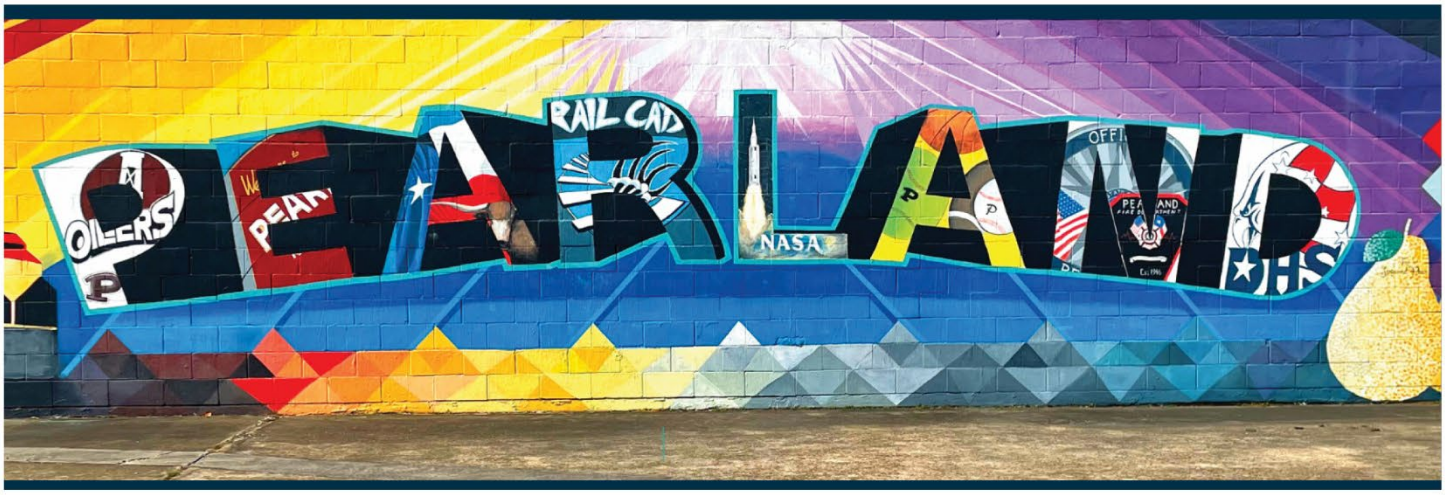


Pearland Transit Needs Assessment & Feasibility Study

FINAL REPORT

October 2024

Houston-Galveston Area Council

Contents

Pearland Transit Needs Assessment & Feasibility Study

FINAL REPORT

Section I – Introduction

PROJECT DESCRIPTION WITH PURPOSE

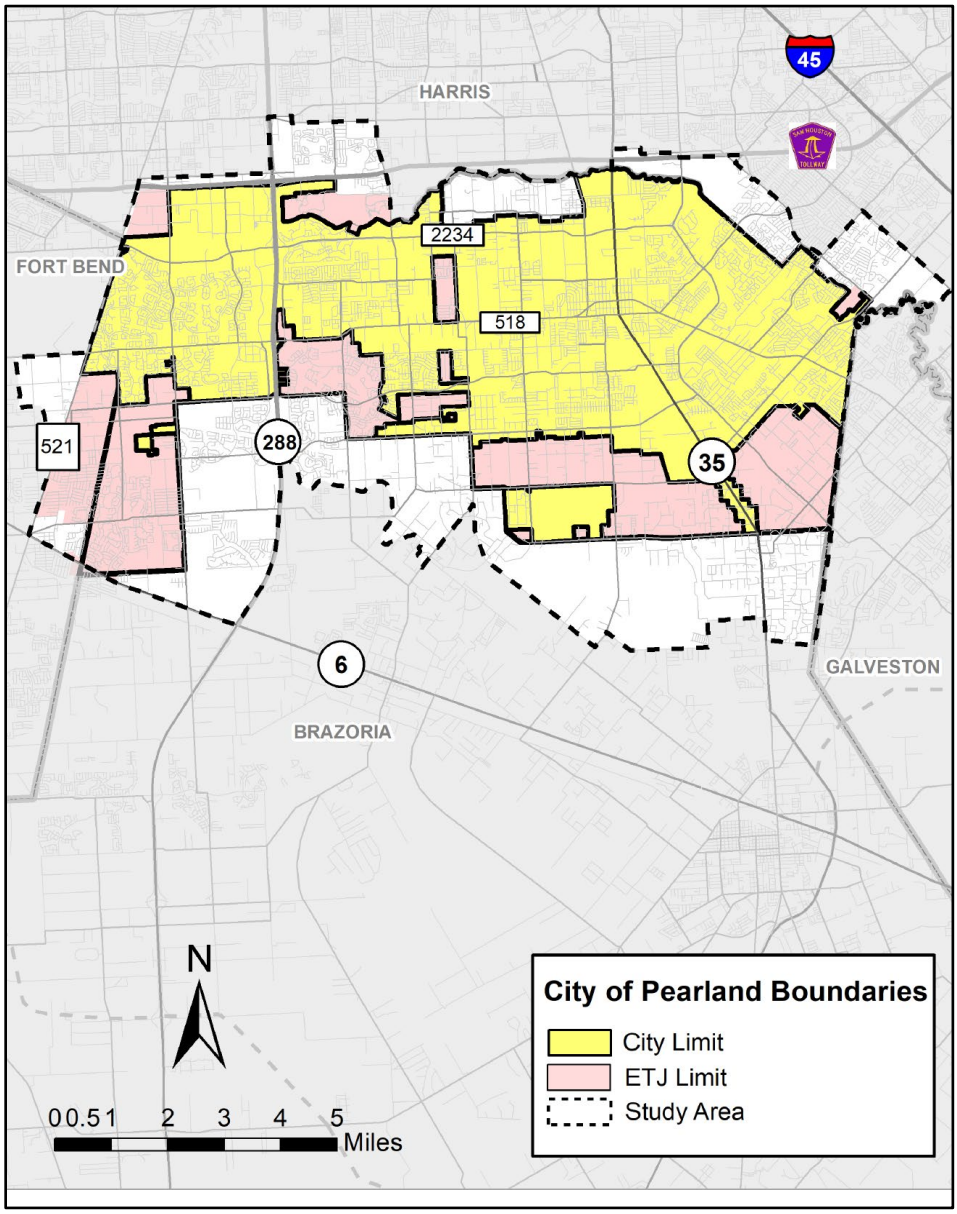
The Pearland Transit Needs Assessment & Feasibility Study (The Study) aims to evaluate the feasibility of developing practical and fiscally constrained, or cost-conscious, public transportation alternatives for the city of Pearland. If the alternatives are found viable, the study will progress to an analysis of transit alternatives and service recommendations. The city of Pearland, as the key stakeholder, will have the opportunity to review and consider these recommendations for the future of public transit services.

OBJECTIVES

The Pearland Transit Needs Assessment & Feasibility Study includes a series of objectives designed to give an overview of the study's course. The objectives are to:

- Evaluate existing conditions and review relevant professional literature/reports on Pearland that would provide a perspective on assessing transit needs.
- Examine transit experiences and services provided in a wide range of peer cities to determine what may be feasible for the city of Pearland.
- Use the Houston-Galveston Area Council (H-GAC) Transit Need Index to identify the relative level of community need and the resulting services appropriate within the city of Pearland.
- Consider intercity demand, focusing on destinations of high employment concentration.
- Develop a multifaceted community outreach strategy that uses detailed surveys, public meetings, a study website, and social media and email campaigns to reach diverse parts of Pearland.
- Prepare initial findings based on assessing existing conditions, transit needs, and community preferences.
- Provide multiple transit alternatives that can be implemented in the short term (fewer than five years) and identify a preferred alternative for transit service(s).
- Work closely with Pearland city officials, staff, and other stakeholders throughout the study.
- Develop a practical and appropriate implementation strategy for the city of Pearland.

Figure 1.1: The Study Area



A Study Area is a specific geographic region or boundary designated for research or analysis. The Study Area (figure 1.1) for the Pearland Transit Needs Assessment & Feasibility Study includes the city of Pearland, its Extraterritorial Jurisdiction (ETJ), and all Census Block Groups located fully and partially within the city of Pearland.

The Census Block Groups, defined by the U.S. Census Bureau, are areas typically consisting of around 4,000 residents and may not align with the city's boundaries. As a result, The Study Area extends beyond Pearland's boundaries. Given that Census Block Groups represent the smallest geographical units available for analyzing and developing demographic data, it is practical to use them for this analysis.

Section II – Pearland Transit History and Existing Conditions

PEARLAND TRANSIT HISTORY

In the last four years, three transit services have operated (or are currently operating) in Pearland. Demand-response services, based on passenger requests, through the Harris County Rides program and commuter vanpooling through METROStar are currently active. However, a privately operated commuter bus service discontinued its operations in 2020.

In the 2000 U.S. Census, the city of Pearland was classified as part of rural Brazoria County. The Gulf Coast Center provided the community with demand-response services beginning in the 1980s, which continued until 2012. These services were discontinued in 2012 when Pearland was reclassified as urban, following its inclusion in the Houston Urbanized Area.[1]

Currently, the city of Pearland's existing transit service is provided by Harris County Rides through an interlocal agreement with the Gulf Coast Transit District (GCTD). This demand-response service is available 24/7 for seniors and individuals with disabilities The city of Pearland contributes by matching passenger fares dollar-for-dollar, up to $21 per one-way trip or $42 for a round trip. Passengers cover half the fare, with Harris County Rides matching the rest. The GCTD oversees the program, which costs the city up to $36,000 annually, based on an estimated 3,000 trips per year.

Efforts to establish a park-and-ride service with the Metropolitan Transit Authority of Harris County (METRO) were unsuccessful despite several years of attempts. In 2019, the city of Pearland contracted with a private transit provider, Kerrville Bus, to offer commuter service from Shadow Creek Sports Park to the Texas Medical Center and Downtown Houston. However, this service was discontinued in 2020. Reasons for the ending this service included:

- **The COVID-19 Pandemic**: This led to a significant reduction in commuter transit demand.
- **Ongoing Construction Along State Highway 288**: Construction projects impacted travel times and accessibility.
- **High Passenger Fares**: The cost of $13 to $15 per round trip[2] was prohibitive for many potential riders.
- **The Park and Ride Location**: Situated more than 1.5 miles west of State Highway 288, the location was inconvenient for Pearland residents, particularly those living east of the highway.

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[1] Per discussion with Gulf Coast Center Chief Financial Officer Rick Elizondo
[2] Discussion with Pearland City Manager Trent Epperson

EXISTING CONDITIONS

Demographics

Population and demographic data from the U.S. Census Bureau (2018) reveal that Pearland has experienced rapid growth and is projected to continue expanding through 2030, with a subsequent slowdown anticipated. As the city's population has increased, so has employment. H-GAC staff have reviewed not only demographic trends by also land use and announced developments. These factors align with the observed patterns of significant past and near-term growth.

Additional demographic information related to possible transit service for Pearland include:

- Increase of the senior population (over 65) to more than 9%.
- The number of persons with disabilities between 18 and 64 is approximately 11.5%
- Households with incomes below the poverty level stand at approximately 15%.

Refer to the Technical Memorandum (Appendix A) for additional information on demographics.

Literature Review and Peer Analysis

Previous local and regional transit and transportation studies offer valuable recommendations for future transit services in Pearland. For this analysis, eight studies were reviewed. The following chart (figure 2.1) summarizes the recommendations from each study. Common themes include recommendations for demand-response service for transit within Pearland and park-and-ride/commuter service to the Texas Medical Center and Downtown Houston.

Figure 2.1: Review Summary from Previous Transit and Transportation Studies

Author	Study Title	Fixed Route	Demand Response	Individuals with Transit Needs	Regional Intercity Bus Service	Commuter or Park & Ride Transit	Pedestrian Bike	Light Rail
A&R Consulting	City of Pearland Transit Feasibility Study (2009)	D	R	R		R		D
City of Pearland	2015 Comprehensive Plan					R	R	
Pearland Economic Development Corporation	Pearland 20/20 Community Strategic Plan (2013) – 2015 Update					R		
H-GAC	High-Capacity Transit Task Force Priority Network	R	R	R	R	R		
H-GAC	Regionally Coordinated Transportation Plan (RCTP) 2017 Update	D	R	R				
Pearland Economic Development Corporation	Pearland Prosperity Strategic Plan (2021)	D	D			R		D
City of Pearland Parks Department	Pearland Multimodal Plan						R	
H-GAC	RCTP 2022 Update	D	R	R				

(D = Discussed | R = Recommended)

To gain insights into potential transit solutions for Pearland, several cities of similar size and characteristics were also examined. This review aimed to understand the types of transit services offered to serve the needs of residents, commuters, and visitors. The modes of service they offer meet the needs of their residents, commuters, and visitors. The modes of service used by these communities can offer perspectives on feasible options for Pearland.

Initially, the Texas cities reviewed included The Woodlands, Arlington, Denton, and Carrolton, as well as Fort Bend Transit including Sugar Land. For a more comprehensive review, additional peer cities also included the Texas cities of Abilene, Pflugerville, and Kyle as well as Peoria, Arizona, at the request of the Pearland Transit Needs Assessment

& Feasibility Study steering committee, a collective of stakeholders assembled in 2022 to ensure the Study's success. The chart (figure 2.2) summarizes the transit services offered by the initial list of peer cities and was updated to include cities added by the steering committee. Notably, most of the cities reviewed provide on-demand services, including microtransit and ride-hailing options.

Figure 2.2: Peer City Profiles

Service Area	Fixed Route	Dial A Ride	ADA Paratransit	On-Demand Service	Commuter Bus	Light Rail	Heavy Rail
Fort Bend Transit		X		X	X		
The Woodlands Township	X		X		X		
Arlington		X		X			X
Denton	X		X	X		X	
Carrollton			X	X		X	
Abilene	X	X	X	X			
Peoria, AZ	X	X	X		X		
Pflugerville				X	X		
Kyle				X	Future		

Transit Need Index

A Transit Need Index evaluated the relative demand for transit services, particularly for individuals with limited mobility options. It measures transit needs based on several key factors. For this study, the Transit Need Index incorporates six weighted factors:

- Percent of Households Without a Vehicle – 20 percent
- Income Level – 20 percent
- Persons Aged 65+ – 15 percent
- Households with a Person with a Disability – 15 percent
- Children Aged 6 to 17 – 10 percent
- Population Density – 20 percent[3]

While population density does not directly measure transit needs, it is crucial to understand which types of transit modes might be most viable in the area.

[3] Based on the US Census Community Survey 2018 (pre-COVID) for need indicators and H-GAC data analytics Longitudinal Employment and Household Information.

The Transit Need Index was applied in two phases: first, to compare Pearland's relative needs to those of the broader 13-county Houston-Galveston region, and second, to evaluate transit needs specifically within the Study Area.

- The first map (figure 2.3) illustrates Pearland's transit needs related to the entire 13-county Houston-Galveston region, showing that most areas of Pearland have lower transit needs compared to the regional average.

- The second map (figure 2.4) focuses on the Study Area, highlighting the city's specific transit needs. This targeted analysis provides a clearer picture of Pearland's specific transit needs, identifying areas with both higher and lower relative transit demands.[4] The map illustrates that higher transit needs are concentrated east of State Highway 288, while moderate needs are observed both west and east of State Highway 35, or Telephone Road.

[4] Based upon 2018 LEHD Data.

Figure 2.3: Pearland Transit Needs Index - Based on Regional Metrics

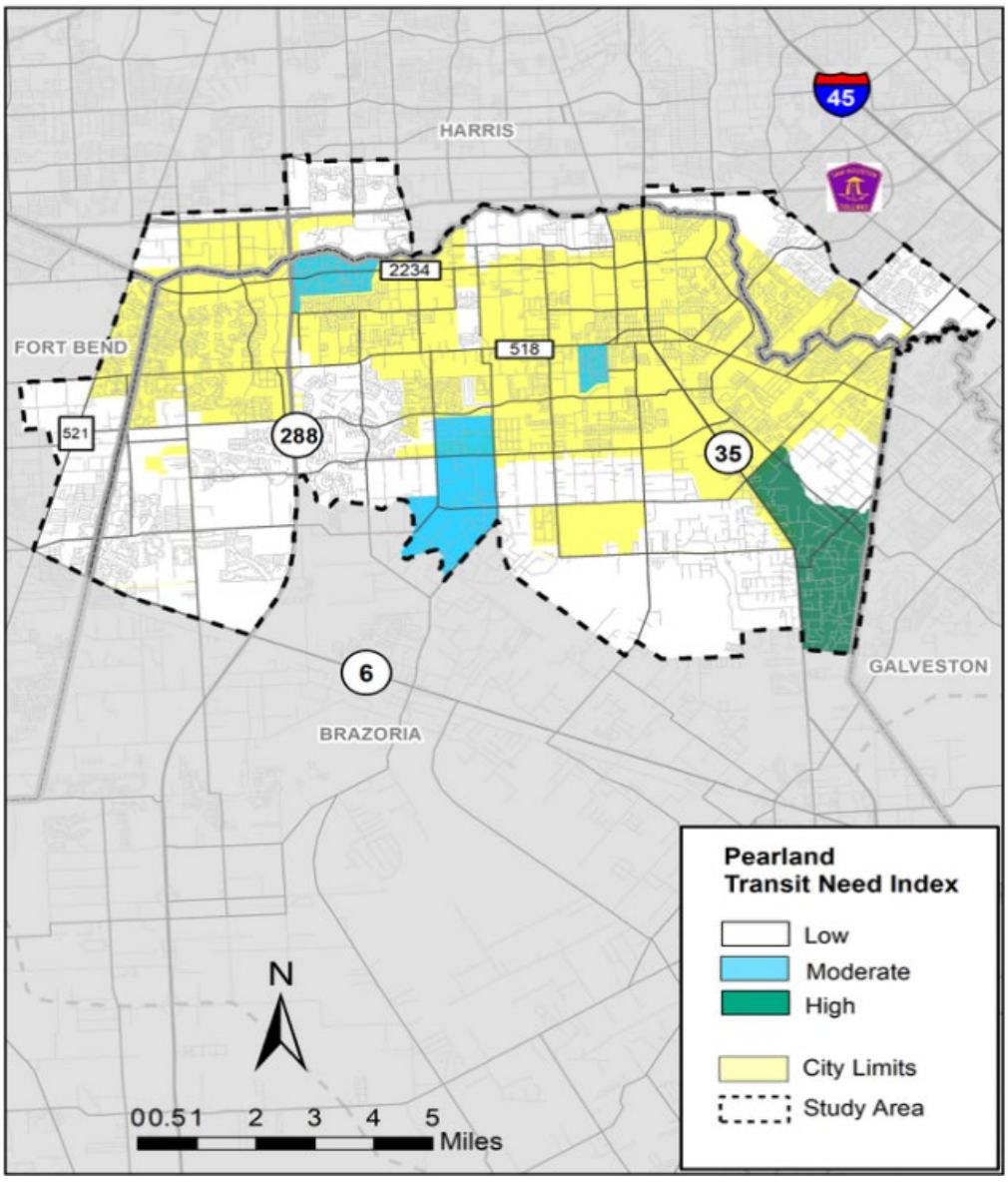
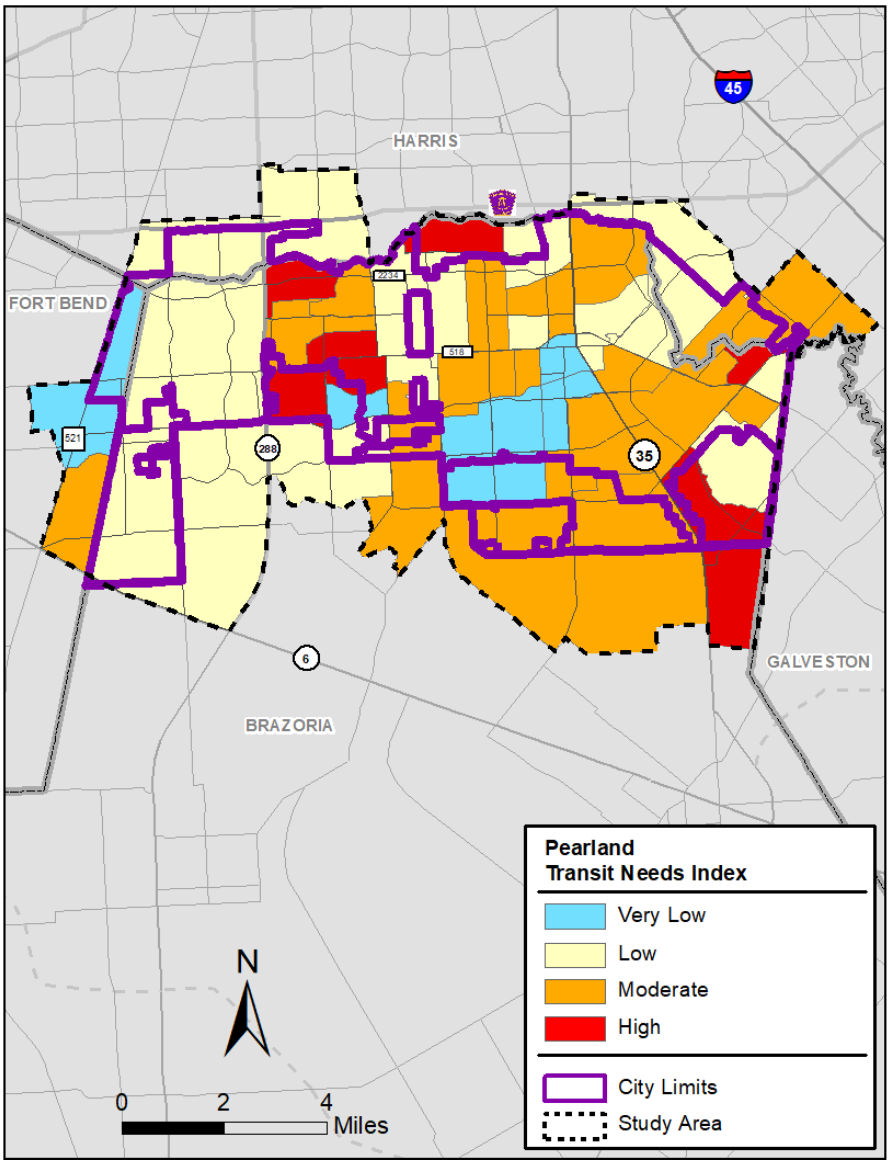


Figure 2.4: Pearland Transit Needs Index – Based on Study Area



Commuter Demand

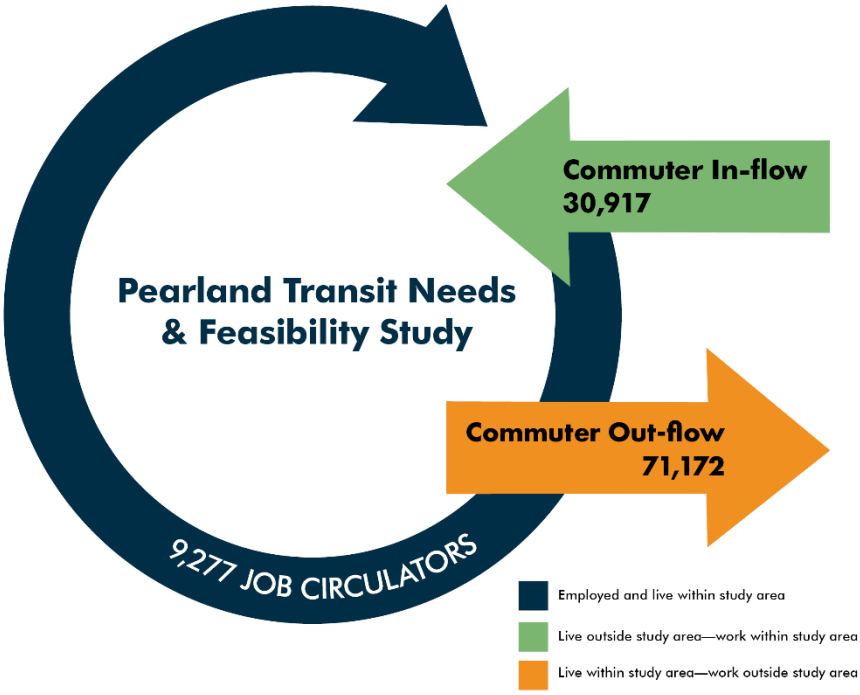
Service between cities is primarily based on estimates of commuter demand for specific destinations (see figure 2.5). Commuter demand is categorized into three main areas:

- **Travel Outflows**: This measures work-related trips originating from Pearland and traveling to locations outside the city, such as Houston.
- **Travel Inflows**: This identifies trips coming from outside of Pearland to employment destinations within the city.
- **Job Circulators**: This category tracks work trips that both start and end within Pearland, reflecting internal commuting patterns within the city.

The left side of figure 2.6 lists the primary destinations of more than 71,000 individuals who commute daily from Pearland to outside cities for work. Houston is the top destination, accounting for 62 percent of these commuters.

For additional detail, the right side of the table outlines the primary employment destinations, or Employment Districts, within Houston. These districts represent where the majority of Pearland commuters work within the city. Among these, the Texas Medical Center and Houston Downtown emerge as the top destinations, attracting the highest percentages of commuters.

Figure 2.5: Pearland Commuter Demand



Source: Longitudinal Employment Household Demand (LEHD) 2018

Figure 2.6: Pearland Commuter Employment Destinations (Outside of Pearland)

Destination City	Jobs	Percentage of Commuters	Employment District	Jobs	Percentage of Commuters
Houston	44,272	62.2%	Texas Medical Center	7,616	9.5%
Pasadena	3,083	4.3%	Houston Downtown Area	4,584	5.7%
Alvin	1,943	2.7%	Hobby Area	1,492	1.9%
Sugar Land	1,933	2.7%	Westchase	1,361	1.7%
Webster	1,122	1.6%	Uptown	1,270	1.6%
Deer Park	1,033	1.5%	Southwest	1,061	1.3%
League City	1,022	1.4%	Memorial	990	1.2%
Galveston	727	1.0%	Spring Branch	914	1.1%
La Porte	720	1.0%	Greater Southeast	807	1.0%
Stafford	703	1.0%	Greater East End	748	0.9%

Source: Longitudinal Employment Household Demand (LEHD) 2018

Existing Conditions Summary

After documenting existing conditions and conducting further research, H-GAC staff developed the following summary of existing conditions to help frame the alternatives analysis and recommendations for the study:

1. **Growth and Density**: Despite Pearland's robust growth through the past 30 years, it remains a low-density city.

2. **Transportation Needs**: Previous reports on transit services in Pearland highlight a clear need for intracity transportation and commuter services to major Houston employment centers.

3. **Peer City Comparison**: A peer city analysis revealed that demand response or on-demand services were used across all examined locations. Most peer cities, excluding Abilene, either have or plan to offer commuter services (rail or bus),

with commuter buses being the most common in the reviewed cities and counties.[5]

4. **Transit Need Index**: The Transit Need Index identifies a higher need for intracity transit service east of SH 288.

5. **Commuter Service Demand**: There is a significant demand for commuter services between Pearland and major Houston destinations, such as the Texas Medical Center and the Central Business District.

6. **METRO Star Vanpool**: METRO Star's existing vanpool service provides employment services for Pearland residents in Houston and Lake Jackson. Demand declined as a result of the COVID-19 pandemic. Pearland does not incur costs for this service, which contributes to intercity mobility[6].

7. **Fixed-Route Service**: Fixed-route services are not promising due to Pearland's low density and the community and city leadership's unfavorable view of this option. While other services may be suitable for future planning, they are not considered in this study.

8. **On-Demand Transit**: On-demand service is emerging as a practical alternative to fixed-route transit and might be a more suitable option for Pearland.

Based upon 2018 LEHD Data.

[6] Based on information provided by METRO.

Section III – Public Outreach

Public outreach for the study involved both online and in-person meetings, supported by a steering committee and public outreach committee that helped shape the study's content and engagement efforts. Two rounds of public meetings were held in May 2023 and March 2024 to gather community input. Additionally, an online survey facilitated continuous feedback and dialogue with the public throughout the study process.

PUBLIC MEETINGS

Two series of public meetings were held throughout the study to gather community input, offering both online participation and in-person attendance at Pearland City Hall and Pearland West Library.

The first series of public meetings took place in May 2023, drawing more than 65 attendees across two on-site meetings and one online session. The discussion focused on providing an overview of the study's progress, including a review of existing conditions and peer analysis. The feedback and comments from these meetings aligned with the responses collected from a public survey.

The second series of meetings occurred in March 2024, with 31 participants. These meetings focused on presenting various alternatives for transit service and fostering public dialogue. All 27 comments received expressed positive support for developing both commuter and intracity services in Pearland.

PowerPoint presentations from both sets of meetings are available at www.engage.h-gac.com/Pearlandtransitneeds. The website also provides access to study documents and public comments.

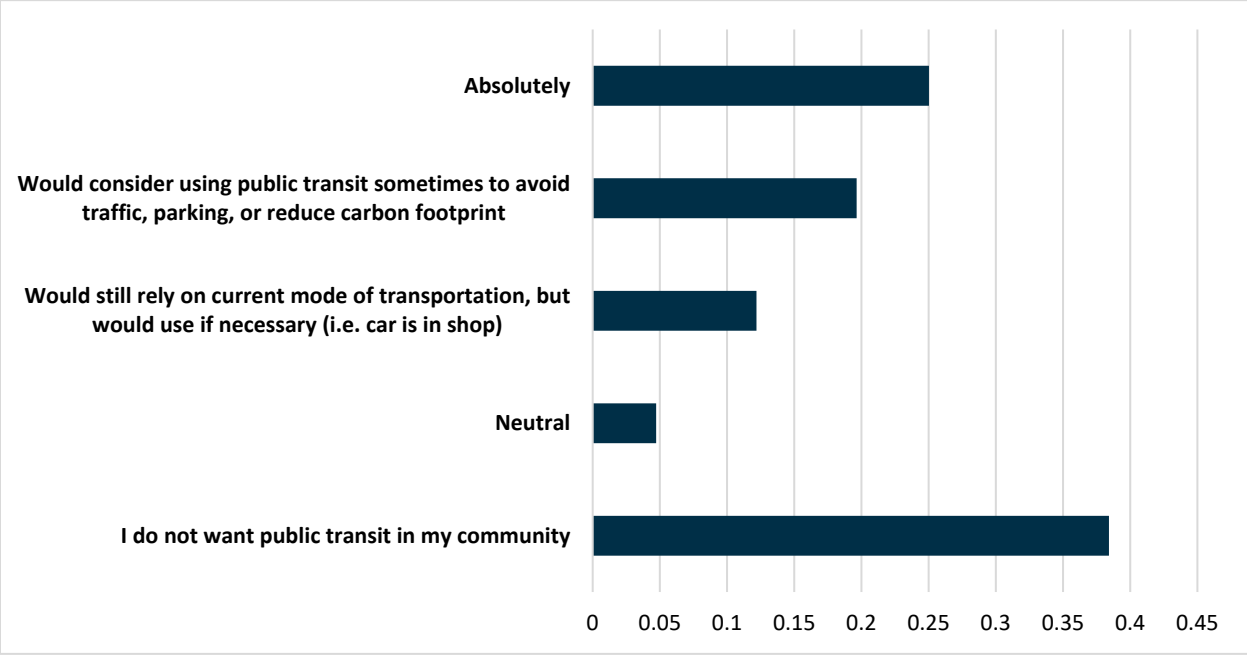
ONLINE SURVEY RESULTS

The Pearland Online Community Survey, conducted in collaboration with the city of Pearland, received more than 2,300 responses. The results revealed that 57 percent of residents favored transit services within the city, compared to 43 percent who did not. The survey, along with feedback from the website and public meetings, strong community interest in both commuter and intracity services, which played a key role in shaping the alternatives analysis for transit service outcomes.

Notably, demand-response services received more support than general transit services. By a significant margin of 75 percent to 25 percent, survey respondents expressed a strong preference for demand-response service, especially for seniors and individuals with disabilities.

Additional survey questions explored the potential use of public transit for work travel, with 57 percent of respondents indicating they would use such services some or most of the time (figure 3.1).

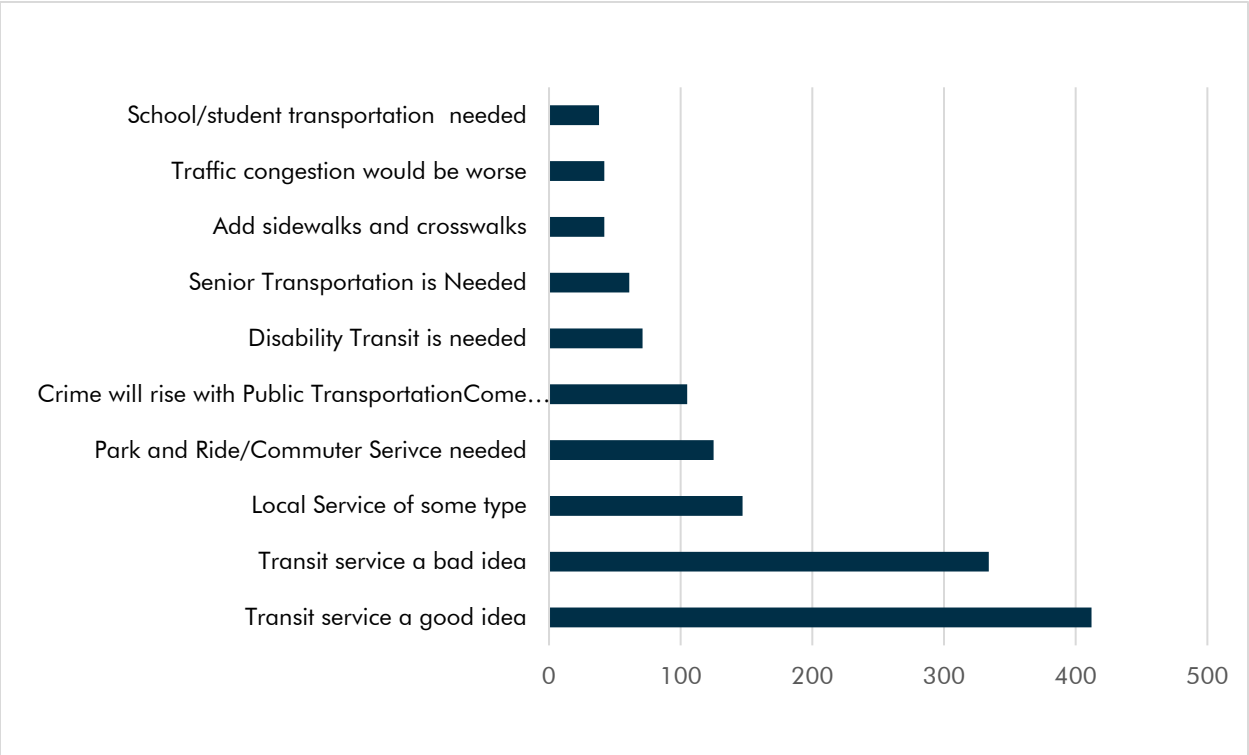
Figure 3.1: Pearland Online Community Survey Responses – Would You Consider Using Transit from Pearland to Go to Work?



Approximately, 40 percent of survey respondents, or more than 900 individuals, left comments on the 2,300 surveys completed. The top 10 most frequent comments were made by at least 40 people each.

- Seven of the 10 top comments expressed that transit would be a promising idea and is needed for some or all of the Pearland Community. This sentiment of favorability towards transit reflected the same level of support seen in the overall survey results.
- More than 30 percent of commenters voiced concerns that transit service would be a bad idea. Common concerns included the potential for increased crime and worries that public transit would worsen area congestion.

Figure 3.2: Pearland Transit Survey Written Comments – Top 10 Topics



KEY TAKEAWAYS FROM PEARLAND TRANSIT OUTREACH EFFORTS

Demand-Response/On-Demand Service: Most Pearland residents surveyed, as well as those attending public meetings, viewed demand-response or on-demand service favorably, particularly for seniors and individuals with disabilities.

Intercity Commuter Service: When alternatives were presented in the second round of public meetings, feedback was positive regarding intercity commuter services to Houston.

Fixed-Route Services: Fixed-route transit within the city of Pearland received unfavorable responses from residents.

Section IV – Service Types and Alternatives Analysis

OVERVIEW AND METHODOLOGY

The alternatives analysis forms the foundation for transit service and administration recommendations, allowing the Pearland community to evaluate the potential for expanding transit services. Based on a comprehensive needs assessment, peer analysis, community input, as well as feedback from the steering committee and the city of Pearland, H-GAC staff developed four transit service alternatives using the following criteria:

1. Ensure fiscal constraints regarding the local costs for initiating and maintaining services.

2. Address a substantial portion of identified intracity and intercity transit needs.

3. Align with the preferences of the Pearland community.

4. Consider the likelihood of residents using the proposed services.

5. Provide reasonable projections for passenger ridership (see estimates in alternatives presented.)

6. Be practical for implementing and operating transit services in a city currently without existing transit, infrastructure, or staffing.

7. Account for administrative, capital, and operating resources required to enhance mobility services in Pearland.

8. Include a cost-benefit analysis to quantify the benefits of each transit service option.

Each alternative is based on specific service scenarios. The transit components of each option will be discussed individually before reviewing potential alternative packages. Additionally, the analysis will identify services not recommended for short-term (0-5 years) and evaluate the costs, federal assistance, and potential resources available for each option.

Service options considered in the alternatives analysis include:

- Continue demand-response service within Pearland, with matching costs and fares, using the existing Harris County Rides partnership.
- Offer commuter Park and Ride service from Pearland West near SH 288 to the Texas Medical Center, with initial funding provided through H-GAC's Commuter and Transit Pilot Program for three years.
- Initiate on-demand microtransit service within Pearland, using both passenger wheelchair-accessible vehicles for seniors, individuals with disabilities, and the general public.

- Launch on-demand ride-hailing service within Pearland, offering passenger vehicles including wheelchair-accessible options for individuals with disabilities, seniors, and the public.

Details of each option will be outlined in the sections that follow.

SERVICE OPTION 1: HARRIS COUNTY RIDES (EXISTING SERVICE)

Harris County Rides' demand-response service is currently provided in Pearland by various transportation providers assigned on a trip-by-trip basis. This service is available to seniors and individuals with disabilities for travel within the city of Pearland.

Harris County Rides operates the demand-response service under an intergovernmental contract that reduces user costs by 50 percent with the service matching the remained cost. Federal funding, through the Federal Transit Administration's Enhanced Mobility of Seniors & Individuals with Disabilities program (49 U.S.C. Chapter 53, Section 5310), covers 50 percent of the net operating costs for seniors and individuals with disabilities. The rider subsidy for travel costs can be matched up to $21, depending on the trip length within

Pearland. While federal funding is discretionary, it has been sustained for more than a decade. Other aspects of the service include:

- The current service is provided by Gulf Coast Transit District (GCTD) through an interlocal agreement with Pearland. Harris County Rides awarded a grant to GCTD through the FTA Enhanced Mobility of Seniors & Individuals with Disabilities program, and GCTD entered an interlocal agreement with the city of Pearland.
- Seniors and persons with disabilities are eligible to qualify for the service.
- Up to 3,000 one-way trips are budgeted annually at an average of $12 per trip; however, historically, fewer than 3,000 trips have been provided.
- The potential cost of trips can be a disincentive for individuals with limited incomes, as fares are based on trip length, making longer trips more expensive.
- The full subsidy is not always used.

The service is funded by federal dollars (approximately $36 thousand annually), local contributions ($36 thousand annually), and passenger fares.

SERVICE OPTION 2: COMMUTER TRANSIT FROM NEAR STATE HIGHWAY 288 TO THE TEXAS MEDICAL CENTER AND DOWNTOWN HOUSTON

Key features of the commuter service include:

- Service typically runs from suburban locations to large employment centers such as the Texas Medical Center and Downtown Houston.
- Service originates from a park-and-ride lot, transit center, or another location offering extensive parking capacity. This central gathering point allows for practical transit service density.
- Most trips are scheduled during peak travel hours, though midday service is usually available.
- It is much less expensive to operate per trip compared to demand-response or on-demand services.
- A 15-year analysis of commuter bus services shows that the measurable benefits exceed the costs.

Commuter service typically uses over-the-road coaches or large cutaway buses. Fort Bend County, for instance, has successfully used large cutaway buses for more than 20 years. On March 4, 2024, Fort Bend County launched a new service from Sugar Land to Downtown Houston, quickly achieving its target of 300 daily trips in its first year. As of the fourth month of service, ridership had exceeded 80% of the year-one goal and was trending upward.

Historical Context: Prior park-and-ride services were offered in Pearland between 2019 and 2020 under a contract between the city and Kerrville Bus (a subsidiary of Coach USA), running from the Shadow Creek Sports Park to the Texas Medical Center and Downtown Houston. However, the service was discontinued due to low ridership. Several factors contributed to this:

- The fare for the service ranged from $13 to $16 per round trip, which was high compared to similar services like Fort Bend Transit, which charges $8 per round trip. A more reasonable fare would likely increase demand if ridership was developed.
- Construction on SH 288 resulted in longer-than-expected travel times.
- The COVID-19 pandemic halted virtually all regional commuter services. The impact of the pandemic on work patterns further curtailed or temporarily suspended commuter services.
- The park-and-ride location at Shadow Creek Sports Park was too far west of SH 288, making it difficult for residents to access. A more successful park-and-ride must be located closer to SH 288.

Potential for Future Success: The closure of the Shadow Creek Sports Park and Ride does not mean that commuter transit cannot succeed under more favorable conditions. Analysis and modeling indicate that service demand near SH 288 could attract significant ridership. Since the peak of the COVID-19 pandemic in 2020 to 2021, commuter service

has rebounded. Although ridership has not yet returned to pre-COVID levels due to evolving work patterns, it has increased significantly compared to peak pandemic levels.

Projections for commuter service viability from SH 288 in Pearland and the Texas Medical Center and Downtown Houston remain positive. H-GAC analysis suggests that the benefits of commuter service exceed the local service cost that the city of Pearland would need to underwrite. The Congestion Mitigation and Air Quality (CMAQ) Commuter and Bus Pilot Program, administered through the Texas Department of Transportation, could fund 80 percent of the net costs (total cost minus fares and other revenue) for the first three years of service. This program provides a practical alternative to congested travel and allows riders to avoid high parking costs in Downtown Houston and the Texas Medical Center. Additionally, parking at park-and-ride lots is usually free, and a much lower fare ($4 per one-way trip) compared to the previous 2019 to 2020 would likely attract more riders.

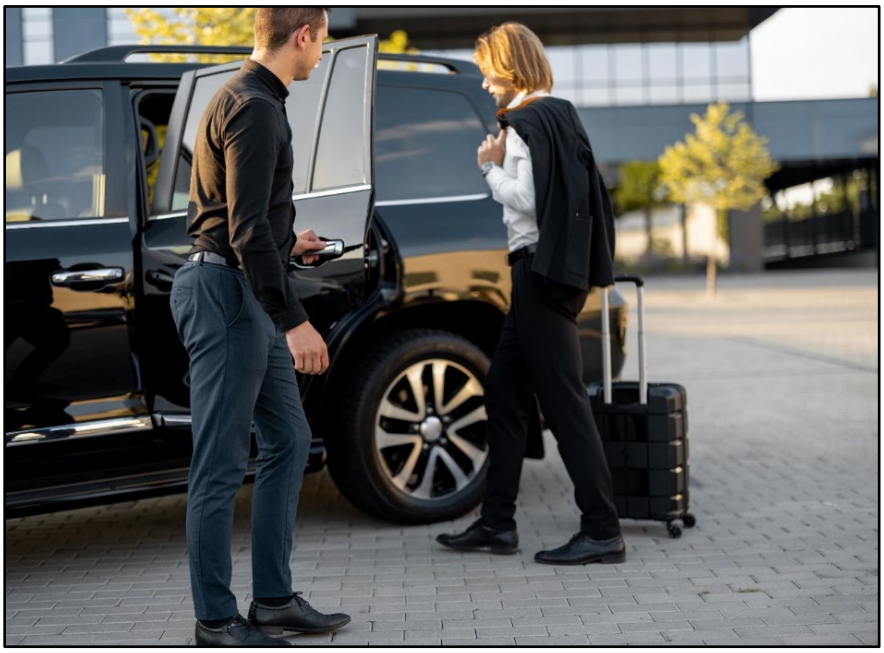
Figure 4.1 outlines projected costs, revenues, and operating details for commuter service from near SH 288 to the Texas Medical Center. The service is expected to operate on weekdays with 13 daily trips (six in-bound, six out-bound, and one midday). Initial funding would come through the CMAQ program for the first three years, with 50 percent federal funding after the pilot phase. The remaining costs would need to be covered by fares and local revenues.

Figure 4.1: Commuter Park-and-Ride Pearland West to the Texas Medical Center: Projected Costs, Revenues, and Operating Information

Data	Year 1	Year 2	Year 3	Year 4	Year 5
Yearly Service Days	250	250	250	250	250
Annual Passengers (Unlinked Trips)[7]	80,000	84,000	88,200	88,200	88,200
Daily Vehicle Hours	13	13	13	13	13
Annual Vehicle Hours	3,250	3,250	3,250	3,250	3,250
Expenses					
Operating Expenses[8]	$650,000	$650,000	$650,000	$715,000	$715,000
Average Fare	$4.00	$4.00	$4.00	$4.00	$4.00
Farebox Revenue (Annual Passengers x Average Fare)	$320,000	$336,000	$352,800	$352,800	$352,800
Net Operating Expenses	**$330,000**	**$314,000**	**$297,200**	**$362,200**	**$362,200**
CMAQ Funding Levels	80%	80%	80%		
CMAQ Funding Dollars (years 1-3)	$264,000	$268,000	$237,760		
Local/Non CMAQ Funding Level	20%	20%	20%		
Local Funding Dollars (years 1-3)	**$66,000**	**$62,800**	**$59,440**		
% Federal Funding (years 4-5)				50%[9]	50%
$ Federal Funding (years 4-5)				$181,100	$181,100
% Local Funding (years 4-5)				50%	50%
$ Local Funding (years 4-5)				$181,100	$181,100
Program Administration[10]	$110,000	$114,400	$118,976	$123,375	$128,684
Total Local Funding (years 4-5)	**$176,000**	**$176,800**	**$178,416**	**$304,375**	**$309,784**

[7] Assumes 5 percent increase between years 1, 2, and 3
[8] Assumes 15percent increase between years 3 and 4
[9] Assumes 50 percent Federal Transit formula funding in years 4 and 5
[10] Assumes 4 percent annual increase in administrative cost

SERVICE OPTION 3: PEARLAND ON-DEMAND MICROTRANSIT SERVICE



Microtransit is a form of on-demand service that, from the customer's perspective, resembles traditional demand-response or dial-a-ride service. However, it operates through an app or phone call, typically responding to requests within 30 minutes or less. Because it is app-based, microtransit functions similarly to transportation network company services like Uber or Lyft from the customer's perspective.

Microtransit leverages advanced technology to efficiently arrange and schedule trips. When used as a public transit service, microtransit typically involves shared rides with two to seven passengers, rather than offering individual, point-to-point trips. The first-year annual cost is projected to be less than $2 million. To maximize federal transit funding, the CMAQ Commuter and Transit Pilot Grant could be considered.

Additional Microtransit Characteristics:

1. **Contracting Transportation Network Companies (TNC**): Microtransit services are often contracted to provide service within a city or a specific designated zone.
2. **Smartphone-Based Operations**: Unlike conventional demand-response services, most microtransit requests and payments are made by smartphone apps. Global Positioning Satellites (GPS) technology is used to locate and route passengers in real-time, eliminating the need for extensive local or regional support systems and reducing overhead costs. Microtransit operates similarly to Uber or Lyft but can also accommodate individuals with disabilities and seniors.
3. **Spontaneous Access**: One major advantage of microtransit is the ability for passengers to access the service spontaneously, unlike traditional demand-response transportation, which often requires trips to be scheduled days in advance.

4. **Dedicated Vehicles**: Microtransit services dedicate a specific number of vehicles to meet the anticipated demand within a designated service area. In Pearland's case, six vehicles would be allocated, with estimated response times of 30 minutes or less. This would serve as the primary intracity transit service for Pearland.
5. **Service Boundaries**: The proposed microtransit service would operate within Pearland's city limits. Figure 4.3 shows the recommended service zone.
6. **Funding and Sustainability**: Pearland could apply for the three-year Commuter and Transit Pilot Program to fund microtransit service. After the pilot period, funding would shift to the Federal Transit Administration Section 5307 program, which would underwrite 50 percent of the net operating costs starting in year 4. To qualify for federal funding the service must be shared, so multiple passengers would use it at once.

Cost and Ridership Estimates for Citywide Microtransit:

To develop realistic assumptions regarding costs and ridership, the study relies on zero-emissions vehicles and hybrid wheelchair-accessible vehicles. Administrative costs are not included in the microtransit service costs, as they are already covered under commuter service costs.

1. **Estimated Total Costs**: The primary cost variable is the hourly operating cost. Based on similar services, H-GAC estimates that providing a turnkey private contract operation would cost approximately $90 per service hour (compared to $76 per hour for a similar service in Sugar Land). Startup costs are estimated at $135,000 based on other Texas on-demand services, for technology setup and other expenses. The total estimated operating cost is $1,997,500 based on operating 14 hours on weekdays and 10 hours on Saturdays. Including startup costs, the estimated total is $2,132,500, yielding a net cost of $1,992,500 after subtracting estimated revenues.

2. **Estimated Ridership**: An adjusted model projects 35,000 annual passenger trips, based on conservative estimates from the first year of pilot service, when ridership typically builds gradually.

3. **Estimated Fares**: A $4.00 fare per one-way trip is proposed. This price balances farebox revenue generation with affordability for lower-income residents.

4. **Estimated Farebox Revenues**: With an estimated 35,000 passenger trips annually, the first year's farebox revenue is projected to be $140,000.

5. **Federal Revenues**: Federal revenues in the first year are estimated at 80 percent of net operating cost, or $1,595,000, assuming funding from the CMAQ Commuter and Transit Pilot Program. Using dedicated zero-emissions vehicles is crucial to qualifying for CMAQ funds.

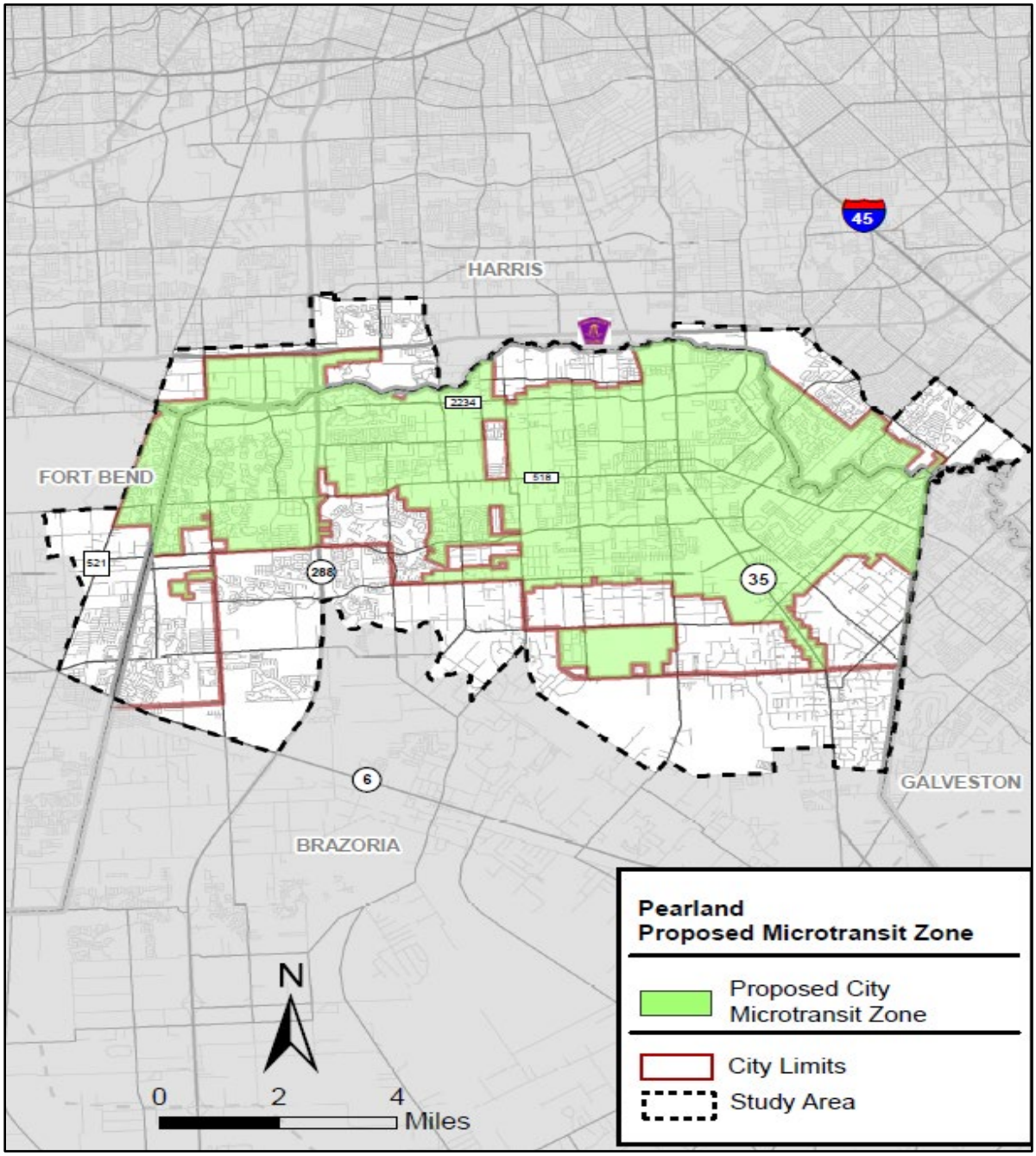
Estimated Local Cost: After accounting for farebox and federal revenues, the local cost for Pearland in year 1 would be $398,550.

Figure 4.2: Pearland On-demand Microtransit Service: Projected Costs, Revenues, and Operating Information

Year	Year 1	Year 2	Year 3	Year 4	Year 5
Yearly Service Days	300	300	300	300	300
Annual Passengers (Unlinked Trips)[11]	35,000	36,750	38,588	38,588	38,588
Annual Vehicle Hours	23,500	23,500	23,500	23,500	23,500
Cost Per Revenue Hour	$90	$90	$90	$99	$99
Operating Expenses [12]	$ 1,997,750	$ 1,997,750	$ 1,997,750	$2,326,500	$2,326,500
One-time Contractor Startup	$135,000				
Total Operating Expenses	$2,132,750	$ 1,997,750	$ 1,997,750	$2,326,500	$2,326,500
Average Fare	$4.00	$4.00	$4.00	$4.00	$4.00
Farebox Revenue (Annual Passengers x Average Fare)	$140,000	$147, 000	$154,430	$154,430	$154,430
Net Operating Expenses	$1,992,750	$1,850,750	$1,843,320	$2,172,070	$2,172,070
CMAQ Funding Levels	80%	80%	80%		
CMAQ Funding Dollars (years 1-3)	$1,595,000	$1,480,600	$1,474,656		
Local/Non CMAQ Funding Level	20% Net	20% Net	20% Net		
Local Funding Dollars (years 1 -3)	$398,550	$370,150	$368,664		
% Federal Funding (years 4-5)				50%[13]	50%
$ Federal Funding (years 4-5)				$1,086,035	$1,086,035
% Local Funding (years 4-5)				50%	50%
$ Local Funding (years 4-5)				$1,086,035	$1,086,035
Total Local Funding (years 4-5)				$1,086,035	$1,086,035

[11] Assumes a 15 percent increase between years 1, 2 and 3.
[12] Assumes a 5 percent increase between years 3 and 4
[13] Assumes 50 percent Federal Transit formula funding starting in year 4

Figure 4.3: Pearland On-Demand Microtransit Zone of Service



SERVICE OPTION 4: PEARLAND ON-DEMAND RIDE-HAILING SERVICE

Ride-hailing is an on-demand service similar to those provided by transportation network companies, such as Uber or Lyft. Unlike microtransit vehicles, ride-hailing vehicles are only used when requested, meaning no vehicles are dedicated solely to transportation services. This allows for maximum flexibility in setting guidelines. However, the use of federal CMAQ funding to offset some costs is not possible with citywide ride-hailing due to its operational characteristics. Federal Transit Administration (FTA) Section 5307 formula funding, covering 50 percent of net cost, could be applied starting in the second service year. This means that during the first year, all operating and administrative costs, net fares, would need to be locally underwritten.

Key Characteristics of Ride-Hailing Service:

- It uses advanced applications, including metadata, to allow for efficient real-time, on-demand scheduling.
- Passengers request rides as needed, typically through a smartphone app.
- Vehicles are not dedicated to transit service but are instead used only on-demand, or as needed.
- The service is highly flexible, with costs determined by allowable trips per month.
- It must be a shared-ride service to accommodate multiple passengers, qualifying it for federal funding.

The number of ride-hailing trips can either be capped per individual or left unlimited based on the service's designed criteria.

Cost Estimates: Cost estimates for Pearland's ride-hailing program are derived from the city of Pflugerville and Kyle, which, with about half the population of Pearland, provided 17,000 trips in 2023.

As Pearland is expected to have double the ridership levels, the estimate infers a proportional increase in both ridership and costs.

Since both microtransit and ride-hailing are intracity services, they share the same service boundaries. Both must offer shared rides to qualify for federal funding.

After the first year, funding can be provided through the FTA Section 5307program, allowing the FTA to cover percent of the net operating cost in year 2 and beyond.

Assumptions Regarding Citywide Ride-Hailing Costs and Services:

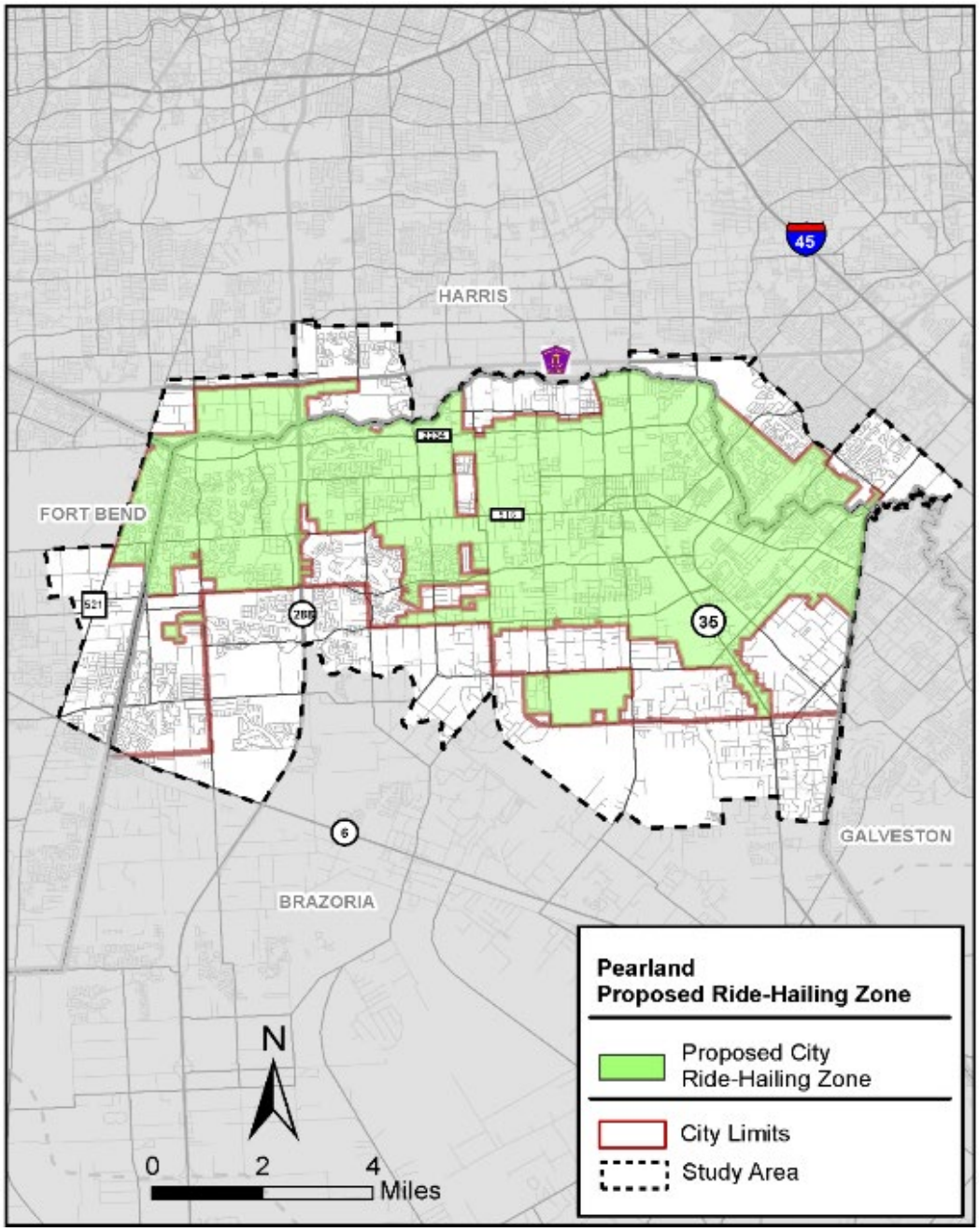
1. **Estimated Total Costs**: Costs are primarily determined on a per-trip basis, The most efficient way to implement the service would be to use a private turnkey operation. H-GAC estimates this would cost approximately $16 per trip. Startup costs are estimated at $135,000, based on similar on-demand services in Texas, namely in Pflugerville. The total estimated operating cost is $520,000, with total operating and startup costs, including administrative expenses, projected at $695,000.
2. **Estimated Ridership**: H-GAC Travel Demand Modeling projects an annual ridership of 35,000 passengers. This conservative estimate reflects the likelihood of lower ridership during the pilot year's initial phase, as ridership typically increases in subsequent years.
3. **Estimated Fares**: The service could charge $4.00 per one-way trip, striking a balance between generating revenue and making the service attractive to potential riders.
4. **Estimated Farebox Revenues**: Based on estimated ridership and fare, farebox revenues and any federal are $140,000 in the first year.
5. **Estimated Local Costs**: Pearland's local cost would equal the total operating costs minus farebox revenues and any federal funding. For the first year, the projected local share is $555,000.

Figure 4.4: Pearland Ride-Hailing Service: Projected Costs, Revenues, and Operating Information

Year	Year 1	Year 2	Year 3	Year 4	Year 5
Yearly Service Days	300	300	300	300	300
Annual Passengers (Unlinked Trips)[14]	35,000	36,750	38,588	38,588	38,588
Total Cost Per Trip	**$16.00**	**$16.00**	**$16.00**	**$17.60**	**$17.60**
Operating Expenses[15]	$560,000	$588,000	$617,408	$679,149	$679,149
One-time Contractor Startup	$135,000				
Total Operating Expenses	$695,000	$588,000	$617,408	$679,149	$679,149
Average Fare	$4.00	$4.00	$4.00	$4.00	$4.00
Farebox Revenue (Annual Passengers x Average Fare)	$140,000	$ 147,000	$154,352	$154,352	$154,352
Net Operating Expenses	**$555,000**	**$441,000**	**$463,056**	**$524,797**	**$524,797**
% Federal Funding (years 2-5)		50%[16]	50%	50%	50%
$ Federal Funding (years 2-5)		$220,500	$231,528	$262,399	$262,399
% Local Funding (years 2-5)		50%	50%	50%	50%
$ Local Funding Year 2-5		$220,500	$231,528	$262,399	$262,399
Total Local Funding Year All Years	**$555,000**	**$220,500**	**$231,528**	**$262,399**	**$262,399**

[14] Assumes a 5 percent increase between years 1, 2 and 3
[15] Assumes a 15 percent increase between years 3 and 4
[16] Assumes 50 percent Federal Transit formula funding starting in year 2

Figure 4.5: Pearland Ride-Hailing Zone of Service



SERVICE OPTIONS NOT INCLUDED

Several transit services were excluded from the listed alternatives for the following reasons: unfavorable public response, insufficient household density to support the service, high service costs, inability to implement within the short-term (zero to five years), the availability of existing on-demand/demand-response technology, prioritization of park-and-ride services, and challenges in accurately estimating short-term demand and cost. The excluded services and reasons for their exclusion are discussed below.

- **Fixed Guideways (Rail and Rapid Bus Transit)**: Due to high expense and long implementation timelines, this is considered a long-term (25+ years) alternative. However, it will require significant funding commitments and planning.
- **Commuter Service to Downtown Houston:** While this route shows strong potential based on commuter travel from Pearland to Downtown Houston, the Texas Medical Center (TMC) has greater ridership potential and can be more easily served. The initial focus should be on the TMC, with future evaluation of a downtown route if TMC service proves successful. In the meantime, the TMC route would allow transfers to Downtown Houston using the METRORail Red Line.
- **Pearland East Commuter Service**: While the idea of a service from Cole's Flea Market is promising, projected ridership is lower and the cost per trip is higher than for Pearland West's Park and Ride. A phased approach is recommended – starting with the Pearland West route and potentially implementing the Pearland East route within five to ten years if successful.
- **Over-the-Road Coaches for Intercity Commuter Service:** These vehicles cost twice as much per hour as large cutaway buses. This is supported by H-GAC Fort Bend Transit's experience with Sugar Land services, which use cutaway buses.
- **Fixed-Route Local Bus Service along Broadway and SH 35**: Low suburban density and unfavorable community feedback exclude this short-term alternative. It may become viable in the next 10-15 years if density and transit need increase.
- **Commuter Service from Houston Park and Ride:** While some Pearland residents might use Houston's Park and Ride, most residents live too far away to make it a practical option.
- **Intercity Non-Commuter Bus Service**: As part of its regional planning efforts, Pearland may need to consider intercity routes, such as those to Angleton, Sugar Land, or Friendswood. H-GAC's upcoming Regional Bus Study will clarify the feasibility of such routes in the medium term.
- **Demand-Response Service**: Although effective, it incurs higher operational costs due to increased overhead. On-demand services, such as Uber or Lyft providing same-day trips, offer greater efficiency and improved customer service/satisfaction.

Administrative/Outreach

Mobility Manager

The development of transit services in Pearland will require a commitment to professional administrative resources that can implement, coordinate, and maintain transit, as well as provide community information on transit services and other mobility options, such as pedestrian and bicycle mobility. Establishing transit services is feasible with administrative support. Once in place, a mobility manager can provide several key benefits, including:

- Overseeing both existing and new intracity transit services
- Securing a park-and-ride site for intercity transit services
- Offering information and guidance on transit and alternative services, such as pedestrian and bicycle options, for residents.
- Preparing applications for CMAQ and other federal grant programs.
- Collaborating with regional transit agencies and partners including H-GAC to develop and coordinate potential new transit services in Pearland. For example, if park-and-ride service to the Texas Medical Center is developed for Pearland West, coordination with METRO would be needed to ensure access to existing METRO bus stops in the medical center.

The Mobility Manager position could be funded for up to 80 percent of the total allocated cost through the FTA's 5310 program (for services supporting seniors and individuals with disabilities). Although community transit service would be available to all residents, it is needed to provide a mechanism to enhance overall mobility in Pearland. To promote mobility, a 20 percent local commitment to the staff position may be provided. This is based on discretionary and competitive funding within the FTA Section 5310 program for the Houston Urbanized Area. Since grant funding is not guaranteed, it is not incorporated into cost estimates. The projected cost of the mobility manager, which would help Pearland implement and oversee transit and related services in a fiscally responsible manner, is estimated at $110,000 per year, including salary and benefits. This allocation is entirely assigned to the commuter service.

PEARLAND REVENUE OPTIONS

Transit services, particularly commuter and on-demand services, offer a broad range of benefits to communities. These services generally rely on a combination of funding sources, as farebox revenue alone is insufficient to cover the full costs of operating public transit. While competitive discretionary grants are one avenue for securing additional funds, the City should also consider more accessible alternatives, including:

1. Congestion Mitigation and Air Quality (CMAQ) Commuter Transit and Pilot Project

Historically, cities and transit agencies within the region have successfully leveraged CMAQ commuter pilot projects to launch park-and-ride services to connect commuters to large employment hubs in Houston. These services have demonstrated a reduction in NOx (nitrous oxide) emissions and total vehicle miles traveled, thus meeting the requirements for commuter service funding through CMAQ.

The program provides funding for the first three years of service, with a local match of 20 percent of net operating cost required. Several regional entities, such as The Woodlands Township, Fort Bend Transit, city of Conroe, Harris County, and the Gulf Coast Transit District, have successfully implemented commuter services through this program. During the pilot period, ridership and fares increased, leading each agency to continue offering the service beyond the initial funding period. As a result, these pilot projects evolved into sustainable, long-term transit solutions for their respective communities and counties.

2. The Urbanized Area Formula Program (Formula – but subject to approval for Pearland service)

The Urbanized Area (UZA) Formula Program (Section 5307) is a Federal Transit Administration program that provides federal funds to support transportation in urbanized areas, which can be used to support the development of transit services. Pearland does not receive any federal operating funds, also known as 5307 formula funds. However, Pearland does not receive any 5307 funds, but it may be possible for Pearland to apply for these funds to implement the transit services proposed in alternatives, such as commuter or on-demand transit service.

In the Houston UZA, the Metropolitan Transit Authority of Harris County (METRO) is the designated recipient of the 5307 formula funds, with other transit agencies including Harris County Transit (serving eastern Harris County) and Fort Bend Transit, also applying annually for their share of these funds. Historically, these 5307 funds have provided critical operating support for transit services in these areas.

Should Pearland decide to move forward with transit implementation, it could apply for 5307 funds to offset some operational costs, especially for the commuter or on-demand services outlined. Pearland would be required to actively engage in the application process to secure approval and funding.

3. Federal Transit Administration's Enhanced Mobility of Seniors & Individuals with Disabilities Program Funding

The city of Pearland currently benefits from Section 5310 funding through Harris County Rides, which supports limited demand response service for up to $36,000 annually through an interlocal agreement with the Gulf Coast Transit District. This funding helps provide transit services for seniors and individuals with disabilities.

The Section 5310 program supports a variety of transit-related activities. For Pearland, one potential opportunity could be to use these funds to hire a Mobility Manager, which would allow the city to share up to 80 percent of the administrative costs associated with managing transit service and improving mobility options for vulnerable populations.

The next call for projects for the 5310 funding in the Houston Urbanized Area is expected in mid-2025, offering an additional opportunity for Pearland to apply and potentially reduce local transit service costs. While this funding is competitive and not guaranteed, it provides a viable avenue for Pearland to explore as it seeks to enhance and expand its transit services.

4. State Transportation Funding

State operating and capital funding is unavailable for transit services in the Houston Urbanized Area, which includes the city of Pearland. This limits the state's direct financial contribution to local transit operations or expansion efforts.

5. Local Funding

Local funding is typically required to support transit services. While various external sources of funding (such as federal or competitive grants) are considered, the city of Pearland will need to make some financial commitment to cover operational expenses or match funding for grants. This may involve setting aside local government resources to ensure continuity of service.

6. Farebox Revenues

Farebox revenues, which are the funds collected directly from passengers using transit services, can help offset a portion of the costs. Fare revenue generally covers only a small portion of operating expenses. Pearland would need to incorporate farebox revenues into a broader funding strategy that includes federal, state (where available), and local contributions.

Despite the absence of state funding, Pearland still has potential revenue sources through federal transit and competitive grants beyond CMAQ. These sources could be leveraged to enhance and sustain its transit services.

Benefits from Transit Services

Transit services offer a variety of community benefits, some of which are quantifiable, while others are more qualitative and more difficult to measure. Commuter transit services, in particular, provide several measurable benefits that are similar to high-capacity transit options such as bus rapid transit and rail. For on-demand services, the benefits are primarily related to increased mobility for individuals with specific transit needs, such as seniors and individuals with disabilities, who would otherwise have limited transit options. While some of the costs for these services can be offset by farebox revenues and federal funding, local costs often remain higher due to the fewer measurable benefits associated with demand-response or on-demand services.

The Pearland West Commuter Service stands out as a financially feasible project with low operating costs (less than $2.25 per trip), making it an attractive and sustainable investment. The measurable benefits of this service are clear and far outweigh the operational costs, making it a highly beneficial investment. These measurable benefits are evaluated based on five quantifiable factors identified for the Pearland West Commuter Service: travel time savings, emissions, safety, farebox revenues, and parking. H-GAC has developed analytical tools to measure these easily quantifiable benefits.

- Using H-GAC's roadway benefit calculation tool, the project calculates travel time saved by passengers using transit instead of driving.
- Emissions benefits are based on the number of riders who, by using transit, are improving air quality by reducing the number of single-occupant vehicles on the road.
- Safety benefits are associated with the reduced number of vehicles and fewer vehicle miles traveled resulting in fewer crashes, injuries, and deaths.
- Farebox revenue projections show that use fares are expected to cover around 50 percent of total operating costs.
- Commuters using the service avoid paying high parking fees at employment destinations, such as the Texas Medical Center or Downtown Houston.

The cost-benefit analysis for the Pearland West Park and Ride conducted over 15 years (between 2026 and 2040) reveals a cost-benefit ratio of 2.49 to 1.0. This ratio is based on the inclusion of federal funding for 80 percent of net operating costs during the first three years provided through the Congestion Mitigation and Air Quality Commuter and Transit Pilot Program, and a 50 percent formula funding for net operating costs for the following 12 years.

While commuter park-and-ride services have quantifiable benefits and a positive cost-benefit ratio, microtransit and ride-hailing services also offer value. However, their benefits are less easily measured and primarily tied to fares and federal assistance. Microtransit services have a lower overall benefit before revenues, as they typically cover around 25 percent of the total service cost. Despite this, they still provide critical mobility options, especially in less densely populated areas.

In summary, both commuter transit and on-demand services offer significant, albeit different, benefits to communities. For Pearland, the Pearland West Commuter Service represents a sustainable, high-impact investment with clear, measurable advantages.

Figure 4.6
Benefits Estimation Method

Options	Travel Time Savings	Emission Benefits	Safety Benefits	Fare Box Income	Parking Benefit
Pearland West Park and Ride	Applied HGAC "Roadway-Transit-Benefits" calculation tool. Included SH288 portion only	Applied HGAC "Transit-Emission-Benefits" calculation tool. Ridership by route is main factor	Applied HGAC "Transit-Safety-Benefits" calculation tool	Daily fare multiplied by annual operation days	Daily parking fee multiplied by annual operation days
Microtransit	Not calculated due to uncertain daily miles traveled.	Not calculated due to uncertain daily miles traveled.	Not calculated due to uncertain daily miles traveled.	Fare per ride multiplied by annual estimated trips	Not calculated
Ride-hailing	Not calculated due to uncertain daily miles traveled.	Not calculated due to uncertain daily miles traveled.	Not calculated due to uncertain daily miles traveled.	Fare per ride multiplied by annual estimated trips	Not calculated

Figure 4.7
Cost-Benefit Analysis Considering Federal Revenues

Pearland Transit Benefit Cost Analysis (2026 - 2040)*										
Options	Travel Time Savings (000)**	Emission Benefits (000)	Safety Benefits (000)	Fare Box Income (000)	Parking Benefits (000)	Total Benefits (000)	O&M Costs (000)	Benefit Cost Ratio	Estimated Federal Revenues (000)	Benefit Cost Ratio (With Fed Help)
Pearland West Park and Ride $200/hr	7,400	1.57	1,848	2,910	4,370	16,530	7,377	2.24	1,822	2.49
Micro Transit $85/hr	-	-	-	1,275	-	1,275	19,403	0.07	15,523	0.87
Ride-hailing $16/trip	-	-	-	1,275	-	1,275	5,100	0.25	2,449	0.73

* Present value discount rate is 7%.

** Fixed 2023 local US dollar.

Reference: https://www.nctr.usf.edu/wp-content/uploads/2015/01/77060-NCTR-NDSU03-508.pdf

SERVICE ALTERNATIVES

The development of the following service alternatives integrates several factors from the study, ensuring a wide range of considerations are addressed when proposing transit solutions for Pearland. These factors include the analysis of prior studies, transit needs, public outreach, service types, and revenue and cost-benefit projections:

1. **Peer and Prior Study Analysis**: Reviews of peer cities and prior studies identified the presence of services such as park-and-ride, on-demand, and demand-response services as relevant and potentially effective models for Pearland.

2. **Transit Need Index**: The Transit Need Index highlights areas in Pearland with significant demand for transit services, particularly for on-demand and demand-response services targeted at individuals with limited mobility. Commuter demand analysis indicates that there is strong potential for park-and-ride services to major employment centers such as The Texas Medical Center and Downtown Houston.

3. **Public Outreach**: Community input plays a vital role in the development of these alternatives, with public outreach providing insights into perceptions of the value of various public transit modes. Stakeholders identified a preference for commuter services and for on-demand services.

4. **Service Modes, Features, and Costs**: Multiple service modes were identified for inclusion in the alternatives, including park-and-ride, microtransit, and demand-response. Each mode offers different features and relative costs. For example, park-and-ride typically incurs higher upfront infrastructure costs, while on-demand services may require higher ongoing operational support.

5. **Revenue Potential**: Revenue projections differ based on the service type. For commuter park-and-ride services, farebox revenues can cover a significant portion of the operating costs, while on-demand services rely more heavily on external funding sources like federal grants and local revenues.

6. **Cost-Benefit Analysis**: A comprehensive cost-benefit analysis was conducted to evaluate the effectiveness of different transit modes. This analysis includes both quantifiable costs (e.g., operational expenses, capital outlay) and less quantifiable benefits (e.g., improved mobility for seniors and individuals with disabilities). The analysis revealed that commuter park-and-ride services offer higher quantifiable benefits due to factors like travel time savings and emissions reductions. In contrast, microtransit and ride-hailing services offer lower measurable benefits but provide crucial mobility support for underserved populations.

These factors have led to the following alternatives to be considered:

Alternative 1 – Existing Service Only

In this alternative, Pearland would continue operating its current transit services without any expansion (the "No Build" option). The focus remains on maintaining the Harris County Rides program, which provides transit services to seniors and individuals with disabilities. The program has been in place since 2012, with some service interruptions, and has focused on providing intracity service for Pearland residents who qualify. No new services or enhancements would be introduced under this option.

The total service cost is $108,000, with a local contribution of up to $36,000 and a maximum ridership of 3,000 passenger trips each year.

Alternative 2 – Existing Service and West Pearland Park-and-Ride for Intercity Services

The second alternative builds upon the existing intracity service provided by Harris County Rides, as outlined in Alternative 1. In addition to continuing this service, it introduces the Pearland West intercity commuter/park-and-ride service, which is considered the most cost-effective option for Pearland. The total service cost for Harris County Rides remains $108,000, with an estimated 80,000 annual passenger trips anticipated by the end of the first year. The local contribution would still be up to $36,000, supporting a maximum ridership of 3,000 annual passenger trips.

The addition of commuter operating costs and a full-time Mobility Manager would increase the total estimated local cost by $110,000, which includes salaries and benefits. This staff position is crucial for overseeing the service contracts, managing customer service with turnkey providers, and coordinating with other transit agencies, including METRO. The Mobility Manager would be dedicated to the park-and-ride service, ensuring effective management whether Alternatives 2, 3 or 4 are chosen.

Funding for the Mobility Manager's role may potentially be supported through the FTA Section 5310 program, but this is not guaranteed, as the funds are awarded competitively within the Houston Urbanized area. The ability to secure funding for this position will depend on the specific applications and priorities during the funding cycles. Overall, this alternative enhances Pearland's transit offerings while maintaining a focus on effective management and coordination.

Alternative 3 – Pearland West Park-and-Ride (Intercity) & Citywide Microtransit (Intracity) Services

Alternative 3 proposes the implementation of a microtransit service within the city of Pearland, in conjunction with the Pearland West intercity commuter/park-and-ride service. This alternative has an estimated total cost of $176,000 in local funding, which includes provisions for a Mobility Manager to oversee the program.

The projected first-year cost for the microtransit services is $594,550, which encompasses $135,000 allocated for advanced technology implementation. One of the key advantages of microtransit is its potential cost-effectiveness compared to ride-hailing services during the initial years. This is primarily because microtransit would qualify for CMAQ funding in the first three years of operation. Ride-hailing services do not meet the necessary air quality reduction standards, and therefore are ineligible for such funding.

By leveraging CMAQ funds, microtransit can provide a more affordable option for Pearland residents, particularly in the early phases of service establishment. Overall, this alternative enhances both intercity and intracity transit options, positioning Pearland for improved connectivity and sustainability in its transportation offerings.

Alternative 4 – Pearland West Park-and Ride-Service (Intercity) & Citywide Ride-Hailing (Intracity) Services

Alternative 4 focuses on implementing a ride-hailing service within the city of Pearland, alongside the Pearland West intercity commuter/park-and-ride service. This combination is regarded as the most cost-constrained and effective solution for the city's transit needs.

The projected startup cost for the ride-hailing service is estimated at $135,000, which would be allocated to a private turnkey provider responsible for setting up advanced technology for a citywide service tailored specifically to Pearland. This approach aims to enhance the flexibility and responsiveness of transit options available to residents, ensuring that ride-hailing can effectively meet varying transportation demands.

By integrating ride-hailing with the commuter park-and-ride service, Pearland can create a more comprehensive transit network that offers convenient and efficient travel options for both local and intercity commuters.

Section V – Recommended Alternative and Additional Recommendations

The Pearland Transit Needs Assessment and Feasibility Study recommends Alternative 4: Implement Intracity Ride-Hailing and Commuter Park-and-Ride Service to the Texas Medical Center

This option is both practical and cost-effective for initiating suburban intracity transit service, including intercity connections from Pearland West to the Texas Medical Center.

Several considerations influenced the selection of Alternative 4:

- **Turnkey Service**: It allows for a seamless integration of intracity and intercity transit services by using a Transportation Networking Company for intracity needs and a private transit provider for intercity connections.
- **Meeting Transit Needs**: This alternative addresses a significant level of both intercity and intracity transportation demands.
- **Pilot Flexibility**: As a pilot service, it offers the flexibility to adjust operations based on real-time conditions and community feedback.
- **Cost Control**: Ride-hailing services provide greater control over costs, as transportation is only provided when requested, reducing unnecessary expenditures.
- **Cost Efficiency Over Time**: While the initial costs for Alternative 4 may be higher than microtransit in the first year, it benefits from lower service costs in subsequent years. Federal funding can underwrite 50 percent of the net costs beginning in year 2, leading to significant long-term savings.

The two intracity transit options analyzed—microtransit and ride-hailing—offer similar passenger experiences. In both cases, a passenger requests a ride, and the service responds by providing an intracity ride from the origin to the destination. However, the operational delivery differs:

- **Microtransit**: relies on dedicated vehicles, which may remain idle during certain periods. Its costs are fixed and based on total service hours rather than ridership.
- **Ride-Hailing**: operates on a demand-driven model, providing rides only when there is a request. This results in flexible costs that adjust according to actual usage.

By implementing Alternative 4, Pearland can establish an effective and responsive transit system that meets the community's needs while ensuring fiscal responsibility.

Section VI. Conclusion and Next Steps

The Pearland Transit Assessment and Feasibility Study has examined the viability of intracity and intercity transit service for the city of Pearland, with a particular focus on the emerging role of on-demand services. These services have gained traction in recent years, providing a flexible option that meets local travel needs, especially for those with limited access to traditional transit. Additionally, commuter transit options along SH 288 have been under consideration for many years. Key challenges include identifying suitable locations for park-and-ride facilities, establishing a feasible operating model, and ensuring effective system coordination, all of which are critical for success. Despite the complexities, there remains substantial travel demand, indicating the potential viability of commuter services even in the post-COVID context.

The capacity of Pearland to develop, implement, and manage new transit services is vital for its success. Engaging a transit professional is essential for navigating the intricacies of service planning and execution. However, challenges related to commitment and oversight will need to be addressed, as transit conditions can change rapidly. The next steps involve the Pearland City Council reviewing the study's recommendations and determining how to proceed. Key considerations for this decision-making process include public sentiment regarding transit services, insights from previous transportation reports, comparative analysis with peer cities, demographic trends affecting transit needs, and the evaluation of proposed service alternatives. Based on the comprehensive analysis, If the city moves forward with the study recommendations, Alternative 4 is identified as the optimal choice for Pearland, likely integrating both on-demand and commuter services to effectively address local and regional transit needs.

Pearland Transit Needs Assessment & Feasibility Study

TECHNICAL MEMORANDUM

May 2023

Houston-Galveston Area Council

Pearland Transit Needs Assessment & Feasibility Study

TECHNICAL MEMORANDUM

Houston-Galveston Area Council

Contents

Pearland Transit Needs Assessment & Feasibility Study

TECHNICAL MEMORANDUM

Section I – Introduction

The City of Pearland and the Houston-Galveston Area Council (H-GAC) are working together to conduct a Transit Needs Assessment, meeting the objectives below, to assess the feasibility of transit in Pearland.

- Evaluate existing conditions and review relevant professional literature and related issues within the City of Pearland that can help with assessing transit needs
- Examine a variety of transit experiences in growing peer suburban cities in Texas to assess their value and potential applicability to Pearland
- Define types of transit that may be considered for use in the City of Pearland
- Provide robust community outreach including resident surveys, online and in-person public engagement and stakeholder meetings, and other efforts designed to gauge existing resident attitudes towards commuter and local transit. These efforts will also help us decide resident preferences as the assessment proceeds
- Work closely with Pearland officials, staff, and diverse stakeholders throughout the study process to achieve approval from the City of Pearland during key points in the study[1]

This technical memorandum is designed to summarize existing conditions in the study area, including demographics, housing, travel patterns, existing transit service, past studies, and others. It also supplies an overview of suburban transit options and a comparison of transit in peer cities. The data summarized in this memorandum will be used to make recommendations in the final report once further analysis and public engagement is completed.

Section II – History of Transit in Pearland

Demand Response

The first transit offered in Pearland was a demand-response service provided by the Gulf Coast Center, through its transit service, Connect Transit. This service was provided in Pearland between the 1980s and 2012. Rural transit was also provided to the rest of Brazoria County

[1] Goals and Objectives based on an agreed-upon study scope by the Pearland Needs Assessment Steering Committee

using available federal and state transit funds with the Gulf Coast Center as the recipient of federal transit funds for Brazoria County.

Gulf Coast Center notified the City of Pearland in 2012 that it could no longer fund demand-response service in Pearland using federal and state formula dollars since Pearland was now part of the Houston Urbanized Area. [2]

Today, the City of Pearland, in addition to League City and the City of Friendswood, receives limited transit service through the Harris County Rides program. The service works as follows:

- The federal portion is funded annually through the Federal Transit Administration (FTA) 5310 program, which is designed for the expenditure of services for Persons with Disabilities and Seniors.
- Federal funding for 5310 "passes through" the newly formed Gulf Coast Transit District through an Interlocal Agreement with the City of Pearland.
- Passengers match the cost of the trip dollar-for-dollar up to $42/trip. For example, if a trip costs $42, $21 would be paid with federal/local money, and the remaining $21 paid by the passenger. For a trip costing $20, $10 would be paid with federal/local money and $10 by the passenger.

The Harris County Rides service was paused in November 2021 when Connect Transit transitioned from being a service of the Gulf Coast Center to becoming an independent transit agency, the Gulf Coast Transit District. Service resumed in September 2022 when the Gulf Coast Transit District entered an interlocal agreement with Harris County Transit (Rides) for $75,000. In a second agreement, executed between Pearland and Gulf Coast Transit District, Pearland agreed to cover $36,000 of the $75,000 total cost minus fares.

Park & Ride/Commuter Bus

A site selection study in 2011 by the Metropolitan Transit Authority of Harris County (METRO) for a Park & Ride Bus service resulted in METRO's purchase of land for a potential Park & Ride facility. The parcel of land was located just north of Hughes Ranch Road east of State Highway (SH) 288. The parcel was later sold and is now a vacant parcel owned by Buc-ee's.[3]

In 2018, the City of Pearland applied and was selected to receive funding from the Congestion Mitigation and Air Quality (CMAQ) Commuter and Transit Pilot Program by the Houston-Galveston Area Council. The application proposed a park and ride facility based out of the city's Sports Complex at Shadow Creek Ranch with several morning and evening trips to the Texas Medical Center and Downtown Houston, approximately 35,000 trips each year. However, Pearland decided to forgo these funds, and instead, chose to use a private company, Kerrville Bus, to launch a privately funded transit service. The service faced challenges including construction on SH 288 and the COVID pandemic's impact on work patterns. Service ended in early 2021.[4]

[2] Conversation with the Gulf Coast Center's Chief Financial Officer Rick Elizondo
[3] Discussion with Tom Luhrsen, METRO staff
[4] Discussion with City of Pearland Deputy City Manager Trent Epperson

Section III – Literature Review

There are several documents that are useful for providing knowledge about recommendations and analyses from prior transit-related studies in Pearland. The following list captures relevant reports of the studies from the past 15 years.

2009

- A&R Consulting Solutions, LLC. City of Pearland Transit Feasibility Study (Report not publicly available)

2015

- City of Pearland's 2015 Comprehensive Plan Update https://www.pearlandtx.gov/departments/community-development/comprehensive-plan/2015-comprehensive-plan
- Pearland Economic Development Corporation's (EDC) 20/20 Community Strategic Plan (2013) – 2015 Update https://www.pearlandedc.com/wp-content/uploads/Pearland-2020-Strategic-Adjustment-Recommendations__November-2015.pdf

2016

- H-GAC's Regionally Coordinated Transportation Plan 2017-2021 Update https://www.h-gac.com/getmedia/3a6dbb54-eab9-4fb1-8216-4cce3e05890c/regionally-coordinated-transportation-plan.pdf

2019

- H-GAC's High-Capacity Transit Task Force for the 2045 Regional Transportation Plan Summary Report https://www.h-gac.com/getmedia/07adf492-14ea-42b4-8c4b-3e1301c6f0f6/HCT-Task-Force-Report-Revision-v5.1.pdf

2020

- Brazoria County's 5-Year Capital Improvement Plan* https://www.brazoriacountytx.gov/home/showpublisheddocument/11741/637194471301270000
- HGAC's 2020 Brazoria County Thoroughfare Plan * https://www.h-gac.com/getmedia/28624d53-96f2-48aa-9c7a-766ebf5b3e0f/brazoria-county-thoroughfare-plan.pdf

2021

- H-GAC's Southeast Harris County Subregional Study * https://www.h-gac.com/subregional-planning/southeast-harris-county-study
- PEDC's Pearland Prosperity Strategic Plan https://www.pearlandprosperity.com/
- City of Pearland Parks & Recreation Department Multi-Modal Master Plan https://www.parks.pearlandtx.gov/parks-trails/planning-projects/trial-master-plan

2022

- H-GAC's Gulf Coast Regionally Coordinated Transportation Plan 2022-2026 Update https://www.h-gac.com/regionally-coordinated-transportation-plan/report-and-appendices

In reviewing these documents, a subset, particularly those that included some discussion about public transportation, were selected for more detailed discussion (included below) based on their relevance to the current Pearland Transit Needs Assessment and Feasibility Study. Documents that only focused on other aspects of Pearland's transportation network, such as roads or highways, were omitted from further analysis and are marked with an asterisk in the list above.

Summary of Relevant Studies

The City of Pearland Transit Feasibility Study was completed by H-GAC in 2009 and was conducted on behalf of Connect Transit/the Gulf Coast Center by A&R Consulting Solutions and BGK Consulting. It was the only plan reviewed that focused on possible alternatives for public transit exclusively within Pearland. Since Pearland transitioned from a rural area to the Houston Urbanized Area in 2000, it was no longer eligible for rural Brazoria County funds, and the Gulf Coast Center was unable to fund continued demand response service in Pearland any longer.

The study looked at available alternatives for funding local demand response services or other transit modes. Fixed route service was not recommended due to the lack of density, the low level of transit need, and its requirement of a substantial local cash match (approaching or at 50% of net operating costs, minus fares.) The study recommended commuter service along the SH 288 corridor, and since then, the city has worked towards permanently implementing such a service.

City of Pearland's 2015 Comprehensive Plan Update was prepared by the City of Pearland planning staff along with the planning firm of Kendig Keast Collaborative. Section three of the Pearland 2015 Comprehensive Plan Update describes mobility options within Pearland. The SH 288 corridor is envisioned for considerable commuter activity that could include a potential park

and ride lot. The report also recommends land uses that will encourage multiple modes of alternate transportation besides the Single Occupancy Vehicle (SOV). In addition, pedestrian and bicycle paths are an important part of this comprehensive plan update.

The City of Pearland's Comprehensive Plan lists four goals that have a significant relationship to future transit options.

1. Goal one looks for a mobility system with adequate connectivity to supply multiple travel options.
2. The second discusses safety for all modes including transit when possible.
3. The third discusses a mobility approach that addresses economic development and tax base growth.
4. The fourth goal emphasizes a need for mobility options that reinforce the desired community image and identity for Pearland. This will be an important consideration as options are weighed for transit in the community.

The comprehensive report's action plan calls for added mobility improvements including:

- Sidewalks
- A Complete Streets approach to design – a concept to safely integrate motor vehicles, bicycles, pedestrians, and transit on a single roadway along with businesses and residences
- Spur development along the Lower Kirby Corridor with transit services

Pearland Economic Development Corporation's (EDC) 20/20 Community Strategic Plan, originally developed in 2013, was updated in 2015 and released at around the same time as the Comprehensive Plan was published. The key element related to transit in the strategic plan was to provide a park and ride service along SH 288 and to continue to serve long-term mass transit options.

H-GAC's High-Capacity Transit Task Force was created by the Transportation Policy Council in 2017, which includes the City of Pearland as a member, to "identify the extent to which High-Capacity Transit is needed to support economic growth, mobility, and quality of life." The Task Force developed a financially constrained Priority Network in 2019 as a transit element in the 2045 Regional Transportation Plan (RTP) and its Summary Report.

Recommendations for Pearland include:

- A park and ride facility in the vicinity of Farm to Market (FM) 518 at SH 288
- Express bus service to the Texas Medical Center and Downtown Houston
- Fixed-route bus service along the FM 518 corridor
- Regional bus service to Sugar Land, Alvin, Angleton, and Lake Jackson
- Demand-response service covering the rest of the city

The Pearland Prosperity Strategic Plan was led by the Pearland Economic Development Corporation and considers service from Shadow Creek Parkway along SH 288 to the Texas Medical Center and Downtown Houston. Expanded service to suburban communities through a partnership with METRO is also recommended. Transit service to the Lower Kirby District employment area in Pearland is also highlighted for consideration.

City of Pearland Multi-Modal Master Plan was prepared by city's the Parks and Recreation Department in 2021 and is designed to develop a comprehensive network of recreation bike and pedestrian trails in Pearland. While it does not address commuter transportation, it would allow recreation and some other local mobility trips to occur.

The Gulf Coast Regionally Coordinated Transportation Plan (RCTP) is prepared by H-GAC staff every five years and encompasses the entire 13-county Gulf Coast region, including the eight-county Metropolitan Planning Organization (MPO) region and five adjacent counties. It focuses on the needs of seniors, students, low-income individuals, persons with disabilities, persons with limited English ability, and other groups likely to need aid in meeting their transportation needs. One of the essential elements in the RCTP is the transit need index that measures the perception of transit needs in a specific location compared to regional needs. The transit need index uses American Community Survey data and, for analysis, the Census Block Group as the geographic unit.

When comparing the 2017-2021 and 2022-2026 updates of transportation plan, Pearland in both updates showed transit need at a low level with a couple of block groups showing higher levels of need. This means that the need for transit exists; however, the type of transit needed would be on a lower scale due to several factors discussed later in this memorandum. It should also be noted that the RCTP 2022-2026 update, despite a different calculation of need used for the 2017-2021 update, the result for Pearland did not change. Added transit service is needed regionwide, including in Pearland.

Three of the RCTP 2022-2026 recommendations are relevant to Pearland. First, there is a need to increase awareness of the demand for transit and human services in the Gulf Coast Region among officials and the public. Second, demand-response service is considered a baseline service for all areas without general transit services. Third, the use of microtransit or other innovative technologies should be considered to supply transit to mobility-disadvantaged persons.

The RCTP 2022-2026 update also provides recommendations for appropriate levels of transit service for the Pearland area. This is based on H-GAC's 2017 Regional Transit Framework Study. Most of the Pearland study area is recommended for demand-response or on-demand service. Selected areas have higher densities that could support limited fixed route service and intercity connectors; however, demand-response is recommended throughout the service area.

The matrix below provides a snapshot of the discussions (D) and recommendations (R) that were incorporated into the studies, plans, and reports detailed above. It is worth noting that park and ride and demand response are the most often recommended services, with five and four responses each. Consideration for individuals with a high propensity for transit need are also recommended in four reports. While fixed-route transit service is discussed in several reports, it is only recommended in one, the High-Capacity Transit Task Force Final Summary Report.

Pearland Literature Review Matrix

Author	Study Title	Fixed Route	Demand Response	Individuals with Transit Needs	Regional Intercity Bus Service	Commuter or Park & Ride Transit	Pedestrian Bike	Light Rail
A&R Consulting	City of Pearland Transit Feasibility Study (2009)	D	R	R		R		D
City of Pearland	2015 Comprehensive Plan					R	R	
Pearland Economic Development Corporation	Pearland 20/20 Community Strategic Plan (2013) – 2015 Update					R		
H-GAC	High-Capacity Transit Task Force Priority Network	R	R	R	R	R		
H-GAC	Regionally Coordinated Transportation Plan (RCTP) 2017 Update	D	R	R				
Pearland Economic Development Corporation	Pearland Prosperity Strategic Plan (2021)	D	D			R		D
City of Pearland Parks Department	Pearland Multimodal Plan						R	
H-GAC	RCTP 2022 Update	D	R	R				

(D = Discussed | R = Recommended)

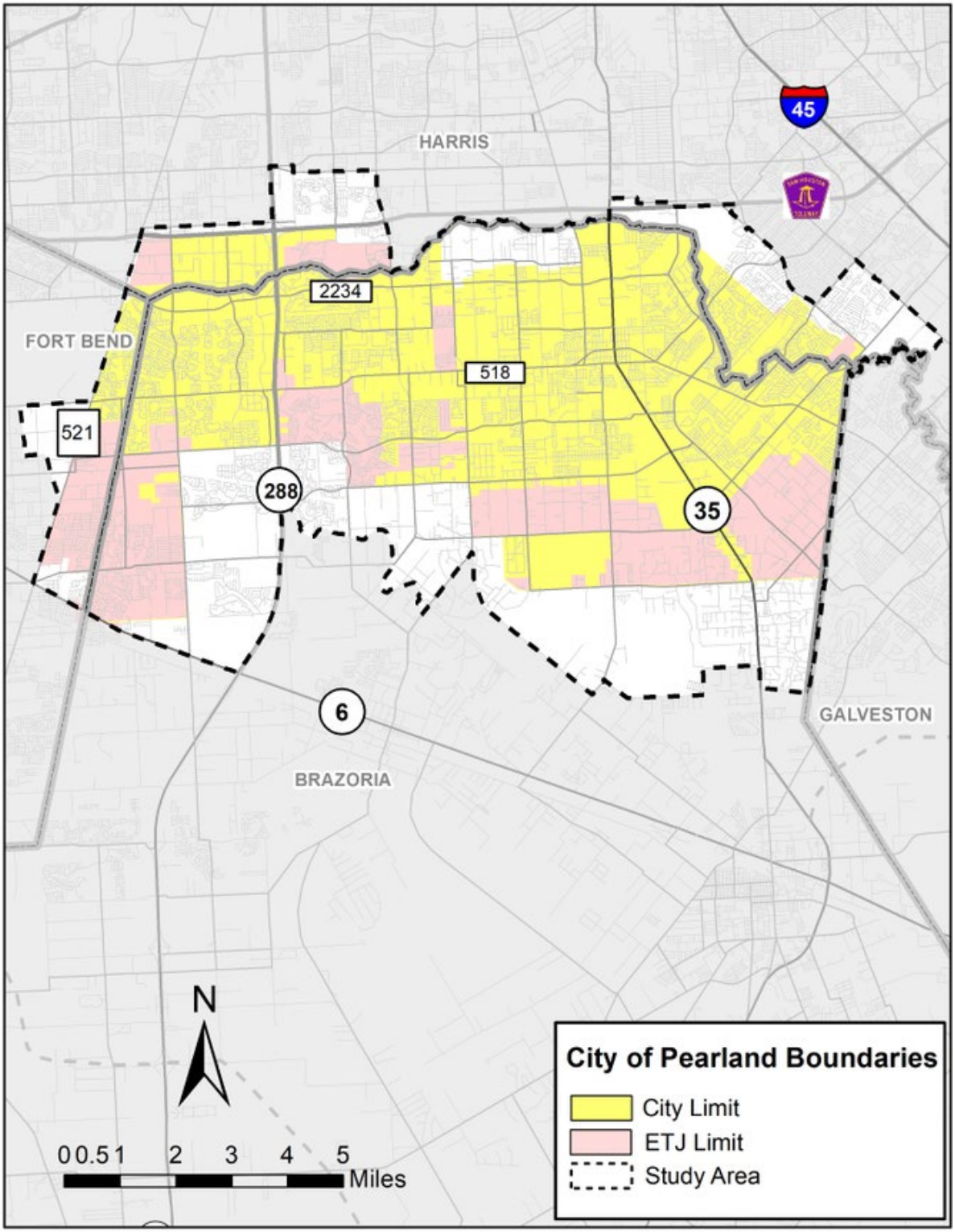
Section IV – Pearland Demographics

Population, employment, and other key demographics of the Pearland community help H-GAC staff understand current and potential future demand for public transportation. These are reviewed in this section within the boundaries of the study area.

Census Block Groups are the smallest group from which substantial demographic data can be extracted. However, these Census Block Groups are not always congruent with city or county boundaries. In the case of Pearland, the Census Block Groups include Pearland and its Extraterritorial Jurisdiction (ETJ) areas as well as significant areas beyond the city and even county boundaries. Because use of Census Block Groups is needed for analyzing a range of demographic variables, areas outside of Pearland and its ETJ had to be included in the study. Doing so supplies the data needed to gain quality demographic data that would otherwise be unavailable.

Because of the geographic nature of available U.S. Census Data, specifically data only available in the 2019 American Community Survey, the full study area includes locations outside of Pearland and Brazoria County. The next page shows a map of the area that will be examined for this study. The yellow areas illustrate the boundaries of the City of Pearland with beige areas showing the Pearland ETJ.

Pearland & Study Boundaries



Population Growth and Density

Population and density characteristics can help determine the types of transit that may be effective and correct for a given community. The number of people living in the City of Pearland and its ETJ has increased in recent decades. Pearland was a city with a population of 40,000 in 1990, before a significant population increase occurred during the following two decades.

The 2000 Census resulted in Pearland becoming part of the Houston Urbanized Area, meaning that the United States Census Bureau no longer considered Pearland a rural community. The 2010 U.S. Census showed Pearland and its ETJ exceeding 116,000 persons. By the 2020 Census, the combined population of the city and its ETJ had increased to more than 156,000. A robust continuation of this population increase is anticipated in the coming decade with the combined Pearland and ETJ population increasing to more than 196,000. While population growth is projected to level off in the 2030s, it will continue to modestly increase to more than 200,000 by 2040, according to H-GAC demographic forecasts. What follows is a chart reflecting this data.

Pearland Population Growth

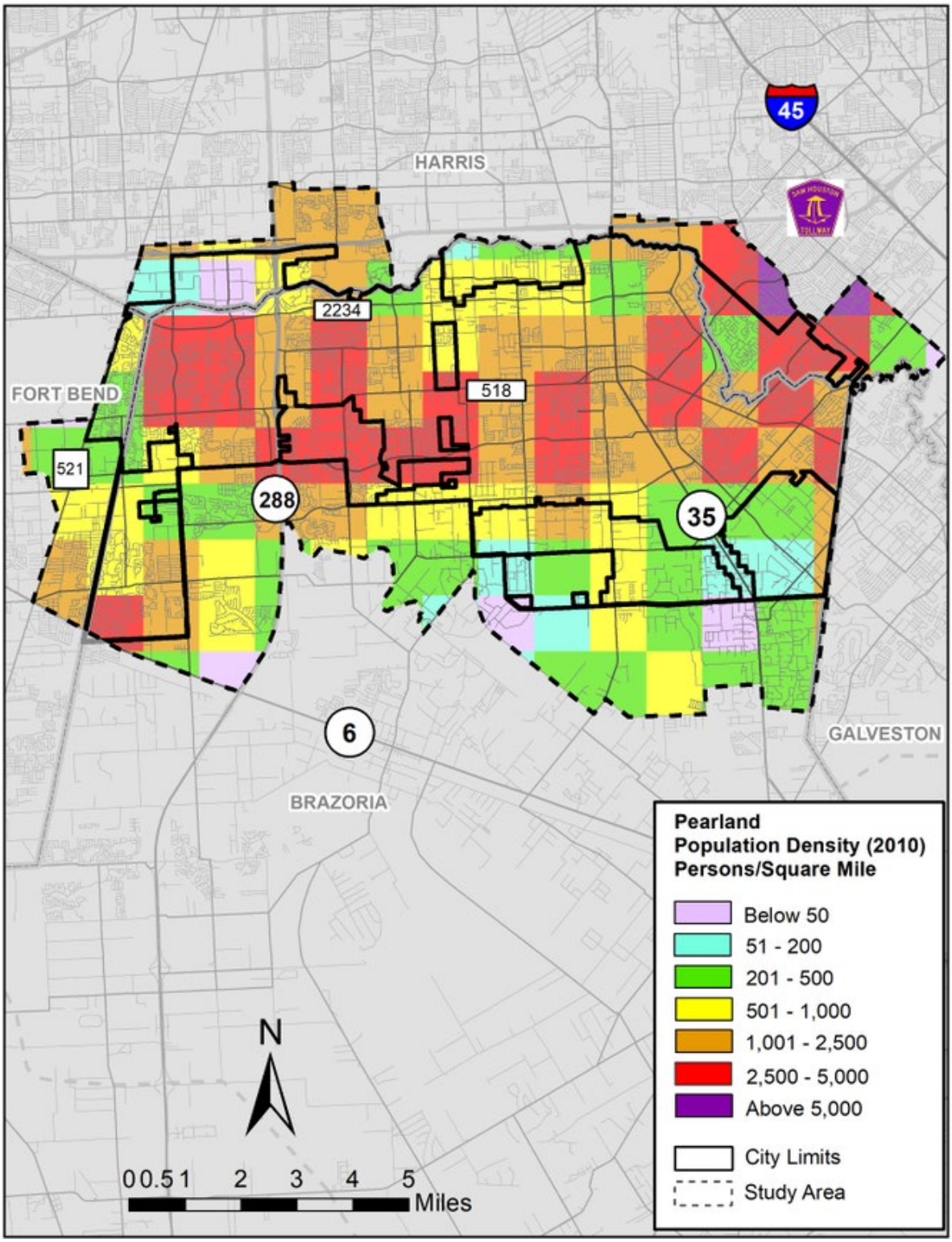
Year	City	ETJ
2010[1]	90,934	25,621
2020[1]	125,328	41,140
2030 (Projected)[2]	153,693	42,944
2040 (Projected)[2]	158,048	42,281

1. The household population in 2010 and 2020 are from the respective years' U.S. Census Data
2. 2030 and 2040 Projections are from H-GAC 2018 Growth Forecast

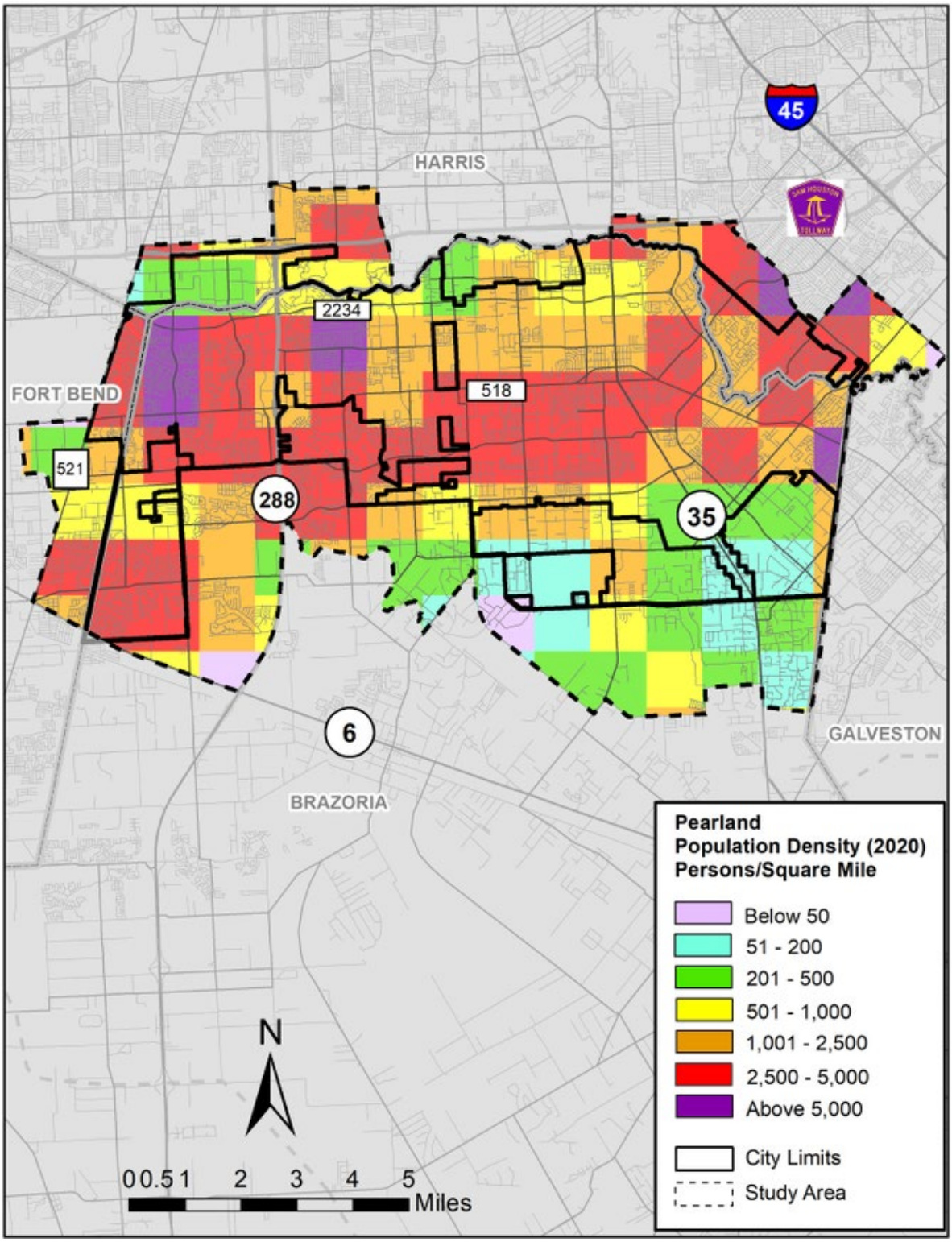
While the past and projected population growth is shown in the table above, the following series of maps show density changes from 2010 to 2020 and projections for 2030 and 2040. The most pronounced areas of growth between 2010 and 2020 were in the northwest, southwest, and south-central areas of the community. Increased density, defined as the number of people per square mile, in those areas is expected through 2040. However, some growth can be expected in many other areas of the city as well. The densities are based on the respective Census Block Groups in the Pearland Study Area.

The black line shows the boundaries of the City of Pearland, which overlay the varied colors of population densities. The dotted line illustrates the boundaries of the study area. The data sources for these maps, in order, are the 2010 and 2020 U.S. Census and H-GAC's 2018 Growth Forecast for the 2040 population.

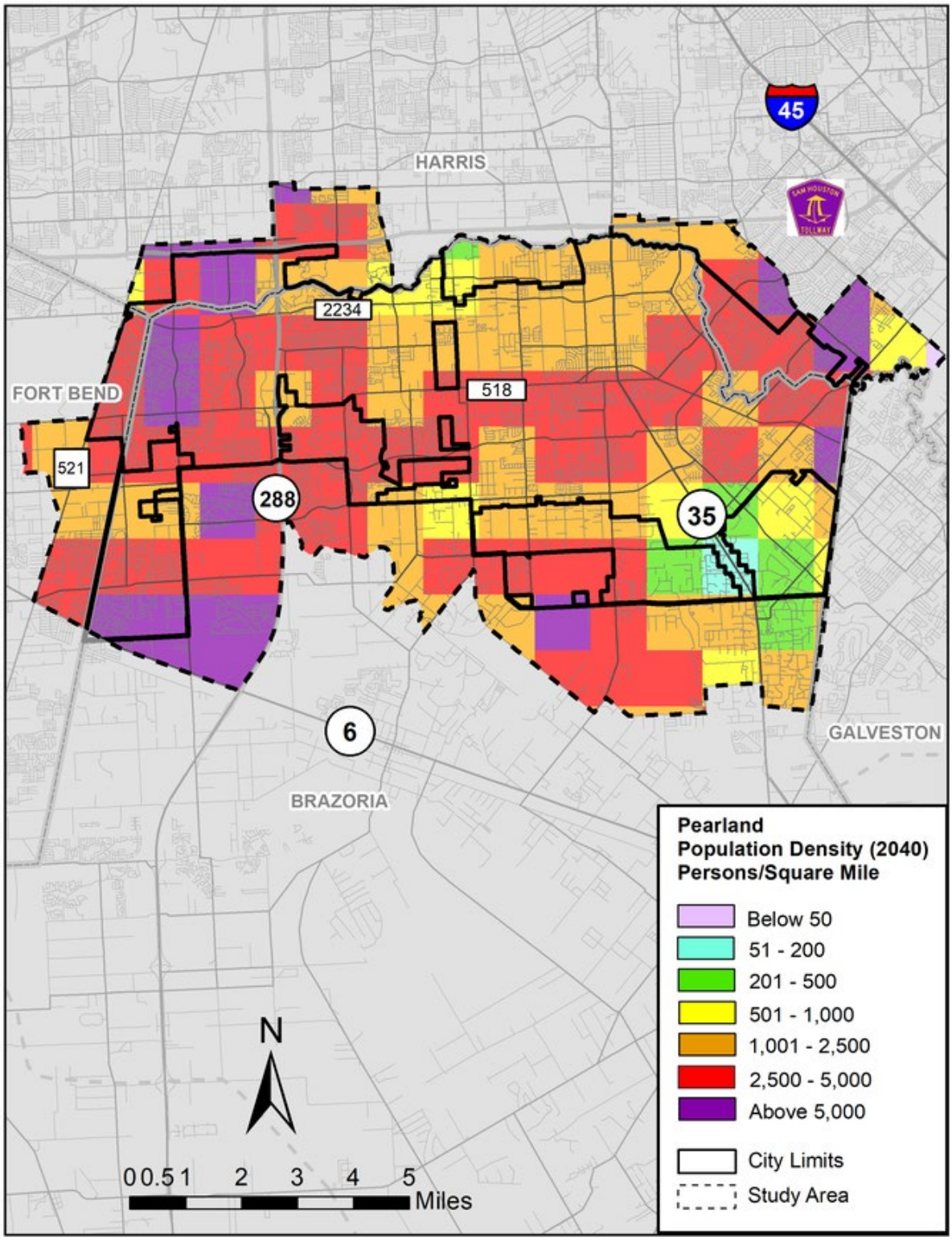
2010 Population & Density Map (people per square mile)



2020 Population & Density Map (people per square mile)



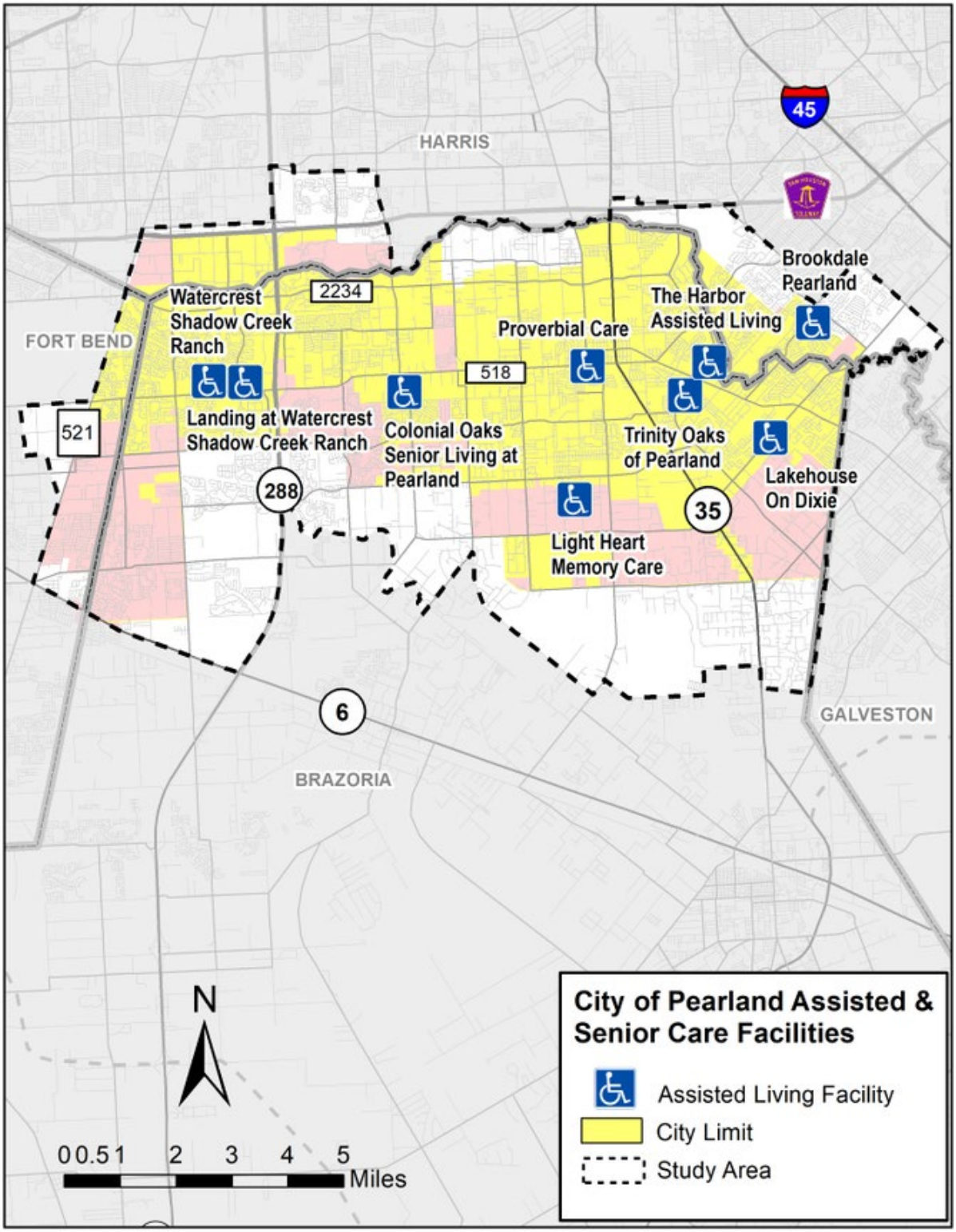
2040 Population & Density Forecast (people per square mile)



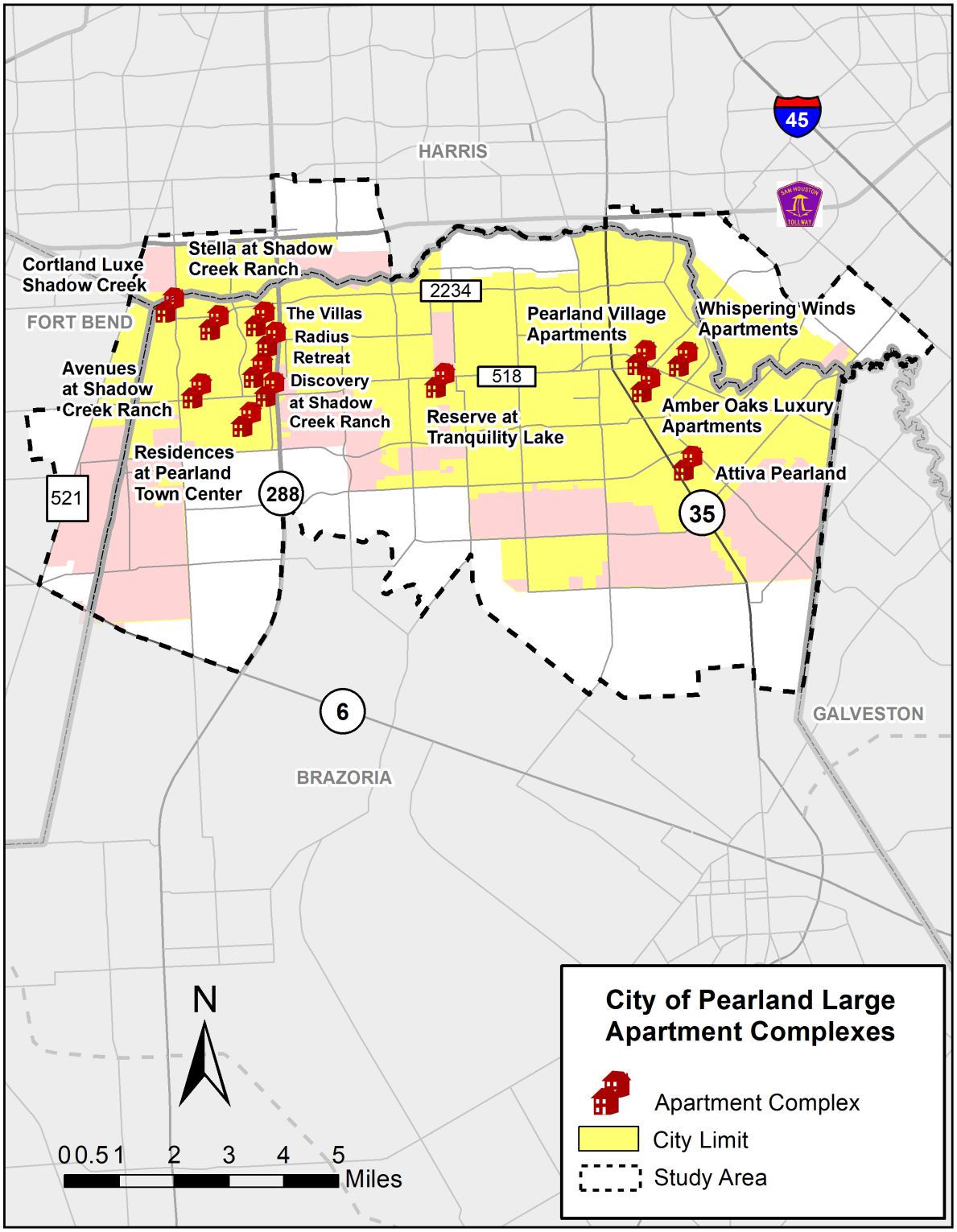
Housing

Most housing in Pearland consists of single–family residences with the average home price in Pearland in August 2022 was $395,000, according to the Houston Association of Realtors. Single-family homes predominate, but more developments are being planned and constructed. In recent years, this new construction resulted in a modest increase in population density. The locations of two of Pearland's more dense housing types, assisted living facilities and large apartment complexes, have also been historically shown to serve transit supportive populations. Maps of both are shown on the following pages.

City of Pearland Senior and Assisted Living



City of Pearland Large Apartment Complexes



Employment

Pearland has historically been known as a "bedroom community" or a commuter suburb, meaning people live in the community, but generally go to another city to work.

In the decade between 2010 and 2020, a significant shift began when the number of jobs available within Pearland increased. Maps show this increase occurring in a significant manner along SH 288, the Lower Kirby District, and SH 35. Below is a chart showing the growth and projected growth of employment in the study area, followed by a series of density maps showing employment in the study area.

Pearland Employment Growth

Year	City of Pearland	Extra Territorial Jurisdiction
2010[1]	13,390	13,360
2018[1]	34,492	7,643
2030 (Projected)[2]	46,215	7,985
2040 (Projected)[2]	47,915	8,471

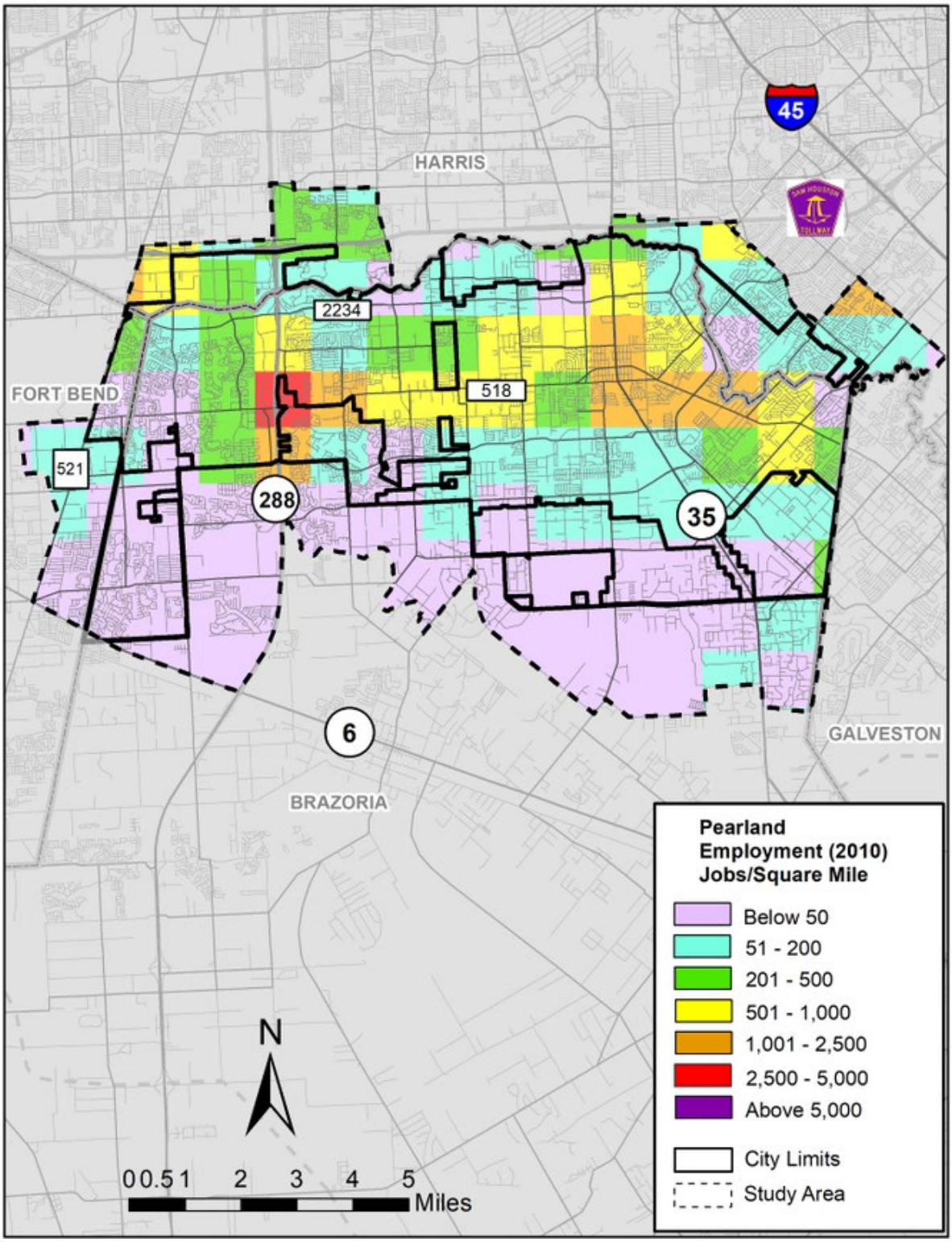
1. Jobs in 2010 and 2018 are from the Longitudinal Employer-Household Dynamics from the U.S. Census Bureau
2. 2030 and 2040 projections are from 2018 H-GAC Regional Growth Forecast

Projected employment growth after 2020 appears to mirror the locations where population growth is expected to be most intensive, namely along the Lower Kirby District, and the SH 288 and SH 35 corridors (this growth is illustrated in the growing yellow, orange and red areas in the maps that follow).

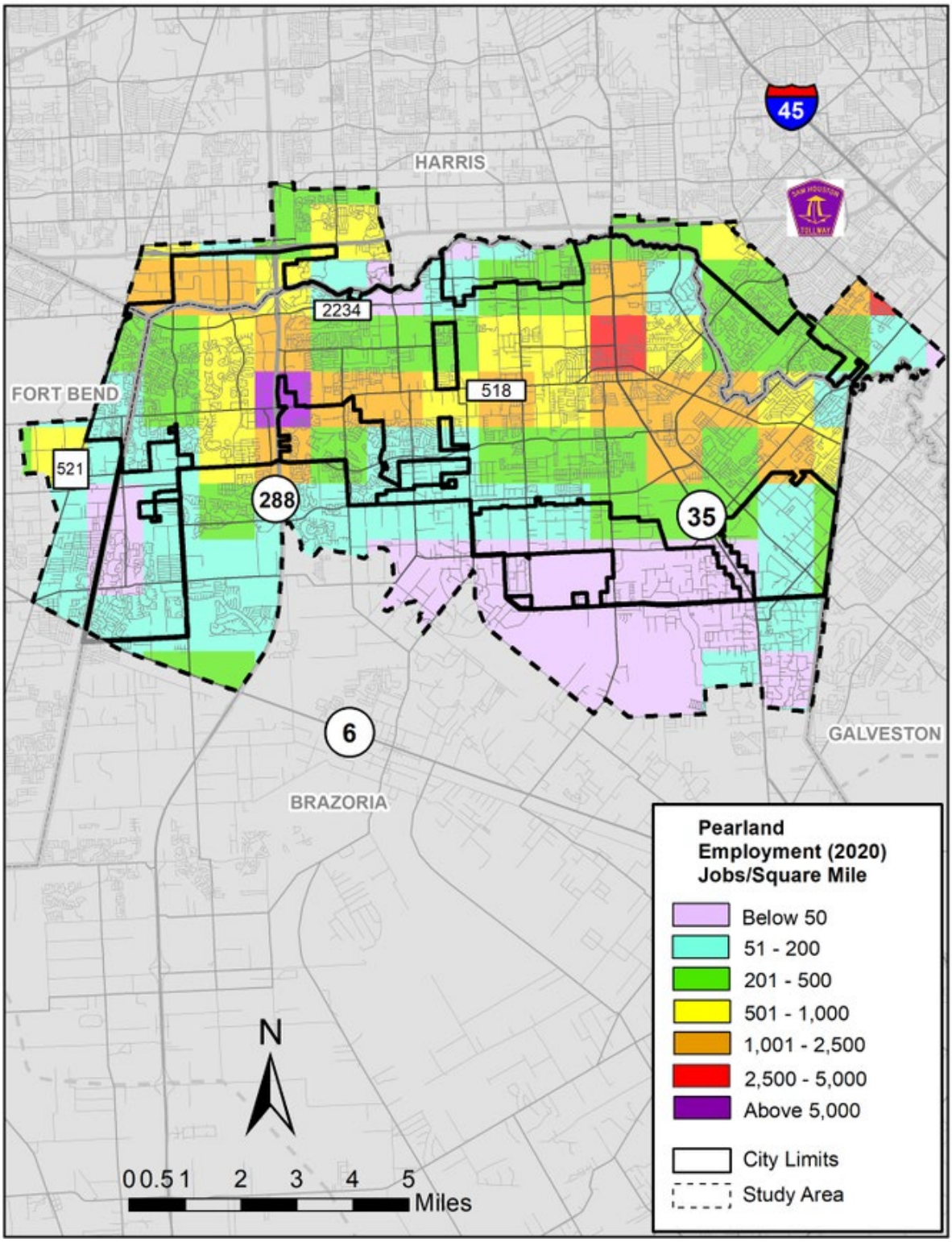
Between 2010 and 2040, Pearland is expected to develop a larger employment base, but commuters will also travel to and from other employment destinations outside the city. The maps that follow also show this growth in employment. The boundaries of the City of Pearland are identified by a solid black line, and the study area is illustrated by a dotted line.

The data sources for the following maps are the U.S. Census Bureau's 2010 and 2018 Longitudinal Employer-Household Dynamics program and the 2018 H-GAC Regional Growth Forecast, respectively.

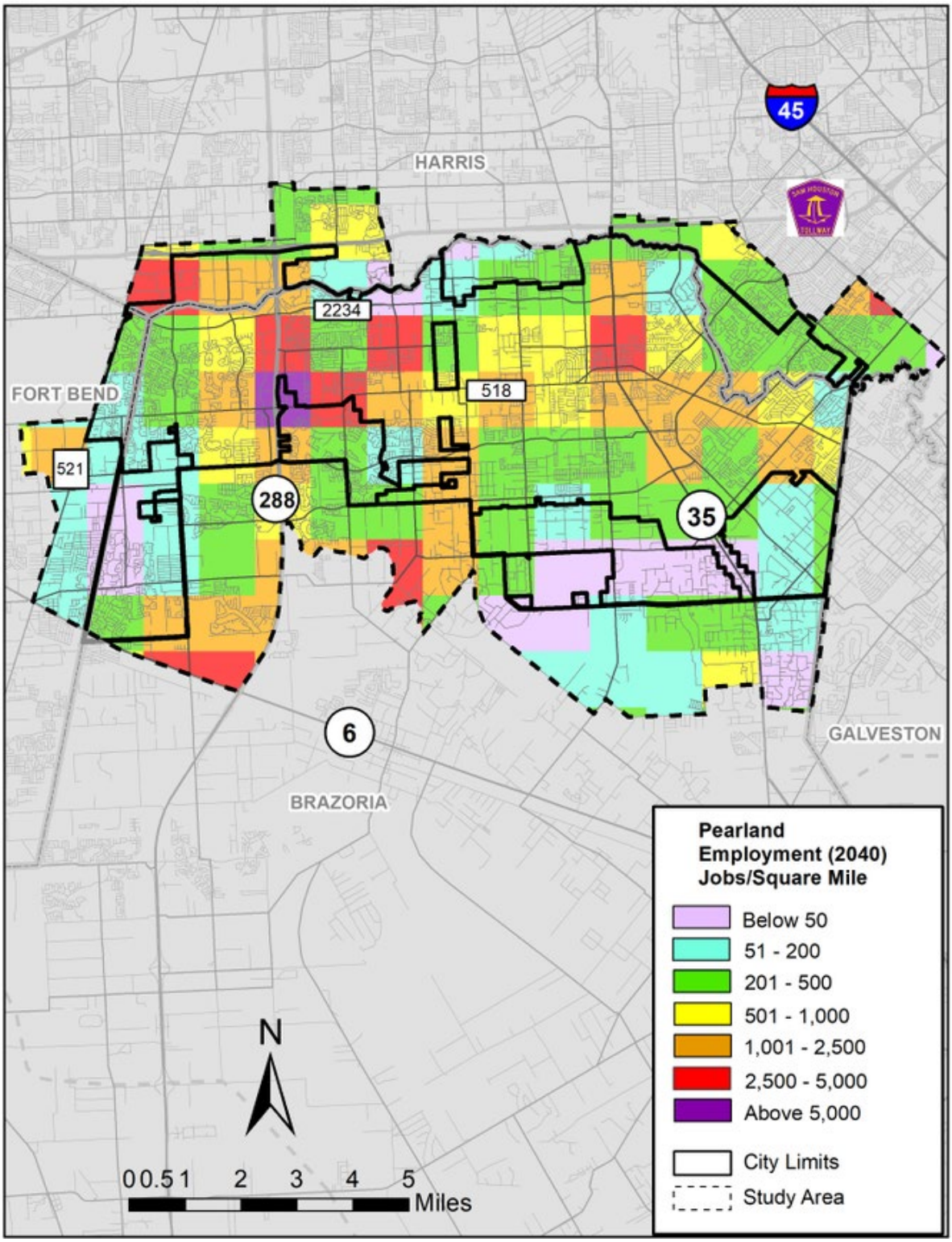
2010 Pearland Employment (jobs per square mile)



2020 Pearland Employment (jobs per square mile)



2040 Pearland Projected Employment (jobs per square mile)



Land Use

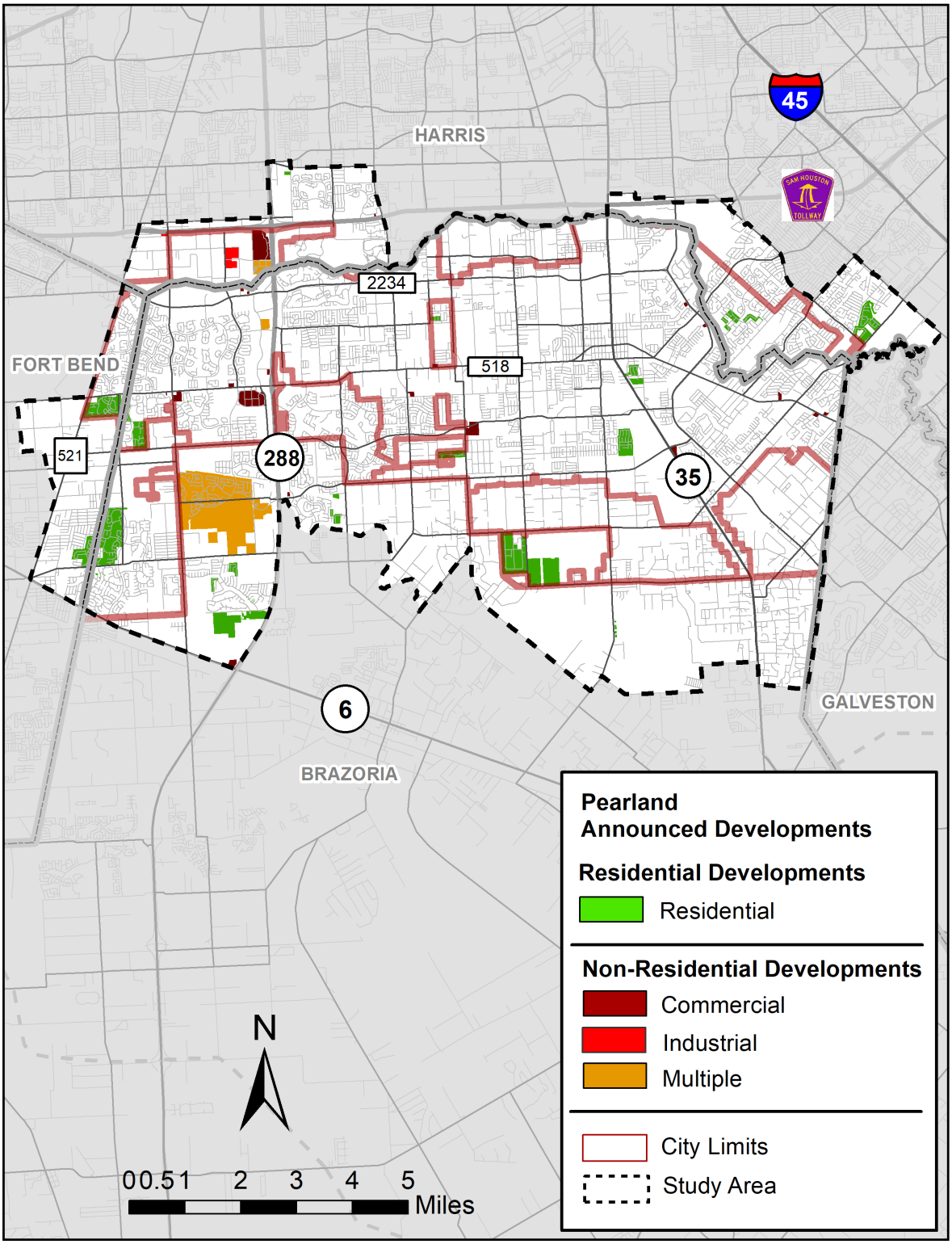
The 2018 H-GAC Regional Growth Forecast for 2030 illustrates significant growth for residential land use (both single- and multi-family dwellings).

2030 Projected Future Land Use in Pearland

Land Use	Residential *(Units)*	Non-Residential *(Square Feet)*
Residential	3,125	-
Mixed-Use Developments	2,571	2,075,838
Commercial	-	2,548,244
Industrial	-	1,692,000
Government/Medical/ Educational	-	79,000
TOTAL	**5,696**	**6,345,082**

Pearland-Announced Developments

The map below illustrates both residential and non-residential developments projected in Pearland that would contribute towards the projected unit counts above.



Section V – Transit Need Index

A Transit Need Index is a means of analyzing the need for transit based on demographic factors and weighs several indicators that have historically aligned with a greater need for transit. This index can be used to help develop an understanding of what level or type of service may be right for a community. H-GAC's Transit Need Index is valuable for understanding Pearland's needs. It can offer guidance to decide if:

- Transit is needed within the community in question
- Whether there is a need for other types of transit service

The Transit Need Index is not a conclusive count of the number of people who will use transit, but it offers a general sense of how strong transportation needs may be in a community. It is also important to note that the Transit Need Index does not measure other non-need-based transit factors, such as the number of people who may *choose* to use transit services within a community and who are not considered in need according to the Transit Needs Index, such as those with more than one car.

The Pearland Transit Need Index is based on the H-GAC 2022-2026 Regionally Coordinated Transportation Plan (RCTP), and for this study, H-GAC staff have refined that analysis specifically for the Pearland study area.

The 13-county Houston-Galveston Gulf Coast Planning Region is divided into urban and rural areas. As it is part of the Houston Urbanized Area, Pearland is classified and weighed for scoring as an urban area.

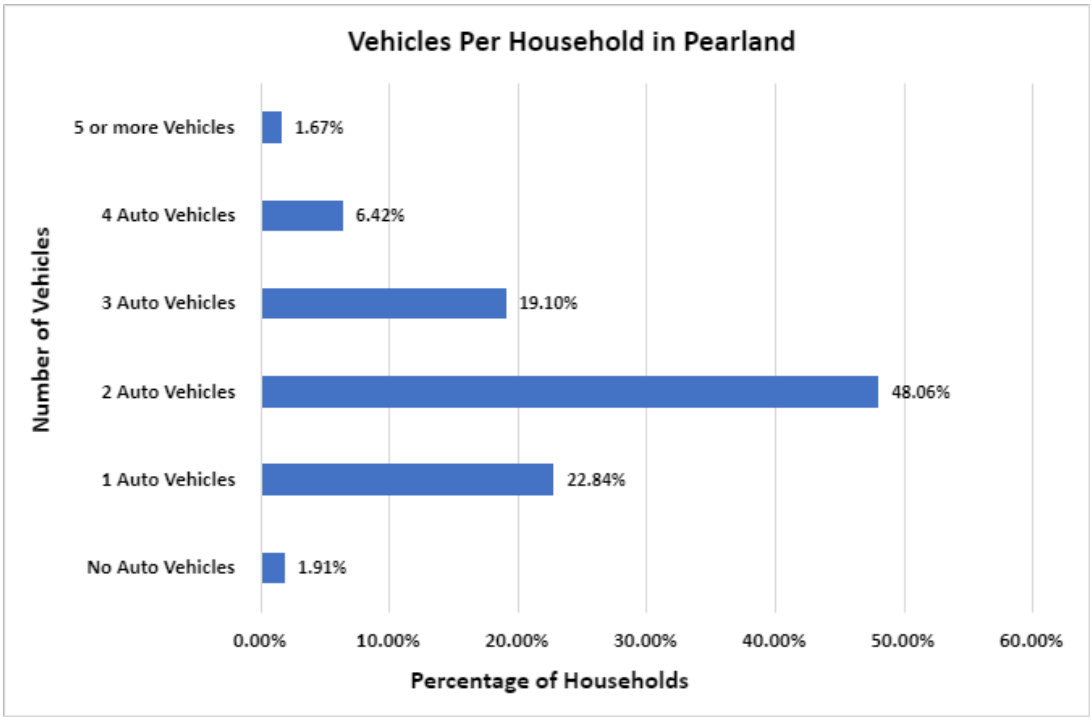
The unit of analysis for the Transit Need Index is the Census Block Group. The Census Block Group consists of a geographic area consisting of between 600 and 3,000 persons in which significant demographic information is available. It is the smallest census unit in which substantial demographic analysis can be developed. Early in this study, it had been used for population, employment, and land use analysis; it will also be used as a measure for the transit need index.

The method for calculating the Transit Needs Index for an urban area is shown in the following scoring chart with a discussion of each factor weighed in the index. It is important to examine both the level of need as well as the estimated number of individuals or households in a community with potential transit needs.

Transit Need Index Scoring Weight	
Factors	Weights
Percent of Households without a Vehicle	20%
Income Level	20%
Percent of Population More Than 65 Years of Age	15%
Percent of Children Aged 6 to 17 Years	10%
Percent of Households of Persons with Disabilities	15%
Population Density	20%
TOTAL	**100%**

Percent of Households without a Vehicle (20% of the Transit Need Index)

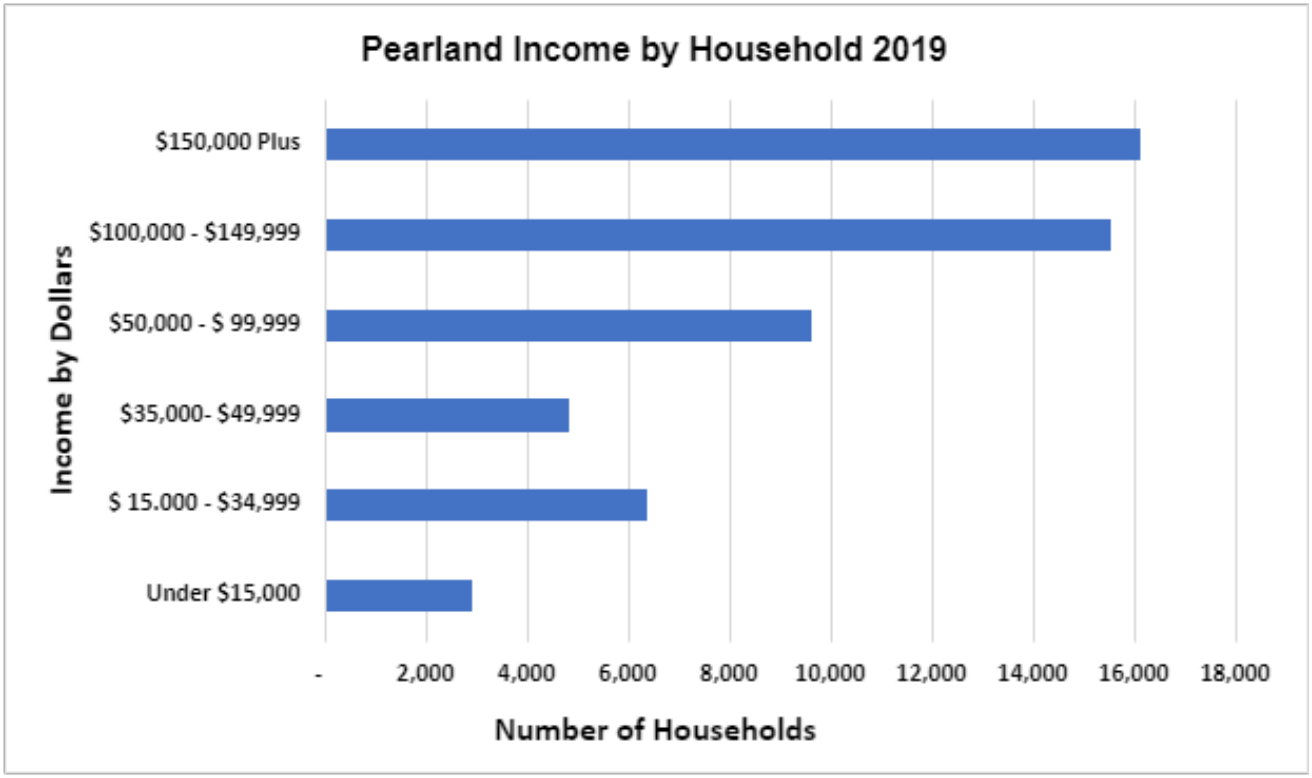
Vehicle availability is an important indicator of transit need. The number of households in Pearland without vehicles is low compared to other areas within the H-GAC region. Fewer than 2% (or 1,200 households) in Pearland do not have a vehicle, which may seem small but is not.



Source: American Community Survey 2019

Income Level (20% of the Transit Need Index)

Household income measures the pretax income of all members of a household. A lower income may indicate a higher level of need for public transportation. As of 2019, the U.S. poverty level for a household of four is less than $25,000 in annual income, and 9% of Pearland households are at or below the poverty level. In Texas, 13.2% of households of four are at or living below the poverty level. Data is derived from the 2019 American Community Survey.



Source: 2019 American Community Survey

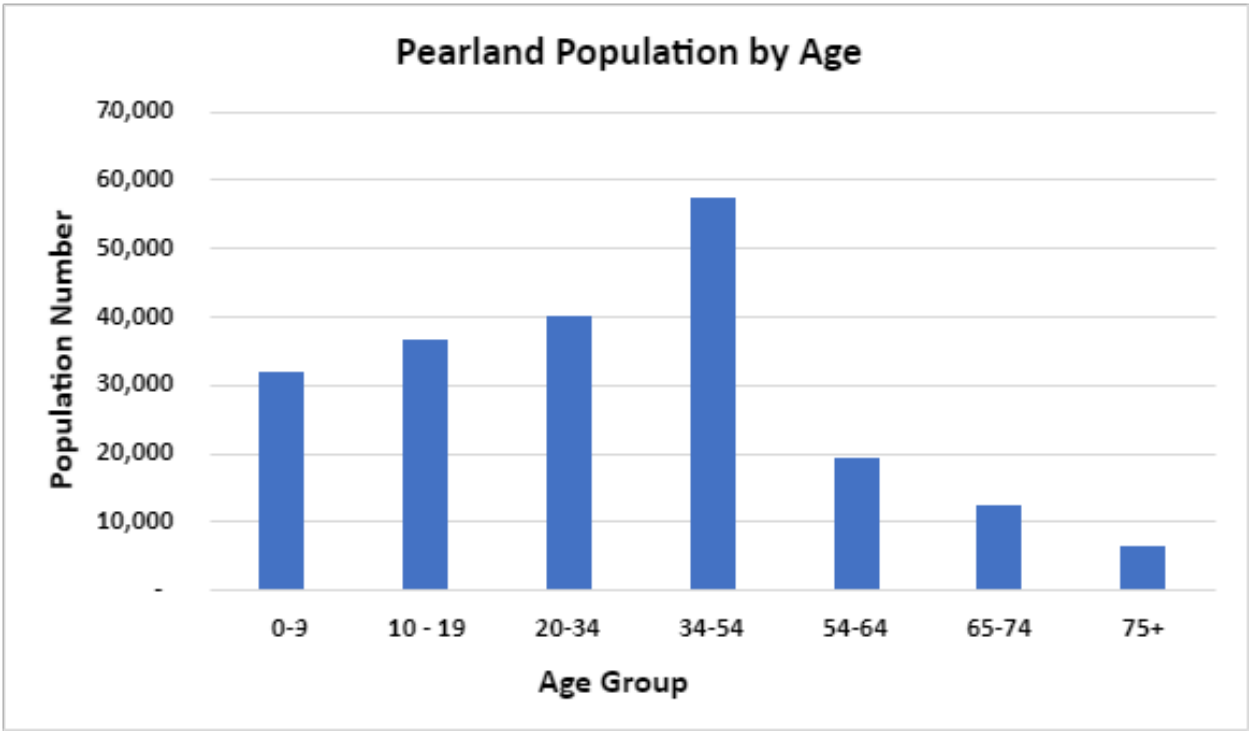
Percent of Population More Than 65 Years of Age (15% of the Transit Need Index)

A substantial older population within a community can also be an indicator of transit need, according to the *Who Rides Transportation Study* published by the *American Public Transportation Association*. Persons aged 65 or older are less likely to drive due to disability or other mobility challenges. Slightly more than 9% of Pearland's population is at or older than 65 years of age, according to the 2019 American Community Survey. While this is a smaller percentage compared to state (13.2%), or national (17.0%) averages, it represents a considerable number of individuals who may need some form of transit service.

Percent of Children Aged 10 and 19 (10% of the Transit Need Index)

Another indicator of transit need is the percentage of the population between 10 and 19. Pearland has a relatively high population of school-aged children corresponding to nearly 18% of the city's total population, according to the 2019 American Community Survey. This number

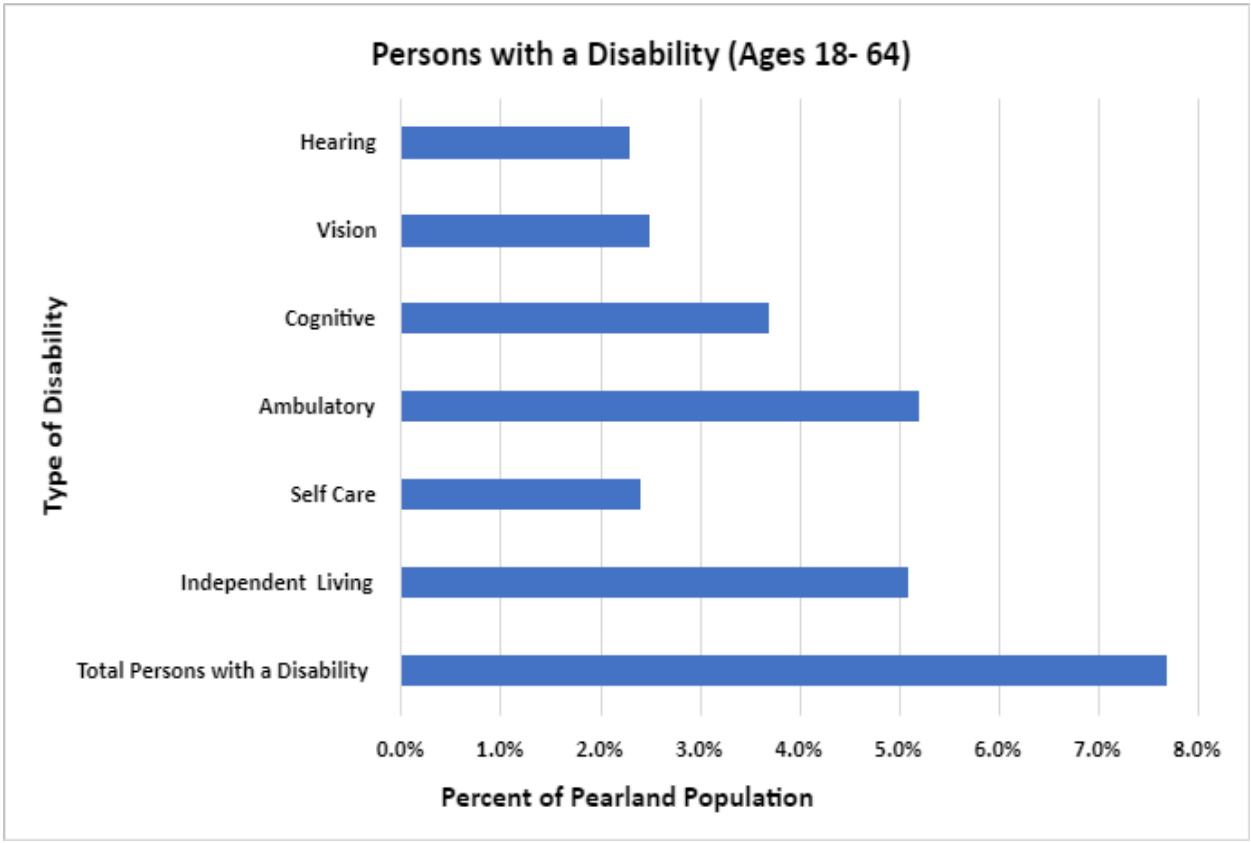
has grown substantially in recent years as demonstrated by the rapid growth of new schools in both Pearland and Alvin school districts. While travel to and from school is generally provided by the school bus system, travel after school activities and to post-secondary education institutes require other forms of transportation in which public transit could be the answer.



Source: 2019 American Community Survey

Percent of Households of Persons with Disabilities (15% of the Transit Need Index)

The number of persons with disabilities is another significant measure of transit need. According to the 2019 American Community Survey, approximately 7.7% of Pearland residents aged 18 to 64 indicate they a disability that significantly limits their life activities. Looking at the graph that follows, some people may have indicated more than one disability, which would exceed 7.7%. In the State of Texas, the percent of persons with disabilities between the ages of 18 to 64 is 11.5%; Pearland's 7.7% is about 2/3 that of the state.



Source: 2019 American Community Survey

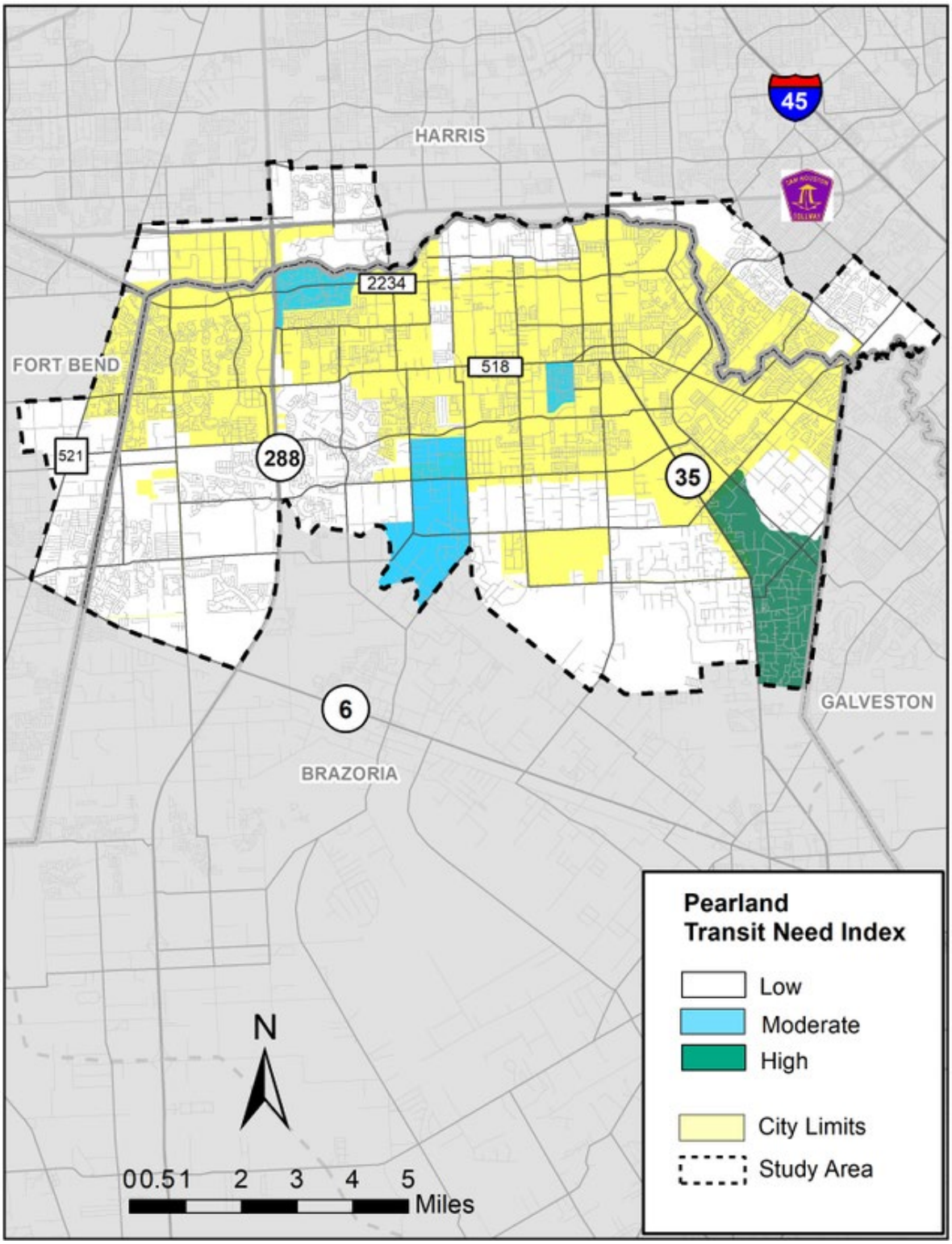
Population Density (20% of the Transit Need Index)

The viability of different transit modes should also be considered by the level of population density. Significantly low density may limit transit alternatives. Density for 2010 and 2020 is shown on the population maps in "Section IV – Pearland Demographics" beginning on page eight of this document.

Pearland Transit Needs Index Summary

Weighing the transit need factors together, the City of Pearland shows an overall low transit need within the Houston-Galveston Metropolitan Planning Area; however, all individual transit needs indices (household or individual) do show significant numbers (thousands) of persons with possible transit needs.

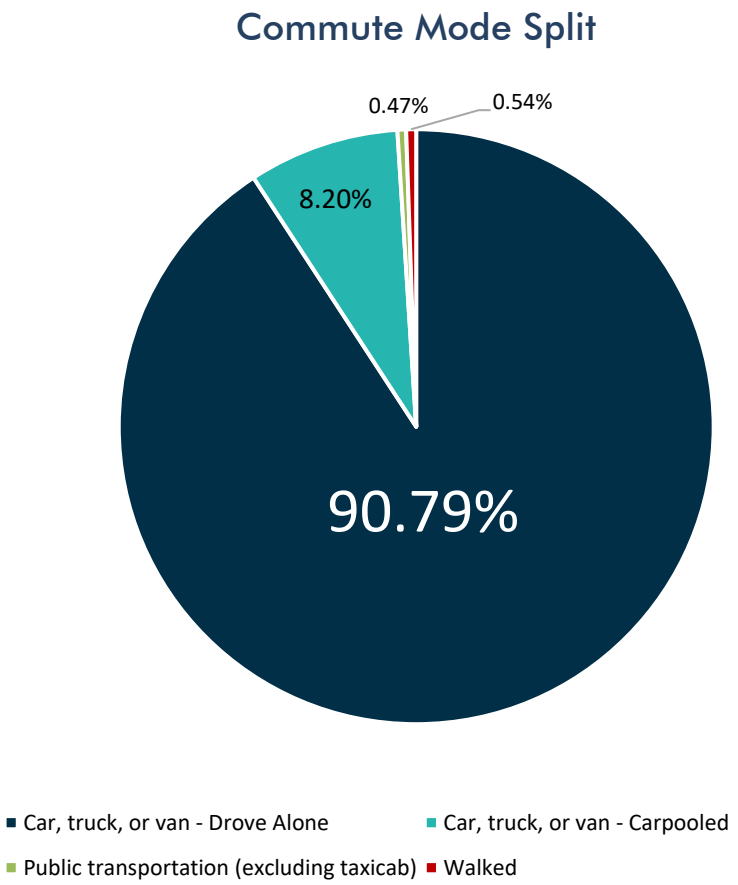
Pearland Transit Needs Index



Section VI – Traffic Patterns

Commuting

Of all Pearland commuters, 91% drove alone to work in 2019 while 8% carpooled to work. About ½ of 1% of Pearland commuters used transit and a similar percentage walked to work.



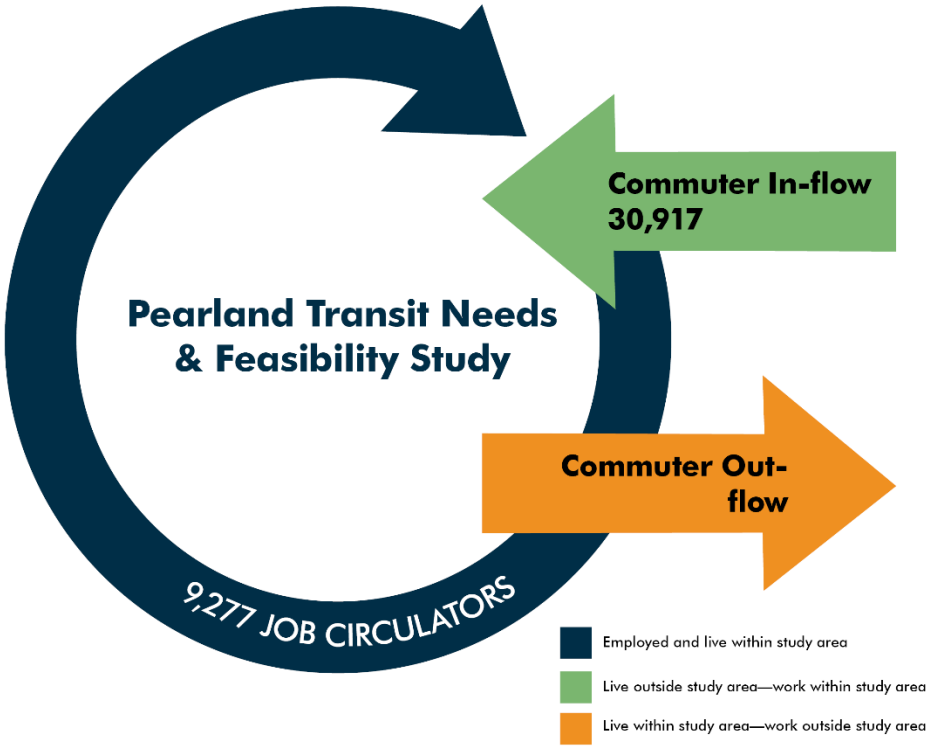
Commuting patterns offer important data related to intercity travel the city. Developing inter-city transportation from and to Pearland could mainly be in the form of commuter or park and ride services. Currently, the only commuter service available from Pearland to Houston is METRO Star Vans.

Out-flow Commuters

Pearland is still a community where many residents travel outside of Pearland to work. According to 2019 American Community Survey estimates, less than15% of Pearland residents live and travel to work within the city or ETJ. Many commuters traveled to destinations outside the city or ETJ, such as to the Texas Medical Center and to Downtown Houston. H-GAC analysis of the 2019 Longitudinal Employer-Household Dynamic (LEHD) data from the U.S. Census Bureau shows potential demand for commuter services to locations outside of Pearland.

The following graphic illustrates the movement of 71,172 commuters (orange arrow) from Pearland with work locations outside the city, also called out-flow; the number of people traveling from outside to locations within Pearland for work, also called in-flow (green arrow); and the number of individuals who both live and work within Pearland, also called circulators (blue arrow).

Commuter Patterns, 2018



Management Districts located in Houston have high concentrations of employment activity. Employees who live in the Pearland area and travel elsewhere do so in large concentrations to destinations including:

- The Texas Medical Center (easily the largest Pearland commuter destination)
- Downtown Houston (second largest Pearland commuter destination)
- NASA (not shown as a Management District)
- Uptown/Galleria
- Hobby Airport
- Houston Ship Channel (not shown as a Management District)

Based on this travel data as well as multiple prior studies and analyses, the top two candidates for commuter service *from* Pearland are the Texas Medical Center and Downtown Houston.

Top Employment Destinations & Management Districts for Pearland Residents

Cities	Jobs	Percentage
Houston	44,272	62.2%
Pasadena	3,083	4.3%
Alvin	1,943	2.7%
Sugar Land	1,933	2.7%
Webster	1,122	1.6%
Deer Park	1,033	1.5%
League City	1,022	1.4%
Galveston	727	1.0%
La Porte	720	1.0%
Stafford	703	1.0%

Management Districts	Jobs	Percentage
Texas Medical Center	7,616	9.5%
Houston Downtown	4,584	5.7%
Hobby Area	1,492	1.9%
Westchase	1,361	1.7%
Uptown	1,270	1.6%
Southwest	1,061	1.3%
Memorial	990	1.2%
Spring Branch	914	1.1%
Greater Southeast	807	1.0%
Greater East End	748	0.9%

Source: LEHD 2018

In-flow Commuters

While the Pearland community is becoming a significant employment destination for commuters traveling from other parts of the region, the destinations of individuals traveling to Pearland for work is highly scattered with only some minimal concentrations immediately to the north (Houston), east (NASA, Friendswood and League City), and south of the city (Manvel, Angleton, and Lake Jackson). Lack of density (or the scattered nature) of these travel origins would likely make commuter bus options *to* Pearland for work from other areas impractical in the near future; however, a vanpooling option may be viable.

Circulators

The following charts capture significant locations to which individuals may wish to travel based on need and preference, whether for employment or other reasons. The destinations are listed by type. This list is not intended to be exhaustive. Travel destinations within Pearland may be analyzed further for transit possibilities.

Government

Destination	Address
Pearland City Hall	3519 Liberty Drive
Tom Reid Library	3522 Liberty Drive
West Pearland Library	11801 Shadow Creek Parkway

Social Service and Non-Profit Organizations

Destination	Address
Brazoria County Alliance for Children	2947 E. Broadway Street
Golden Rule Services	3801 Liberty Drive
Goodwill Houston Donation Center & Select Store	3265 Broadway Street
Goodwill Houston Donation Center	9811 Broadway Street
Keep Pearland Beautiful	5800 Magnolia Parkway
Lions Club of Pearland	3350 S. Main Street
Mosaic in Action	2535 E. Broadway Street
Pearland Adult Education Center	2246 Washington Street
Pearland Chamber of Commerce	6117 Broadway Street
Pearland Neighborhood Center	2335 N. Texas Avenue
Stella Roberts Recycling Center	5800 Magnolia Parkway
Vic Coppinger Family YMCA	2700 YMCA Drive
Young Life Brazoria County	3905 E. Pear Street

Recreational Facilities

Destination	Address
Centennial Park	3219 McLean Road
Fenwick Nature Center	5150 Magnolia Parkway
Independence Park	3449 Pearland Parkway
Melvin Knapp Activity Center	2424 Park Avenue
Pearland Recreation Center	4141 Bailey Road
Shadow Creek Ranch Nature Trail	1801 Kingsley Drive
Sports Complex at Shadow Creek	13050 Shadow Creek Parkway
West Pearland Community Center	2150 County Place Parkway

Retail Locations

Destination	Address
ALDI	3412 E. Broadway Street
ALDI	11550 Broadway Street
Dollar General	2020 N. Main Street
Dollar General	7455 Bailey Avenue
Dollar General	3631 S. Main Street
Dollar Tree	11901 Shadow Creek Parkway
Dollar Tree	5404 Broadway Street
Food Town	7121 Broadway Street
H-E-B	2710 Pearland Parkway
H-E-B plus!	2805 Business Center Drive
The Home Depot	10111 Broadway Street
Kroger	11003 Shadow Creek Parkway
Kroger	8323 Broadway Street
Kroger	3245 FM 518
Lowes Home Improvement	2741 Broadway Street
Pearland Town Center	11200 Broadway Street
Randall's	10228 W. Broadway Street
Sprouts Farmers Market	2718 Old Chocolate Bayou Road
Target	3045 Silverlake Village Drive
Walmart Supercenter	1710 Broadway Street
Walmart Supercenter	10505 Broadway Street
Walmart Supercenter	1919 N. Main Street
Walmart Neighborhood Market	12631 Broadway Street

Schools

Destination	Address
Alexander Middle School	3001 Old Alvin Road
Barbara Cockrell Elementary	3500 McHard Road
Berry Miller Junior High	3301 Manvel Road
Challenger Elementary	9434 Hughes Ranch Road
Chamberlain University College of Nursing	12000 Shadow Creek Parkway
C.J. Harris Elementary	2314 Schleider Drive
Dr. James "Red" Duke Elementary	11330 Magnolia Parkway
Dr. Ronald E. McNair Junior High	2950 Kingsley Drive
E.A. Lawhon Elementary	5350 Magnolia Street
Glenda Dawson High School	2505 Cullen Boulevard
Glenn York Elementary	2720 Kingsley Drive
H.C. Carleston Elementary	3010 Harkey Road
Laura Ingalls Wilder Elementary	2225 Kingsley Dr.
Leon Sablatura Middle School	2201 N. Galveston Avenue
Magnolia Elementary	5350 Magnolia Street
Mary Burks Marek Elementary	1947 Kirby Drive
Massey Ranch Elementary	3900 Manvel Road
Nolan Ryan Junior High	11500 Shadow Creek Parkway
PACE Center	2314 Old Alvin Road
Pearland Independent School District	1929 N. Main Street
Pearland High School	3775 S. Main Street
Pearland Junior High East	2315 Old Alvin Road
Pearland Junior High South	4719 Bailey Road
Pearland Junior High West	2337 N. Galveston Avenue
Robert Turner College & Career High School	4717 Bailey Road
Rogers Middle School	3121 Manvel Road
Rustic Oak Elementary	1302 Rustic Lane
Sam Jamison Middle School	2506 Woody Road
Shadow Creek High School	11850 Broadway Street
Shadycrest Elementary	2405 Shadybend Drive
Silvercrest Elementary	3003 Southwyck Parkway
University of Houston-Clear Lake at Pearland	1200 Pearland Parkway

Source: H-GAC

Top 20 Pearland Employers (2021)

The top 20 Pearland employers of 100 persons or more are listed below.

Employer	Employer Type	Number of Employees
Pearland Independent School District	Education	2,684
Kelsey Seybold	Healthcare	913
Alvin Independent School District	Education	753
City of Pearland	Government	750
Memorial Hermann Pearland Hospital	Healthcare	635
Lonza Biologics Inc.	BioTech	600
Merit Medical Manufacturing	Medical Technology Manufacturing	420
HCA Houston Healthcare Pearland	Healthcare	300
Third Coast	Chemical Manufacturing	230
Kemlon Products & Development Co. Inc.	Manufacturing	228
Dover Precision Components	Manufacturing	204
Mitsubishi Heavy Industries Compressor International Corporation	Manufacturing	170
Tool-Flo Manufacturing Inc.	Tool Manufacturing	162
Endress+Houser USA	Manufacturing	150
Buc-ee's	Retail	140
Profax-Lenco	Manufacturing	138
SolvChem Inc.	Chemical Manufacturing	120
Ref-Chem	Construction	105
Davis-Lynch Distribution Center	Oilfield Equipment Supplier	100

Source: City of Pearland Staff

Section VII – Conclusion

This Technical Memorandum covers a substantial range of information related to existing conditions for *The Pearland Transit Needs Assessment and Feasibility Study*. It was designed to provide a foundation of information and a forum for discussion as the study moves forward. Below is a summary of key takeaways. Following are appendices that provide a summary of potential suburban transit options that are currently in operation in the state, a peer analysis of service offered in similar cities and a list of significant destinations that may be considered as the study moves forward.

Key Takeaways:

- Pearland has examined commuter service from the area of SH 288 to the Texas Medical Center and downtown Houston for many years.
- Pearland has a limited "lifeline" transit service that operates within Pearland and is provided by Harris County Rides.
- Pearland is a rapidly growing city that has emerged as a substantially more populous suburb in recent years.
- Growth is expected to be rapid until 2030 but may slow in the subsequent decade.
- Employment has increased even more rapidly than the population in Pearland, and it has created a larger employment base in the city and in its ETJ.
- Considerable residential and commercial growth is anticipated in the next few years.
- Despite a lower level of relative transit need, Pearland residents have measurable needs in all individual and household categories.
- Pearland is a low-density suburban city.
- Consistent with the findings of the Regionally Coordinated Transportation Plan, Pearland could be an area amenable to demand response or on-demand/microtransit services given its density and level of need.

Appendix A - A Brief Guide to Different Modes of Public Transit

Public transportation can take many forms to deliver a wide and effective range of services in urban, suburban, and rural communities alike. These service modes have evolved over the years in terms of features and offerings to reflect changes in technology and rider preference. The following is a guide to some modes of public transportation commonly used in the United States that may be relevant to Pearland in the next decade.

Commuter Express/Park and Ride

Used extensively in suburban and outlying areas by METRO and other regional transit agencies in the Houston region and nationwide, Commuter Express (or park and ride service) is generally a rapid, point-to-point service from outlying park and ride facilities to major employment and activity centers. This service can provide a comfortable (and potentially lower cost compared to gas and parking for private automobiles) option for commuters with comparable or even reduced travel times to their places of employment versus an automobile. Many efforts have been successful throughout the Houston region where demand for such a service exists. An example of such a service exists in Conroe where park and ride services currently operate from Conroe to downtown Houston and from Conroe to the Texas Medical Center. This service is funded through a federal grant at 80% of net operating costs while the city pays 20% of net operating costs.

The City of Conroe has provided park and ride service since April 2019 in large, modern, over-the-road coaches shown above. It is operated through a contract with Houston METRO.

Commuter Express/park and ride service for Pearland has been an ongoing subject of discussion. Service along or near SH 288 to the Texas Medical Center and to Downtown Houston is one possibility examined in this study.

Local Fixed-Route Bus

Local fixed-route bus is by far the most common transit service mode and is operated on a predetermined and scheduled route with specific stops generally located along an urban area's arterial road network. It typically uses standard buses or "cutaway" buses (like airport shuttle vans) to provide transportation. Maps and schedules are generally available in print, online, or through an ap or agency website to provide passengers with the route, stops, timetables, and other information. Fares are generally set by the transit agency or community overseeing the service. Federal, state, and/or local funds may subsidize costs.

The bus shown below is operated by the Gulf Coast Transit District (formerly known as Connect Transit) and is shown picking up a passenger in downtown Dickinson along a fixed route that is part of its Mainland Transit Service in Galveston County.

Demand Response/Dial-a-Ride

Demand response is essentially any type of public transportation service that does not operate on a fixed route and requires advanced scheduling by the rider. It provides on-demand, shared-ride, curb-to-curb service that takes patrons directly from their origin to their destination and requires the scheduling of trips in advance of the trip being taken. Scheduling may occur several days in advance or on the day of the trip; for this reason, it is also known as "dial-a-ride"

service because scheduling traditionally was done by phone. Extensive dispatching, scheduling, and reservations systems have traditionally been used to provide and manage the service; however, with the advent of big data computer programs combined with smartphone aps, the nature of demand-response trips is changing rapidly.

A subcategory of demand-response trips is Americans With Disabilities Act complementary paratransit. This service is required when an individual cannot use fixed services in an area due to a verified disability. The trips are regulated by the federal government to ensure compliance with existing laws and guidelines safeguarding the rights of persons with disabilities. Fares are generally set by the transit agency or community overseeing the service, and trips may receive federal, state, and/or local funds to subsidize costs.

Flexible-Route Service

Flexible-route service is a hybrid transit service that combines the features of fixed-route and demand-response services. It is used primarily in areas where fixed-route service is difficult to provide but where there is sufficient demand for more service than traditional demand-response service provides. Flexible route service varies in operation but generally keeps to a regular schedule, even if it is only a few stops per individual transit run. It also deviates to a varying extent to pick up passengers outside of its designated route.

An example of flexible-route service in Texas is Corpus Christi's Route 93 illustrated below. The red and blue lines are areas of regular service, and the dotted lines are locations of "flex" stops. This is only one example of a flex-route service, as they may vary from city to city. Fares are generally set by the transit agency or community overseeing the service, and trips may receive federal, state, and/or local funds to subsidize costs.

Microtransit

Microtransit is a transit mode that is closely aligned with demand-response service. Unlike traditional demand-response services, the overwhelming number of requests and payments on microtransit are made by a smartphone ap, while Global Positioning Software is used by the driver to locate and route the passenger to their destination. Microtransit does not use an extensive local or regional support system, but rather relies on a national system using highly sophisticated software to coordinate vehicle pickups and drop-offs. In this respect, microtransit

service is like "Transportation Network Companies," such as Uber and Lyft, the difference being that it serves general transit needs in a community or region that wishes to use it as a public service.

For decades, the City of Arlington, Texas did not provide public transit service (although it did provide mobility service for seniors and persons with disabilities through its Handitrans program). As of January 2021, microtransit service for the public was offered city-wide through a series of interconnected trips in partnership with a national microtransit company. Other communities are looking at microtransit options as well.

Vanpool Service

METRO, with funding from H-GAC, provides METRO star vanpool service throughout the eight-county region. As of August 1, 2022, METRO star had 11 routes that originate in Pearland: five of the vanpools travel to the Texas Medical Center, two to downtown Houston, two to Lake Jackson, one to The Woodlands, and one to Katy. Vanpools are driven by volunteers who are commuting to the destination. Vanpool participants often meet at the park and ride, park and pool, or other parking lots and ride together to their destination(s). A stipend from H-GAC/METRO reduces the overall cost for the passengers who split the remaining costs.

Subsidized Taxi-Provider

Subsidized Taxi-Provider service is currently used in Pearland on a limited basis for individuals more than 60 years of age or with a verified disability. Harris County Rides has a contract with the City of Pearland to provide a specified amount of service with taxis and similar providers

within the city limits. It subsidizes half the trip's cost from a minimum of $3 up to a maximum of $21 per one-way trip. The individual using the service pays 50% of the cost, and fare cards are purchased and used for the service. In 2019, the last pre-COVID year, 2,224 trips were made in Pearland with reduced numbers in 2020 and part of 2021 during the height of the COVID-19 Pandemic.

Other Modes to Travel to Work

There are other means to travel to work and other destinations that are privately run commuter options paid for with public funding but not considered public transit services.

Private Taxi: This mode, although weakened by competition from Transportation Networking Companies, remains viable in the Houston region.

Transportation Networking Companies: While dominated by Uber and Lyft, other companies have become available on this ap-based on-demand service.

Carpooling: As the second most popular means for commuters to travel to work after the Single Occupancy Vehicle, carpooling provides flexibility and is effective for many travel situations.

Micromobility: Micromobility is a travel option using a vehicle that is normally restricted to three or fewer individuals

Bicycle: The use of bicycles to travel to work or other destinations grew in popularity during the COVID-19 Pandemic.

Walking: Although more predominant in larger urban areas, some individuals do walk to work in Pearland.

Work from Home: Advances in remote technology had this mode growing before the COVID-19 Pandemic; however, its use grew rapidly during and after the height of the pandemic as remote work became a necessity and employee preference for it grew rapidly.

Long-Term Possible Modes of Transit Service in Pearland

While the following modes of transit service may be viable for Pearland in the long term (about 15 to 30+ years) projecting their use is beyond the scope of this short-term study:

Light Rail: Fixed guideway service on train tracks. Potential corridors that are in the early stages of study for Pearland include SH 35/Mykawa Road and Kirby/SH 288. The cost per mile would be high, and its viability is uncertain at this time. METRO operates several light rail lines primarily in downtown and central portions of Houston.

Bus Rapid Transit: This is a bus that uses in its own guideway, such as an express bus lane, to provide a level of service like light rail but at a lower cost. It has grown in use across the country. The Silver Line in Uptown/Galleria is a local example of Bus Rapid Transit in Houston.

Appendix B - Peer City Service Analysis

Summary

Examining similar cities and considering their transit experience(s) can provide perspective and possibilities that Pearland can consider. Five cities in the Dallas and Houston suburbs were reviewed. All have transit services related to their needs and community preferences, and the means by which they reached their level of transit service is unique and illustrative.

The examined communities include:

- Sugar Land
- The Woodlands Township
- Carrollton
- Arlington
- Denton

Carrollton, Denton, and Sugar Land are part of larger transit systems, specifically the Dallas Area Rapid Transit (DART), the Denton County Transit Authority (DCTA), and Fort Bend Transit (FBT), respectively.

Sugarland, with a population of 111,026 (source: 2020 census), is approximately 19 miles southwest of Downtown Houston in Fort Bend County. It is served by FBT, which offers weekday commuter park-and-ride service to the Texas Medical Center, the Greenway Plaza, and the Uptown/Galleria area in Houston. Service to Downtown Houston is be funded primarily by an H-GAC Commuter and Transit Pilot Project grant. FBT also provides a demand-response service countywide, including service in Sugar Land. The annual ridership for both the commuter and demand-response services was 407,714 in 2019.

The Woodlands Township is a 28,500-acre master-planned community in southern Montgomery County, Texas. The township, with a population of 119,000 (source: 2020 census), is 27 miles north of Downtown Houston and home to The Woodlands Express. This commuter service offers weekday commuter park-and-ride service to Houston, including Downtown Houston, the Texas Medical Center, the Greenway Plaza, and the Energy Corridor. Service to the Energy Corridor is mainly funded by a CMAQ Commuter and Transit Pilot Project grant. The Woodlands commuter service has been historically one of the most successful park-and-ride services in the Houston region; however, while ridership declined during the height of the COVID-19 Pandemic in 2020, it has steadily rebounded since then. The township also runs a trolley service that serves The Woodlands Town Center and Hughes Landing area, which is a mixture of shopping centers, entertainment and dining venues, hotels, and high-density residential and office buildings scattered throughout. The unique density of The Woodlands Township center facilitates a fixed route service. The city provides a small amount of ADA Complementary Demand Response service, which operates seven days a week, in accordance with federal requirements. In 2019, the ridership for all services was 691,409.

The Woodlands Township began pilot commuter service to the Energy Corridor District in January 2022. Although ridership began lower than expected, it has increased as the pandemic has abated, and employees have returned to on-site work.

The City of Carrollton, with a population of 133,434 (source: 2020 census), is in Dallas County, Texas, about 20 miles northwest of Downtown Dallas. Carrollton is part of the DART system and provides passenger light rail service in the region with three rail stations in Carrollton. DART also operates GoLink service in Carrollton. Using a variety of vehicles and service providers, GoLink delivers on-demand DART service within a designated zone and can provide service to a rail station or transit center for connections to other DART services. The on-demand service is used since fixed-route service is less viable in a suburban community with the density of Carrollton and its proximity to downtown Dallas.

Arlington, with a population of 395,260, is much larger than other peer cities. It is 20 miles west of Downtown Dallas and 12 miles east of Downtown Fort Worth. Its history is highly relevant to Pearland as both have shown historical reluctance to embrace general transit services. On three occasions, citywide referenda were presented to Arlington voters for fixed-route transit service, and each time, the referenda were rejected.

The City of Arlington still sought a different path instead relying solely on private vehicle transportation. A community-wide special working group developed a pilot project for microtransit (or on-demand general transit) in Arlington in 2015 and 2016. In 2017, a microtransit provider was secured through a competitive procurement process. Initially, the pilot service only served about 10% of the city focusing on the downtown area and the University of Texas-Arlington campus. The pilot trip cost was $3 for one-way service and was considered successful in terms of ridership and customer satisfaction. Service expanded to city-wide service in late 2019. By early 2022, more than 1 million unlinked, on-demand trips had been made on the service despite the COVID-19 Pandemic suppressing demand. It should be noted that although Arlington does not provide any commuter services, the on-demand service does offer a connection from anywhere in Arlington to the CentrePoint Station of the Trinity Railway Express commuter rail, which travels between Dallas and Fort Worth.

The perception of the City of Arlington leadership and its residents is that the program has exceeded expectations. The current price for microtransit service is $3 or $5, depending on the length of the trip. The plan for the next procurement is to transition to a more electrified fleet.

Arlington has a strong Sports-Entertainment District that features the Dallas Cowboys, Texas Rangers, Six Flags over Texas, and other large entertainment events. There are limited autonomous vehicle pilots between the Cowboys and Rangers stadiums. However, according to Arlington City staff, The Sports Entertainment District is still a relatively limited destination for microtransit. Arlington staff speculates it is due to the high level of congestion around sporting events.

In summary, the microtransit on-demand program that started as a limited pilot program has been considered successful for the City of Arlington.

The City of Denton, located about 30 miles north of Dallas, is the county seat of Denton County and home to two major universities – the University of North Texas and the Texas Women's University. Its population exceeds 136,000. Denton is part of the DCTA, which has provided fixed-route service, complementary paratransit service, and commuter rail service (the A-Train) for more than a decade. In 2021, DCTA started Go Transit, which was an overlay of public, on-demand transit service over its existing fixed-route service, with an eye towards eventually replacing the fixed services with the on-demand service like Arlington. An article on the Denton experience is available using the following link: https://www.smartcitiesworld.net/news/news/denton-county-launches-on-demand-shared-ride-service-6826.b

This service overlay has been highly successful and has exceeded budgeted capacity resulting in higher than expected wait times. The effects of the new on-demand service overlaying the fixed-route and ADA service are too early to note. Preliminary assessments are that the ridership is relatively steady since the program for on-demand service only started in the Fall of 2021.

Comparison

All five peer cities have experience with public transit and have taken different routes to satisfy public need in a fiscally constrained manner. All have some link to commuter service to central city job centers, either by rail or commuter bus. Arlington is the sole city that has an indirect link using a shuttle.

Local service is approached substantially differently than commuter service. Fort Bend County provides demand-response service county-wide with links to park and ride service, which travels into Houston with morning, midday, and evening runs. The potential connection between demand-response and commuter-transit service can provide links to services for individuals who need or wish to use transit for their entire trip.

The Woodlands fixed-route service is a standalone trolley serving the commercial and retail core of the township that does not connect with its three park-and-ride locations. ADA paratransit does service the immediate ¾-mile area of the trolley.

Microtransit or demand-service is available in Arlington, Carrollton, and Denton. Virtual interviews with Arlington and Denton staff indicated that each city was satisfied with the service.

Governance is a critical issue to consider in comparing transit systems. It is important in terms of cost, managerial expertise, operational stability, federal reporting, and vehicle and facility maintenance ensuring a service that runs and is well administered. Often, cities new to providing transit service find difficulty in administering the service when it comes to all these elements in terms of cost and expertise.

Because Denton is part of the DCTA, which is an independent transit administration agency that addresses these issues (operations, federal reporting, vehicle maintenance, etc.), the city does not have to take on these tasks. Sugar Land has a similar relationship with FBT, as does Carrollton with DART. The Woodlands has developed a structure that uses a private provider for operations and maintenance that also provides marketing and administration along with federal reporting.

Arlington's microtransit is a turnkey operation in which only a small amount of administration and marketing is needed. Arlington also administers the Handitrans program, which is a demand-response service for seniors and persons with disabilities. Handitrans functions separately from the microtransit program and is overseen by a different department. Should Pearland decide to pursue transit service in some form, governance would need to be considered, along with cost, revenue, and modes of service.

Peer analysis does not offer a simple answer for Pearland, but it does supply examples to consider. There are no perfect fits although demand-response, on-demand service, or microtransit appear worthy of close consideration.

Services Provided by Agency

Service Area	Fixed Route	Demand Response	ADA Paratransit	On Demand Service	Microtransit	Commuter Bus	Light Rail	Heavy Rail
Fort Bend Transit		X		X		X		
The Woodlands Township	X		X			X		
Arlington		X			X			X
Denton	X		X				X	
Carrollton				X			X	

Acknowledgments

Funding Partners

- Texas Department of Transportation (TxDOT)

H-GAC Project Team

- Alan Rodenstein, AICP, Senior Transportation Planner
- Thomas Gray, AICP, Principal Transportation Planner
- Chris Whaley, Transportation Planner
- Carlene Mullins, Principal Transportation Planner
- Sharon Ju, Senior Data Analyst
- Eric Boulet, Senior GIS Analyst
- Frank Pagliei, Principal GIS Analyst
- Megan Kennison, Senior Transportation Modeler
- Sungmin Lee, Manager
- Jamila Owens, TDM-CP, Assistant Transportation Director

Steering Committee

- Alan Clark, Chief Innovation Officer, Metropolitan Transit Authority of Harris County (METRO)
- Chris Whittaker, City Manager, City of Angleton
- Jim Johnson, President, Pearland Chamber of Commerce
- Ken Fickes, Transportation Director, Harris County Transit (HCT)
- Matt Buchanan, Director, Pearland Economic Development Corporation
- Perri D'Armond, Transportation Director, Fort Bend Transit (FBT)
- Raj Shrestha, City Engineer, City of Pearland
- Randy Wyatt, Facility Supervisor, City of Pearland
- Rory Gesch, Director, Alvin ISD
- Theodore Ross, Transportation Director, Gulf Coast Transit District (GCTD)
- Trent Epperson, City Manager, City of Pearland
- Victor Brownlees, Assistant City Manager, City of Pearland

Public Engagement Committee

- Joshua Lee. Communications Director City of Pearland
- Melissa Black, Communications Director, Pearland Economic Development Corporation
- Ashley Newell, Executive Director, Mounting Horizons
- Ellen Soll, Pearland Resident
- Trent Epperson, City Manager, City of Pearland
- Victor Brownlees, Assistant City Manager, City of Pearland

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