

To participate in the METRO STAR vanpool and carpool program, interested participants first need to submit a commuter profile form on the METRO website² and provide information on their commuting schedule. The program places individuals into vanpools or carpools when there is an insufficient number of commuters to form a vanpool. The METRO website also provides a free online vanpool and carpool finder³. Once commuters

² <https://www.ridemetroapp.org/ridepro/Service.asp?rp3Action=Register&FormName=NewRegisterAgreed&DisplayPage=AllForm>

³ <https://www.ridemetroapp.org/ridepro35/Trip2/UnregisteredSearch>

are matched, they are responsible for coordinating the vanpool or carpool schedule and determining the pick-up and drop-off locations. The vanpool program is a month-to-month commitment for each vanpool member, and there are no long-term obligations. Vanpool groups can have 5 to 15 members, and the monthly cost of the service is a function of the miles traveled, the number of vanpool members, and the size of the van. METRO also offers incentives and tax benefits to employers that share the cost of the vanpool.

Demand Response

METRO provides demand response service through METROLift and Community Connectors. METROLift is a complementary, curb-to-curb paratransit service for persons with disabilities who cannot board, ride, or disembark from a METRO fixed-route bus, even if that bus is equipped with a wheelchair lift or ramp. The Community Connectors service provides curb-to-curb service within designated zones, and all members of the public are eligible to ride. METRO currently operates the Acres Home and Missouri City Community Connectors.

Planned Services

In fiscal year 2021, METRO plans to expand its Community Connector service to Katy with eight vehicles serving a zone of 19 square miles. This expansion was identified as the planned project in closest proximity to Fulshear. Given that Fulshear is not located in the METRO service area, most of METRO's planned services and projects are located at least 20 miles east of Fulshear.

5 PEER REVIEW

The purpose of the peer review is to evaluate the transit systems of cities with similarities to Fulshear's existing and projected conditions and to use these findings to further assess the study area's transit market. The objective is to better understand how the study area compares to other cities, gain insight on the features of strong and weak performing services, and refine the recommended transit concepts. The following section presents the review methodology and an overview of each peer city.

Seven peer cities were selected for further review based on the following preferred characteristics. These cities meet several, but not necessarily all, of the preferences due to the specificity of the characteristics.

- **Population size, density, and distribution.** These three metrics are often highly correlated with transit demand and are important considerations when determining appropriate route alignments, stops, and service levels.
- **Employment locations and travel patterns.** Because employment is also highly correlated with transit demand, cities with employment distribution and travel patterns similar to Fulshear were preferred.
- **Distance from a major metropolitan area.** Cities that are of similar distance from their respective metropolitan areas as Fulshear is to Houston were favored.
- **Presence of a town center or downtown with a small-town feel.** Communities with this land use were preferred because the presence of a town center can generate transit demand. Based on the findings in Chapters 3 Study Review and 6 Public Engagement, it was evident that many Fulshear residents value the community's historical background and small-town feel and wish to preserve these qualities as the community grows. As such, it was important to identify cities with these characteristics and understand how they have implemented transit while maintaining these qualities.
- **Household income.** Household income can serve as an indicator of transit demand. Demand for weekday commuter services during peak hours is typically found in areas with relatively high average incomes like Fulshear. Meanwhile, demand for local midday services is usually present in areas with relatively low average incomes. Accordingly, peer cities with an average household income in the moderate to high bracket were preferred to account for the lower and higher-income populations in Fulshear.

Table 1 presents the geographic characteristics of Fulshear and peer cities. In terms of population, two of the peer cities resemble the Fulshear study area's current and short-range conditions, and the other five cities resemble the study area's long-range conditions. A summary of existing and planned transit services in the study area and the peer cities is provided in Table 2.

Table 1: Peer City Characteristics

City	Metropolitan Area	Distance to Metropolitan Center (miles)	Population
Fulshear, TX	Houston	35	36,352 ¹
Staunton, VA	Staunton-Waynesboro	0	24,932 ²
Leesburg, VA	Washington, DC	33	53,727 ²
Round Rock, TX	Austin	20	119,380 ²
Sugar Land, TX	Houston	20	118,488 ²
Lewisville, TX	Dallas-Fort Worth	25	109,212 ²
The Woodlands, TX	Houston	30	118,000 ³
Norman, OK	Oklahoma City	20	124,880 ²

¹ City and ETJ population from Fulshear Demographic Update Spring 2020

² Census Vintage 2019 Estimate

³ Howard Hughes Corporation Estimate 2020

Table 2: Peer City Transit Services

City	Vanpool	Demand-Response	Local Bus/Trolley	Commuter Bus	Rail Connection
Fulshear, TX	Yes	Yes	-	-	-
Staunton, VA	-	Yes ¹	Yes	Yes	Yes
Leesburg, VA	Yes	Yes ¹	Yes	Yes	Planned
Round Rock, TX	Yes	Yes	Yes	Yes	-
Sugar Land, TX	Yes	Yes	-	Yes	-
Lewisville, TX	Yes	Yes	Yes	-	Yes
The Woodlands, TX	Yes	Yes ¹	Yes	Yes	-
Norman, OK	Yes	Yes ¹	Yes	Yes	Yes

¹ Only for ADA paratransit

Staunton, VA

Background

The City of Staunton is located in Augusta County, an urbanized and rural area in west-central Virginia. The city's population has steadily increased since the 1960s, and the current population of 24,932 is similar to the 2018 Fulshear city and ETJ population of 28,034. Historical sites are located throughout the area, and the City of Staunton has undertaken efforts to preserve these sites while promoting the small-town feel and economic vitality of its Downtown area. The Blue Ridge Intercity Transit Express (BRITE) currently operates local, intercity, and paratransit bus services in Staunton and throughout Augusta County.

Staunton's first bus transit system operated from 1931 to 1989. In 1992, the private non-profit agency Coordinated Area Transportation Services (CATS) began providing demand response service within the county to Augusta Health, a general hospital. CATS tested fixed route service in 1995 but discontinued it shortly after. In 2002, CATS reinstated fixed route service through the 250 Connector in response to advocacy efforts by the Waynesboro Disabilities Service Board and has since added several more fixed routes. During the same time period, the City of Staunton purchased trolleys to provide tourist-oriented services in downtown Staunton. CATS and the Virginia Regional Transit (VRT) later assumed operations for the Downtown Trolley.

After the 2012 designation of the Staunton-Augusta-Waynesboro Urbanized Area (UZA), the Central Shenandoah Planning District Commission (CSPDC) took on responsibility for local transit services and tasks related to planning, oversight, and grants. The transit services provided by CATS, VRT, and CSPDC were also rebranded to BRITE to provide a more cohesive image and increase community awareness of transit.

Service Characteristics

VRT under the BRITE brand operates 17 vehicles in the service area and uses 11 of these vehicles to serve urbanized parts of the service area. The other six vehicles are used in rural locations. VRT purchased the vehicles using federal, state, and local funds and owns them as well. The vehicles are parked in four locations, two of which are in Staunton, to reduce deadhead when operating throughout the service area.

Staunton is served by 7 of the 8 local and intercity fixed routes provided by BRITE. BRITE also provides ADA compliant complementary paratransit within 0.75 miles of all fixed routes to individuals with applicable disabilities. The North Loop, West Loop, Downtown Trolley, and Saturday Trolley comprise Staunton's local bus system and operate with 60-minute headways from Monday through Saturday, with the exception of the Saturday Trolley which only operates on Saturday evenings. Staunton is also served by three intercity routes – the 250 Connector, Stuarts Draft Link, and Blue Ridge Community College (BRCC) Shuttle – which provide daytime and evening service to educational, employment, health, housing, and retail destinations throughout the county.

Operating Structure and Funding

In the urbanized parts of the service area, CSPDC serves as the recipient for FTA Section 5307 urbanized area formula funds. Due to federal regulations that state only public entities are eligible to receive 5307 funds, VRT, a private non-profit agency, is not an eligible recipient. CSPDC contracts operations to VRT and uses FTA's Capital Cost of Contracting to categorize 50% of the contract as capital, making this portion of the cost eligible for 80% federal assistance through the 5307 programs. VRT manages and operates services provided in rural parts of the service area. VRT is eligible to receive federal funds for these areas and serves as the subrecipient of FTA Section 5311 rural area formula funds which flow from the Virginia Department of Rail and Public Transportation (DRPT).

In fiscal year 2019, the total operating and capital costs for the service area was \$2.1 million. More than half of the total funding (57%) came from federal sources. Additional funding sources and amounts are shown in Table 3.

Table 3: Operating and Capital Funding Sources

Funding	Operating	Capital	Total	Percent
Federal	\$605,626	\$620,226	\$1,225,852	57%
State	\$271,054	\$146,642	\$417,696	20%
Local	\$382,068	\$34,965	\$417,033	19%
Farebox	\$79,612	\$0	\$79,612	4%
Total	\$1,338,360	\$801,833	\$2,140,193	100%

Performance Indicators

Annual ridership on the BRITE system increased from 212,990 to 265,469 passengers from FY 2010 to FY 2018. Table 4 provides additional performance indicators for the system.

Table 4: Performance Indicators

Indicator	Fixed Route	Paratransit
Passenger Trips	259,236	6,233
Vehicle revenue hours (VRH)	27,068	3,647
Trips per VRH	9.6	1.7
Operating expense per trip	\$4.46	\$24.19

Partnerships and Coordination

Local funding partners for BRITE service within and to Staunton include Augusta County, Augusta Health, Blue Ridge Community College (BRCC), City of Staunton, City of Waynesboro, Shenandoah Valley Social Services (SVSS), Staunton Downtown Development Association (SDDA), Wilson Workforce and Rehabilitation Center (WWRC), and a member of the CATS Board. BRITE currently has fare agreements with several of these partners. BRCC students, WWRC clients, and clients of SVSS's View Program ride fare-free, as BRCC, WWRC, and SVSS provide financial contributions to the transit system. BRITE also allows riders to board and alight at Augusta Health for free, as the hospital financially contributes to operating funds on an annual basis.

The Staunton Downtown Trolley was the result of coordination and partnerships between the City of Staunton, SDDA, CATS, and VRT. The City purchased two trolleys for the route in 2001 using funding from DRPT and a local match from SDDA. While the solicitation for service was in progress, city employees operated the

trolleys. In late 2001, CATS, with VRT as the service provider, received the contract and took over trolley operations.

The Staunton Downtown Trolley route shares a stop with the Amtrak Cardinal line at the Amtrak Station. The Cardinal line serves this station three days per week and provides connections to metropolitan areas between New York City and Chicago.

Leesburg, VA

Background

Leesburg, VA is largely a commuter community in Loudoun County and is located 33 miles northwest of Washington D.C. Leesburg contains several historic sites, and its downtown area is promoted as the “Original Town Center”. Loudoun County, one of the fastest-growing counties in the U.S., operates Loudoun County Transit (LCT) to provide commuter bus, local bus, and paratransit services. Several LCT park-and-rides are also served by the Washington Metropolitan Area Transit Authority’s (WMATA) Silver Line Express bus that provides transfers to the WMATA METRORail Silver Line. The LCT service area spans 520 square miles and has a population of 373,694.

Service Characteristics

10 of the 24 Loudoun County park-and-ride lots are serviced by commuter bus. LCT contracts these services to Transdev, a private operator that uses 65 commuter buses at peak service. Buses depart from these 10 lots every 15 to 30 minutes and provide service to Rosslyn, Crystal City, the Pentagon, and Washington, D.C. The remaining 14 lots not served by commuter bus have at least one of the following amenities: vanpool and carpool parking space, bike racks, bike lockers for rent, or a WMATA local bus stop with connection to rail. As a member of the Commuter Connections organization, LCT facilitates the formation of vanpool and carpool groups by sharing information on the Commuter Connections’ free online matching service, guaranteed ride home program, and information on vanpool financial assistance programs funded by DRPT. Neither LCT nor Commuter Connections provide vans but participants can choose to lease vans from private providers.

MV Transportation operates four local fixed routes and ADA paratransit service in Leesburg and other parts of eastern Loudoun County under a contract with LCT. Key destinations along these routes include public institutions, health and social services, shopping centers, and grocery stores. 26 vehicles are used at peak service on these routes, including paratransit.

Leesburg is also served by the Safe-T-Ride route funded by the Town of Leesburg and the county. This free shuttle service operates seven days a week and provides riders with a safer alternative to crossing the Route 15 Bypass on foot.

Operating Structure and Funding

From 1994 to 2003, the county had a contractor provide all aspects of the commuter bus service including vehicles, fuel, and personnel. After evaluating potential operational structures, the county in 2003 adopted its current model of purchasing and owning its vehicles and fuel while contracting operations and maintenance. This model was identified as more cost-effective than the previous model.

LCT’s annual operating and capital costs are approximately \$23.2 million (Table 5). Due to the number of commuter bus riders on its system and the \$10 to \$11 one-way commuter fares, a relatively large proportion of LCT’s expended funds come from the farebox. Farebox and local sources also comprise a relatively large

proportion of funds because LCT has not received federal funding since FY 2014. Following the 2010 U.S. Census, parts of Loudoun County were located in the Washington D.C. urbanized area, thereby making the area ineligible for FTA Section 5311 rural area funds.

Table 5: Operating and Capital Funding Sources

Funding	Operating	Capital	Total	Percent
Federal	\$0	\$0	0	0%
State	\$3,994,652	\$1,180,610	5,175,262	22%
Local	\$5,971,394	\$2,508,796	8,480,190	37%
Farebox	\$9,549,677	\$0	9,549,677	41%
Total	19,515,723	3,689,406	23,205,129	100%

Performance Indicators

Annual commuter bus ridership has steadily increased since FY 2004 and is currently about 1.3 million. This service is fairly productive with 18.2 passengers per hour. LCT also provides 384,500 local bus trips and 13,267 paratransit trips each year. Additional performance indicators are included below in Table 6.

Table 6: Performance Indicators

Indicator	Commuter Bus	Local Bus	Paratransit
Passenger Trips	1,305,779	384,500	13,267
Vehicle revenue hours (VRH)	71,766	10,024	58,611
Trips per VRH	18.2	6.6	1.3
Operating expense per trip	\$9.07	\$11.01	\$64.78

Partnerships and Coordination

LCT partners and coordinates with multiple entities to provide service and enhance the convenience and accessibility of transit. The agency accepts fares through the regional SmarTrip card, a partnership between the Maryland Transit Administration, WMATA, Virginia Railway Express, and multiple other county transit providers. The agency is also a member of Commuter Connections, a regional network of transportation organizations coordinated by the Metropolitan Washington Council of Governments (MWCOG) and provides vanpool and carpool assistance to county residents through this organization.

The Town of Leesburg provides funding assistance for LCT services within the town's jurisdiction. In addition, the town and LCT have an arrangement for the maintenance of bus stop signs and shelters.

LCT is currently coordinating with the Virginia Department of Transportation (VDOT), WMATA, and other agencies on the Dulles Corridor Metrorail Project that will directly connect eastern Loudoun County by rail to major destinations in Washington D.C., Virginia, and Maryland. The coordination efforts are intended to ensure that land needed for project amenities are properly obtained or reserved.

Round Rock, TX

Background

Round Rock is located 20 miles north of Austin, TX and has experienced substantial population and employment growth over the past 20 years. The city has been one of the fastest-growing medium-sized cities in the U.S., and its current population of 119,380 is similar to the Fulshear ETJ's projected population in the year 2035. Round Rock is primarily a commuter community – 85% of its working residents work in Austin – but has also experienced a recent influx of new businesses and educational institutions.

The City of Round Rock, Capital Metropolitan Transit Authority (CMTA), and the Capital Area Rural Transportation System (CARTS) provide bus services in and near Round Rock. The city's service area covers all 67 square miles of the Round Rock ETJ and a population of 173,490. Within this service area, the city provides ADA paratransit. The city also partners with CMTA to provide additional fixed route bus service to and within the city.

CARTS provides regional transit services in an area spanning 7,200 square miles around Austin. The services include local and intercity fixed-route bus service, non-emergency medical transportation, demand response, and connections to national transportation routes.

Service Characteristics

The Round Rock La Frontera and the Round Rock Circulator routes operate on weekdays from 6:30 a.m. to 6:30 p.m. and travel between educational, employment, medical, shopping, and transit facility destinations. The Round Rock Tech Ridge Limited route operates on weekdays with two morning and two afternoon trips. The route travels between the Tech Ridge Park & Ride to the Round Rock Transit Center with stops at education and employment centers.

The city provides ADA paratransit within 0.75 miles of the three fixed routes during the same days and hours as the fixed routes. Extensions beyond the 0.75-mile deviation are made on a case-by-case basis and cannot extend beyond the city or ETJ limits.

Operating Structure and Funding

In August 2017, the City of Round Rock implemented fixed-route bus services in the city through an interlocal agreement (ILA) with CMTA. As part of the ILA, the city reimburses CMTA for expenses incurred from operating transit services in Round Rock. The City of Round Rock contracts its ADA paratransit services to Star Shuttle, a private operator.

As shown in Table 7, federal funding comprises 41.4% of the City of Round Rock's expended operating funds. The city became a direct recipient of FTA Section 5307 funds after completing a memorandum of understanding with CMTA. Another 51.9% of funds are from local sources, 6.4% from farebox, and 0.3% from state sources. Based on FY 2013 to FY 2019 data, the city has not expended any capital funds during this time period.

Table 7: Operating and Capital Funding Sources

Funding	Operating	Capital	Total	Percent
Federal	\$895,146	\$0	\$895,146	41.4%
State	\$5,762	\$0	\$5,762	0.3%
Local	\$1,120,801	\$0	\$1,120,801	51.9%
Farebox	\$139,383	\$0	\$139,383	6.4%
Total	\$2,161,092	\$0	\$2,161,092	\$100.0%

Performance Indicators

From FY 2010 to FY 2019, annual demand response ridership fluctuated between 14,718 and 20,287. From FY 2017 to FY 2019, annual bus ridership increased from 6,199 to 68,818. Table 8 below shows the performance indicators for the City of Round Rock.

Table 8: Performance Indicators

Indicator	Fixed Route	Demand Response
Passenger Trips	68,818	20,287
Vehicle revenue hours (VRH)	170,048	123,663
Trips per VRH	6.4	1.7
Operating expense per trip	\$14.69	\$42.73

Partnerships and Coordination

The city and CMTA coordinate to provide an integrated fare system that works across both transit systems. The city also coordinates with Drive A Senior, a volunteer organization that provides rides for individuals age 60 and over, to organize trip planning and to refer patrons to each respective service.

Sugar Land, TX**Background**

Sugar Land is a suburban city located in northeastern Fort Bend County approximately 17 miles from Fulshear. The 2019 Fulshear Economic Development Strategy identified Sugar Land as a popular role model

for Fulshear among survey respondents. Like Fulshear, Sugar Land is one of the most affluent and fastest-growing cities in Texas but currently has a larger geographic area and population size than that of the Fulshear ETJ. The development of multiple master-planned communities in Sugar Land contributed to its rapid growth.

The city is intersected by 1-69, a heavily traveled corridor that is frequently used by residents to travel to and from major employment, medical, and recreational destinations in Houston. Two of FBT’s three existing park-and-rides are located in Sugar Land along this corridor. Sugar Land residents also have access to FBT’s demand response service and the METRO STAR vanpool and carpool program.

Service Characteristics

The characteristics of FBT and METRO services available in Sugar Land are described in 4.5 Transit Service.

Operating Structure and Funding

FBT’s operating structure and funding sources are further discussed in 8.1 Overview of Current Transit System Operations.

Performance Indicators

Table 9 provides an overview of performance indicators for the entire FBT system. Annual commuter bus ridership from all three FBT park-and-rides remained relatively steady from FY 2015 to FY 2019.

Table 9: Performance Indicators

Indicator	Commuter Bus	Local Bus	Demand Response
Passenger Trips	262,260	11,076	134,378
Vehicle revenue hours (VRH)	23,223	7,506	53,430
Trips per VRH	11.3	2.5	1.5
Operating expense per trip	\$8.71	\$37.97	\$59.74

Partnerships and Coordination

The City of Sugar Land annually contributes \$70,000 to support FBT’s services with no restrictions as to how the funding can be used, but its primary interest is in supporting the commuter services in Sugar Land. FBT also receives funding from several other public and private partners with specifications on the geographic area and transit mode that should be supported by the funding.

FBT provides park-and-ride customer parking through shared arrangements with the University of Houston at Sugar Land and a lease agreement with AMC Theater First Colony. FBT also coordinates with METRO to utilize METRO’s West Bellfort Park & Ride as a stop on its Greenway Plaza commuter bus route. Currently, FBT does not have fare integration with METRO.

Lewisville, TX

Background

Lewisville is a suburban community in the Dallas-Fort Worth metropolitan area and is approximately 25 miles north of Downtown Dallas. Lewisville is a home rule city and among the fastest-growing cities in the U.S. From 2000 to 2019, the population increased by 40% from 77,737 to 108,526 residents, making Lewisville the 33rd most populous city in Texas.

The Denton County Transportation Authority (DCTA) operates local fixed route and demand response services in Lewisville and also provides a vanpool program. These services connect to additional DCTA rail and bus routes in the county.

Service Characteristics

DCTA operates two bus routes (21 and 22) in Lewisville. Both routes were configured to provide access to popular destinations within Lewisville and to provide service to A-Train rail stations for transfers to the commuter rail line. Route 21 serves the Hebron A-Train station, and Route 22 serves the Old Town A-Train station and Hebron A-Train station. Each route operates on a slightly different schedule, so some trips allow for seamless transfers and others may require waiting. Service hours are Monday through Saturday between 5:30 a.m. and 9:30 p.m. The A-Train commuter rail, which is operated by DCTA, has two stops in Lewisville and connects to the Dallas Area Rapid Transit (DART) Green Line.

Operating Structure and Funding

DCTA's primary revenue source is a half-cent sales tax assessed in its member cities, which along with revenue from service contracts for neighboring cities, accounts for 57% of its operating and capital expenses (Table 10). Fare revenue comprises 16% of total operating costs. Federal funds are a major source for DCTA's capital expenses but not for its operating expenses.

Table 10: Operating and Capital Funding Sources

Funding	Operating	Capital	Total	Percent
Federal	\$6,664,660	\$4,187,777	\$10,852,437	27%
State	\$0	\$0	\$0	0%
Local	\$21,473,904	\$1,669,006	\$23,142,910	57%
Farebox	\$6,436,958	\$0	\$6,436,958	16%
Total	\$34,575,522	\$5,856,783	\$40,432,305	\$100%

Performance Indicators

Ridership fluctuates throughout the year and correlates with the academic calendar because a considerable percentage of passengers are UNT and TWU students, faculty, and staff. Table 11 presents the performance indicators for the three modes of service provided in Lewisville. All three services are productive in terms of operating expense per trip and fairly productive in terms of trips per hour.

Table 11: Performance Indicators

Indicator	Local Bus	Demand Response	Vanpool
Passenger Trips	2,355,857	47,871	128,171
Vehicle revenue hours (VRH)	138,881	21,741	17,842
Trips per VRH	17.0	2.2	7.2
Operating expense per trip	\$2.41	\$11.61	\$0.07

Partnerships and Coordination

DCTA coordinates with multiple public and private partners to provide reduced fares and improve fare integration. Students at Texas Women’s University can ride the A-train, Connect bus, and the Lewisville Lakeway On-Demand service for a reduced rate. The University of North Texas students, faculty, and staff can ride the UNT Campus shuttles, Denton Connect buses, and Lewisville Connect buses for free. DCTA provides bulk discounts through its Employee Pass, Group Discount, and Non-Profit Discount Programs. These discounts are only applicable to local fares.

DCTA also has agreements with Dallas Area Rapid Transit (DART) and Trinity Metro to honor each other’s regional passes, thereby allowing passengers to transfer between the three systems without having to pay twice.

The Woodlands, TX

Background

The Woodlands is a master-planned community located in the Conroe-The Woodlands UZA and the Houston–The Woodlands–Sugar Land metropolitan area approximately 30 miles north of Downtown Houston. The 2019 Fulshear Economic Development Strategy identified The Woodlands as a popular role model for Fulshear among survey respondents.

The Woodlands has undergone significant population and employment growth over the past few decades. Although it began as an exurban commuter community, it has since attracted many employers and is now both a commuter community and an employment destination for individuals residing outside the area. From 2000 to 2020, its population increased by 112% from 55,649 to 118,000 residents. This growth and the resultant travel patterns and demand were factors in The Woodlands Township’s decision to provide transit services. The Township service area covers 454 square miles and serves a population of 604,068.

Service Characteristics

The Woodlands Township provides local bus (The Woodlands Town Center Trolleys), commuter bus (The

Woodlands Express), and ADA paratransit services in The Woodlands. The Woodlands Express has been in operation for 20 years and initially provided direct service to Downtown Houston. In response to passenger demand, additional service to the Texas Medical Center (TMC) and Greenway Plaza was implemented. Currently, The Woodlands Express serves three park-and-ride lots in The Woodlands and brings commuters to Downtown Houston, Greenway Plaza, TMC, and Greater Greenspoint. The route operates every 10 to 20 minutes during peak times, which offers a high level of service.

The Woodlands Town Center Trolleys route operates year-round, seven days per week, except on certain holidays. This free service provides connections on a 4.1-mile route to The Woodlands Mall, Market Street, Hughes Landing, and Town Center businesses and residences throughout the service area. The Township also provides ADA paratransit to complement the fixed route trolley service.

Operating Structure and Funding

The Woodlands Township contracts all operations to third parties. The Woodlands Express is contracted through First Class Tours, a private entity, the Waterway Trolley is contracted through the Brazos Transit District (BTD), and ADA paratransit is contracted through the City of Conroe. The three park-and-ride facilities used by The Woodlands Express route are owned by BTD and leased by the Township through an interlocal agreement.

Due to a proportion of system ridership on The Woodlands Express route, the Township receives more than half of its operational funds from fare revenue (Table 12). Revenues are used to pay for capital costs of contracting in addition to operations. Federal sources comprise 30% of the Township's total expended operational and capital costs. The Township receives FTA Section 5307 urbanized formula funds through coordination and agreement with the City of Conroe. Local funding comes from The Woodlands Township general fund.

Table 12: Operating and Capital Funding Sources

Funding	Operating	Capital	Total	Percent
Federal	\$2,073,771	\$3,072	2,076,843	30%
State	\$422,487	\$0	422,487	6%
Local	\$860,291	\$12,288	872,579	13%
Farebox	\$3,560,340	\$0	3,560,340	51%
Total	\$6,916,889	\$15,360	6,932,249	100%

Performance Indicators

Between FY 2015 and FY 2019, annual commuter bus ridership steadily decreased from 636,471 to 552,320 trips. Meanwhile, local bus ridership doubled during this time period from a low of 66,551 to a high of 139,089. Table 13 presents additional performance indicators for The Woodlands Township in FY 2019.

Table 13: Performance Indicators

Indicator	Commuter Bus	Local Bus
Passenger Trips	552,320	139,089
Vehicle revenue hours (VRH)	31,724	13,513
Trips per VRH	17.4	10.3
Operating expense per trip	\$9.26	\$7.60

Partnerships and Coordination

The Township coordinated with METRO to use METRO’s bus stops at Houston job centers for the Woodlands Express Service. Currently, there is no fare coordination with other agencies, though it is under consideration through the Regional Transit Coordination Subcommittee.

Norman, OK

Background

Norman, OK is located 20 miles south of Oklahoma City and is home to many middle-class suburban neighborhoods, including several historically significant neighborhoods. After the completion of I-35 in the late 1950s, the city’s population and the geographic area quickly grew, and Norman soon became a commuter community to Oklahoma City. The population has continued to grow since the 1950s and is currently estimated at 124,880. Norman has a highly educated population with prominent education, research, and scientific industries, largely in part to its site as the main campus of the University of Oklahoma (OU) and other major public and private employers.

Campus Area Rapid Transit (CART), formerly Cleveland Area Rapid Transit, provides fixed route bus service in Norman under the CART brand. EMBARK, formerly known as METRO Transit, is the transit authority of the Central Oklahoma Transportation and Parking Authority (COTPA) and provides fixed route bus, ADA paratransit, ferry, rideshare, and downtown parking solutions in the Oklahoma City metropolitan area. CART partners with EMBARK to provide two EMBARK-branded routes and ADA paratransit in Norman.

Service Characteristics

CART operates five fixed routes that primarily serve OU students, faculty, and staff. These routes connect campus and off-campus residences to OU facilities such as the Campus Depot and the Gaylord Family Oklahoma Memorial Stadium. The routes are operated Monday through Friday, year-round, and fare is free for OU students. Service hours begin as early as 7:00 a.m. and end as late as 9:45 p.m. Headways vary from 5, 10, 20, to 30 minutes depending on the route and time. CART also operates a Late-Night Flex bus service between the OU Lloyd Noble Center and campus residences. The flex route has four fixed stops and can accommodate additional boarding and alighting locations along the route if requested.

CART and EMBARK partner to provide two additional EMBARK fixed routes in Norman. The 24 Norman is a commuter route to Oklahoma City, and service is offered six times a day, Monday through Friday. The 121

Alameda/E. Norman route runs Monday through Friday with 60-minute headways between OU and public and medical facilities.

The EMBARK Plus paratransit service complements EMBARK’s entire fixed route system and serves eligible individuals with disabilities within Oklahoma City limits. EMBARK also provides a vanpool program in the service area. EMBARK partners with Enterprise to facilitate the formation of vanpools and to provide vehicles for groups of 7 to 15 passengers.

Operating Structure and Funding

The University of Oklahoma Transit Services Division directly operates CART and uses 28 vehicles at peak service. In FY 2019, CARTS only expended funding for operating costs (Table 14). Each year, the Oklahoma Legislature allocates funding to the Section 4031 public transit revolving fund to support urban and rural transit services throughout Oklahoma. The amount of funding received by CART and other local transit providers is based on their previous year’s revenue miles. COTPA’s share of funds is limited to about 20% of the statewide total, even though its revenue miles amount to more than 20% of total statewide revenue miles.

Table 14: CARTS Operating and Capital Funding Sources

Funding	Operating	Capital	Total	Percent
Federal	\$1,725,125	\$0	1,725,125	38%
State	\$149,583	\$0	149,583	3%
Local	\$625,000	\$0	625,000	14%
Farebox	\$62,348	\$0	62,348	1%
Other	\$2,005,156	\$0	2,005,156	44%
Total	\$4,567,212	\$0	\$4,567,212	100%

Performance Indicators

Service performance on CART’s bus routes is highly productive with an average of 30.1 trips per hour and a low operating cost per trip (

Table 15). CART’s demand response performance is slightly less productive than other cities’ demand response performance.

Table 15: Performance Indicators

Indicator	Bus	Demand Response
Passenger Trips	1,076,274	32,413
Vehicle revenue hours (VRH)	35,775	18,879
Trips per VRH	30.1	1.7
Operating expense per trip	\$2.89	\$45.09

Partnerships and Coordination

In addition to the operational partnership between OU (CART) and COTPA (EMBARK), the Association of Central Oklahoma Governments, Oklahoma Department of Transportation, COTPA, and the City Of Norman, Oklahoma entered into an agreement through a memorandum of understanding to carry out coordinated planning efforts for the region.

The Amtrak Heartland Flyer has a station in Norman near OU. Although CART and EMBARK do not share the station with Amtrak, the two transit providers provide bus stops within walking distance from the station.

CART and EMBARK have not implemented fare integration between the two separately branded systems.

Key Findings and Recommendations

This section provides key findings from the peer review and recommendations for potential transit services in the Fulshear study area.

Route designs should be direct, simple, and have strong anchors.

Common characteristics of productive routes include direct and simple route designs that serve areas with high demand, especially at the ends of each route (strong anchors) or along the route. Areas with high demand are typically visited on a periodic and frequent basis and include educational, employment, health, high capacity transit (e.g. park-and-ride and rail), housing, and retail destinations. Productive regional routes, such as the commuter routes in Leesburg, VA, directly serve major activity centers with little to no stops in between to provide for a more direct seamless trip between the two endpoints.

Weekend service is viable on certain local routes.

While commuter and regional bus routes among the peer cities typically only operate on weekdays, several local routes in Staunton, VA; Lewisville, TX; and The Woodlands, TX operate on weekends. These routes serve areas that can generate demand on weekends, such as employment, recreational, and retail destinations. Among the peer cities, Saturday service tends to be provided more often Sunday service. Although there are

additional financial costs associated with providing weekend service, this service is preferred as it can serve transit markets that want transit options other than those during weekdays.

Trolleys can be used to complement a downtown or town center environment.

Trolleys that are designed in a style that complements the environment can make transit more appealing to residents and visitors alike. Staunton, VA and The Woodlands, TX both use similar green, vintage-style trolleys. In Staunton, the Downtown Trolley route stops at several historical, public, and retail sites, and according to the Staunton Convention and Visitors Bureau, these trolleys are popular among visitors and sightseers. The Woodlands Town Center Trolley routes stop at employment, entertainment, and retail destinations throughout the Town Center, an area that has a more urban and pedestrian-oriented design than the residential parts of The Woodlands. Potential transit services in downtown Fulshear could consider using trolleys that suit the downtown environment and differentiate the trolley service from other potential transit services in the Fulshear area, such as commuter and regional bus.

6 PUBLIC ENGAGEMENT

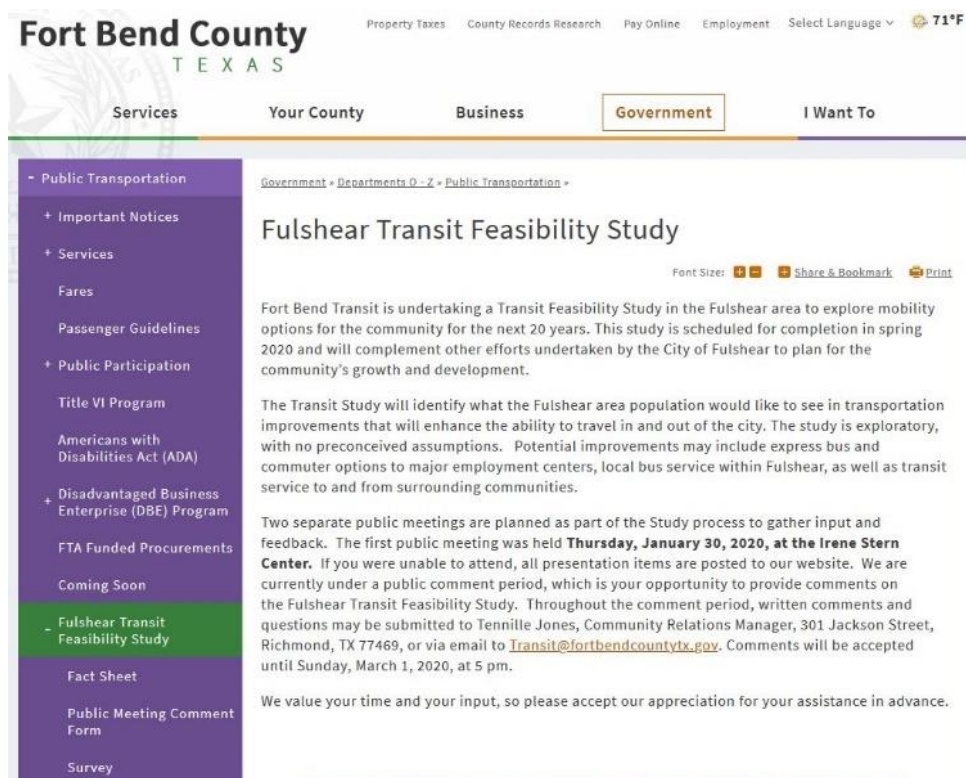
6.1 Process

The public engagement process was a key aspect of the study and essential in gaining a comprehensive understanding of the transit opportunities and needs among Fulshear residents, workers, and stakeholders. This component of the study involved Work Group meetings, Fulshear City Council meetings, a public meeting, an online survey, and the acceptance of public input by email and mail. The study team used the input gained from the public engagement process to develop the transit plan and recommendations.

6.2 Study Webpage and Logo

A webpage for the study was created on the Fort Bend County website⁴ and included information on the study purpose, tasks, schedule, public input opportunities, the link to the online survey, and preliminary online survey results (Figure 31). Public meeting materials consisting of the video presentation, fact sheet, and comment form were uploaded to the website after the meeting. The City of Fulshear's news list webpage⁵ also provided information on the study, notification of the public meeting and online survey, and links to the study webpage.

Figure 31: Study Webpage



⁴ <https://www.fortbendcountytx.gov/government/departments-o-z/public-transportation/services/fulshear-feasibility-study>

⁵ <http://www.fulsheartexas.gov/newslist.php>

A study logo was developed to provide a cohesive image and increase community awareness of the study (Figure 32). The logo was used in the online survey, Work Group meeting presentations, and the public meeting materials such as the video presentation, exhibit boards, fact sheet, and comment forms.

Figure 32: Study Logo



6.3 Community Meetings

Work Group

The Work Group was composed of ten members representing Fort Bend County, the City of Fulshear, Fulshear City Council, and the study consultants. On August 23, 2019, the working group held a public kick-off meeting in Fulshear to introduce the study team, provide background information on the study area, describe the study purpose and process, and share the preliminary study vision and goals. The group met for a second time on January 10, 2020, prior to the public meeting later that month. The Work Group will also have the opportunity to review the draft report and plan January 2021 before the study team finalizes the documents.

Fulshear City Council Briefing

The Work Group met with Fulshear City Council in January 2020 prior to the public meeting and provided an overview of the study purpose, goals, process, schedule, and tasks.

Public Meeting

The public meeting was held on January 30, 2020, with nine attendees, all of whom reside within the Fulshear city limits. The meeting consisted of a video presentation and discussion of the existing and forecasted conditions in the study area, the plan development process and schedule, and potential transit options for Fulshear. All meeting materials (video presentation, project fact sheet, public comment form, and initial online survey results) were later posted on the Fort Bend County webpage for the study. The City of Fulshear also shared the link to the webpage on its Facebook account.

Five comment forms were submitted at the meeting which suggested the following transit projects and recommendations:

- The transit plan should not impede existing bicycling opportunities in Fulshear.
- Provide local transit within Fulshear city limits.

- A park-and-ride should be constructed close to FM 1463 and FM 1093 to bring riders into Houston and around Beltway 8.
- Construct a park-and-ride on FM 1093.
- Explore the possibility of vanpool service which has been successful for those commuting to work in the Galleria area and may be successful for those commuting to work in the Energy Corridor and Downtown Houston.

Figure 33 captures several exhibit boards presented during the public meeting.

Figure 33: Public Meeting



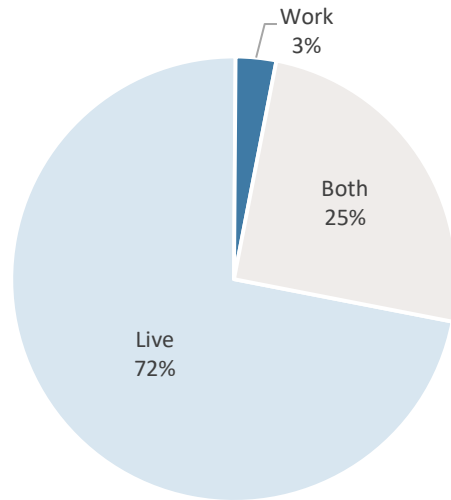
6.4 Online Survey

The purpose of the online survey was to collect and assess demographic information, existing levels of transit use, interest in transit service types, and preferred transit destinations among stakeholders. The full set of questions and answer choices can be found in the Appendix. The survey was available from October 2019 to November 2019 before the public meeting and from February 2020 to March 2020 after the public meeting. Links to the survey were shared on the Fort Bend County website, City of Fulshear website, and City of Fulshear Facebook page.

Survey Responses

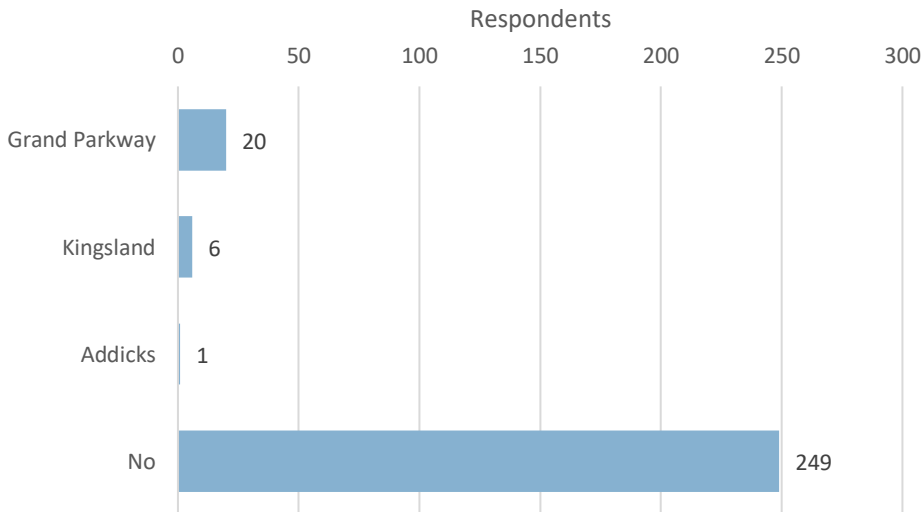
A total of 272 responses were received from individuals who live, work, or both live and work in Fulshear and surrounding communities. As shown in Figure 34, 72% of the respondents live in Fulshear or nearby communities, and either work outside the area or do not work. 3% work in the area while living outside the area, and 25% both live and work in the area.

Figure 34: Question 1: Do you live or work in Fulshear or nearby communities?



Approximately 92% of respondents currently do not use the METRO Park & Ride facilities at Grand Parkway, Kingsland, and Addicks (Figure 35). These three facilities are the closest METRO Park & Rides to the study area and are located 13 to 20 miles east of Fulshear. 8% of respondents indicated they used these facilities with Grand Parkway as the most used of the three followed by Kingsland. One respondent reported using the Addicks facility.

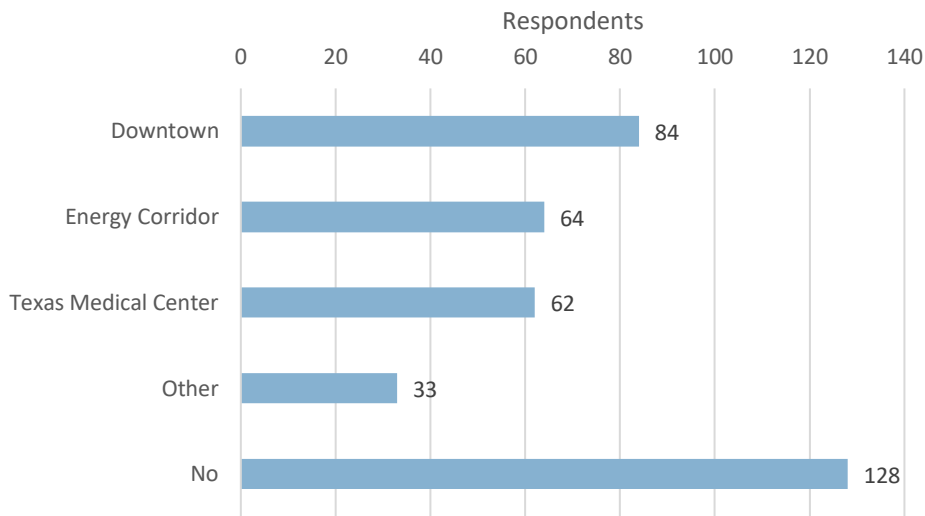
Figure 35: Question 2 Do you currently use a METRO Park & Ride?



Over half (53%) of respondents expressed interest in express bus service from Fulshear to major employment centers in Houston (Figure 36). Respondents had the option to select more than one preferred destination. The responses indicate the most preferred destinations are concentrated in central and west Houston and include Downtown, the Energy Corridor, and Texas Medical Center. According to the survey comments,

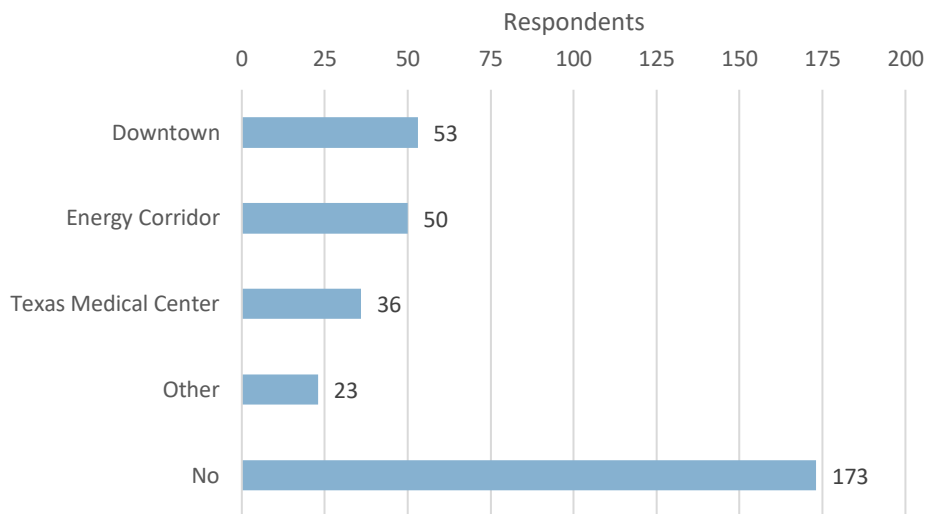
multiple respondents also expressed interest in express bus service to the Galleria area, CITYCENTRE, Greenway/Upper Kirby, Museum District, Westchase, and Houston airports, including George Bush Intercontinental/Houston Airport and William P. Hobby Airport. Other preferred destinations include Barker, the METRORail system, Rice Village, Spring Ranch, Sugar Land, and The Woodlands.

Figure 36: Question 3 Would you be interested in express bus service from Fulshear to Houston major employment centers?



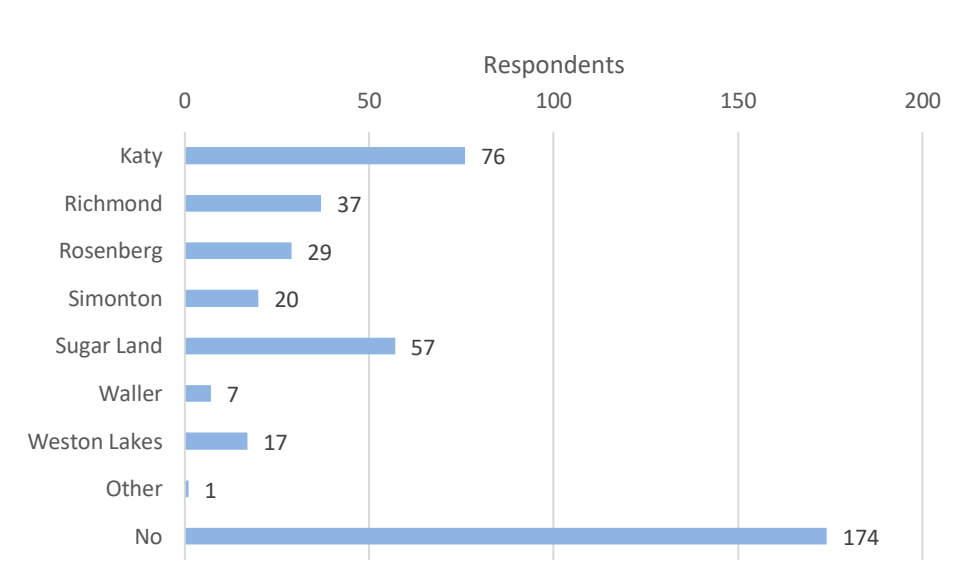
Responses indicate 35% expressed interest in vanpool service from Fulshear to major employment centers in Houston (Figure 37). The preferred destinations and the order of preference corresponded to the destinations identified in Question 3 (Figure 36). Downtown was the top destination followed by the Energy Corridor, Texas Medical Center, and the Galleria area.

Figure 37: Question 4 Would you be interested in vanpool service from Fulshear to Houston major employment centers?



Over one-third (35%) of respondents were interested in intercity bus service between Fulshear and surrounding communities (Figure 38). The three most popular destinations indicated were Katy, Sugar Land, and Richmond, which are located east and south of Fulshear. Other preferred destinations included Rosenberg, Simonton, Waller, and Weston Lakes, communities which are located to the west and south of Fulshear.

Figure 38: Question 5 Would you be interested in intercity bus service between Fulshear and surrounding communities?

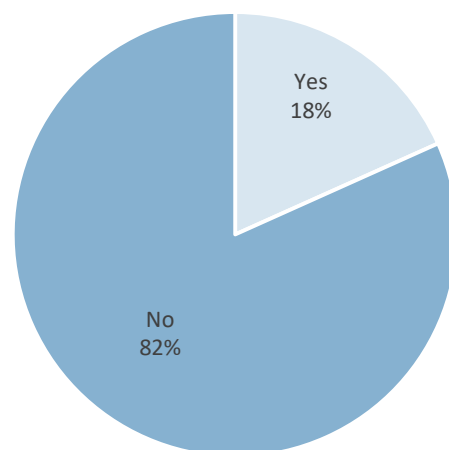


A lower percentage (18%) of respondents were interested in local bus service within Fulshear (Figure 39). These respondents were interested in bus connections between the following areas:

- **Downtown Fulshear** on FM 1093 at FM 359 where a number of public institutions (Fulshear City Office, U.S. post office, and Bob Lutts Fulshear/Simonton Branch Library), businesses, and churches are located.
- **Neighborhoods** particularly Cross Creek Ranch, Fulbrook, The Crossing at Katy Fulshear, and Weston Lakes.
- **Businesses** such as restaurants, bars, entertainment, and shopping centers on FM 1093, FM 1493, and at Katy Mills.
- **Mixed-use developments and non-business institutions** including Cross Creek Town Center, Fulshear public schools located on Charger Way, and healthcare facilities.
- **Employment areas.**
- **Public areas and special events** such as those used for holidays and celebrations.

One respondent expressed interest in bus service from the Fulshear city boundaries to Downtown Fulshear particularly during lunch and dinner hours. Another respondent was interested in service from neighborhoods to Downtown Fulshear and businesses during the evening hours.

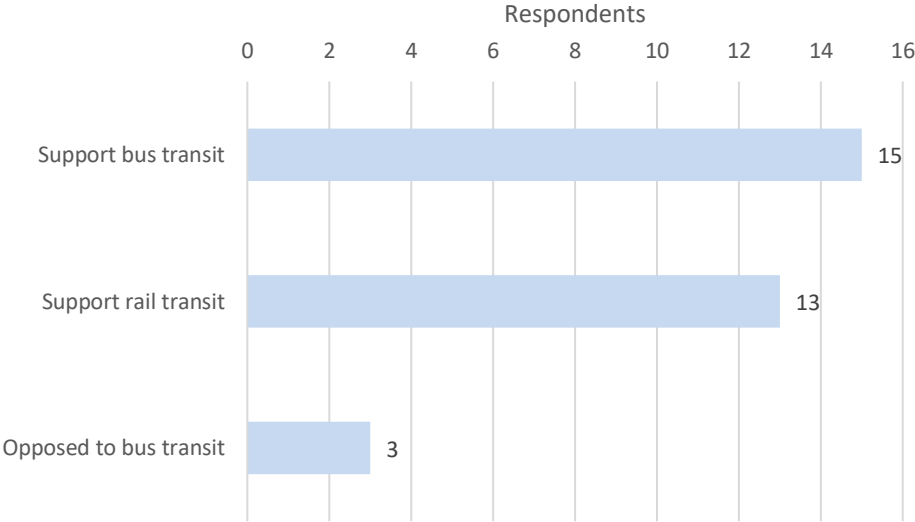
Figure 39: Question 6 Would you be interested in local bus service within Fulshear?



Question 7 was open-ended and asked respondents to describe other transit improvements they would like to see in Fulshear. 114 comments were received and classified into one of the following four groups, with the exception of three comments that were categorized into two groups. One of these three comments supported rail transit but was opposed to bus transit and was therefore categorized into the second (support for rail transit) and third (opposed to bus transit) groups. The two other comments supported bus and rail transit and were categorized into the first (support for bus transit) and second (support for rail transit) groups.

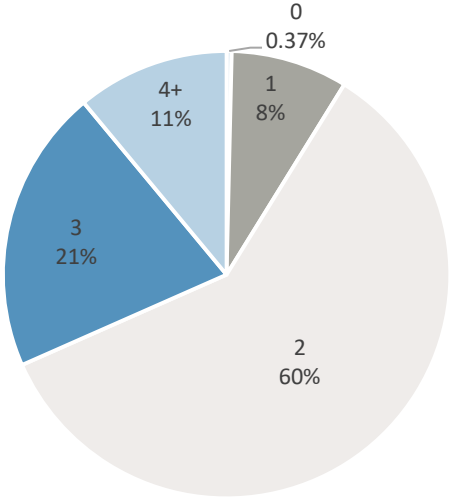
- **Support for bus transit.** Approximately 13% of the comments expressed support for bus transit within Fulshear or from Fulshear to major activity centers in Houston. Preferred destinations included Fulshear restaurants, public events, Downtown Houston, Galleria, Houston Zoo, NASA, and airports. Some respondents specifically mentioned park-and-ride, commuter bus, local bus, vanpool, trolley services, and transit options for individuals who are unable to drive.

Figure 41: Question 7 Responses Related to Bus and Rail Transit



More than 99% of respondents have access to at least one vehicle, and 91.6% have access to two or more (Figure 42). One respondent did not have access to a vehicle.

Figure 42: Question 8 How many vehicles do you have access to?



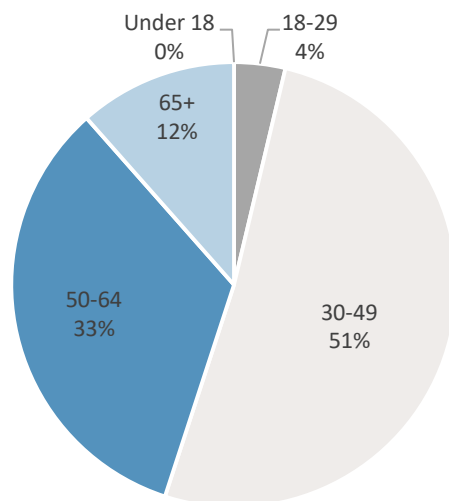
In Question 9, survey respondents were asked to provide their home zip code and street name. 16 different zip codes were provided from 256 respondents. As shown in Table 16, the most popular zip codes are located in Fulshear and nearby communities in Fort Bend County. Respondents also reside in Waller County, western Harris County, Colorado County, and Matagorda County.

Table 16: Question 9 What is your home zip code and street name?

Zip Code	Area	Percent of Responses
77441	Fulshear	77.3%
77406	Fulshear and Richmond	8.6%
77494	Katy	5.1%
77423	Brookshire	3.5%
77084	Addicks/Park Ten	0.8%
77471	Rosenberg	0.8%
77493	Katy	0.8%
77042	Westchase	0.4%
77077	Energy Corridor	0.4%
77407	Richmond	0.4%
77442	Garwood	0.4%
77449	Katy	0.4%
77450	Katy	0.4%
77458	Matagorda County	0.4%
77476	Simonton	0.4%

As shown in Figure 43, 4% of survey respondents are 18 to 29 years old, approximately half (51%) are 30 to 49, and 45% are 50 or older. No responses were received from those under 18 years of age.

Figure 43: Question 10 Which of the following best describes your age group?

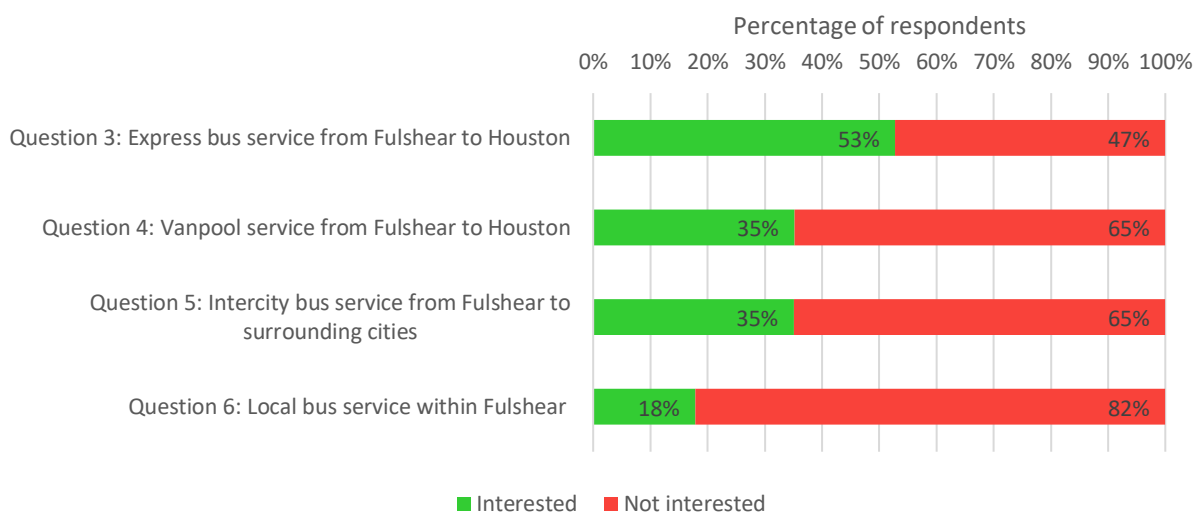


Conclusion

The online survey results indicate the majority of respondents were interested in at least one form of transit in Fulshear. In particular, the farther the suggested transit service destination is from Fulshear, the more interested respondents were. 53% were interested in express bus service from Fulshear to Houston, 35% were interested in intercity bus service from Fulshear to surrounding Fort Bend County areas, and 18% were interested in local bus service within Fulshear (Figure 44).

The preference for longer-distance transit service also corresponds with the results that indicate more interest in higher occupancy transit modes such as trains and commuter buses than for lower occupancy transit modes such as local buses and vans. Whereas just over half (53%) of respondents were interested in express bus service to Houston employment centers, about one-third (35%) were interested in vanpool service to and from the same destinations.

Figure 44: Online Survey Results for Questions 3, 4, 5, and 6



For transit service within and near Fulshear, respondents were mainly interested in service between neighborhoods, restaurants, shopping, and public spaces on weekends and during the afternoon and evening on weekdays. Respondents that were interested in service to Houston largely preferred service to major activity centers for employment and recreational purposes. A few were also interested in services that provided connections to the METRORail system and Houston airports.

6.5 Additional Public Input

Community members and stakeholders also had the option to email and mail their comments to FBT. Comments were accepted from January 30, 2020 to March 1, 2020. The study team received a total of 12 comments by email and zero comments by mail. The comments were classified into the following three groups.

- **Support for transit:** Five individuals expressed support for a park-and-ride near Fulshear. Those specifying locations were interested in a park-and-ride located along FM 1093, FM 1463, or Westpark Tollway with service to the Galleria, Uptown, and Texas Medical Center.
- **Opposed to transit:** One individual was opposed to transit for the foreseeable future and requested that consideration for transit be postponed until after the current local tax rates are addressed.
- **Other:** The remaining six comments pertained to bicycle lanes and bicyclist signage.

7 TRANSIT PLAN

7.1 Transit Needs Assessment

This chapter presents the transit plan designed to address short-range and long-range transit opportunities for the Fulshear study area. The transit needs assessment shaped the development of the plan and is based on the study review, peer review, existing and projected conditions analysis, and public input. The assessment identified the following improvements to meet Fulshear's transit needs and preferences:

- **Direct commuter service between Fulshear and Houston:** This service is needed to add capacity and improve mobility on Westpark Tollway and I-10. Constructing a park-and-ride in Fulshear would serve the growing population that frequently travels to Houston for work, recreation, healthcare, and other purposes. Reverse commute opportunities can also be explored to accommodate round trips that originate in Houston, arrive in Fulshear, and then end in Houston.
- **New and expanded local service within Fulshear and Fort Bend County:** Fixed route or point deviation service is needed to meet service gaps that cannot be fulfilled by the existing FBT demand response. Within and near Fulshear, the existing demand response service primarily travels between residences and community centers. At times, the service is over capacity and must decline reservations. FBT can improve local mobility and connectivity by consolidating trips to and from major destinations with high ridership and by expanding local bus service options. There is also no designated service connecting Fulshear to surrounding communities. A large proportion of workers in the Fulshear study area reside outside the study area limits in Katy, Richmond, Rosenberg, Simonton, and Weston Lakes. As the number of jobs and businesses in Fulshear increases, new local bus service connecting nearby communities to Fulshear can bring workers to Fulshear employers as well as visitors to Fulshear commercial areas. In addition, demand response is currently only offered on weekdays from 8:00 a.m. to 5:00 p.m. Expanding service hours can address the demand for local service during weekday evenings and on weekends to restaurants, commercial areas, and public events, as indicated by the online survey responses.
- **Services to benefit the transit-dependent population:** A number of Fulshear area residents are unable to drive, bike, or walk and would greatly benefit from new and expanded local and regional transit services. Fulshear's elderly adult population is projected to increase, and elderly adults generally exhibit greater demand for transit than other population groups as their ability to drive, bike, and walk can become limited with age. There are also low-income members of the community, youth, people with disabilities, and those without access to a vehicle that will need to rely on transit to travel between residential, educational, commercial, public, and medical destinations. Although just one survey respondent specifically expressed support for services that benefit the transit-dependent population, this may be reflective of additional support or need within the community.
- **Vanpool and carpool program.** More than one-third (35%) of survey respondents were interested in vanpool service from Fulshear to Houston activity centers. METRO STAR is a vanpool and carpool program that matches interested individuals into groups and facilitates ridesharing while reducing congestion. Residents in the Fulshear study area are eligible to participate in this program, and it is recommended that FBT increase awareness of this program through marketing efforts. FBT could also consider providing its own vanpool and carpool program using FBT branding. This program can provide

a ridesharing opportunity for those interested in traveling during hours and to locations outside of existing and recommended FBT services and that may not be practical for FBT, such as a late-night trip to one of Houston's airports.

7.2 Proposed Plan Overview

The recommended transit modes, routes, and stops in the proposed plan were developed based on the following:

- Existing and projected population, employment, socioeconomic, and land use characteristics
- Existing and planned development including housing, transportation infrastructure, and transit facilities and services
- Local and regional travel patterns
- Comments provided by survey respondents, public meetings, and emailers

The transit plan is based on data and public input gathered before the COVID-19 pandemic. Since the onset of the pandemic, the study team has been monitoring traffic conditions, travel patterns, and the transit market and will update the transit plan and report, as applicable, based on changing conditions.

The short-range and long-range recommendations in the plan were designed to address a range of community preferences and needs. The proposed route network consists of one park-and-ride facility, two regional express routes, and two local routes with intercity connections. Suggestions were also developed regarding vanpool and carpool initiatives and complementary paratransit service. Collectively, the recommendations improve local and regional mobility and connectivity; enhance multimodal transportation options for Fulshear residents, workers, and visitors; and position Fulshear for continued growth while supporting a high quality of life.

7.5.1 Proposed Regional Express Network

The 2017 Fort Bend Transit Long-Range Plan recommends using the Westpark Tollway as an east-west artery for expanded transit services and as the location for a future Fulshear Park & Ride. The existing and projected conditions assessment and public engagement also identified the need for direct commuter bus service between Fulshear and Houston activity centers such as the Energy Corridor, Westchase, Downtown Houston, and TMC. To meet current and future demand, a new Fulshear Park & Ride and two commuter bus services are proposed.

Fulshear Park & Ride

The proposed Fulshear Park & Ride is recommended at the intersection of FM 1093 and the under-construction Texas Heritage Parkway near Cross Creek Ranch (Figure 45 and Figure 46). Although the 2017 plan recommends a permanent site to be constructed in the long-range, the short-range map uses the proposed permanent site as a placeholder until FBT proceeds with selecting and approving a temporary site. The proposed permanent facility location presents convenient access to freeways, high visibility, and is located near but not immediately adjacent to residential areas. The proposed location is also in the eastern portion of the study area which reduces the need for commuters to travel in the opposite direction of their commute to reach the facility.

In the short-range, the recommended temporary facility is proposed to be served by one commuter route, the Westpark Express. In the long-range, the recommended permanent facility is proposed to be served by two commuter routes, the Westpark Express and Texas Heritage Express, and can also serve as a transit center with connections to the local routes proposed in this plan.

As identified in the 2017 Fort Bend Transit Long Range Plan, land acquisition for the recommended permanent Fulshear Park & Ride is proposed to occur in the short-range between 2018 to 2022 with construction occurring in the long-range between 2023 to 2029. An ideal location for the recommended temporary facility could be the Parkway Fellowship Church at the intersection of FM 1093 and FM 359 through a shared parking arrangement. The existing Fulshear Park & Ride lot on FM 1093 adjacent to Fulshear City Office is also a potential temporary location. At present, this lot has approximately 40 parking spaces and is not served by transit but rather functions as a ridesharing lot. To prevent confusion between the existing Fulshear Park & Ride and the proposed Fulshear Park & Ride, it is recommended that the existing parking lot be renamed.

A site selection analysis for temporary and permanent facilities is recommended in the short-range to prepare for land acquisition and construction in the long-range. Sites should be evaluated based on a set of criteria including but not limited to capacity for existing and projected ridership, land use compatibility, visibility, patron and commuter bus access to the site, site location relative to a congestion point, and access to HOV lanes.

The recommended permanent Fulshear Park & Ride location also provides for transit-oriented development (TOD), joint development, and public-private partnership (P3) opportunities that allow for improved integration into the surrounding community. These forms of development and partnerships and their benefits, policies, and other factors for consideration are further detailed in Chapter 8: Implementation.

Westpark Express Route

To meet short-range (0-5 years) transit demand, direct express service during weekday peak hours is recommended from the proposed temporary Fulshear Park & Ride to the METRO Addicks Park & Ride in the Energy Corridor (Figure 45). The Westpark Express would travel on Westpark Tollway, exit at FM 1093, and continue on SH 6 north to the termini at the METRO Addicks Park & Ride. From the termini, riders would have the opportunity to use FBT's planned Energy Corridor commuter service to offices throughout the business district. Riders also have the opportunity to transfer to the METRO 298 bus route with stops at the METRO Rapid Silver Line BRT station at Northwest Transit Center, Museum District, and the TMC. In the long-range, the Westpark Express route would be extended to provide direct service to TMC by traveling on Westpark Tollway and then continuing on I-69 south to TMC.

Sharing the Addicks Park & Ride bus stop with METRO will leverage existing customer amenities, support transfers to other FBT and METRO routes, and reduce capital costs associated with developing and maintaining a separate facility. FBT's use of the Addicks Park & Ride and potential timed connections between FBT and METRO routes would require coordination with METRO.

Texas Heritage Express

The Texas Heritage Express will provide direct express service during weekday peak hours in the long-range (Figure 46). The service will travel along the Texas Heritage Parkway, which is currently under construction in the short-range, and continue on I-10 east to METRO's Addicks Park & Ride in the Energy Corridor and to Downtown Houston. At the Addicks Park & Ride, riders would have the opportunity to use FBT's planned

Energy Corridor Circulator service to job destinations in the business district and be able to transfer to the METRO 298 bus route.

Similar to the Westpark Express, the Texas Heritage Express’s use of the Addicks Park & Ride and potential timed connections between FBT and METRO routes would require coordination with METRO. Sharing the bus stop will also leverage existing investments in the facility.

Figure 45: Proposed Short-Range Regional Express Network

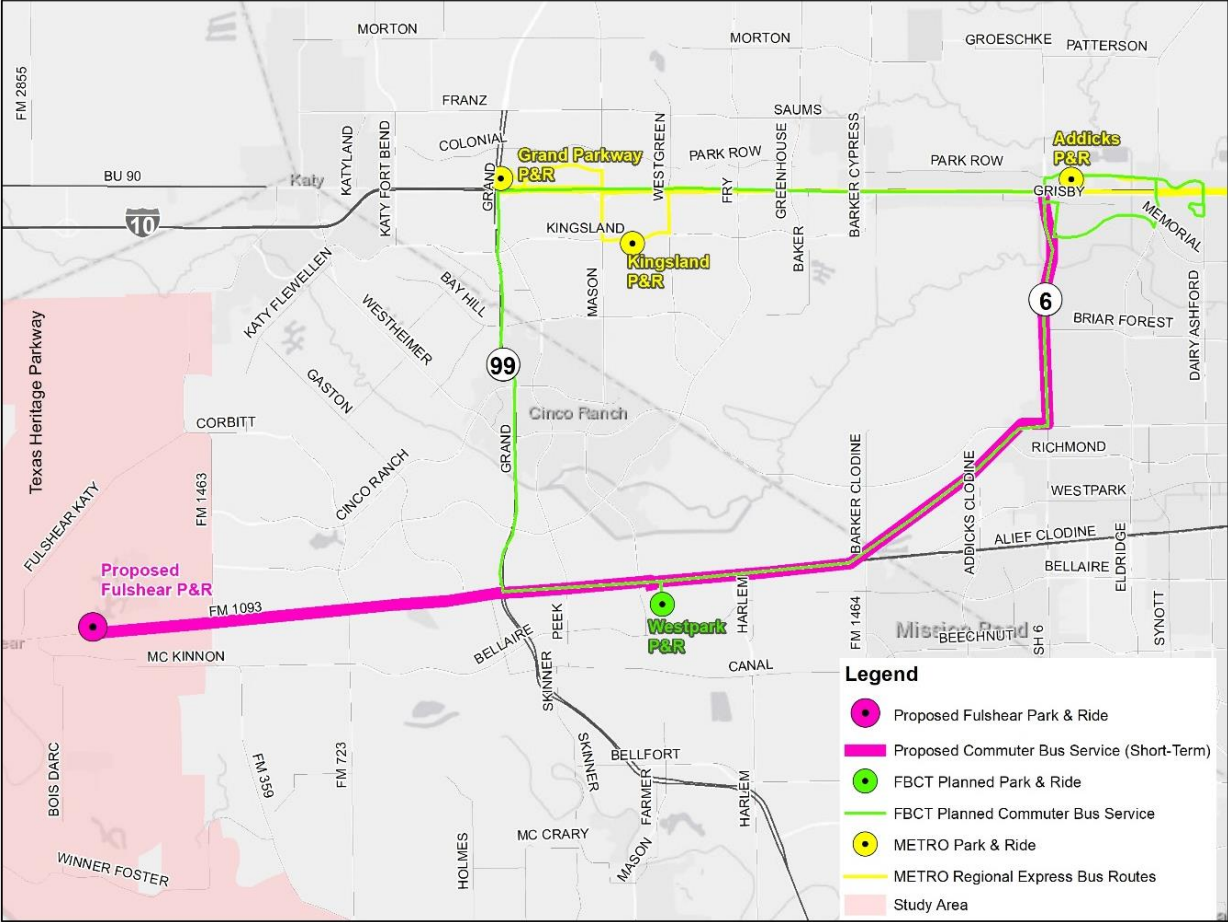
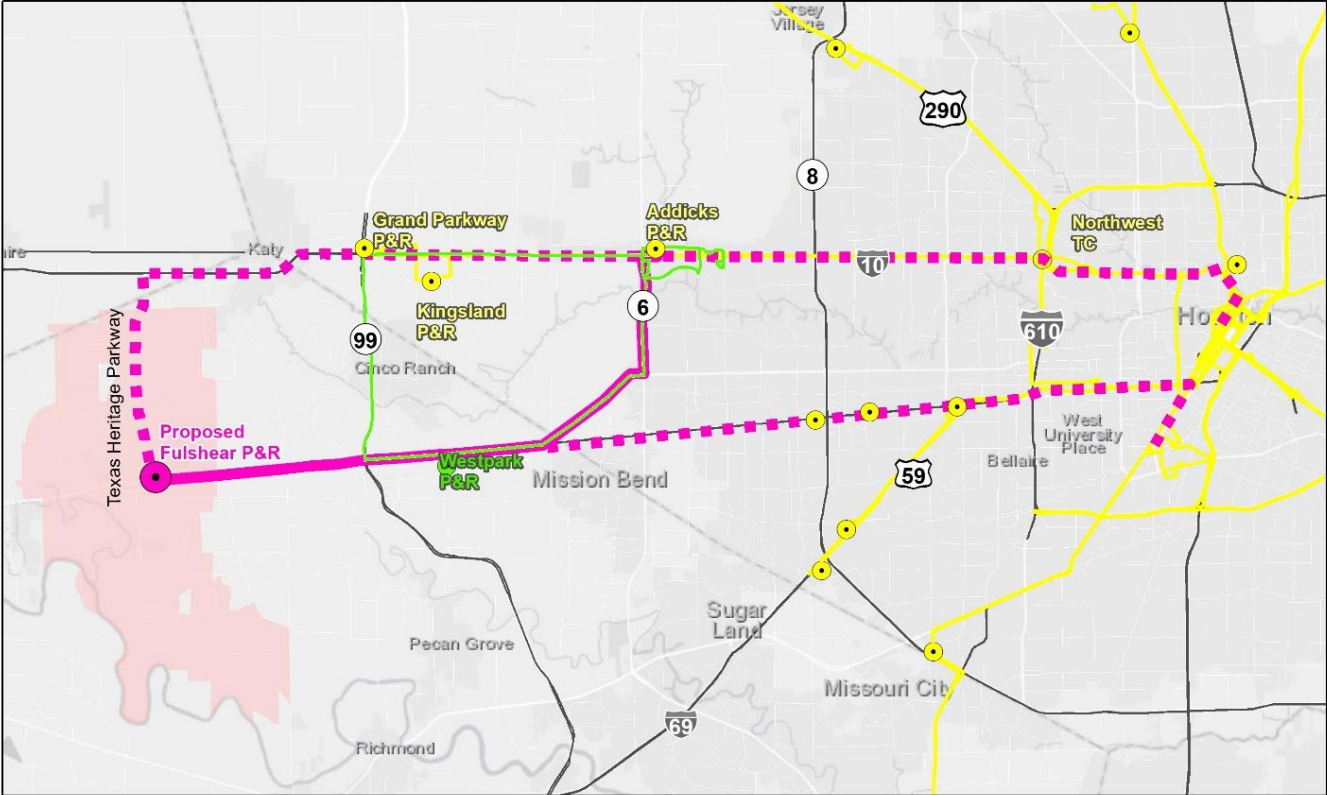


Figure 46: Proposed Long-Range Regional Express Network



- | | | | |
|--|---|--|--|
| Proposed Commuter Bus Service | | ● FBCT Planned Park & Ride | Study Area |
| Short-Term | Long-Term | FBCT Planned Commuter Bus Service | ● METRO Park & Ride |
| Proposed Fulshear Park & Ride | | METRO Regional Express Bus Routes | |

Table 17 summarizes the short-range and long-range features of the recommended regional express facility and routes. The benefits of implementing these recommendations are also summarized.

Table 17: Summary of Proposed Regional Express Network

Proposed Service	Short-Range	Long-Range
Fulshear Park & Ride	<ul style="list-style-type: none"> • Temporary site with surface parking for commuter bus service • Transit center with connections to proposed local bus services depending on the temporary location 	<ul style="list-style-type: none"> • Permanent site with a surface parking lot for commuter bus service • Transit center with connections to proposed local bus services • TOD or joint development such as retail and restaurants • Shared parking
Westpark Express Route	<ul style="list-style-type: none"> • One-seat ride to Energy Corridor • Connect to FBT’s planned Energy Corridor Circulator • Connect to METRO bus route at Addicks Park & Ride with service to Memorial City, Uptown/Galleria, and Downtown Houston 	<ul style="list-style-type: none"> • One-seat ride to Energy Corridor and TMC • Connect to FBT’s planned Energy Corridor Circulator • Connect to METRO local bus route at Addicks Park & Ride with service to Memorial City, Uptown/Galleria, and Downtown Houston • Reverse commute
Texas Heritage Express Route	<ul style="list-style-type: none"> • None, the Texas Heritage Parkway is under construction in the short-range. 	<ul style="list-style-type: none"> • One-seat ride to Energy Corridor and Downtown Houston • Connect to FBT’s planned Energy Corridor Circulator • Connect to METRO bus route at Addicks Park & Ride with service to Memorial City, Uptown/Galleria, and Downtown Houston • Reverse commute
Benefits	<ul style="list-style-type: none"> • Connects Fulshear to key destinations in Houston such as employment, educational, and recreational areas. This is particularly beneficial to the transit-dependent population. • Reduces traffic and air pollution at heavily traveled major east-west corridors • Improves travel times and schedule reliability • Reduces negative health impacts of long commutes at the individual and community levels 	

7.5.2 Downtown Circulator

Downtown Fulshear is a mostly mixed-use environment that serves as the commercial and cultural heart of the City of Fulshear. Downtown is known for its small-town character and is home to a variety of established residential neighborhoods, government and private-sector offices, retail and restaurant uses, and arts and cultural resources. Many jobs in the study area are concentrated Downtown, and public input from the online survey identified interest in transit service to this area. The Fulshear Livable Center Study also encouraged the continued development of the Downtown core center and implementation of multimodal transportation options to this destination.

The Downtown Circulator route is recommended to accommodate existing and future demands and address opportunities for strategic development. The route will enhance access to existing and future commercial and public areas, reduce parking demand, and promote economic development. In the long-range, the route extension will bring in workers and visitors to Fulshear.

Downtown Circulator

The Downtown Circulator would operate during the daytime and evening on weekdays and weekends primarily along collector streets. The short-range concept features 23 stops along a 7.4-mile route and serves commercial, medical, and educational destinations within and east of Downtown Fulshear. The route also provides direct connections to the proposed regional express services at the proposed Fulshear Park & Ride. The route could use a trolley, which several online survey respondents were supportive of, to align with Downtown Fulshear's small-town charm and character. Respondents also indicated demand for service to destinations in and near Downtown, especially to retail, restaurants, and bars during weekday evenings and weekends. The recommended service hours would help address this demand while promoting the livelihood of Downtown. Figure 47 shows the short-range Downtown Circulator Route.

Downtown Circulator Extension

A significant proportion and number of individuals employed in Downtown Fulshear currently reside in neighboring communities outside the ETJ such as Simonton, Weston Lakes, and Cinco Ranch (LEHD, 2017). As the number of Downtown businesses and jobs continues to grow, additional travel between nearby communities and Downtown is expected.

In the long-range, the Downtown Circulator Extension will extend both ends of the proposed Downtown Circulator route. The western termini at Fulshear City Office will extend westwards towards Simonton and Weston Lakes, and the eastern termini at the proposed Fulshear Park & Ride will extend south to Rosenberg. The extension will provide Downtown workers and visitors with a reliable alternative transportation option and reduce parking demand in Downtown. Figure 48 shows the proposed Downtown Circulator Extension route and major destinations served.

Figure 47: Proposed Short-Range Downtown Circulator Route

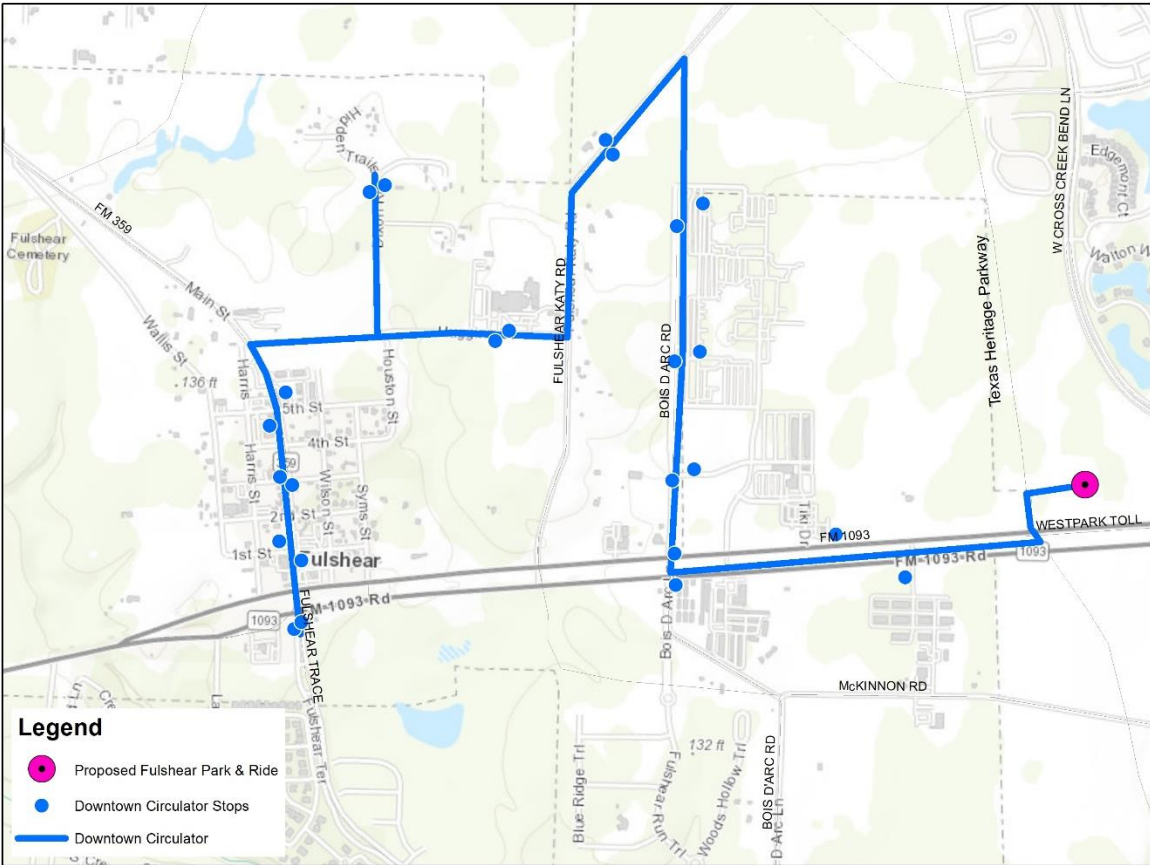


Figure 48: Proposed Long-Range Downtown Circulator Route

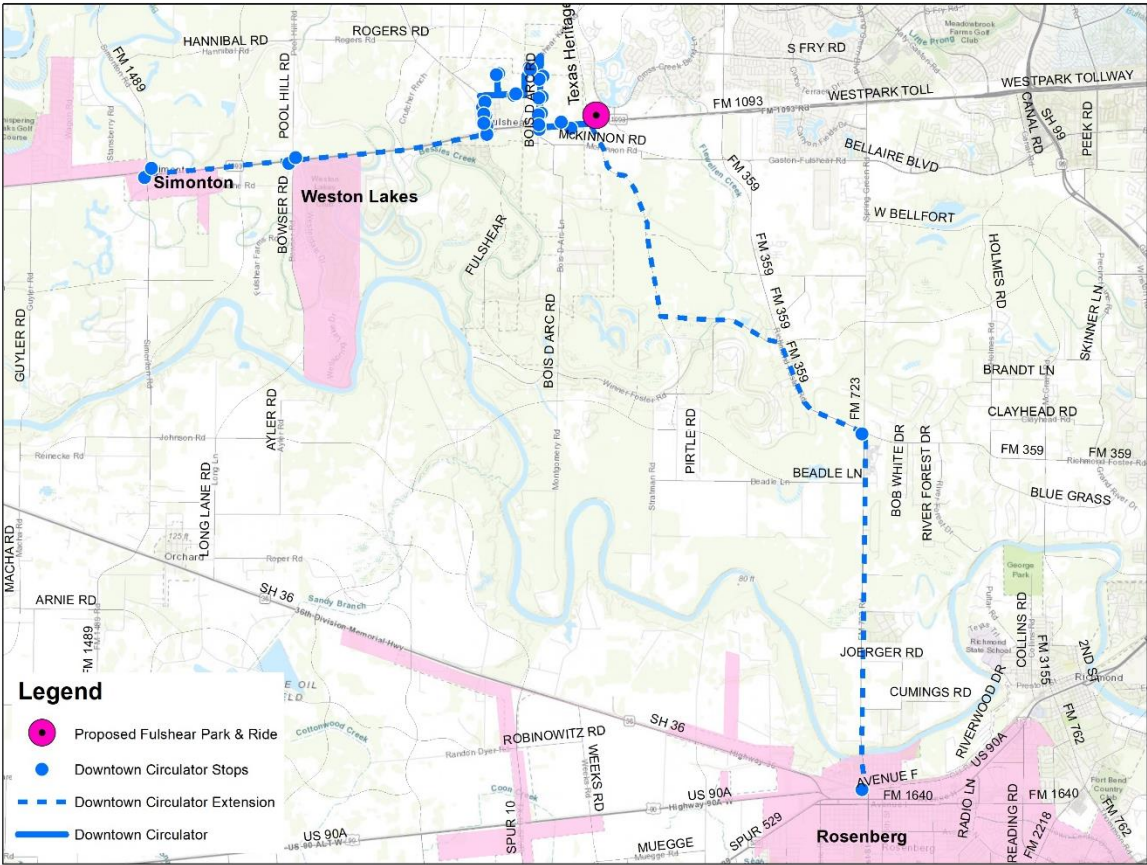


Table 18 summarizes the short-range and long-range features of the recommended Downtown Circulator routes. The benefits of implementing these recommendations are also summarized.

Table 18: Summary of Downtown Circulator Route

Feature	Short-Range	Long-Range
Round-Trip Route Length	8.6 miles	29.0 miles
Number of Stops	25	31
Areas Served	<ul style="list-style-type: none"> • Downtown Fulshear 	<ul style="list-style-type: none"> • Downtown Fulshear • Southern and eastern Fulshear ETJ • Simonton • Weston Lakes • Rosenberg
Destinations Within ¼ Mile of Proposed Stops	<ul style="list-style-type: none"> • Government and public institutions: U.S. Postal Office, Fulshear-Simonton Fire Department, Bob Lutts Fulshear/Simonton Branch Library, Fulshear City Office, Fulshear Police Department, Irene Stern Community Center, Primrose Park • Groceries, pharmacies, and supermarkets: Fulshear Farmers Market, Dollar General • Education: Huggins Elementary School, Dean Leaman Junior High School, Fulshear High School • Medical: Fulshear Animal Hospital • Financial: First Financial Bank 	<ul style="list-style-type: none"> • Short-range destinations • Cities and neighborhoods: Simonton, Weston Lakes, Rosenberg, Cross Creek Ranch, Belle Vista, Foster Island Estates
Benefits	<ul style="list-style-type: none"> • Brings workers and visitors to Fulshear • Reduces demand for parking and vehicle-oriented development in Downtown Fulshear, thereby allowing for more visitor capacity, pedestrian mobility, and livability opportunities. • Benefits the Fulshear community, especially the transit-dependent population, by providing service to key Fulshear destinations such as educational, employment, financial, and governmental institutions 	

7.5.3 Katy-Fulshear Route

The Katy-Fulshear route functions as a local arterial and feeder route (Figure 49). The route enhances connectivity and mobility by connecting Fulshear residents to major businesses along FM 1463 and in the Cinco Ranch area. This route also improves regional mobility by reducing traffic and connecting to METRO's existing Grand Parkway Park & Ride with service Downtown Houston and the proposed new Park & Ride at Katy Mills Mall. As FM 1463, Grand Parkway/SH 99, and FM 1093 are all Texas Department of Transportation (TxDOT) facilities, adding stops along these corridors would require approval from TxDOT.

According to LEHD 2017 data and existing conditions, many Fulshear workers live in the Cinco Ranch area but have limited transportation options for commuting. This proposed route will help bring workers residing in the Cinco Ranch area to Fulshear job destinations along FM 1463. Fulshear workers can also transfer to the existing METRO Grand Parkway P&R or proposed Fulshear Park & Ride in the long-range to access job destinations in the Energy Corridor, TMC, and Downtown Houston.

The route serves a highly developed residential and commercial area with little space for infill development. Due to these conditions, the route length and number of stops will remain unchanged in the short- and long-range. If future ridership growth occurs and warrants additional service, a combination of frequency, vehicle capacity, and service hour increases may be implemented. Figure 49 depicts the Katy-Fulshear route map of the proposed alignment, stops, and existing transit facilities. Table 19 summarizes the main features of the route and major destinations served.

Figure 49: Katy-Fulshear Route

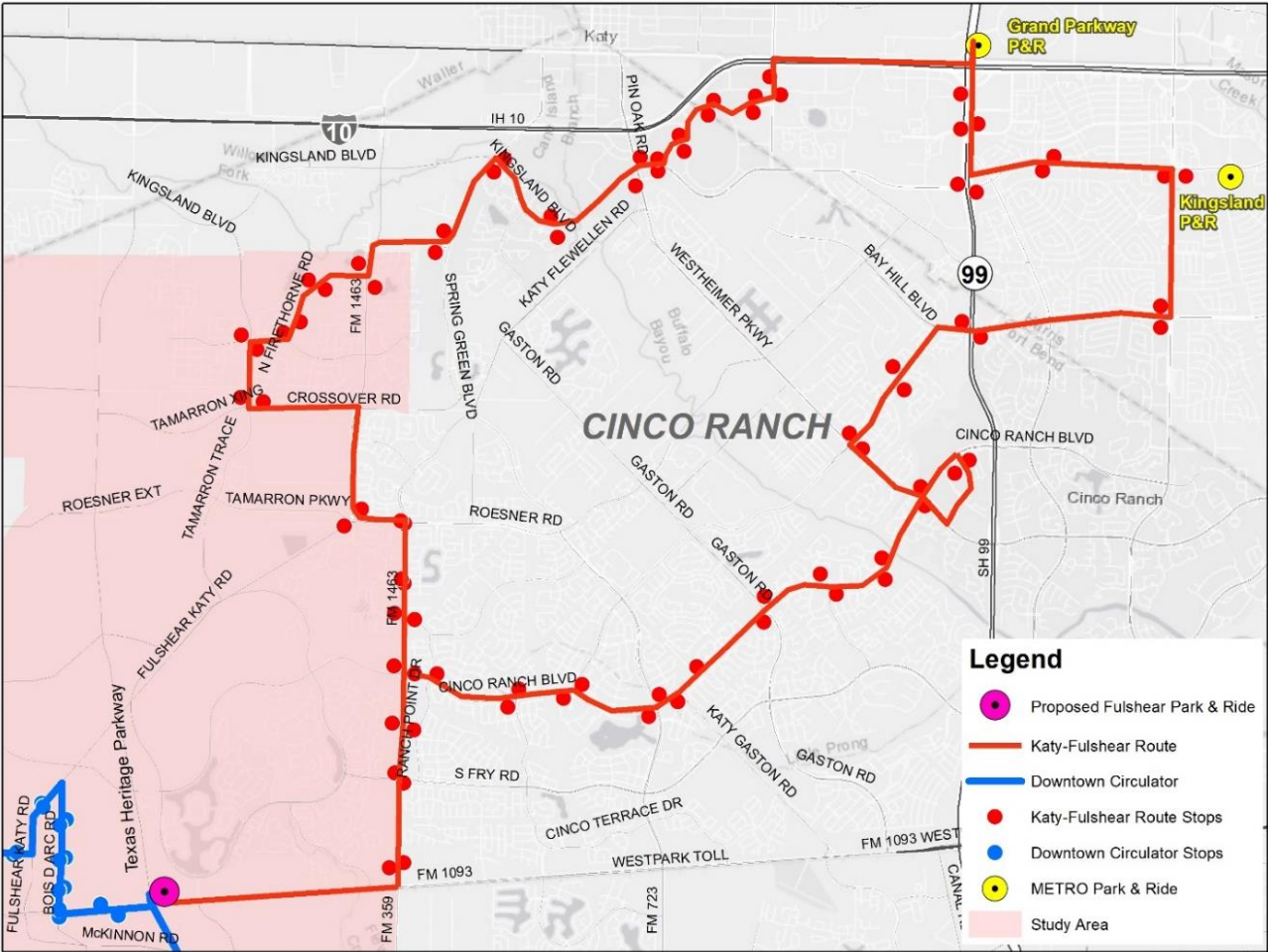


Table 19: Summary of Katy-Fulshear Route

Route Feature	Description
Round-Trip Route Length	55.1 miles
Number of Stops	80
Destinations Within ¼ Mile of Proposed Stops	<ul style="list-style-type: none"> • Neighborhoods: Cross Creek Ranch, Tamarron, Firethorne, Rose Dale, Cinco Ranch • Groceries, pharmacies, and supermarkets: HEB, Aldi Market, Walmart, Target, Kroger, Costco, CVS, Walgreens • Education: Fred and Patti Shafer Elementary School, James Randolph Elementary School, Fulshear High School • Retail: Katy Mills Mall, Ross, TJ Maxx, Lowe’s, The Home Depot, and others • Recreation: Typhoon Texas Waterpark • Mixed-use development: LaCenterra at Cinco Ranch • Hotels: Residence Inn by Marriott Houston Katy Mills, Homewood Suites by Hilton Houston/Katy Mills Mall, Courtyard by Marriott Houston Katy Mills • Transit: METRO Grand Parkway Park & Ride, proposed Fulshear Park & Ride
Benefits	<ul style="list-style-type: none"> • Brings Cinco Ranch area workers and visitors to Fulshear • Reduces traffic and travel times • Connects the Fulshear and Katy Cinco Ranch community to key educational, employment, and retail destinations • Serves the transit-dependent population by providing a reliable transportation option along corridors with limited pedestrian and bike amenities

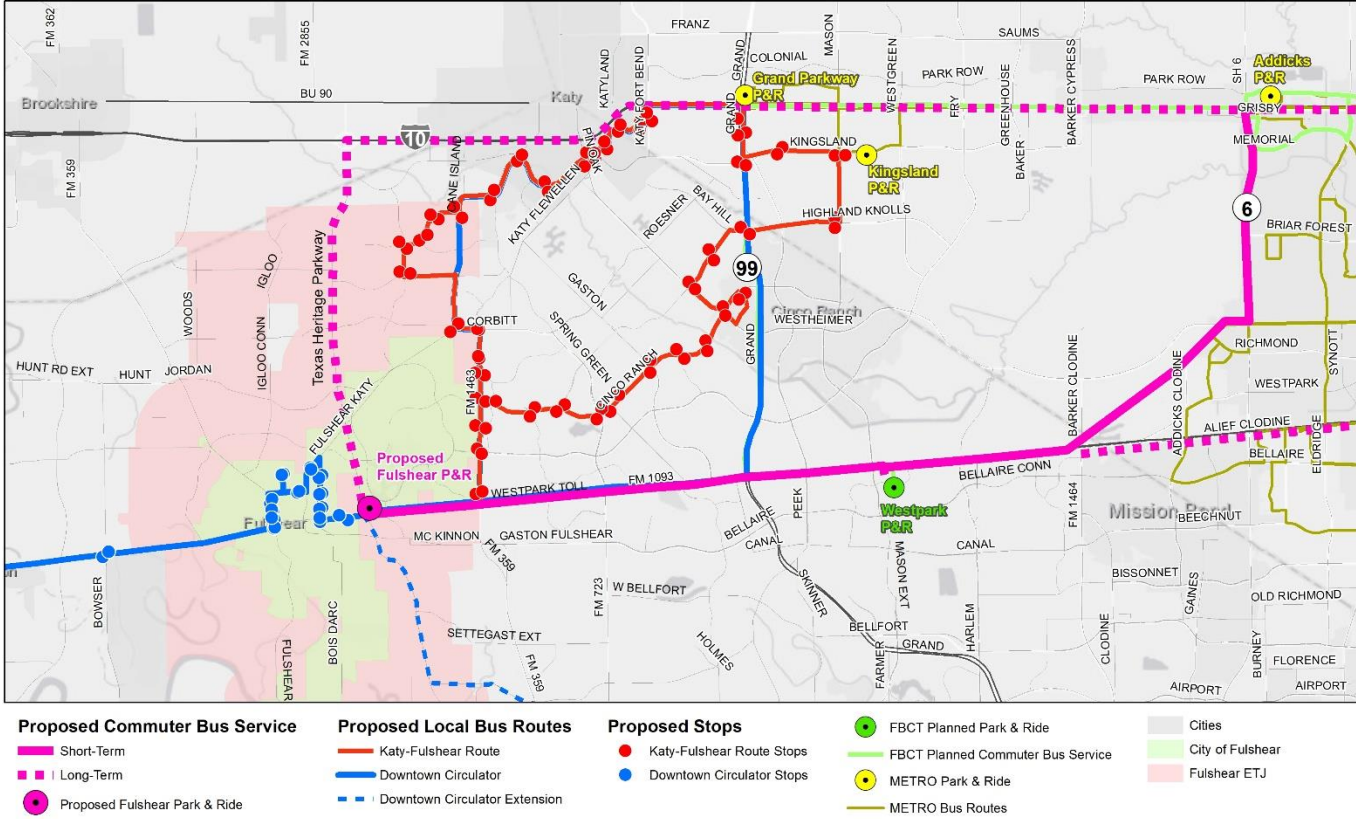
7.3 Future Transit Network

Table 20 summarizes the four proposed local, intercity, and regional transit routes. Collectively, the implementation of these services will increase transit coverage in an area with limited multimodal transportation options. The services will also enhance connectivity and mobility to key destinations in the study area and Houston. Figure 50 shows the proposed future transit network in the study area.

Table 20: Summary of All Proposed Transit Routes

Route	Route Type	Long-Range Key Areas and Destinations Served
Westpark Express	<ul style="list-style-type: none"> Regional express 	<ul style="list-style-type: none"> Proposed Fulshear Park & Ride, Energy Corridor, and Texas Medical Center
Texas Heritage Express	<ul style="list-style-type: none"> Regional express 	<ul style="list-style-type: none"> Proposed Fulshear Park & Ride, Energy Corridor, Uptown/Galleria, and Downtown Houston
Downtown Circulator	<ul style="list-style-type: none"> Local and intercity 	<ul style="list-style-type: none"> Downtown Fulshear, Simonton, Weston Lakes, Rosenberg
Katy-Fulshear	<ul style="list-style-type: none"> Local arterial/feeder 	<ul style="list-style-type: none"> Downtown Fulshear, Katy Mills Mall, HEB, Cross Creek Ranch, METRO Grand Parkway Park & Ride

Figure 50: Future Transit Network



7.4 Vanpool and Carpool Program

Nearly half of the survey respondents indicated an interest in vanpool service from Fulshear to Houston job centers. Vanpools, along with other forms of ridesharing such as carpools, are well-suited for residents in areas such as Fulshear with long commutes and limited high-capacity transit service. Areas with HOV and managed lanes are also well suited for vanpools and carpools as they provide the opportunity for reduced travel times, costs, and stress compared to driving alone.

Fulshear area residents are eligible to use the existing METRO STAR vanpool and carpool program. The METRO STAR program serves eight counties in the region – Brazoria, Chambers, Fort Bend, Galveston, Harris, Liberty, Montgomery, and Walker – including county areas outside the METRO service area. Residents in the eight counties can use METRO’s free online ride-matching website to join carpools using their personal vehicles or vanpools using a METRO van. Participation in a carpool is free, while the use of a METRO van, which ranges in size from a 5-passenger minivan to a 15-passenger van, includes a monthly fee to METRO that is calculated based on the number of miles traveled, the number of vanpool members, and the size of the van. Most vanpool drivers ride for free, and many employers offer benefits that further lower the cost of participation.

In the short-range, increasing awareness of and participation in the METRO STAR program among Fulshear study area residents is recommended to improve connectivity, mobility, and the ease of commuting. The vanpool program is ideal for residents seeking to regularly travel on similar schedules. Interested residents can also utilize the carpool program for one-time trips, such as to the airport, and periodic trips when an insufficient number of individuals are available nearby to form a vanpool.

In the long-range, FBT could seek to provide joint METRO- and FBT- branded vans to Fort Bend County participants to increase awareness and recognition of the program within the county. Currently, the METRO STAR vans only feature branding specific to the program. County residents in the vanpool and carpool program could also be eligible in the long-range to use the permanent Fulshear Park & Ride as a meeting location.

Compared to regional express service, the vanpool and carpool program provides more flexibility for riders, as they can choose to share the ride from home or one or more predetermined meeting locations. Vanpool and carpool drivers are also not constrained to a specific route or schedule as transit routes often are. Other benefits of participation include reductions in single-occupancy vehicles on the road, traffic congestion, air pollution, parking demand, and commuting expenses and stress. The Fulshear study area includes a significant number of residents with long-distance commutes to Houston job centers such as Downtown Houston, TMC, Westchase, Energy Corridor, and Uptown/Galleria. Sharing the ride and expenses in a vanpool or carpool could be a convenient, reliable, and economical way to travel.

7.5 Complementary Paratransit Service

Americans with Disabilities Act (ADA)

The Americans with Disabilities Act (ADA) requires that complementary paratransit service be operated in conjunction with fixed-route transit service. These requirements do not apply to fixed route commuter bus services. For applicable bus and train services, “origin-to-destination” demand response service must be available within 0.75 miles of any fixed route and must operate during the same days and hours as each fixed route service.

The transit agency determines if the complementary paratransit service is provided as door-to-door or curb-to-curb. If curb-to-curb service is chosen, the transit agency is required to provide service beyond this base level when required by a passenger’s disability. Under the ADA, a transit agency must provide the capacity and level of service to ensure that the paratransit service is sufficiently available to ADA paratransit eligible individuals. This means that a transit agency cannot limit the number of trips, have excessive trip waiting lists, deny a significant number of trips, or have an excessive number of long telephone holds, overly long trips, or untimely pickups.

FBT Demand Response Service Compliance and Recommendations

Although the ADA complementary paratransit requirements do not apply to FBT’s existing fixed route services which are all commuter bus service, FBT will have to comply with the requirements if applicable non-commuter fixed route services are implemented.

FBT currently operates a non-fixed route service through its demand response service. This service provides shared ride, curb-to-curb bus transportation from 8:00 a.m. to 5:00 p.m., Monday through Friday, within county limits and is available to any county resident. Should FBT be required to comply with ADA paratransit requirements, the existing demand response service will more than satisfy the ADA geographic requirements because the service is offered within and beyond the 0.75-mile requirement. However, based on pre-COVID-19 estimates, the service may not adequately adhere to ADA capacity and service level requirements due to high levels of demand. As of 2016 data, the service was over capacity with up to 160 trip requests denied each day. In addition, FBT has not expanded the service since 2013 due to vehicle storage limitations, but with the new FBT Facility in Rosenberg completed in 2019, FBT has additional space for vehicle storage.

The COVID-19 pandemic has contributed to reduced ridership and demand on the FBT system. These impacts may temporarily assist FBT in complying with ADA capacity and service level requirements if the agency were required to comply. Pre-COVID-19, most FBT demand response riders used the service to travel between residential areas, community centers, senior living centers, and medical facilities. Now, with the closure of many community areas and increased health precautions among residents, the demand for FBT demand response service has decreased. Service levels have resultantly improved, and trips requested can now be provided on time without the need for a longer wait time. The study team will continue monitoring the demand for demand response service and provide recommendations on potential ADA compliance based on changing conditions.

To position FBT for potential mandatory compliance with ADA policies and to advance FBT's mission, it is recommended FBT develop county-level guidance on the following considerations:

- **Eligible populations:** Some transit agencies only provide demand response service to individuals with disabilities covered by ADA. This service model can help transit agencies more easily comply with ADA geographic, capacity, and service level requirements while reducing operational costs spent on demand response. Other transit agencies only provide service to individuals with ADA disabilities and seniors, while a smaller number of agencies provide demand response to the general public.
- **Eligibility screening:** A process for identifying riders who qualify for the ADA-mandated reduced fare should be developed. A similar process must be developed in accordance with ADA policies to determine eligibility for ADA trips. Adhering to the ADA eligibility determination process is a legal requirement and can be an effective way of managing demand for the FBT's demand response service.
- **Rider priority:** If FBT decides to serve ADA and general public populations with demand response service, FBT must develop a policy that provides priority to ADA passengers when reserving trips.
- **Fares:** Regulations allow the one-way fare for ADA-compliant trips to be no more than twice the fixed route fare. However, the fare for demand response trips made by members of the general public may be set at a higher price.
- **Service hours:** ADA requires transit agencies to provide complementary paratransit during the same days and hours as applicable fixed routes. If FBT implements applicable fixed routes, such as the Downtown Circulator and Fulshear-Katy routes recommended in this study, with service times outside the current demand response service schedule of 8:00 a.m. to 5:00 p.m, Monday through Friday, FBT should either extend the demand response schedule or convert the proposed fixed routes to point deviation during the times not covered by demand response.

8 IMPLEMENTATION

8.1 Overview of Current Transit System Operations

FBT receives significant operating and capital assistance through grant programs from the Federal Transit Administration (FTA), the Federal Highway Administration (FHWA), TxDOT, and H-GAC. In general, federal grants may be used to fund up to 80% of capital expenses and 50% of operating expenses. The remainder, termed *matching funds*, comes from either the state or the local entity.

FBT is currently a direct recipient of a portion of FTA Section 5307 funds for the Houston Urbanized Area (UZA) and contracts with First Transit to operate its demand response and commuter services. Within the Houston UZA, METRO is the only designated recipient of various FTA’s formula funding including:

- Section 5307 Urbanized Area Formula Grants;
- Section 5310 Enhanced Mobility of Seniors & Individuals with Disabilities Formula Grants; and
- Section 5339 Buses and Bus Facilities Program Grants

Currently, FBT receives these funds through METRO. In addition to the urban funds, FBT currently receives rural funds through TxDOT from FTA’s 5311 and 5339 grant programs. Table 21 summarizes FBT’s current federal funding sources.

Table 21: Federal Funding Sources

Program	Urban/Rural	Operating/ Capital	Risk as Funding Source
Section 5307	Urban	Both	Limitation on use for operating; competition for funds with other area providers
Section 5311	Rural	Both	Declining applicability as rural parts of the County urbanize
Section 5309/5339	Both	Both	Requires eligible, nationally competitive projects
Section 5310	Urban	Both	Competition for funds with other area providers
CMAQ	Both (in non-attainment area)	Both	Need eligible, regionally competitive projects; operating assistance capped at three years per project

8.2 Service Delivery Options

Transit service delivery is not a one-size-fits-all approach. For some municipalities, contracting may be the most cost-effective way to provide service, because they can benefit from access to certain technologies or reduced labor, fuel, and insurance costs. For other municipalities, contracting may be impractical because of additional costs incurred from the bidding process and contractor oversight so in-house service delivery may be more cost-effective. It may also be feasible to only contract certain elements of transit service (such as operations and maintenance or paratransit) and retain other functions in the municipality (such as asset ownership and management).

Contracted operation of transit service is very common in smaller municipalities and for smaller agencies. FBT currently uses the services of First Transit, a turnkey provider, for the daily operations and maintenance of its transit fleet for the delivery of commuter and demand response services. Until recently, First Transit leased a maintenance facility from which to run this service. Now, as of December 2019, transit operations have moved from the leased facility to a new Fort Bend County-owned and federally funded building. This new facility brings all FBT administrative and operations programs under one roof.

Review of Rules for Using Federal Funds Toward Operating Expenses

Transit agencies in large UZAs (those with populations greater than one million) may not use Section 5307 Urbanized Area Formula Grants program for operating expenses. But under the Section 5307 Operating Assistance Special Rule, smaller agencies in large UZAs may use a portion of their 5307 funds to cover operating expenses if they meet certain criteria. Agencies operating 75 or fewer buses in maximum service may use up to 75% of their apportionment for operating costs. Agencies operating 76 to 100 buses in maximum service may use up to 50% of their apportionment for operating costs. FTA counts both commuter and local bus service, but not complementary ADA paratransit service when determining eligibility for the Special Rule. FTA does not currently count demand response service toward the vehicle cap.

Capital Cost of Contracting

Recognizing that contractors incur capital and maintenance expenses that in other cases are borne by agencies, FTA allows some contract expenses to be counted as capital expenses. This concept is called "capital cost of contracting". Under Section 5307 rules, FTA allows recipients to count a certain percentage of contract costs as capital costs, depending on the type of contract. In a case such as FBT's in which the contractor provides maintenance and transit service and FBCPT provides vehicles, 40% of the contract cost may be counted as capital cost. FTA will then provide assistance for 80% of the resultant amount. The capital cost of contracting means that FBT and other agencies that contract for service are able, in effect, to cover some operating expenses with federal grants without counting toward their caps under the 5307 Operating Assistance Special Rule.

FBT currently operates less than 75 vehicles and can therefore use up to 75% of their 5307 apportionments for operating costs. Within the proposed new transit service for Fulshear and the new or expanded service to the Energy Corridor and Downtown Houston, FBT will cross the 75-vehicle threshold, resulting in a 5307-

operating cap of 50% rather than 75%. If the number of vehicles continues to increase, FBT will cross the 100-vehicle threshold, eliminating the ability to utilize Section 5307 funds for operations.

Contracted Delivery Option

The contracted service delivery option is recommended for the proposed transit service in the Fulshear area. This delivery option will allow FBT to use more Section 5307 federal funding for operating expenses. The potential financial and operational benefits of contracting transit service include the following:

- Benefits of market competition – best price and quality.
- Savings in operating costs – competitive wages and benefits, more efficient use of labor and assets (integration with other company operations).
- Shift appropriate risks to the private sector.

8.3 Funding Programs

FTA may fund up to 80% of the qualifying costs for the development of the proposed regional express service. Qualifying costs include site preparation, construction of the facility, transit components, and parking spaces. Conversely, the local commitment for qualifying costs is 20%. The following sections outline the funding sources and present a strategy to pursue and secure a combination of the federal, state, and local resources to implement the proposed project.

8.5.1 Federal Funding Sources

FTA grants can represent a significant source of support for the recommended transit services. These grants include the following:

Apportionment by formula to planning regions (e.g., Section 5307: Urbanized Area Formula Grants or Section 5311: Formula Grants for other than Urbanized Areas/Intercity Bus Fund); or

- Allocation during congressional appropriations and re-authorization process (e.g., Section 5309: Capital Investment Grants and Loans and Surface Transportation Program).

Federal - Section 5307 Formula Funding

Section 5307 is FTA's largest funding program for urban transit agencies and is FBT's largest source of federal dollars. As explained in Section 8.1, 5307 funds are apportioned by UZA, not by agency, based on factors including population, population density, and the amount of transit service provided. Every UZA has a primary transit agency or MPO that is responsible for allocating funds among transit providers within the UZA. In the Houston UZA, METRO plays this role. FBT negotiates with METRO for Section 5307 funds each year based on the County's operating needs and capital projects.

While there is no guarantee that any federal funding for public transit will continue, Section 5307 is the backbone of FTA's support of local transit and will likely exist in some form into the foreseeable future. Risks to FBT come instead in two areas. First, the agency must compete every year for Section 5307 funds with

the area's two other direct recipients – METRO and Harris County Transit. Second, FTA rules limit the amount of 5307 funds FBT can use for operating expenses, and that amount will decrease further if FBT exceeds 75 peak buses.

Federal - Section 5311 Formula Funding

Section 5311 is the rural complement to Section 5307. Section 5311 grants offer capital and operating assistance to support public transportation in rural areas and cities with populations less than 50,000. Unlike Section 5307 funds which are apportioned by UZA and distributed by designated recipients, Section 5311 funds are apportioned to and distributed by the states. TxDOT distributes Section 5311 funds in Texas. Because the majority of the study area lies outside the Houston UZA, FBT is eligible for Section 5311 funds from the State. Currently, the Section 5311 formula funding is a major source of funding used to cover some demand response operating expenses.

As with Section 5307, Section 5311 is likely to continue in the future. However, FBT faces several challenges in its continued award of funds through the program. First, the proportion of rural to urban service is small because the rural population is small, and the amount of Section 5311 funds that FBT can receive from the State is a function of the amount of rural service. Following the 2020 census when new UZAs are defined, additional parts of Fort Bend County will likely fall into the Houston UZA, further reducing the amount of service that can be counted as rural and correspondingly, the amount of rural funds available.

Federal - Section 5309 Capital Investments Grants and Loans Program

The FTA Section 5309 Capital Program is discretionary grant program, which provides funding for transit-related capital improvements including multimodal transit terminals and any associated pedestrian improvements. Federal transit law requires transit agencies seeking Capital Investment Grant (CIG) funding to complete a series of steps over several years. For New Starts and Core Capacity projects, agencies are required to complete two phases in advance of receipt of a construction grant agreement – Project Development and Engineering. For Small Starts projects, agencies must complete one phase in advance of receipt of a construction grant agreement – Project Development. The law also requires projects to be rated by FTA at various points in the process according to statutory criteria evaluating project justification and local financial commitment.

Section 5340 Growing States and High-Density States Formula Program

The funds allocated to UZAs under Section 5307 and states under Section 5311 include additional amounts from Section 5340, which are apportioned based on forecast population growth and current population density. These funds are essentially the same as 5307 funds – they are simply apportioned by FTA according to a different formula. Section 5340 funds go into the same regional pot that METRO allocates among providers. In this forecast, Section 5340 funds are not separated from Section 5307 funds.

Section 5310 Enhanced Mobility of Seniors and Individuals with Disabilities Program

Section 5310 funds provide capital and operating assistance for both urban and rural services that benefit the program's target groups. Funding levels are based on the population of elderly and disabled individuals in a UZA or state. Analogous to Sections 5307 and 5311, Section 5310 urban funds are apportioned by UZA and allocated by the regional designated recipient (in this case, METRO), and Section 5310 rural funds are apportioned and allocated by state (in this case, TxDOT).

In FY 2020, FBT is budgeted to receive approximately \$147,000 in operating funds and \$921,000 in capital funds from the Section 5310 urban program. Note that for the Section 5310 program, purchase of service is considered a capital expense. Historically, METRO has allocated the same amount of 5310 funds to FBT every year. Anything more would be for specific capital projects deemed eligible and competitive.

FBT is not currently applying for or using any Section 5310 rural funds. Given that FBT cannot even use its entire Section 5311 apportionment, it would gain little from applying for Section 5310 rural funds from TxDOT. Section 5310 funds are forecast to increase with inflation for FY 2021–FY 2035.

The risks to 5310 funding are the same as those to 5307 funding: the degree to which the FTA continues to fund the program and how METRO allocates the grant funds across the region's transit providers.

Congestion Mitigation and Air Quality (CMAQ) Improvement Program

The purpose of CMAQ is to fund transportation projects or programs that contribute to the attainment or maintenance of the National Ambient Air Quality Standards (NAAQS) for ozone and carbon monoxide (CO). The construction of transit facilities, such as park-and-rides and terminals, is eligible for up to three years of federal assistance under CMAQ. In addition, the construction of bicycle and pedestrian facilities is eligible under CMAQ. CMAQ-funded projects are selected on a competitive basis by the area MPO, in this case, H-GAC, on a semi-annual basis, in conjunction with the development of the three-year TIP. The MPO reviews and ranks CMAQ project requests and recommends selections based on a variety of factors, including air quality benefits (cost per pound of pollutants reduced), system connectivity, environmental justice, and regional significance). Project readiness, which includes prior inclusion in the Regional Transportation Plan (RTP), local share commitment, completion of preliminary engineering, environmental analysis, and right-of-way acquisition also are prerequisites for full consideration. The CMAQ improvement program traditionally is funded on an 80% federal/20% local basis. However, sponsors can improve project scores by increasing the percentage of local share participation.

The CMAQ program is active. Whether FBT gets additional CMAQ funds is a function of it identifying projects that have demonstrable air quality benefits that compete well against other projects in the Houston region. In general, CMAQ funds can be used for a given project for only up to three years, so the program cannot be a source of long-range funding for established services. CMAQ funding can be extended if a new service is added, including new stops or route extensions.

Federal - Surface Transportation Program (STP)

STP provides flexible funding that can be used by states and localities for projects on any federal-aid highway, including the National Highway System (NHS), bridge projects on any public road, transit capital projects, and intracity and intercity bus terminals and facilities. A portion of funds reserved for rural areas

can be spent on rural minor collectors. STP is the largest Federal Highway Administration (FHWA) flexible funds program. Funding is at 80% federal and may be used for all projects eligible for funds under current FHWA and FTA programs.

A state may obligate funds apportioned to it for STP only for the following eligible activities:

- Construction, reconstruction, rehabilitation, resurfacing, restoration, and operational improvements for highways (including interstate highways) and bridges (including bridges on public roads of all functional classifications), including construction or reconstruction necessary to accommodate other transportation modes, and including the seismic retrofit and painting of and application of calcium magnesium acetate, sodium acetate/formate, or other environmentally acceptable, minimally corrosive anti-icing and de-icing compositions on bridges and approaches thereto and other elevated structures, mitigation of damage to wildlife, habitat, and ecosystems caused by a transportation project funded under this program.
- Capital costs for transit projects eligible for assistance, including vehicles and facilities, whether publicly or privately owned, that are used to provide intercity passenger service by bus.
- Carpool projects, fringe and corridor parking facilities and programs, bicycle transportation and pedestrian walkways, and modification of public sidewalks to comply with the Americans with Disabilities Act of 1990.
- Highway and transit safety infrastructure improvements and programs, hazard eliminations, projects to mitigate hazards caused by wildlife, and railway-highway grade crossings.
- Highway and transit research and development and technology transfer programs.
- Capital and operating costs for traffic monitoring, management, and control facilities and programs.
- Surface transportation planning programs.
- Transportation enhancement activities.
- Transportation control measures listed under the Clean Air Act.
- Development and establishment of management systems.
- Participation in natural habitat and wetlands mitigation efforts related to projects funded by this program, which may include participation in natural habitat and wetlands mitigation banks; contributions to statewide and regional efforts to conserve, restore, enhance, and create natural habitats and wetlands; and development of statewide and regional natural habitat and wetlands conservation and mitigation plans, including any banks, efforts, and plans authorized pursuant to the Water Resources Development Act of 1990.
- Infrastructure-based intelligent transportation systems capital improvements.
- Environmental restoration and pollution abatement projects (including the retrofit or construction of stormwater treatment systems) to address water pollution or environmental degradation caused or

contributed to by transportation facilities, which projects shall be carried out when the transportation facilities are undergoing reconstruction, rehabilitation, resurfacing, or restoration.

Federal - Intercity Bus (ICB) Funding

The ICB program is designed to strengthen the connection between non-urbanized areas and the larger regional or national system of intercity bus service; to support services to meet the intercity travel needs of residents in non-urbanized areas; and to support the infrastructure of the intercity bus network through planning and marketing assistance, and capital investment in facilities and vehicles.

Capital facilities must have at least a non-urbanized area public transit provider, urbanized area public transit provider, social service transportation provider, or passenger rail, or common carrier air passenger service. Projects that facilitate intercity travel have the option to pursue these funds through TxDOT. Funding is at 80% federal and 20% local. Calls for projects are typically in the fall, with grants awarded in late summer or early fall of the following year.

8.5.2 State Revenue Sources

TCEQ Grants

TxDOT transfers approximately \$150 million annually from Fund 6 to the Texas Emissions Reduction Program (TERP), a set of grants administered by the Texas Commission on Environmental Quality (TCEQ). TCEQ grants are awarded on a competitive basis by H-GAC, which manages the program for the Houston nonattainment area. TERP grants vary year-to-year, but current programs include the Texas Clean Fleet Program, which funds replacement of diesel vehicles with alternatively fueled vehicles.

FBT has received TCEQ grants in the past for operating expenses for commuter service and can continue to stay apprised of current offerings for the proposed commuter bus service in the Fulshear area.

Transportation Development Credits (TDC)

A state may use toll revenues that are generated and used by public, quasi-public, and private agencies to build, improve, or maintain highways, bridges, or tunnels that serve the public purpose of interstate commerce, as credit toward the non-federal share requirement for any funds made available to perform eligible Department of Transportation-related capital projects. A transit authority or municipality may apply to TxDOT's Public Transportation Division for TDCs in lieu of local share cash for eligible transit capital facilities projects. The Texas Transportation Commission is responsible for awarding State TDCs.

Fulshear is within Fort Bend County, which is part of the 13-county H-GAC MPO area. Within the MPO area, H-GAC is the responsible entity which awards TDCs. FBT has received TDCs to match some of its federal transit capital funding.

8.5.3 Local Share Match Funding Alternatives

Federal Non-Transportation Related Sources: Community Development Block Grant (CDBG) Program

The CDBG program was developed to promote viable urban communities by providing decent housing and a suitable living environment and by expanding economic opportunities, principally for persons of low and moderate income. One of the advantages of CDGB is the ruling that allows these funds to be used as the local match for other federal grant programs referenced in this chapter. The Section 108 Loan Guarantee Program and Brownfield Economic Development Initiative (BEDI) are programs of CDBG.

Section 108 Loan Guarantee Program

Section 108 is the loan guarantee provision of the CDBG program. Eligible activities for Section 108 financing include the acquisition of real property and construction of public facilities (including street, sidewalk, and other site improvements).

The Section 108 Loan program allows communities to transform a small portion of its CDBG funds into federally guaranteed loans large enough to pursue physical and economic revitalization projects that can renew entire neighborhoods. However, Section 108 loans are not risk free; local governments borrowing funds guaranteed by Section 108 must pledge their current and future CDBG allocations to cover the loan amount as security for the loan.

Brownfield Economic Development Initiative

BEDI is designed to assist cities with the redevelopment of abandoned, idled, and underused industrial and commercial facilities where expansion and redevelopment are burdened by real or potential environmental contamination. BEDI grant funds are primarily targeted for use with a particular emphasis upon the redevelopment of brownfield sites in economic development projects and the increase of economic opportunities for low- and moderate-income persons as part of the creation or retention of businesses, jobs, and increases in the local tax base. BEDI funds are used to enhance the security or to improve the viability of a project financed with a new Section 108 guaranteed loan commitment.

Land Value

For capital projects such as the proposed Fulshear Park & Ride, the value of land (after purchase) can be used to satisfy local share requirements.

City of Fulshear General Funds

The City of Fulshear may choose to fund a portion of the required local share match for the proposed Fulshear Park & Ride through its own General Fund budget.

Direct System Revenues

Direct system revenues are those that come from the day-to-day operations of the transit system itself. The most obvious source of revenues for a transit system comes from farebox revenues - the fares its passengers

pay. FBT charges fares to the public for the use of its services. Its demand response fares cost \$1.00 per one-way trip. Commuter fares vary based on destination and range from \$1.00 per trip to the nearby METRO Park & Ride lot, to \$2.25 per trip to Greenway Plaza and the Galleria, and \$3.50 per trip to the TMC.

According to the 2017 National Transit Database, FBT’s farebox recovery rate for all of its bus operations is 9.3%, meaning that fares cover 9.3% of its operating expenses (compared to a nationwide average of 27.9%).

8.4 Implementation Strategy

Overview of Implementation Activities

This section summarizes the critical activities needed and recommended to implement the transit plan for each responsible party. The critical activities are organized by the following categories: governance, finance, service implementation, marketing, procurement, and regulatory and compliance. Several of these activities can and should occur concurrently.

Table 22 below identifies governance activities.

Table 22: Governance Activities

Activity	Responsible Party
Determine process for decision making	FBT, City of Fulshear
Appoint City of Fulshear staff person to lead transit efforts	City of Fulshear

Table 23 provides an overview of finance activities needed to implement new or expanded transit services. Depending on the types of funding that FBT or the City of Fulshear decide to pursue, other entities (e.g. the public, state government, or federal government) may be responsible for approving these funds.

Table 23: Finance Activities

Activity	Responsible Party
Establish initial budget	FBT
Carry out activities needed to obtain initial funding	FBT
Establish procurement procedures	FBT
Conduct annual financial activities related to budget, grants, reporting, and audits	FBT
Identify and pursue funding sources	FBT

Service implementation activities are summarized in Table 24.

Table 24: Service Implementation Activities

Activity	Responsible Party
Evaluate call center capacity and determine if additional staff and equipment are needed	FBT
If new transit services need to comply with ADA complementary paratransit services: <ul style="list-style-type: none"> • Establish paratransit eligibility criteria • Service policies • Certification process • Dispute resolution • Include service and training requirements in service contracts 	FBT
Identify transit stops and conduct a site selection analysis to identify the location for a park-and-ride facility	FBT, City of Fulshear
Gain necessary approvals, negotiate license agreements for stops and facilities on private property, and install or transit signs, stops and facilities	FBT
Identify and implement first-last mile improvements within 0.25 miles of transit stops and facilities	FBT, City of Fulshear
Coordinate with other regional transit providers about transit schedules, fares, and sharing facilities (recommended)	FBT
Prepare schedules and maps	FBT
Procure services	FBT
Monitor service performance	FBT, City of Fulshear

Table 25 shows the recommended and necessary marketing activities. Brochures, maps, and websites will need to be updated each time new services are added or when service levels change.

Table 25: Marketing Activities

Activity	Responsible Party
Develop FBT mobile app or partner with an existing transit app (recommended)	FBT
Update brochures and system map	FBT
Update websites	FBT, City of Fulshear
Conduct social media campaigns (recommended)	FBT, City of Fulshear

Several procurement activities were previously mentioned in Table 23: Finance Activities and Table 24: Service Implementation Activities. Table 26 below identifies these activities and other major procurement activities.

Table 26: Procurement Activities

Activity	Responsible Party
Buses <ul style="list-style-type: none"> • Develop specifications and bid package • Solicit bids, evaluate, and award • Order, receive, inspect , and accept 	FBT
Trip Scheduling and Call Center <ul style="list-style-type: none"> • Evaluate whether additional staff capacity is needed. 	FBT
Transit Operations <ul style="list-style-type: none"> • Develop scope of work and RFP • Solicit bids, evaluate, and award • Implement 	FBT

Transit agencies are subject to regulations throughout the process of implementing and maintaining transit services. One such regulation, ADA complementary paratransit service, was previously mentioned in Table 24: Service Implementation Activities. Additional primary regulatory and compliance activities are shown in Table 27.

Table 27: Regulatory and Compliance Activities

Activity	Responsible Party
Grant management activities <ul style="list-style-type: none"> • Annual applications • Quarterly reports • Draw down funds and reconcile accounts • Training and reviews 	FBT
Disadvantaged Business Enterprise (DBE) Program <ul style="list-style-type: none"> • Set annual goals • Prepare reports 	FBT
National Transit Database (NTD) <ul style="list-style-type: none"> • Incorporate new services and funding data into NTD reporting • Include operator requirements in service contracts 	FBT

Transit-Oriented Development (TOD) and Joint Development

Transit stops and park-and-ride facilities can create opportunities for transit-oriented development (TOD) and joint development. TOD is a popular urban development concept that focuses on compact, high-density development near transit stations and the zoning, tax, and development regulations needed to stimulate investment in those developments.

TODs typically consist of a mix of uses including residential, commercial, and retail, are pedestrian- and cycle-friendly, and help in the creation of attractive and useful public and civic spaces near transit facilities and stations. Transit operators could potentially benefit from value capture or additional property values on land owned by the transit agency and sold to developers.

Joint development occurs when public or private entities are allowed to develop publicly owned land in conjunction with the transit facility or station. For example, a common joint development strategy is for a transit operator to sell or lease a park and ride lot to a developer, allowing the developer to create a new development on the property while typically providing structured parking to replace the surface parking previously in place.

Though related in purpose, TOD and joint development differ in several key aspects. In TOD, the transit provider should indirectly benefit from nearby development but is not necessarily a partner that financially

contributes to or shares in the direct proceeds from the development. In joint development, the transit provider is an active project partner contributing to and benefiting from development near its transit facilities. Joint development typically has a smaller scope than TOD. The third difference relates to FTA funding opportunities and restrictions for TOD and joint development. FTA funds may be used for TOD planning but not for TOD construction. For joint development, FTA funds may be used towards acquiring property and construction.

Infrastructure Improvements

Investing in pedestrian and bicycling infrastructure near transit routes and facilities is essential to the accessibility, safety, and success of transit service. Existing infrastructure conditions along the recommended services for Fulshear are in generally better condition in the northeastern portion of the ETJ than in the downtown, western, and southern portions. Priority locations for new and improved bicycle, pedestrian, and transit amenities include Main Street, FM 1093, and streets feeding into these corridors. Installing amenities such as benches, curb ramps, shelters, and landscaping near the proposed Fulshear Park & Ride facility would create a more user-friendly transit environment and promote the use of transit. Improvements leading to the proposed facility and routes such as sidewalks, crosswalks, bicycle lanes, and traffic signal adjustments will enhance transit accessibility, safety, and integrate active transportation into the transit system.

Public-Private Partnerships

Public-private partnerships (P3s) provide an alternative means to build and, in some cases, operate a transit investment. A public-private partnership arrangement has a private sector partner injecting capital to undertake construction and in certain instances, operations of a project in return for a stream of future payments from the project sponsor. The US Department of Transportation defines a public-private partnership as “a contractual agreement between a public agency and a private partner that allows the partner to participate in project implementation beyond traditional procurement practices.” This means the private partner assumes responsibility for many functions and activities that are traditionally implemented by the public agency. Under a traditional procurement process known as design-bid-build, the public sponsoring agency is responsible for providing all funds or issuing bonds, hiring a design firm, and hiring a contractor. The public entity then carries out all operations and maintenance. A public-private partnership differs from the traditional approach by transferring responsibility for one or more of these core functions to the private sector.

Under a design-build approach, the project sponsor hires a contractor for both engineering and construction. The recipient of the design-build contract can be a single entity, a consortium, or other joint venture. The design-build approach is at the low end of the P3 continuum. A design-build contract is different from traditional procurement in two significant ways: construction on the project can start before all the design work is completed, and the private sector takes on the risk for designing and delivering the project on time and on budget, reaping financial benefits for finishing faster and accepting penalties or other costs for delays. Benefits of P3s include risk transfer from the public to the private entity; public agency access to private capital that might not otherwise be available; higher assurance of on-time completion for complex, multiyear projects; and the additional of expertise and technical capacity to the public agency.

Fare Coordination Policy

The proposed commuter bus routes and Katy-Fulshear route will connect with METRO services at the Addicks Park & Ride and other METRO bus stops and transit centers. To provide a seamless trip for customers, FBT could develop a revenue-sharing agreement with METRO that allows each transit provider to honor equivalent pass products between the two transit systems. Under this agreement, a customer from Fulshear could purchase an express service pass from FBT and then transfer to METRO's fixed route bus and light rail service at no additional cost.

Partnerships with Major Employers

A significant amount of Fulshear residents are employed in the Energy Corridor and Westchase. A partnership in which employers purchase a specific number of passes for its employees at a discounted rate would provide a stable source of revenue for FBT and generate benefits for commuters. Employer-sponsored vanpools in either in coordination with the METRO STAR program or through FBT's own program could be another option for improving job access while reducing employee expense on commuting. Employers can help subsidize an employee-driven van which is leased by the employee to commute with 6 to 14 other passengers per trip. In addition to the subsidy by the employer, the vanpool can qualify for subsidies provided by FBT. The FBT will assist in developing the program as well as determining the costs and the percentage of sponsorship that is right for the employer.

Coordinating Agency Partner Roles and Responsibilities

The reality of FBT and metropolitan areas throughout the country is that jurisdictional boundaries and institutional requirements exist and that issues, priorities, capabilities, and responses vary by agency and area. In terms of regional connectivity, the result of this reality is often inconvenience at best, and barriers to implementation at worst. There are seven public transit providers in the Houston region. While each provider is responsible for services within its service area, overlap in services will become increasingly common as population and employment levels increase.

As regional transit demand among sectors of the population continues to grow, several recommendations are warranted to provide optimal transportation infrastructure and service across the Houston region. To move the recommendations and strategies forward, collaboration among agencies will be essential. Some key recommendations include:

- Establish a One Call/One Click system for regional transportation information, coordination, and reservations
- Develop a regional coordinated fare structure
- Utilize advances in technology to improve communication and access to information
- Set up transit information booths or kiosks for transit-related information in multiple languages
- Encourage regional partnerships and collaboration between public and private entities
- Replicate best practices by expanding local transit success stories
- Coordinate strategic transportation planning activities to include multiple disciplines
- Focus on strategies to improve access to and from higher capacity transit corridors

Marketing and Communication

Clear and effective marketing and communication are fundamental to the success of any transit system. The following are specific initiatives and strategies FBT could employ to increase community awareness of its services and understanding of how to use its services.

Branding

Effective branding will raise awareness and enhance a transit system's image. All fixed route transit systems have two basic marketing assets by design: buses and bus stops. For new transit services in a community, these serve as the primary method of informing residents and employees about the introduction of new stops, routes, and modes. These assets must be branded in a way that is easily recognizable, easy to understand, and attractive.

Currently, FBT buses use a unique yellow and green color scheme. For the recommended services in Fulshear, buses should follow the same branding as existing FBT buses. Pedestrian-oriented bus stop design and wayfinding can also significantly improve customers' perception of a transit system. In addition to informing passengers of bus stop locations, bus stop signage creates visibility throughout the community. New bus stops in the Fulshear area should follow uniform signage and resemble FBT's existing bus stops. For the proposed Fulshear Park & Ride, additional signage is recommended on the surrounding streets. Wayfinding signage that provides information on other connecting transit routes and directs passengers to nearby destinations is also recommended.

Websites, Apps, and Social Media

To raise awareness of the proposed new transit service in the Fulshear area, route schedules and maps can be provided on FBT's and the City of Fulshear's websites and social media pages. It is also recommended that FBT and the City of Fulshear consider implementing a mobile app to facilitate mobile access to transit information. Features of the mobile app may include trip planning, real-time arrival information, service alerts, mobile ticketing, interactive route maps and service schedules, the ability to report maintenance issues and emergencies, and access to Wi-Fi at transit stops and on transit vehicles. A mobile app also offers the ability to send push notifications to transit users based on their preferred notification settings. FBT could develop its own app or partner with an existing app – both arrangements are currently used by transit agencies. For example, the Capital Metropolitan Transportation Authority provides its own app with trip planning and ticketing features, while the Los Angeles County Metropolitan Transportation Authority decided to phase out its own app in 2020 and transition to partnering with Transit, an existing app that also serves as the mobile platform for several other transit agencies in the United States and Canada.

Real-time information, which is obtained from location-based systems such as GPS, is increasingly used by transit agencies and provided to transit passengers. Once real-time information systems are installed to track vehicles and deliver data, the information can be communicated through various platforms, including transit agency websites, Google Maps, mobile apps and push notifications, text message alerts, and information screens at transit stations and stops. Providing real-time information can enable passengers to plan and adjust their trips on the go as they receive updates about transit services. The provision of this data can also contribute towards more convenient trip planning and increases in ridership.

Another tool FBT should consider is participating in Google Transit. This service is free for transit agencies and allows agencies to submit fixed route information for integration into Google Maps. Agencies also have the capability to add live transit updates via Realtime Transit. Participating in Google Transit can reduce the challenges that many potential riders face in understanding transit schedules and can provide a seamless process for coordinating trips between the FBT system and other connecting systems such as METRO's. Community partners such as human service organizations, charities, and medical institutions may also find the tool useful for planning trips and printing trip information for their clients.

Targeted Outreach

Partner agencies can help support rider communication strategies. FBT has a strong relationship with many major employment centers in the region such as the TMC, Greenway Plaza, and the Energy Corridor. FBT should leverage the opportunities provided by these relationships and conduct targeted public outreach via social media, brochures, schedule postings, and word of mouth to raise awareness of FBT's existing and upcoming services.

How-to-ride/Trainings/Education Campaign

Travel training is one method that many transit agencies have used successfully to bridge the learning gap for new riders, especially seniors and persons with disabilities. Travel training can give new riders the skills to:

- Understand trip planning software
- Read route maps and schedules
- Locate bus stops
- Flag down buses
- Calculate and pay fares
- Obtain and use transit passes
- Recognize when the desired stop has been reached
- Indicate to the bus driver to stop
- Obtain service updates
- Use mobility devices safely on vehicles

FBT could conduct training sessions with the public and with the City of Fulshear staff to provide them with the information needed to assist their constituents in understanding and using the transit system. These trainings would include an overview of available services, procedures for scheduling a demand response trip, and guidance on reading service schedules and planning trips. FBT could also provide participants with a free ticket to encourage them to make their first solo trip. Travel training can also be led by volunteers.

9 COVID-19 IMPACTS, RESPONSE, AND RECOVERY

The COVID-19 pandemic has significantly impacted transit and the data and metrics used in transit planning. In turn, transit agencies have quickly responded by adjusting service to meet changing needs and taking measures to protect the health and safety of transit workers and riders. This section provides an overview of the impacts on transit, examples of how transit agencies have responded in the short-range, and tools and strategies to support sound decision-making for long-range transit planning.

9.1 Impacts and Short-Range Response

As the economy downturned and stay-at-home orders were imposed, transit agencies began facing immediate challenges including declines in ridership and revenue, changes in travel patterns, and the task of implementing new safety measures for transit operators and riders. Despite the decline in ridership, transit agencies demonstrated the critical role they serve in our communities by providing transportation services for essential workers and trips as well as by taking on new roles. In the early stages of the pandemic, rural and urban transit agencies alike were primarily focused on responding to the immediate conditions and impacts of COVID-19. The following section details these impacts on transit and how transit agencies responded.

Health and Safety

To accommodate social distancing between transit drivers and riders, agencies recalculated the maximum passenger capacity per vehicle and enforced new, lower capacities. Bus boarding and alighting was limited to the back door to prevent close contact between drivers and riders. Depending on ridership levels, these two measures can increase passenger boarding and alighting times and wait times at stops.

Some transit agencies also reduced service hours to allow for sufficient time each day to disinfect transit vehicles. In cases where social distancing and health measures affect service timing, transit agencies should and have modified service schedules to account for these measures. These new practices can also have financial impacts due to an increase in vehicle miles traveled, fuel expenses, and maintenance expenses. Transit agencies should account for these expenditures when reviewing and developing budgets.

In the absence of a national mask mandate on public transportation in the U.S., transit agencies were left to rely on city, county, and state mask mandates, if any, or develop and enforce their own mandates. Although mask mandates do not directly affect service levels, there is ongoing discussion and research on whether social distancing guidelines, which do affect service levels, can be relaxed if all passengers comply with mask mandates. Several transit systems in Asia and Europe resumed full-capacity service in mid-2020 after adding mask and temperature checkpoints for passengers or after observing high levels of compliance with mask mandates.

Ridership and Demand

Transit agencies had to quickly adjust to ridership declines across multiple modes of transit and changes in travel patterns. At the same time, many agencies were focused on anticipating and preparing for the longer-term transit modes, routes, and schedules that would be appropriate after the pandemic.

There was a particularly large drop in transit use to major activity centers after offices, colleges, shopping malls, and restaurants closed. Transportation-wise, the prevalence of telework, and increased unemployment levels have had the greatest impact on peak period transit demand, transit use towards major activity centers, and congestion. Commuter bus services resultantly tended to have the largest ridership declines out of all transit modes due to these two factors and the fact that commuter bus riders are often choice riders with access to a personal vehicle. COVID-19 has also accelerated the decline of foot traffic to shopping malls. The shift towards online shopping significantly decreased transit use to commercial and retail locations.

In the process of responding to overall ridership declines, transit providers were concurrently responding to transit demand from essential workers and for essential trips to employment, healthcare facilities, grocery stores, and residential areas. Transit providers notably responded to emerging community needs by shifting from being a people-mover to a people- and goods-mover. Stakeholder engagement and partnerships were central to successfully adapting to this shift. In April 2020, Houston METRO began partnering with the City of Houston, Houston Food Bank, Walmart, and Sam's Club to use its METROLift paratransit vehicles for grocery deliveries to the residences of people with disabilities. During the same time period, the Mass Transportation Authority in Flint, Michigan began providing transit and delivery services for food banks, The Salvation Army, Meals on Wheels, and school lunch programs.

As some offices, businesses, and schools gradually begin to reopen, many transit agencies have been implementing numerous, gradual service changes instead of a few major service changes. Agencies are also using this opportunity to implement changes that will improve their transit service and advance their mission. Houston METRO, which typically has two major service changes each year, has already implemented more than two service changes in 2020 in response to changes in travel demand and patterns. The Utah Transit Authority's (UTA) plans for restoring bus service involve gradual changes aimed at addressing operational issues, improving the customer experience, and advancing the UTA towards its long-term goals. As part of these service changes, UTA will increase service on some routes, decrease or eliminate service on other routes, and maintain existing service on the remaining routes.

Communication and Coordination

Transit agencies have scaled up communications and coordination with riders and stakeholders during the pandemic. These efforts were made to better understand the status of the pandemic, assess current and future travel patterns and transit demand, and plan for the longer-term restoration of transit service. For instance, in May 2020 the Santa Clara Valley Transportation Authority (VTA) shared their plan to contact all employers in Silicon Valley to understand the employers' decision-making and plans on telework. The Santa Clara VTA also joined the Silicon Valley Recovery Roundtable (SVRR), a group of more than 60 leaders in areas such as government, business, and healthcare, to plan for a better "normal" after the pandemic.

Agencies have relied extensively on electronic forms of communication including social media, websites, and apps to share service changes, explain guidelines for transit riders, and conduct other public and stakeholder engagements. Virtual meetings and online notifications have become more common and have generally been considered effective forms of communication. One disadvantage of the shift to electronic communications is the challenge of engaging with community members who lack internet access or lack electronic communication devices that support apps and meeting platforms. In an effort to reach these community members while adhering to social distancing guidelines, agencies have conducted meetings by telephone and by drive-in.

Another communications and marketing challenge for transit agencies is rebranding transit as safe from a public health perspective. Creating and communicating a sense of safety for transit users will be critical towards regaining ridership. To do so, transit agencies need to convince the public that riding transit is safe and that transit agencies have taken the necessary measures to prevent the spread of COVID-19 among drivers and riders. Visual and non-visual safety indicators such as hand sanitizer on vehicles, driver-passenger barriers, and communication pertaining to the vehicle disinfection process are recommended for this objective.

Traffic

Decreased traffic levels have decreased travel times for certain transit routes, and transit providers responded by adjusting timetables. Some transit construction projects were sped up because of the lack of congestion presented fewer obstacles to construction, although other projects were halted or postponed due to uncertainties regarding future ridership, travel patterns, and funding.

Service Changes

Several categories of service change triggers are summarized in Table 28. While these triggers are primarily related to near-term responses to conditions that can quickly change, transit agencies may benefit from considering how long-range plans and services can more easily accommodate rapidly changing conditions such as those experienced during the COVID-19 pandemic. Federal, state, and local regulations and guidelines on transit operations should also take precedence when determining service changes.

Table 28: Service Change Triggers

Category	Purpose	Triggers
Public Health and Safety	Determine when to begin fare collection, increase passenger capacity per vehicle, and allow front-door boarding.	<ul style="list-style-type: none"> • Personal protective equipment (PPE) for transit drivers, hand sanitizer for riders, and disinfectant for vehicles are available. • Fort Bend County’s Stay Home to Save Lives Order is lifted. • Local, state, and national guidelines for public spaces and transit.
Ridership	Determine when to change service levels and routes.	<ul style="list-style-type: none"> • Schools, workplaces, and other major destinations reopen or increase the maximum number of in-person attendance levels. • Routes routinely exceed a predetermined number of passengers on board.
Finance	Determine which services and staffing levels can be financially supported.	<ul style="list-style-type: none"> • Revised budget is adopted. • Funding flow of economic stimulus bills • Monthly reports to Board and Board Committees
Employee Recall	Determine when to recall the transit agency’s employees.	<ul style="list-style-type: none"> • Revenue hours, transit demand, and the other three trigger categories (public health and safety, ridership, and finance)

Source: APTA COVID-19 Response: Lessons Learned, Best Practices & Innovations (July 9, 2020)

9.2 Long-Range Planning

The COVID-19 pandemic has presented cities the opportunity to reconsider the way our communities are designed and transit’s role in creating better communities. As the pandemic continues to persist and speculations on the “new normal” develop, agencies are reviewing transit plans and considering updates to better advance their missions and to reflect the new knowns and unknowns about the future. This section provides an overview of several strategies and tools for this decision-making.

Data Collection and Assessment

Data on existing and forecasted conditions are an essential part of short- and long-range transit planning. Due to the impacts of the COVID-19 pandemic on metrics used in planning such as population density, employment, and ridership, transit agencies may benefit from reevaluating forecasts conducted before the pandemic to assess their applicability after the onset of the pandemic. Transit agencies working on pandemic response and recovery planning may also find it useful to evaluate data from a more expansive range of sources. For instance, transit services used primarily by low-income, transit-dependent riders such as local bus will be influenced by the strength of the labor market for specific industries and low-income workers. Transit services used primarily by choice riders such as rail and commuter bus will be influenced by two

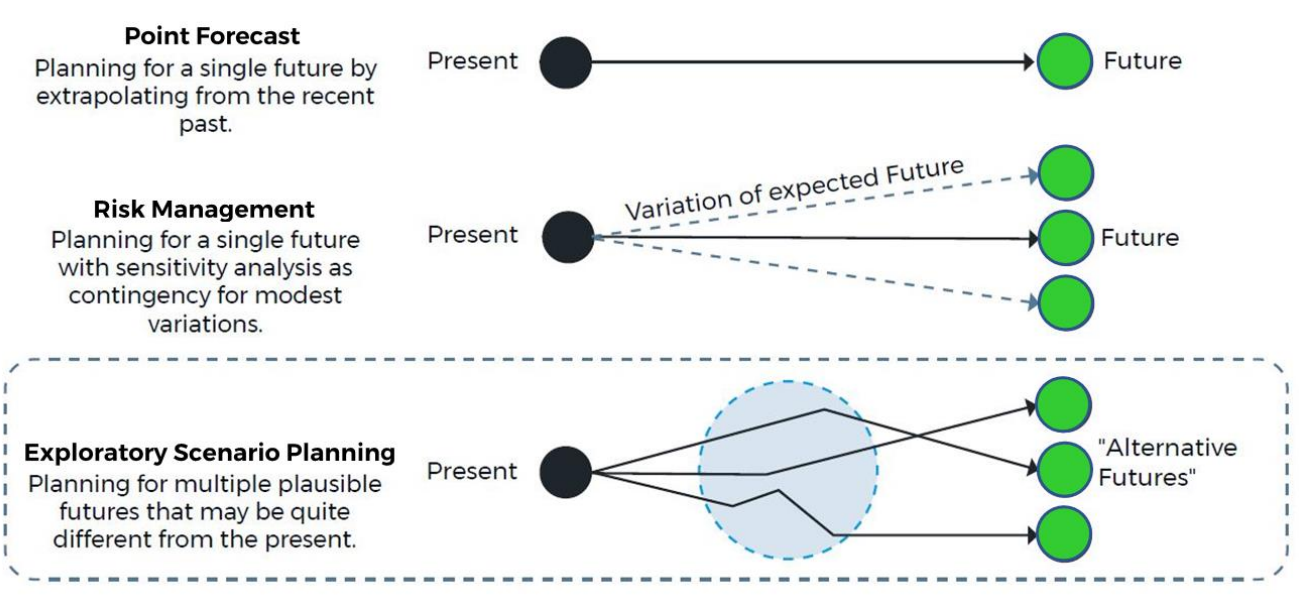
major trends. First, choice riders are more likely than low-income, transit-dependent riders to have jobs that allow for telework, and some employers are considering or have already implemented long-range telework plans. Second, choice riders are more likely to own a vehicle than transit-dependent riders and may decide to drive more often in place of using transit. Given that forecasts on economic health, the persistence and prevalence of telework, and travel behavior can differ among sources, transit agencies should seek multiple sources of data and evaluate which data are the most applicable to the agency and its service area.

Scenario Planning

In response to the economic crisis and travel pattern changes caused by the COVID-19 pandemic, several agencies have begun reevaluations of their short- and long-range operational and capital plans as well as their project prioritization. Scenario planning is a valuable technique for these reevaluations and comes in two main forms – normative and exploratory. In normative scenario planning, the objective is to arrive at a preferred and achievable future or futures, and agencies develop strategies and plan to achieve these outcomes. Exploratory scenario planning differs in that agencies identify forces driving the future of transit to form multiple possible futures and then develop responses for each future. Throughout the process of exploratory scenario planning, agencies recognize that although they may not be able to predict or readily shape a specific future, proactive planning and preparation should still occur.

Due to uncertainties concerning future conditions and the pace at which conditions will change, exploratory scenario planning is recommended to test the effects and outcomes of differing timelines and assumptions for metrics such as travel patterns, economic activity, land use, and transit funding availability. Exploratory scenario planning can serve as a more robust method for transit planning than point forecasting or risk management. As shown in Figure 51, point forecasting plans for a single future, risk management plans for modest variations of a single future, and exploratory scenario planning plans for multiple possible futures.

Figure 51: Point Forecast, Risk Management, and Exploratory Scenario Planning Approaches



The Regional Transportation Authority (RTA) in Chicago, Illinois began an exploratory scenario planning study in April 2020 to plan for recovery over the next one to two years. The purpose of the study is to test RTA’s regional strategic transit plan, goals, and, strategies in the following three scenarios:

- **Stalled economy:** The economy suffers, a recession turns into a depression, and high unemployment is present in multiple industries. Telework continues to increase, and for those working outside of the home, the mode share for transit declines from 2019 baseline levels. This scenario estimates a 45% decrease in revenue, and new policies would be needed to continue transit service to the most needed areas.
- **Congested recovery:** The economy rebounds but its progress is hindered by congestion and lost productivity. Telework continues to increase, and for those working outside of the home, the mode share for transit declines from 2019 baseline levels. This scenario estimates a 20% decline in revenue, and new policies will be needed to manage externalities and shape travel behavior.
- **Regional remix:** The economy surpasses 2019 levels. Telework continues to increase, but for those working outside of the home, the transit mode share is strong. This scenario results in a 5% increase in revenue. RTA’s existing plans envision the regional remix reality, but the emphasis would be needed on coordination and cooperation to fully realize this scenario outcome.

Conducting a similar exploratory scenario planning study could support FBT in its decision making for transit in Fulshear and Fort Bend County and its response to projected challenges and opportunities.

10 APPENDIX

Appendix A: Online Survey

1. Do you live or work in Fulshear or nearby communities?
 - a. Live
 - b. Work
 - c. Both

2. Do you currently use a METRO Park & Ride? Please check the Park & Ride(s) below.
 - a. Grand Parkway
 - b. Kingsland
 - c. Addicks
 - d. I do not use a METRO Park & Ride.

3. Would you be interested in express bus service from Fulshear to Houston major employment centers? Please check the destination(s) below.
 - a. Not interested
 - b. Downtown
 - c. Energy Corridor
 - d. Texas Medical Center
 - e. Other. Please specify.

4. Would you be interested in vanpool service from Fulshear to Houston major employment centers? Please check the destination(s) below.
 - a. Not interested
 - b. Downtown
 - c. Energy Corridor
 - d. Texas Medical Center
 - e. Other. Please specify.

5. Would you be interested in intercity bus service between Fulshear and surrounding communities? Please check the destination(s) below.
 - a. Not interested
 - b. Katy
 - c. Richmond
 - d. Rosenberg
 - e. Simonton
 - f. Sugar Land
 - g. Waller
 - h. Weston Lakes
 - i. Other. Please specify.

6. Would you be interested in local bus service within Fulshear?
 - a. Yes
 - b. No

7. Please describe other transit improvements you would like to see in Fulshear.
8. How many vehicles do you have access to?
 - a. 0
 - b. 1
 - c. 2
 - d. 3
 - e. 4+
9. What is your home zip code and street name?
10. Which of the following best describes your age group?
 - a. Under 18
 - b. 18-29
 - c. 30-49
 - d. 50-64
 - e. 65+

Appendix B: Work Group Comments

The following comments were provided by the Work Group on the draft report.

Comment #1 on page 11: I don't see any mention in document of the 2019-22 Texas State Transportation Improvement Plan (STIP), the last quarterly revision of which that is published is from May 2020. How will the implementation of ideas in this feasibility study dovetail with the expectations set forth in the STIP? Not critical, but a thought

Response: The study team reviewed the 2019-2022 Texas Statewide Transportation Improvement Program (STIP) and identified projects in and near the study area that were included in the STIP. Please refer to page 14 of the report.

The Fulshear Transit Feasibility Study recommended a program of transit projects in the Fulshear area for future implementation. The implementation process includes identifying potential funding sources for each recommended project and prioritizing projects based on the implementation timeline. Projects funded within the implementation timeline and within the next 3-5 years will be included in the H-GAC Transportation Improvement Program (TIP) and Texas STIP.

Comment #2 on page 62: Remove the redundancy words "Figure 35"

Response: The redundant words were removed from Page 62.

Comment #3 on page 65: For continuity sake, also cite Figure 40

Response: Figure 40 was cited on Page 66.

Comment #4 on page 70: first bullet, should it be FM 1463?

Response: Yes. The road name was corrected to FM 1463.

Comment #5 on page 103: last paragraph, remove the redundancy word "can".

Response: The redundant word "can" was removed from Page 103.