

Sugar Land Mobility Master Plan



July 2023

ORDINANCE NO. 2301

**AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF SUGAR LAND, TEXAS,
ADOPTING THE 2023 MOBILITY MASTER PLAN, AN ELEMENT OF THE CITY OF
SUGAR LAND COMPREHENSIVE PLAN.**

WHEREAS, Chapter 213 of the Local Government Code authorizes the City to adopt a comprehensive plan for the long-range development of the City; and

WHEREAS, the plan may:

- (1) include provisions on land use, transportation, and public facilities;
- (2) consist of a single plan or a coordinated set of plans organized by subject matter and geographic area; and
- (3) be used to coordinate and guide the establishment of development regulations; and

WHEREAS, the Comprehensive Mobility Plan (2011) is a guiding document, with the Master Thoroughfare Plan (2012) and the Pedestrian and Bicycle Master Plan (2013) being official master plans, all of which are coordinated elements of the City's comprehensive plan; and

WHEREAS, the City's comprehensive plan aims to achieve its vision of superior mobility by combining all previous mobility-related plans into one 2023 Mobility Master Plan to:

- (1) coordinate the City's multiple mobility-related plans;
- (2) coordinate multiple departmental roles within the City for consistency and efficiency; and
- (3) rename all mobility-related master plans as the Mobility Master Plan; and

WHEREAS, the City wishes to revise all mobility-related plans by adopting the 2023 Mobility Master Plan; and

WHEREAS, the Mobility Master Plan incorporates extensive community input from stakeholder meetings, public meetings, and a citizen-member Mobility Task Force appointed by the City Council; and

WHEREAS, the 2023 Mobility Master Plan is an official City master plan and a coordinated element of the Comprehensive Plan; and

WHEREAS, on June 22, 2023, the City's Planning and Zoning Commission reviewed the 2023 Mobility Master Plan, as required by law; and

WHEREAS, on June 22, 2023, after holding a public hearing, the City's Planning and Zoning Commission recommended approval of the 2023 Mobility Master Plan; and

WHEREAS, the City council held a public hearing on July 18, 2023 at which time the public was given an opportunity to give testimony and present written evidence regarding the 2023 Mobility Master Plan, as required by law; NOW, THEREFORE:

**BE IT ORDAINED BY THE CITY COUNCIL OF THE
CITY OF SUGAR LAND, TEXAS:**

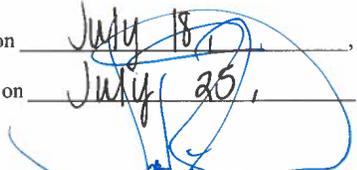
Section 1. That the City Council adopts the findings and recitals set forth in the preamble of this Ordinance.

Section 2. That the 2023 Mobility Master Plan, shown in Exhibit A, attached to and made a part of this ordinance, is adopted.

Section 3. That all ordinances or parts of ordinances in conflict with the provisions of this ordinance are hereby repealed to the extent of such conflict.

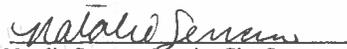
APPROVED on first consideration on July 18, 2023.

ADOPTED on second consideration on July 25, 2023.



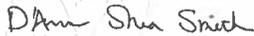
Joe R. Zimmerman, Mayor

ATTEST:



Natalie Serrano, Interim City Secretary

APPROVED AS TO FORM:



Dan Shea Smith

Attachment: Exhibit A - 2023 Mobility Master Plan

Acknowledgments

Mayor & City Council

Mayor Joe R. Zimmerman

District 1 - Council Member Suzanne Whatley

District 2 - Council Member Naushad Kermally

District 3 - Council Member Stewart Jacobson, Mayor Pro Tem

District 4 - Council Member Carol K. McCutcheon

At-Large 1 - Council Member William Ferguson

At-Large 2 - Council Member Jennifer J. Lane

Former Council Members

District 1 - Steve R. Porter (term ended May 2021)

At-Large 1 - Himesh Gandhi (term ended December 2020)

Planning & Zoning Commission

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CenterPoint Energy, City of Houston, City of Meadows Place, City of Missouri City, City of Richmond, City of Rosenberg, City of Stafford, Fort Bend County, Fort Bend Independent School District (FBISD), Houston-Galveston Area Council (H-GAC), Lamar Consolidated Independent School District (LCISD), Texas Department of Transportation (TxDOT), Union Pacific Railroad

Consultant Team



January Advisors

Last but not least...

Thank You to the residents, businesses, and visitors of the City of Sugar Land for your participation in this effort!



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Preamble

Why this Plan Matters



For decades Sugar Land has successfully invested in mobility, primarily by building new streets and trails and increasing vehicular capacity.

To complement these investments, the community has asked the City to expand safe, healthy, and active transportation choices for all users, and continue to deploy mobility technology and update design treatments to optimize the space on existing streets.

To achieve its vision of Superior Mobility established by Sugar Land's Comprehensive Plan, the City must strategically re-imagine existing street corridors, build on innovative Intelligent Transportation System (ITS) investments, and adapt existing programs and policies to meet the evolving needs of the community.

A New Mobility Chapter

Sugar Land is facing an inflection point that calls for bold new thinking about mobility policy and investment. In recent decades, population boomed and City leadership kept pace with forward-thinking investments that prioritized quality of life.

These investments created world class amenities and attracted Fortune 500 businesses and thousands of hard working residents who call Sugar Land home. But mobility investments in these fast-growing decades prioritized vehicular movement, using available space and innovative technologies to create more capacity for cars.

In 2023, Sugar Land's population growth has stabilized, with less available space for new residential development. At the same time, residents have called for new kinds of investments to "complete" Sugar Land's streets by making them safe and comfortable places for all users, especially people who walk, bike, use wheelchairs and strollers.

This Mobility Master Plan gives City staff and leadership the tools to respond to community feedback and create new mobility solutions that keep Sugar Land a great place to live, work, visit, and do business.



Starting with Sugar Land's Values

This Plan is built upon a strong foundation of input and guidance from the Sugar Land community. The City collected more than 1,900 responses from residents, workers, businesses, students, and visitors during three distinct stages of community engagement. The responses revealed a clear set of shared principles, or Core Values.

The Core Values are shown to the right and provide a foundation to guide the Plan's development and for all mobility decisions made by City staff and leadership moving forward.

Together, these Core Values define the vision of Superior Mobility set out in the City's Comprehensive Plan. They also answer the call for a bold new direction for mobility investments in Sugar Land. Community members voiced a desire for infrastructure that is safe for all users and allows everyone to access their daily destinations conveniently and with a range of mobility choices. They expressed a desire for Sugar Land to remain at the leading edge of mobility innovation and to invest proactively in projects, programs, and policies that address challenges of economic, environmental, and social change.

Core Value Supporting Goal Statement



Build upon the City's previous successes to create mobility networks that are safe and connected for all users.



Enhance travel within Sugar Land to be more convenient, inclusive, and reliable by addressing critical barriers to mobility.



Establish Sugar Land as an active lifestyle city where resident's daily activities are accessible without the need to always drive.



Strengthen Sugar Land's position as an innovative mobility leader that sets the standard for quality of life and a thriving economy.



Create a resilient mobility network that can withstand environmental, social, and economic changes over time.

Complete Streets are Key

Mobility is defined as the ability to move people and goods safely and easily regardless of mode of transportation.

To achieve Superior Mobility, Sugar Land must plan, design, and build “Complete Streets” that serve everyone. The City has done a great job of investing in a high-quality trail network and in streets and traffic management technology that move vehicles efficiently. An embrace of Complete Streets will build on that success with a new paradigm of moving people and goods.

This means adding infrastructure like sidewalks, trails, bikeways, and safe crossings to corridors to create connections where they do not currently exist. It also means getting the most out of the City’s transportation investments and finding new ways to expand that investment.

With the adoption of this plan, the City commits to (1) incorporating Complete Streets principles into its planning, engineering, and maintenance processes, and (2) updating the City Design Standards, Development Code, and other pertinent regulations to align with the goals of this plan. This document provides a set of tools for City staff and leadership to implement this Complete Streets practice.



Investing in the Network as a Whole

The design of *one* Complete Street will have a positive impact on the people who live, work, and shop along the corridor, but the impact multiplies if Complete Streets are connected and part of a comprehensive multimodal network. An effective network allows someone the ability to choose their mode of transportation to get from Point A to Point B using a range of safe streets, trails, and crossings for the entire journey.

This plan presents what those connections can look like in the Transformative Mobility Network (TMN), presented in Chapter Three. The TMN maps the corridors, including streets and trails, in Sugar Land where investment could have the greatest impact toward achieving the City's mobility goals. It builds on existing facilities and previously planned projects to add new connections to destinations. When implemented together, this network will impact how people move for commuting, everyday trips, recreation, and transporting goods. Through this network, the City can achieve Superior Mobility.



Measuring Success

The City will need to track progress during Plan implementation to understand what projects, programs, and policies move Sugar Land closer to Superior Mobility. The Plan includes Six Mobility Metrics, detailed in Chapter Five, that collectively help answer the questions: How are we doing with mobility citywide? Where should the City focus to continue to enhance and improve mobility for our residents?

These metrics measure the Plan's progress towards achieving Superior Mobility. The Six Mobility Metrics are measures of Safety, Destination Connectivity, Increased Mobility, Network Condition, Active Lifestyles, and Community Satisfaction.

They work in tandem with the Implementation Framework (Chapter Six) as both a measure of citywide success and as a tool to identify and prioritize projects. Each metric and its supporting data can also be used at both the project level and citywide.

These metrics will create a new vernacular that supports decision-making and transparent communication with the community as the City invests in projects across the network to connect all that Sugar Land has to offer.

Six Mobility Metrics



How are we doing with mobility citywide?

Where should the City focus to continue to enhance and improve mobility for our residents?

Bringing the Plan into Reality

The bold ideas of this plan require an intentional approach for delivering effective and timely projects, programs, and policies for Sugar Land. To date, the City has done an excellent job addressing mobility needs to keep pace with rapid growth and continues to adapt its internal processes to improve decision making.

The Implementation Framework, presented in Chapter Six, provides a three-step approach to proactive mobility decision making that builds on the City's strengths and includes existing and new tools for staff and leadership to deploy. In addition, this framework allows for effective decision making across the Planning & Development Services, Engineering, and Public Works departments to keep Sugar Land at the forefront of mobility innovation.

To Implement Projects, the City will use the first step, the Opportunity Analysis, to identify areas with highest needs, including where streets do not serve all modes. Data from the Six Mobility Metrics will inform the Opportunity Analysis. The next step, Project Definition, gives the City a method for determining project design. Finally, the Mobility Funding Program will be used to pair projects with ideal funding sources for implementation.



Introduction

Chapter 1



About the Plan

The City of Sugar Land's Mobility Master Plan (the Plan) is the result of a multi-year, multi-departmental effort to develop a new integrated mobility plan rooted in community-driven needs. The Plan aims to achieve the City's Comprehensive Plan Vision of **Superior Mobility** for the City, its residents, businesses, and visitors. The information below provides an understanding of the structure of this plan, why it is needed, and how it is developed.

A Plan for Superior Mobility

A LEADER IN TRANSPORTATION

For decades, the City of Sugar Land has been a national leader in quality of life for residents, regularly appearing at the top of the rankings on lists of the best places to live such as Fortune's Top 25 Places to Live for Families in 2022. The City's mobility investments have played a key role in Sugar Land's excellence – from the latest congestion management technology to world-class trails and a walkable Town Square. The people who live, work, and visit Sugar Land notice and appreciate these great transportation investments.



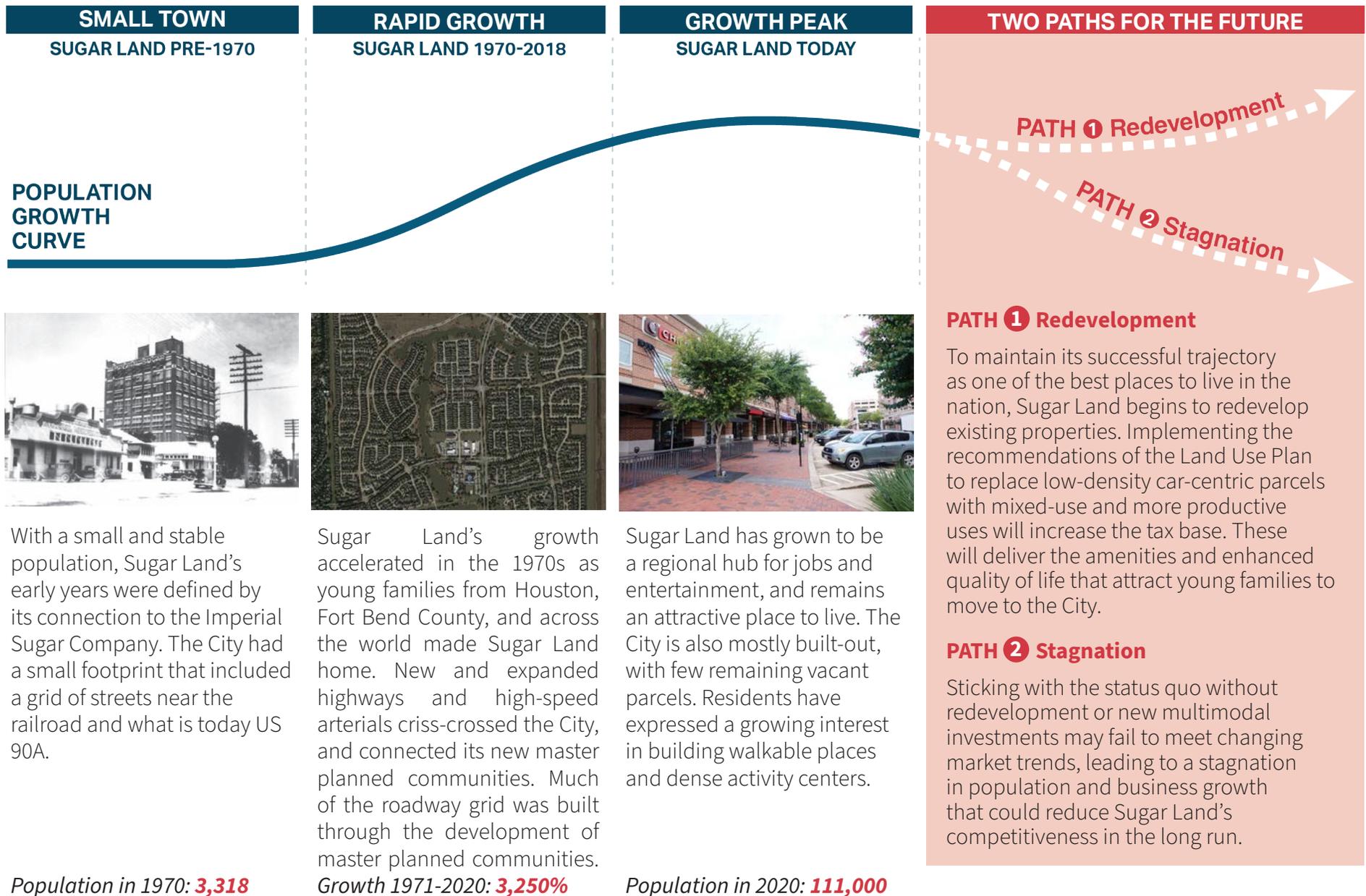
BUILDING FROM PRIOR SUCCESSES

This Mobility Master Plan will sit under the umbrella of the **Comprehensive Plan** which establishes a vision to achieve Superior Mobility. Recent decades of rapid population growth required a fast-thinking approach to building out the City's mobility network. The focus was on increasing vehicular capacity and relieving vehicle congestion by constructing new roadways and investing in Intelligent Transportation Systems (ITS) technology. Sugar Land ensured its growing population the ability to move efficiently by vehicle. This Plan builds on those successful investments to take the next step toward Superior Mobility of the City's transportation network for all users, regardless of the mode they choose.

NEW TRENDS AND CHALLENGES

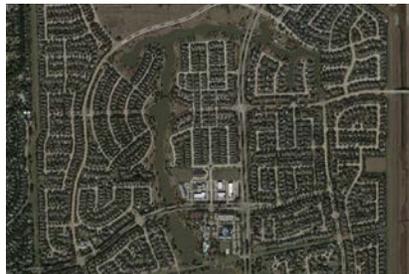
A lot has changed since the City's previous planning efforts. New technologies, shifts in mobility preferences, national trends, and global events like the COVID-19 pandemic all motivate the City to re-engage with its mobility goals. Specifically, community feedback and direction from City leadership shows a clear desire to invest in ways that better move people and goods instead of a singular focus on movement via motor vehicle. This also comes at a time when the City will be building fewer new streets and focus more on rethinking the design of their current street network. Sugar Land is well-positioned to adapt to these changes and this plan provides the tools for City staff to meet these changing mobility needs.

Sugar Land's Life Cycle



With a small and stable population, Sugar Land's early years were defined by its connection to the Imperial Sugar Company. The City had a small footprint that included a grid of streets near the railroad and what is today US 90A.

Population in 1970: **3,318**



Sugar Land's growth accelerated in the 1970s as young families from Houston, Fort Bend County, and across the world made Sugar Land home. New and expanded highways and high-speed arterials criss-crossed the City, and connected its new master planned communities. Much of the roadway grid was built through the development of master planned communities.

Growth 1971-2020: **3,250%**



Sugar Land has grown to be a regional hub for jobs and entertainment, and remains an attractive place to live. The City is also mostly built-out, with few remaining vacant parcels. Residents have expressed a growing interest in building walkable places and dense activity centers.

Population in 2020: **111,000**

What's in Sugar Land's Mobility Master Plan?

This plan uses recent mobility data, community input, and technical expertise to develop a set of shared values, recommendations, and a plan of action for implementation. The Plan approach starts with this introduction in Chapter One and ends with the Implementation Framework in Chapter Six. Each chapter answers a key question for mobility within Sugar Land and builds on the themes from the previous chapters.

BUILT ON DATA & COMMUNITY INPUT

At its core, the Mobility Master Plan is rooted in data analyzed in the **State of Mobility** (Appendix A) that summarizes the trends and opportunities for how people travel in the City today. This is combined with feedback from residents, businesses, and workers in Sugar

Land. Community engagement at three distinct phases of the Plan guided the creation of values and resulting recommendations. The **Case for Action** (Appendix C) uses this data and community input to outline why this Plan is needed at this time for the City.

ESTABLISHING SHARED VALUES

Derived from the State of Mobility, Case for Action, and community and stakeholder feedback, the Plan establishes **Five Core Values**, presented in Chapter Two. These Core Values define what it truly means to achieve Superior Mobility and act as guiding principles for the development of Plan outcomes as well as providing a basis for future decision making.

RECOMMENDATIONS

Using Core Values as guidance, this plan identifies focus corridors for investment in a connected **Transformative Mobility Network** (TMN) in Chapter Three. Alongside this network, targeted **Strategies & Action Items** (Chapter Four) detail the projects, programs, and policies for the City to pursue over the next decade. Together, these two pieces represent the Plan's recommendations.

A PATH FOR IMPLEMENTATION

Finally, **Six Mobility Metrics** (Chapter Five) and an Implementation Framework (Chapter Six) give staff and leadership a process for undertaking recommendations and measuring citywide progress to achieving Superior Mobility.



A Coordinated Approach

DEPARTMENT COLLABORATION

This plan is a joint effort between the City of Sugar Land’s Planning & Development Services, Public Works, and Engineering departments. Previous planning efforts had been conducted together, but implementation remained siloed. This plan offers a proactive approach to implementation that ensures that the City’s mobility goals are carried from planning through construction and operations with collaboration and coordination among all departments.

REDEFINING THE PLAN STRUCTURE

Prior transportation plans – the **2011 Comprehensive Mobility Plan**, the **2012 Master Thoroughfare Plan**, and the **2013 Pedestrian and Bicycle Master Plan** – were developed separately and focused on specific facets of mobility. There were areas of misalignment and conflict that presented challenges when addressing the City’s mobility challenges in a systematic way. The Mobility Master Plan solves that problem by integrating the three plans into one document, ensuring that goals and recommendations are aligned across different modes of transportation.

Early in the Plan’s development process, a Plan Review was conducted to identify areas of alignment among previous plans. This included identifying areas of consensus that provided building blocks for this plan. Appendix B provides a summary of the Plan Review.

PREVIOUS PLAN STRUCTURE

Earlier mobility plans were implemented separately without clear integration.



UPDATED PLAN STRUCTURE

This new plan integrates mobility planning efforts and is a joint effort between the three departments involved in transportation planning, design, construction, maintenance, and operations. In addition, the Mobility Master Plan will become a guiding document for small area plans and corridor studies to be conducted and implemented in coming years. The relationship between the Mobility Master Plan and these more focused, smaller scale plans is included within Chapter Six: Implementation Framework.



State of Mobility: Baseline Data

Gauging Current Conditions

The Mobility Master Plan is rooted in a solid foundation of transportation and demographic data which reveal current mobility conditions and help answer key questions to inform the rest of the Plan: Who lives, works, and does business in Sugar Land? Where are people going and how are they traveling? How is mobility interconnected to indicators of wellbeing like health, safety, and environmental stewardship? What does the network of roads, intersections, and trails look like today? Where do gaps and barriers exist?

- | | |
|--------------------------|----------------------|
| ■ Freeways/Tollways | □ City Limits |
| — Major Roadways | □ City ETJ |
| — Local Roadways | ▤ County Limits |
| — TxDOT-Owned | ■ Park |
| ⚡ Rail Lines | ■ Water |
| — Separated Bikeways | ■ METRO Service Area |
| — Delineated Bikeways | ● Park & Rides |
| — Shared Bikeways | — METRO Local Routes |
| ○ Bike-Pedestrian Bridge | ⊠ Airport |

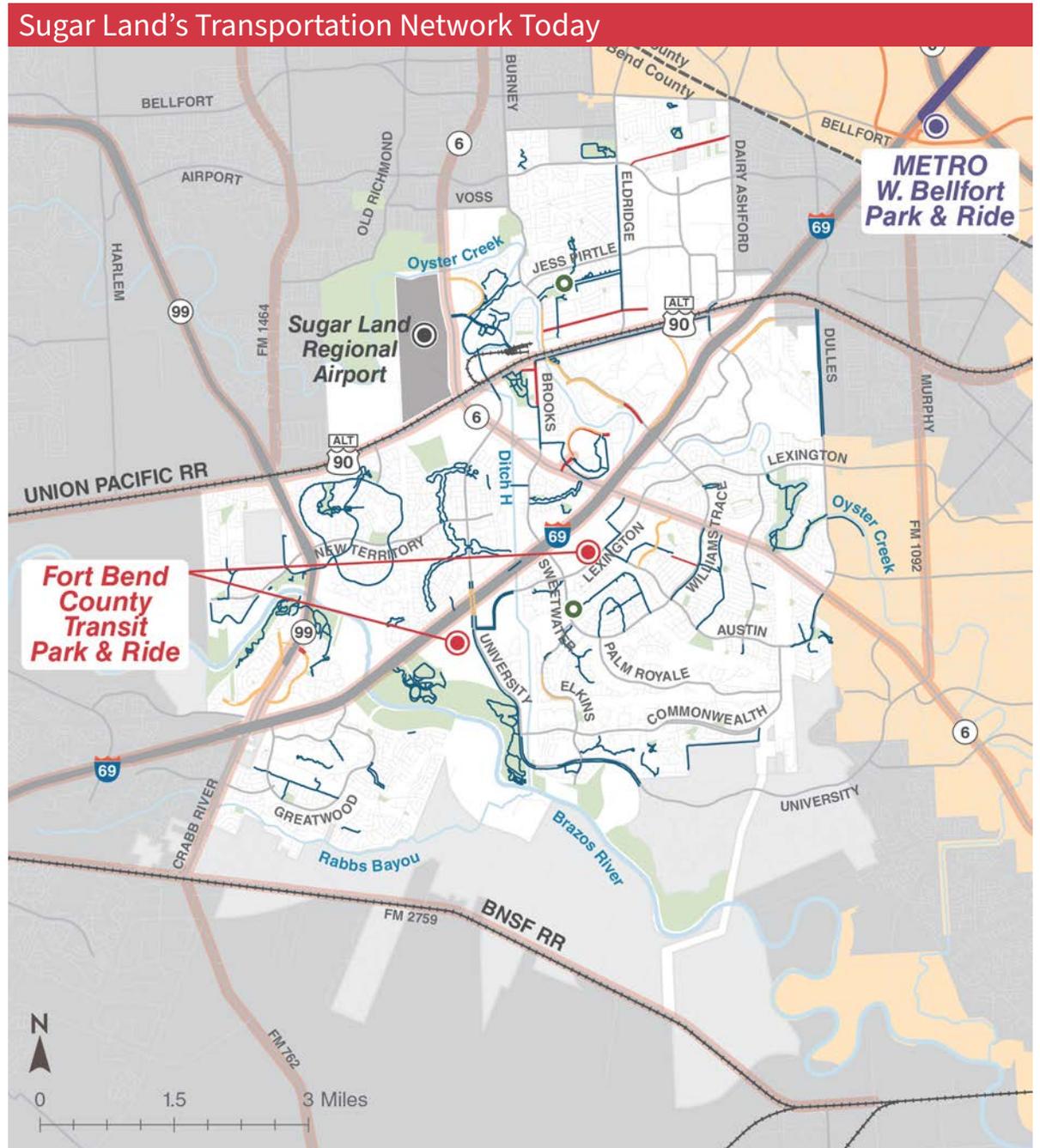


Figure 1.1 Today's Transportation Network

Source: City of Sugar Land, METRO, TxDOT, 2020

State of Mobility: Critical Insights

The State of Mobility reveals key findings based on the data analysis, summarized by the 10 Insights to Know, shown on this page. These insights were used to inform the later components of the Plan.

The full State of Mobility can be found in Appendix A and was completed in August 2020. Therefore, the information presented in the document, including data about travel and commute behaviors, was collected before the COVID-19 pandemic and reflects pre-pandemic trends.

10 Insights to Know about the State of Sugar Land Mobility

- 1 Sugar Land is entering a new phase of the City's life cycle.
- 2 Sugar Land is a regional hub of employment and entertainment.
- 3 There is increasing importance to optimize the City's existing assets and technology investments.
- 4 Sugar Land has developed as a city of neighborhoods, resulting in a large and growing percentage of short trips.*
- 5 Sugar Land has an extensive network of sidewalks that can be better maintained and connected.
- 6 Sugar Land has made progress on its bikeways and trails, but they have not become a fully integrated network.
- 7 Best practices in street design are evolving to consider all users. Cities with high quality of life are rethinking how they design and operate their streets and address barriers to mobility.
- 8 Sugar Land residents use transit. It is critical to think through its role in the City's future.
- 9 The City has an opportunity to better balance investments with stated Mobility goals.
- 10 Many cities' mobility goals are evolving to integrate safety, health, and environmental leadership supporting overall quality of life for residents.

**Trips that are three miles or less, and therefore easier to take without using a car.*

Key Stakeholders

MOBILITY TASK FORCE

This planning process was guided by the Mobility Task Force (MTF), a group of 23 City Council-appointed Sugar Land residents and business owners. MTF members were selected from dozens of applications, and represent a diversity of races, ethnicities, and ages. MTF members also come from across Sugar Land and have unique mobility experiences, preferences, and goals that inform their opinions and add to the conversations about how to improve transportation in the City.

The MTF met regularly throughout the planning process to guide City staff at critical stages and offer input from resident and business owner perspectives. See Appendix D for details on MTF members and topics covered at the 16 MTF meetings conducted throughout this Plan development process.

LOCAL AND REGIONAL PARTNERS

Mobility does not stop at the city limits. Sugar Land's success is linked to success in Fort Bend County and the Houston region. The City regularly works with other organizations and municipalities on transportation issues at the local and regional level. Throughout the Plan, the City has coordinated with agencies like Fort Bend County, the Houston-Galveston Area Council, Fort Bend ISD and Lamar CISD, the Texas Department of Transportation (TxDOT), Fort Bend County Transit, Union Pacific Railroad, CenterPoint, and others.

In addition, coordination with surrounding cities is an essential component of transportation planning. Surrounding cities involved in the development of the Plan include Houston, Meadows Place, Missouri City, Richmond, Rosenberg, and Stafford.

RESIDENTS, BUSINESSES, & VISITORS

Consistent, creative, and accessible community engagement provided a deep understanding of the community's mobility-related concerns and desires. These insights are an essential input into the Plan.

The Plan's community engagement approach sought diverse perspectives from the people who live, work, study, and do business in Sugar Land and who can provide insight into what is working or what is not working. This feedback helped identify solutions to support a safe, people-focused, and integrated transportation network. Community engagement allows for dialogue between the decision makers and end-users who know and use the infrastructure affected by those decisions. Details on the engagement efforts, along with required modifications due to the COVID-19 pandemic are presented on the next pages.



Engagement by the Numbers

16 Mobility Task Force meetings

1,963 Survey responses from residents, businesses and visitors

3 Local and Regional Partners meetings

3 Planning & Zoning and City Council meetings and workshops

Community Engagement Approach

COMMUNITY-DRIVEN NEEDS

Community and stakeholder feedback is paramount to developing a plan that has broad support and reflects the true needs of residents, businesses, workers, and visitors in Sugar Land. The City sought community input throughout the course of the Plan and used multiple channels to gather feedback including online surveys, an interactive map, in-person and on-line events, and through workshops and meetings with both the Planning & Zoning Commission and City Council.

The original plans for community engagement were outlined in a detailed Community Engagement Plan (or CEP) that was created to strategically identify dates and citywide in-person interactive engagement opportunities over the multi-year planning effort. However, the Plan commenced at nearly the exact same day the COVID-19 pandemic stay-at-home orders were announced, forcing a revamp of the community engagement approach.

Community engagement occurred in three rounds spaced out over the course of three years, and centered around topics that sought feedback to inform key stages of the Plan. The engagement strategies evolved over the multi-year planning process through each of the three phases briefly summarized on this page. More detailed engagement summaries and survey results are provided in Appendices F, G, and H.

» Round One 2020: Mobility Needs & Opportunities *(Virtual Format)*

This round utilized the City’s Mobility Master Plan website and an online survey. The survey asked how people get around; what the priorities should be for mobility; requested input on mobility needs/barriers; and offered opportunities to consider technology and future mobility trends. The City promoted the survey using a variety of creative marketing tools and resources to engage a broad spectrum of the community.

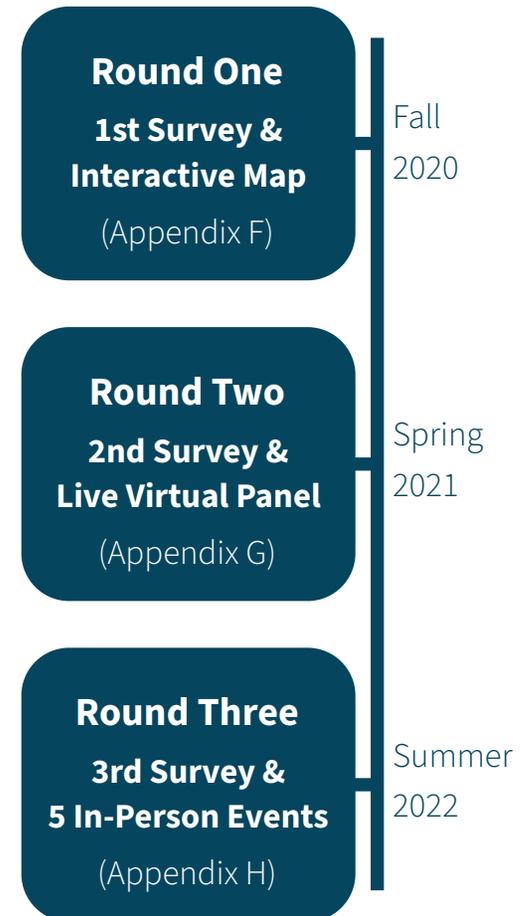
» Round Two 2021: Core Values & Goals *(Virtual Format)*

This round included a live-stream (that was recorded) Mobility Panel Discussion that included City Staff, the Chair and Vice Chair of the MTF, and one consultant team member. This panel went through a series of questions and answers about the Plan, importance of the Plan, and progress. An online survey was also advertised to get input on the draft Core Values and Goals for the Plan.

» Round Three 2022: Mobility Network & Strategies *(Hybrid Virtual & In-Person Format)*

The last round occurred in Summer 2022 and leveraged existing in-person City of Sugar Land events to have MTF, City staff, and consultants “meet people where they are” to engage about the Mobility Master Plan. Five in-person opportunities took place with online information and a survey to get feedback on the TMN and the Plan’s Strategies.

ENGAGEMENT TIMELINE



Community Engagement Results

ROUND 1 COMMUNITY ENGAGEMENT

The first public survey was conducted in the fall of 2020 and used to understand the baseline needs, barriers, and priorities of the community before developing goals and recommendations. Survey results showed a clear desire for safer streets for all modes of transportation, especially walking and biking. The figure below shows which Plan outcomes the community considered most critical.

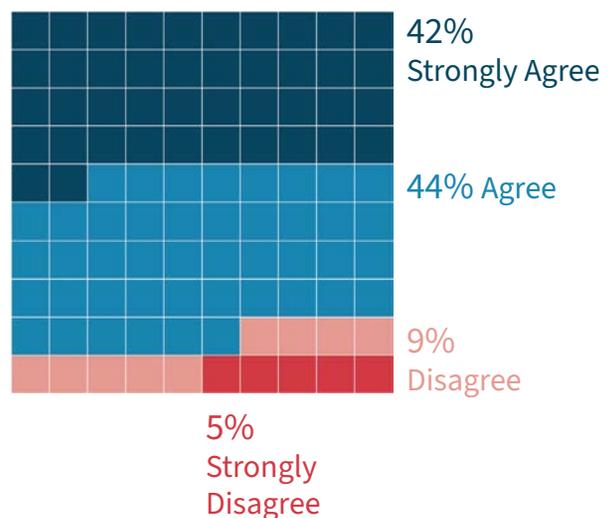
Survey Question: Which outcomes are most important to achieve with this plan?



ROUND 2 COMMUNITY ENGAGEMENT

The second round of engagement included a new survey to obtain input about the Mobility Master Plan's Core Values and goals. The Core Values, detailed further in Chapter Two provide a foundation for the remainder of the Plan. Survey results indicated that Sugar Land residents, businesses, and workers agreed with the principles espoused by the Core Values, as shown in the survey question below.

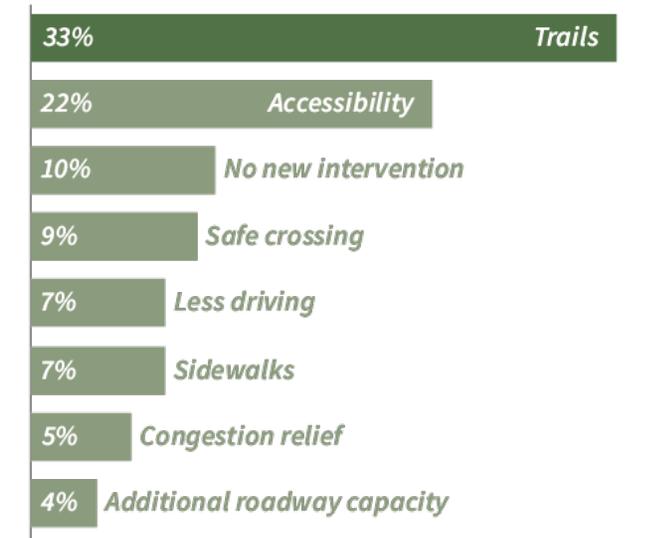
Survey Question: Do the Core Values effectively summarize the outcomes the City should focus on to advance Superior Mobility over the next decade?



ROUND 3 COMMUNITY ENGAGEMENT

The final round of community engagement took place in the summer of 2022 with a third survey and a round of in-person community engagement events. The purpose of this third outreach opportunity was to seek input and approval of 14 Strategies and to educate and seek input on the TMN. As with previous survey results, the respondents supported the direction of the Plan, as shown in the question highlighted below.

Survey Question: What are you personally most excited about for how this could benefit you and your family?



Impacts of COVID-19

PANDEMIC IMPACTS

The Mobility Master Plan process began in March 2020 at the onset of the COVID-19 pandemic and resulting stay-at-home orders. The COVID-19 pandemic upended the daily travel behaviors of people across the world. Within a matter of days in March 2020, Sugar Land residents and businesses stayed home to help prevent the spread of the disease and avoid exposure. As a result, roads were empty during rush hour, school buses stopped running, and many people embraced new outdoor activities.

The community engagement for the Plan effort evolved and adapted to the current pandemic and post-pandemic environments to accommodate as many people as possible to participate in the planning process. The City worked to find a way to balance both virtual and in-person events to meet people where they are to allow accessible participation throughout the planning effort.

One community engagement activity offered during 2020-2021 encouraged residents to take a self-guided city tour of certain parts of Sugar Land either by bike, walking, or with a car to explore different areas. This gave people the opportunity to get out of their homes and better understand the variety of mobility contexts throughout the City and was a safe socially-distanced engagement opportunity. The tours are available on the Mobility Master Plan [website](#).

COVID-19 Impacts by the Numbers



67% of Mobility Survey participants walked or biked more during the pandemic.



Around **90%** of Mobility Survey participants worked from home at some point during the pandemic, up from **13%**.



Vehicle counts from February to April 2020 fell around **50%** on SH 6 and US 90A.



Rides on Fort Bend County Transit from April to October 2020 dropped **50%** from the same period in 2019.*

*This includes both commuter Park & Ride and Demand Response services.

COVID-19 not only changed the nature of community engagement, it also influenced the responses from residents, businesses, and workers about how they get around Sugar Land. For example, residents sought opportunities to walk and bike as a way to get out of the house during the early days of the pandemic.

Even as the health risks of the pandemic fade, it will still have lasting impacts on transportation and mobility. Sugar Land can use the Plan as an opportunity to get ahead of these changes and adapt to changing mobility trends.

EMBRACING HEALTHY ACTIVITIES

In addition to changing commute patterns, more people spent time outdoors to participate in healthy activities like walking, jogging, and riding a bike. In fact, 67% of Mobility Survey respondents reported walking or biking more during the pandemic than before.

Sugar Land's large parks and boulevards provided an escape for people stuck at home quarantining. These spaces will continue to provide a competitive advantage for quality of life for existing and future Sugar Land residents.

The Impact of the Mobility Task Force (MTF)

This plan is only possible with the hard work, candor, and insight from all members of the MTF. The MTF members were the guiding force for this plan. Their engagement ensured this plan was built with the community's needs in mind. It is their plan.

Meeting regularly with the MTF was essential for the planning team to present and discuss progress and gather input routinely to shape the Plan. In addition, regular meetings allowed for real-time guidance on the impact of COVID-19 on the daily lives of residents. Most meetings, whether virtual or in-person, allowed for an interactive activity or break-out group to allow MTF members time to get to know one another, ask questions in a small group, and work together to provide focused input. Oftentimes, the MTF was tasked with review of content or other “homework” activities.

This MTF is a group of community-focused individuals who drive, walk, and ride their bikes throughout the City. They care about safety for all users, but always emphasized safety of students and the need for safe connections to all City schools. They are a group of forward-thinking individuals who value the history of Sugar Land and take pride in the City's successes. They want to do their part to ensure that Sugar Land continues to see improvement toward Superior Mobility.

Throughout the planning process the MTF:

- » Shared critical information
- » Learned from each other
- » Brainstormed innovative ideas
- » Clearly indicated a desire to change and evolve from the status quo
- » Collaborated and came together as one shared voice
- » Provided their vision for Sugar Land's future
- » Directly spoke with fellow community members and neighborhood groups
- » Actively participated in all rounds of community engagement
- » Confirmed the Vision of Superior Mobility
- » Validated the 10 Insights from the **State of Mobility**
- » Developed the rationale for this planning process with the **Case for Action**, presented on the next page
- » Were essential in the development of the **Core Values** and supporting goal statements
- » Endorsed the **Transformative Mobility Network (TMN)**
- » Informed the development of **Strategies & Action Items**
- » Stressed the importance of measuring success
- » Told the City to **Be Bold!**



Creating a Mobility Master Plan Case for Action

The Mobility Master Plan comes at a critical time for Sugar Land. This plan is a community-driven call to action to redefine the future of mobility and develop a prioritized path to achieve the City's vision for Superior Mobility. Working closely with the MTF, the City developed the Case for Action to confirm the necessity of this planning endeavor and clearly answer the question:

Sugar Land is already a successful City, so why do we need a Mobility Master Plan today?

The Case for Action is comprised of five statements that, when taken together, illustrate how this plan can address mobility needs and leverage opportunities to achieve Superior Mobility. The five Case for Action statements are identified here and defined with greater detail in Appendix C.

The Case for Action acknowledges the need for a shared vision of mobility and points to key community feedback about safety, connectivity, health, and quality of life. The Case for Action also recognizes the impact of COVID and the need to be flexible as Sugar Land enters a new phase of its life cycle.

Case for Action

Sugar Land's mobility planning process **must evolve** to ensure the City builds upon its position as a **regional leader** that provides a **high quality of life** today and into the future.

In order to set its own path during this critical time, the Mobility Master Plan must:

- **Define** a vision for mobility that aligns with the City's transition from a phase of significant growth to build-out within a rapidly growing region.
- **Create** safe, well-connected multi-modal networks for all people.
- **Prioritize** safety, health, and sustainability to enhance quality of life.
- **Capitalize** on advancements in technology.
- **Adapt** to changing mobility trends in a post-pandemic future.

Core Values

Chapter 2



Foundation of Values

Sugar Land's Comprehensive Plan establishes a vision of Superior Mobility for the City. To achieve such an ambitious vision, the City's actions must be rooted in a set of shared community principles that provide guidance and inspiration. This plan puts forward Five Core Values that act as a foundation for the remainder of the Plan and will continue to serve as guideposts as staff and leadership implement plan recommendations.

The Core Values were drawn from community engagement and the data presented in the State of Mobility. They add meaning to the vision of Superior Mobility and represent the ideal world that residents, workers, business owners, and visitors envision for Sugar Land.

This chapter defines each Core Value, offers a supporting Goal Statement, and outlines how each value is supported by community engagement and the State of Mobility data.



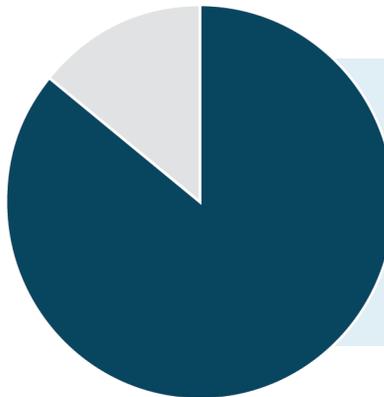
Core Values for Superior Mobility

Achieving Superior Mobility will require commitment to a bold vision of Sugar Land's future. This vision is rooted in five Mobility Master Plan Core Values for Superior Mobility:

- » **Safe & Connected**
- » **Inclusive & Accessible**
- » **Healthy & Active**
- » **Innovative Regional Leader**
- » **Proactive & Resilient**



The Core Values, detailed in this chapter, are derived from community input by residents, workers, and business owners. Results of the 2021 Online Survey focused on Core Values and goals showed 86% of respondents agreeing that the Five Core Values accurately represent the priorities the City should focus on in the next decade. See Appendix G for a detailed assessment of community feedback on the Core Values.



86% of community survey respondents agreed that the Five Core Values **accurately represent the priorities** the City should focus on over the next decade.

These central values serve as guiding principles for the remainder of this document. The Strategies, Action Items, Metrics, and Implementation Framework described in this plan all align with one or multiple Core Values. The following pages detail each value and highlight supporting information from community feedback and the State of Mobility.



Core Values for Superior Mobility

Core Value Goal Statement



Build upon the City's previous successes to create mobility networks that are safe and connected for all users.



Enhance travel within Sugar Land to be more convenient, inclusive, and reliable by addressing critical barriers to mobility.



Establish Sugar Land as an active lifestyle city where residents' daily activities and key destinations are accessible without the need to always drive.



Strengthen Sugar Land's position as an innovative mobility leader that sets the standard for quality of life and a thriving economy.



Create a resilient mobility network that can withstand environmental, social, and economic changes over time.

Core Value



Build upon the City's previous successes to create mobility networks that are safe and connected for all users.

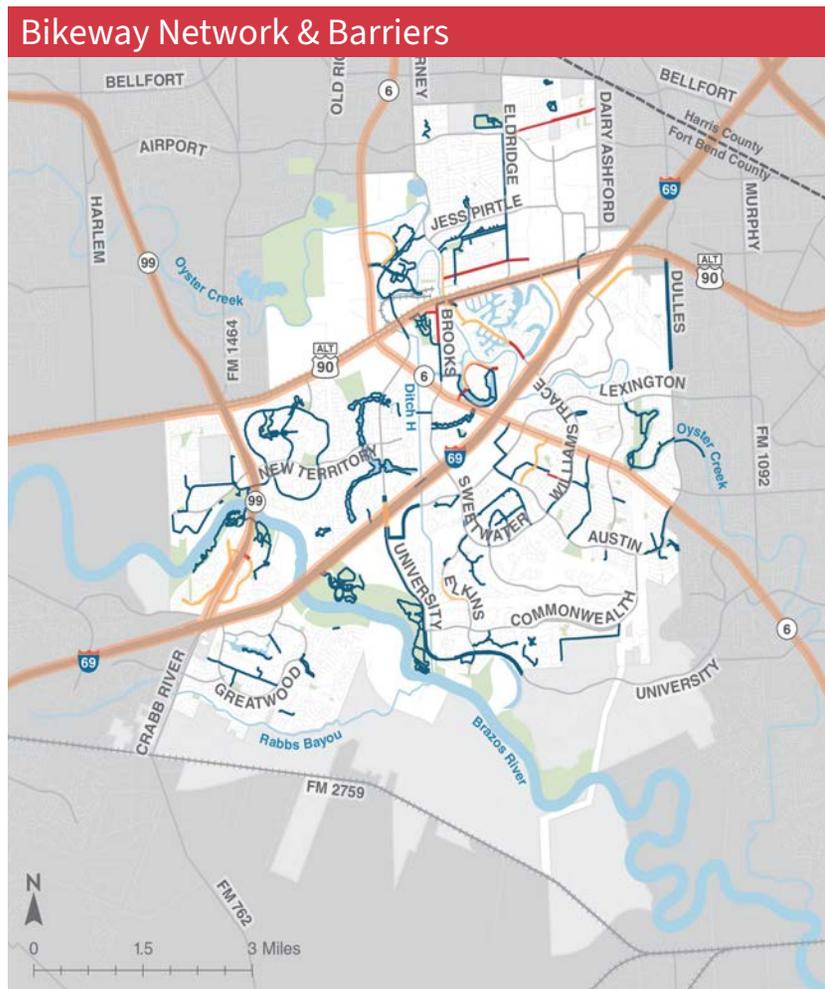
Where Sugar Land Stands Today

ISOLATED ACTIVE NETWORKS

The City's bikeway, trail, and sidewalk networks are extensive but can be isolated within neighborhoods and disconnected by barriers like highways that make it difficult to access destinations across the City. Connecting them will expand access to all the City has to offer.

ROOM TO IMPROVE ON SAFETY

Sugar Land has invested in roadway safety improvements over the last few decades, but still contends with crashes on major corridors and at intersections along IH-69 and US 90A.



Crash Data 2015 - 2019

- 9,975** Crashes on City roadways
- 900+** Crashes on IH-69 & SH 99
- 47%** Intersection-related crashes
- 37%** Crashes due to "failure to control speed."

Source: TxDOT CRIS Database, 2015-2019

Figure 2.1 Barriers to Connectivity
 Source: City of Sugar Land & Team Analysis, 2020

- City Limits
- City ETJ
- Bikeways
- Major Barriers
- Park
- Water

Core Value



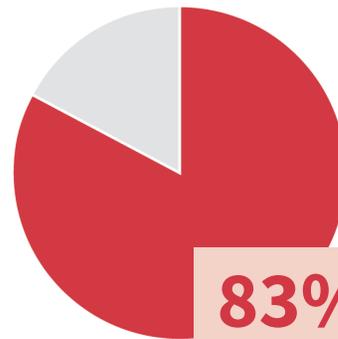
Build upon the City's previous successes to create mobility networks that are safe and connected for all users.

Looking Forward

COMMUNITY DESIRES

During the first community survey for this plan, survey respondents identified “Improving Safety for All Road Users” as the most desired outcome of the Plan over all other options. 83% of respondents listed it as a critical or very important community mobility priority.

Additionally, women identified the feeling of personal safety as a barrier at nearly twice the rate of men in the survey.



83% of community survey respondents identified **Improving Safety for All Road Users** as the highest priority for the Mobility Master Plan

SAFE & CONNECTED SUGAR LAND

For Sugar Land to be a **Safe & Connected** city, it needs a network of streets and trails that allows everyone — regardless of how they travel — to move around with comfort and convenience. The City's many destinations from entertainment venues like Smart Financial Centre to the corner convenience store should be connected via safe streets.

The recommendations and implementation next steps in the remainder of this plan adhere to the **Safe & Connected** Core Value by embracing projects, policies, and programs that put safety at the forefront.

Core Value



Enhance travel within Sugar Land to be more convenient, inclusive, and reliable by addressing critical barriers to mobility.

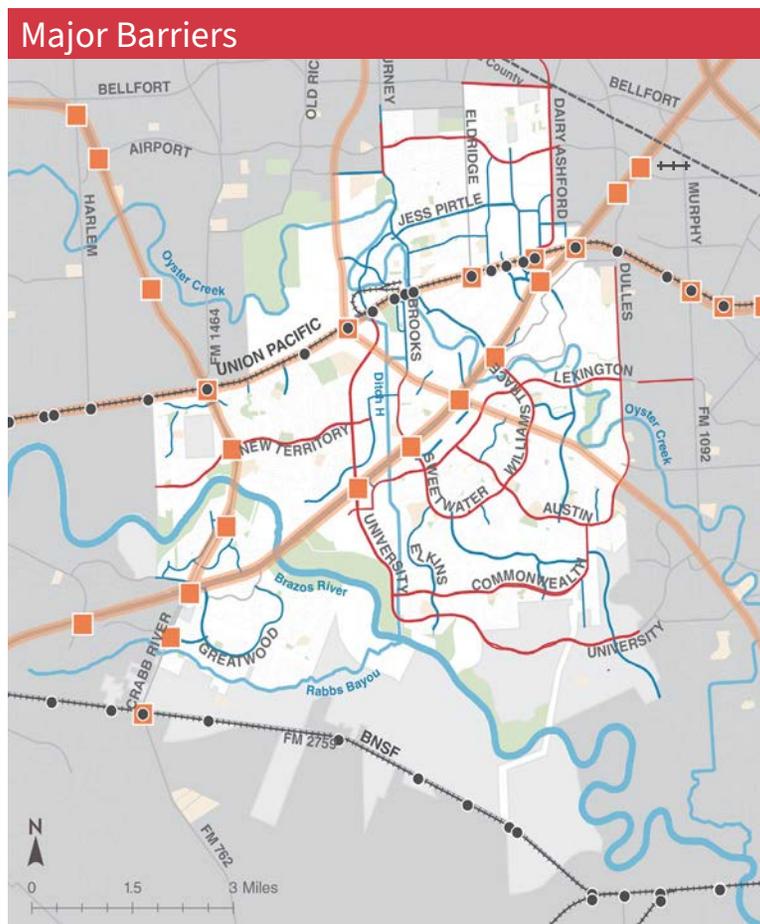
Where Sugar Land Stands Today

BARRIERS TO MOBILITY

Sugar Land’s existing roadway network is divided by several major barriers, from freight rail lines and freeways to natural barriers like the Brazos River. These barriers all have a limited number of crossings and the crossings that do exist are often wide and high-speed, creating safety issues and limiting accessibility.

WHO IS IMPACTED

These barriers can make travel difficult for everyone trying to get from one destination to the next within Sugar Land. However, crossing barriers is particularly challenging for people with limited mobility like seniors and young children, people walking, and people biking.



- Barriers**
- Highways & Crossings
 - Water Bodies
 - Rail Lines & Crossings
 - Major Streets
 - City Limits
 - City ETJ
 - - County Line

Figure 2.2 Major Barriers
Source: City of Sugar Land & Team Analysis, 2020

Core Value



Enhance travel within Sugar Land to be more convenient, inclusive, and reliable by addressing critical barriers to mobility.

Looking Forward

COMMUNITY DESIRES

More than half (54%) of respondents to the first community survey believe that seniors, children, teenagers, and people without drivers licenses are not well-served by Sugar Land's existing transportation system.

Around 60% of survey participants said that crossing fast-moving, high-volume traffic is a major barrier to walking, biking, and wheeling.

54% of community survey respondents said that seniors, children, teenagers, and people without drivers licenses are not well-served by Sugar Land's current mobility network.



INCLUSIVE & ACCESSIBLE SUGAR LAND

For Sugar Land to be an **Inclusive & Accessible** city, it must address critical barriers for all community members. Recent mobility investments have focused on roadway capacity and new signal technologies. This has helped with vehicular movement through congested intersections but leaves many other barriers unaddressed.

The recommendations outlined in the rest of this plan help achieve this Core Value by confronting the difficult barriers with targeted projects and new policies ensuring that future designs are inclusive of all roadway users.



Core Value



Establish Sugar Land as an active lifestyle city where residents' daily activities and key destinations are accessible without the need to always drive.

Where Sugar Land Stands Today

GROWING GREENWAYS

In addition to roadway capacity improvements and signal technologies, the City has invested in new trails in the past several years. While these trails have expanded the amount of greenspace in Sugar Land, many are hyperlocalized, making access only feasible for nearby residents. In other words, some of the best trails are not integrated into the wider mobility network of the City.



INTEREST IN WALKING & BIKING

The COVID-19 pandemic highlighted the need for places to walk, bike, and be active in Sugar Land's wider transportation network. About two-thirds of the respondents to the first community survey walked and/or biked more during the pandemic than before. For all trip purposes, walking and biking are most likely to be done for trips that are less than 3 miles in length, which accounts for 33% of all trips made in Sugar Land.

67%

of residents walked more during the pandemic than before the pandemic.



Core Value



Establish Sugar Land as an active lifestyle city where residents' daily activities and key destinations are accessible without the need to always drive.

Looking Forward

COMMUNITY DESIRES

Among all public works services listed in the City's Citizen Satisfaction Survey, residents were least satisfied with the "Condition of sidewalks in their neighborhood" and "On-street bicycle infrastructure."

This echoes feedback from the first mobility survey in which only 27% of participants said it is easy to get around Sugar Land without a car. Of the survey respondents, 20% and 35%, respectively, walk or bike frequently (3 or 4 times per week).

It is easy to get around Sugar Land with a car:

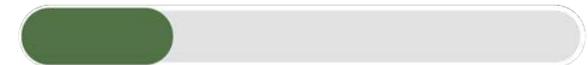


85%

HEALTHY & ACTIVE SUGAR LAND

To be a **Healthy & Active** place, Sugar Land must continue to build high-quality parks, trails, sidewalks, and bikeways and prioritize integrating them into the fabric of the broader mobility network. These investments are more than safety and accessibility improvements. They also allow residents and workers to make healthy lifestyle choices simply by going about their day-to-day activities. Trips to school, to work, to the grocery store, and trips to see friends can be possible without relying on a car.

It is easy to get around Sugar Land without a car:



27%

Core Value



Strengthen Sugar Land's position as an innovative mobility leader that sets the standard for quality of life and a thriving economy.

Where Sugar Land Stands Today

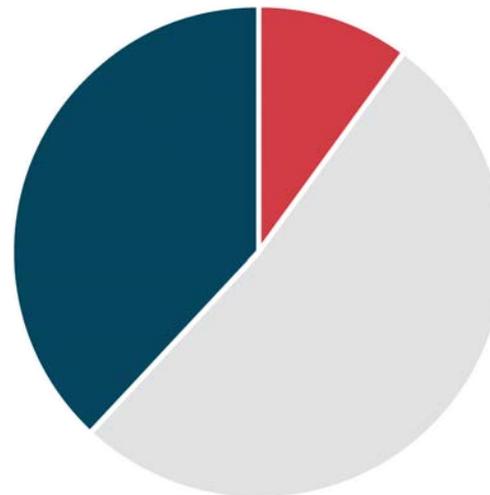
REGIONAL HUB

Sugar Land is a regional employment and entertainment hub with headquarters for major companies and venues like Constellation Field and Smart Financial Centre. With highway corridors like IH-69, US 90A, and SH 99 that carry trips throughout Fort Bend County and the region, the City's mobility investments have a larger impact beyond its city limits.

RECORD OF INNOVATION

Mobility technology investments are effective in addressing traffic congestion. The City has been a leader in new mobility technology investments, including one of the region's only Traffic Management Centers, adaptive signals, a rail monitoring system, real-time vehicle volume counts, and more.

WHERE SUGAR LAND WORKERS LIVE



- 10% Sugar Land
- 38% Fort Bend County
- 52% Outside of Fort Bend County

Source: U.S. Census, LEHD Data, 2018



Core Value



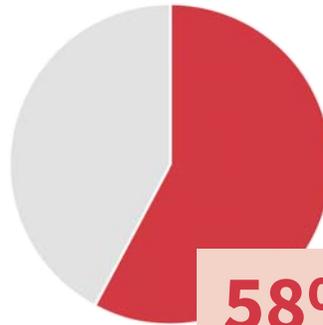
Strengthen Sugar Land's position as an innovative mobility leader that sets the standard for quality of life and a thriving economy.

Looking Forward

COMMUNITY DESIRES

A majority of Mobility Survey participants (58%) said that they would be willing to pay for improved traffic signal systems and technology.

Majorities also believe that innovations like ride-hailing, electric vehicle charging stations, and micromobility options like electric bikes and scooters are important to building Superior Mobility in Sugar Land.



58% of survey respondents said that they would be willing to pay for improved traffic signal systems and technology.

SUGAR LAND AS A REGIONAL LEADER

To embrace its role as an **Innovative Regional Leader**, Sugar Land should remain an active partner in key regional, state, and national conversations about mobility.

The City should set an example for similar sized communities across the country through implementation and testing of new technologies and partnerships that yield win-win projects for Sugar Land, its neighbors, and other regional stakeholders.



Core Value



Create a resilient mobility network that can withstand environmental, social, and economic changes over time.

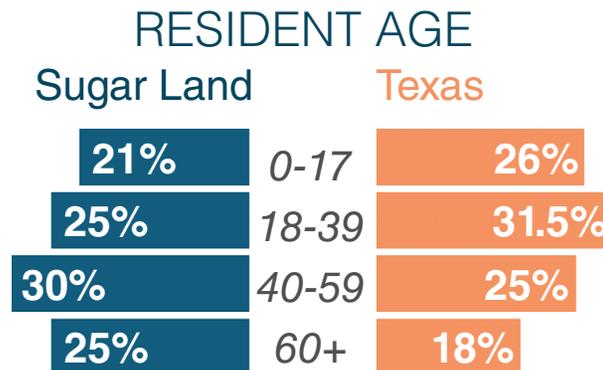
Where Sugar Land Stands Today

ECONOMIC & SOCIAL IMPACTS

Sugar Land is not immune to external factors in the economy and society that can impact local daily life and influence City decisions about future investments. As a recent example, the COVID-19 pandemic disrupted “business-as-usual” and impacts the local economy to this day. Sugar Land also faces demographic changes, including an older population that continues to age faster than the state as a whole.

ENVIRONMENTAL IMPACTS

Transportation contributes about half of all greenhouse gas emissions across the country. These emissions impact air quality and can contribute to changes in climate that impact the City and its residents. Additionally, mobility investments can help the City respond to and recover from emergencies and natural disasters. The City’s roadway network is necessary for emergency response, evacuation, and is often built simultaneously with stormwater infrastructure that helps move water away from homes and businesses.



Source: U.S. Census, American Community Survey, 2018



Core Value



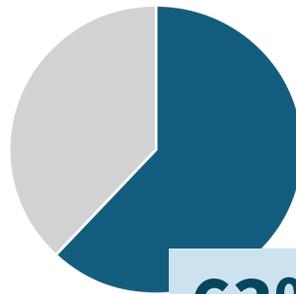
Create a resilient mobility network that can withstand environmental, social, and economic changes over time.

Looking Forward

COMMUNITY DESIRES

63% of Mobility Survey respondents believe that providing the next generation with an environmentally clean and financially sound transportation system is critical or very important. That percentage was higher among younger respondents (94%) and women (68%).

Additionally, 61% of business owners state that they want to reduce their personal level of energy consumption and carbon footprint.



63% of community survey respondents said that it is critical or very important to provide the next generation with an environmentally clean and financially sound transportation system.

PROACTIVE & RESILIENT SUGAR LAND

To be **Proactive & Resilient**, Sugar Land must make time to plan in advance and anticipate the changing needs of the community. This Mobility Master Plan is one step in proactive thinking for the City's mobility future but staff will need to use the recommended tools to bring fresh ideas to every new program, policy, and project. This includes creating a more resilient mobility system that is able to bounce back from economic, social, and environmental challenges. This encompasses the City's obligation to be good stewards of public finances and focus on expanding the variety of mobility funding sources to support a financially sound transportation system.

Transformative Mobility Network

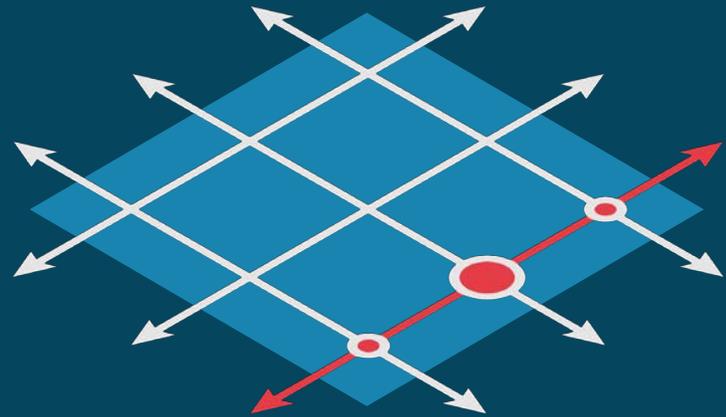
Chapter 3



A Transformative Mobility Network

No street or trail exists on its own and thoughtful mobility planning should consider each corridor in the context of the broader system of streets, intersections, trails, freight infrastructure, etc. The Transformative Mobility Network (TMN) defined in this plan does just that. It maps the interconnected set of key corridors that work together to link the City's major population, employment, education, and entertainment centers.

This is the network of streets and trails (both existing and proposed) where the City should focus its time, energy, and funding over the next 10 to 15 years. When paired with the specific Strategies & Action Items defined in the next chapter, the Transformative Mobility Network will become a network of trails and Complete Streets — designed to serve all modes safely and conveniently. Intentional investment in this network will move the City closer to its vision of Superior Mobility.



Overview

To achieve the vision of Superior Mobility, the City must focus efforts on a network of streets and trails that connect people to activity centers and local destinations across the community. Investments will strategically re-imagine existing street corridors, build on innovative Intelligent Transportation System (ITS) investments, and adapt existing programs and policies to meet the evolving needs of the community.

The TMN shown in **Figure 3.1** represents streets and trails where investment could have the greatest impact towards achieving the City’s mobility goals over the next 10 to 15 years. It builds on existing facilities and previously planned projects and adds new connections to destinations across Sugar Land.

The TMN intentionally does not include every street in Sugar Land, but when implemented together these specific streets and trails have the potential to make a significant impact on how people move for recreation, commuting, transporting goods, and everyday trips.

The value of a network is in the connected sum of the parts. These parts will include corridor studies, small area plans and specific infrastructure and operational improvement projects that are developed along corridors in the network. City policies and programs will also support implementation of the TMN.

The following sections provide an overview of how the TMN was developed and the value the network provides for moving towards Sugar Land’s vision of Superior Mobility.

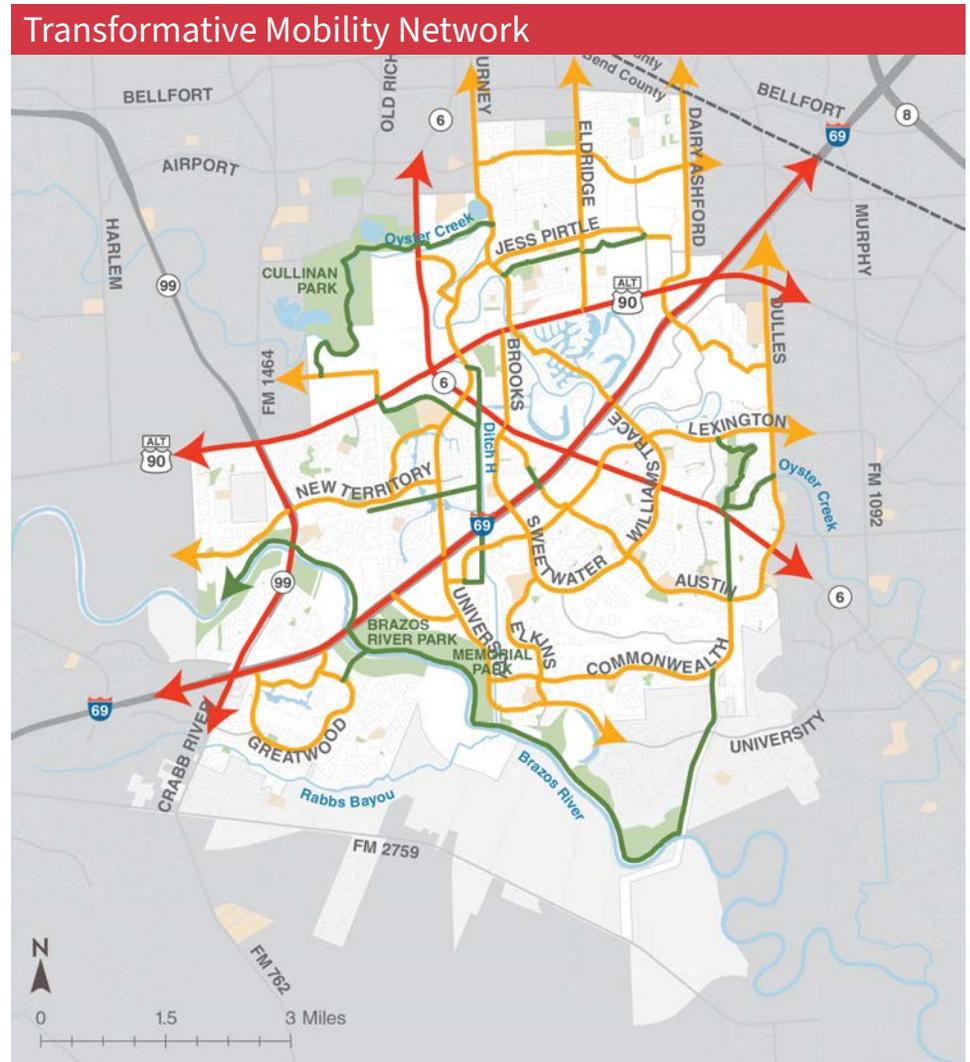


Figure 3.1 The Transformative Mobility Network

Source: Team Analysis, 2022

- | | |
|---|--|
| School | Transformative Mobility Network |
| Park | On-Street |
| Water | Off-Street |
| | TxDOT Roads |

Developing the Transformative Mobility Network

1. Existing Infrastructure

Network development builds on previous mobility investments Sugar Land has already completed to move towards the vision of Superior Mobility. Previous investments in vehicle capacity and ITS technology has supported the City’s economic and population growth by building a network of thoroughfares and collectors. The TMN provides an opportunity to incorporate Complete Streets throughout the City by implementing future multimodal projects focused on moving a wider variety of people and modes within exiting corridor right-of-way.

The existing street network, on-street bikeways, locations of sidewalks, and existing off-street trails formed the foundation of developing the TMN.

Figure 3.2 highlights key existing projects that the TMN connects and builds on.

2. Current Plans & Funds

The TMN also builds on projects that are currently funded or planned for the near future. Because the TMN focuses on corridors that will have a significant impact on future mobility in Sugar Land, not every previously proposed project is included within the network. Funded and planned projects that are integrated into the TMN present an opportunity to build momentum in the city as new mobility options are created.

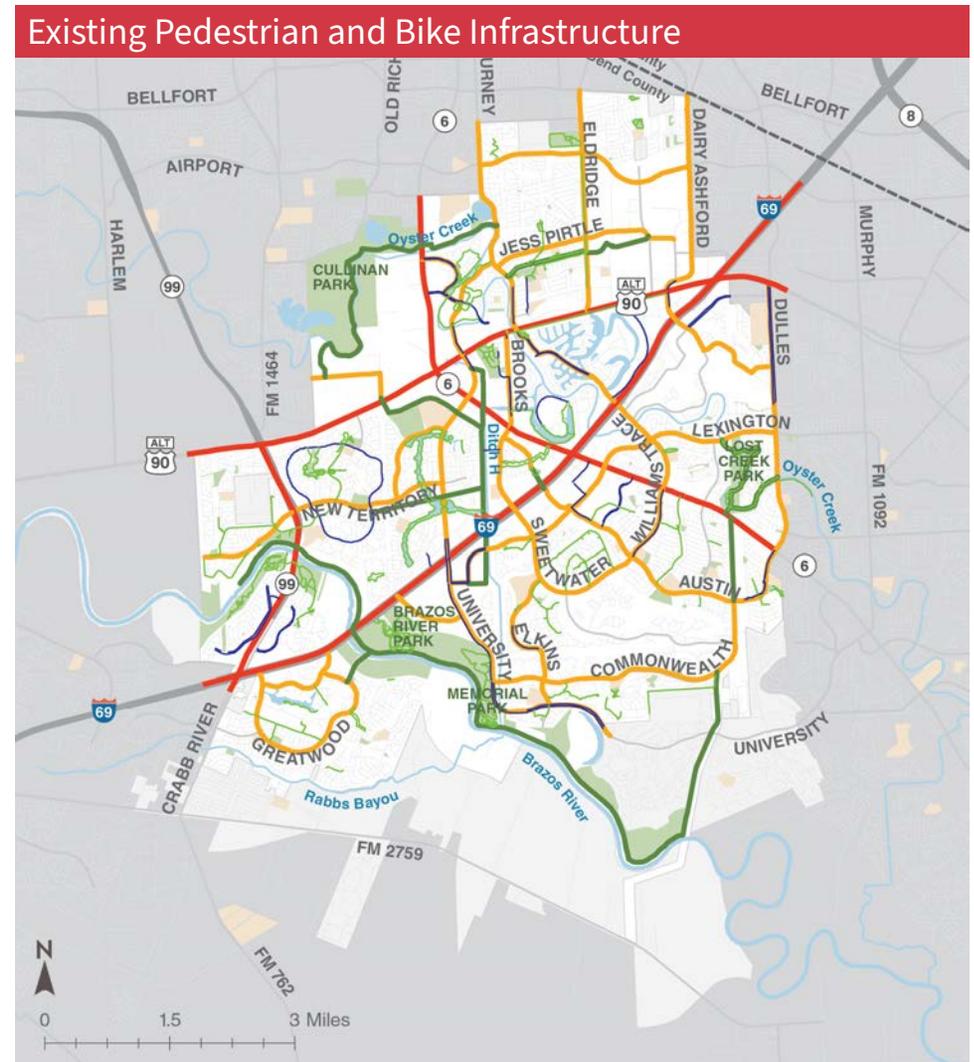


Figure 3.2 Existing Infrastructure

Source: City of Sugar Land, 2020

- | | | |
|--------|--------------------------|--|
| School | Existing Bike Lane | Transformative Mobility Network |
| Park | Existing Shared Use Path | On-Street |
| Water | | Off-Street |
| | | TxDOT Roads |

Developing the Transformative Mobility Network

3. Destinations

Finally, corridors in the TMN were selected based on their ability to connect people to destinations and Activity Centers across Sugar Land. Achieving Superior Mobility hinges on the ability of residents and visitors to access destinations by whatever mode they choose. The TMN emphasizes the corridors that have the highest concentration of destinations and can allow people to discover those destinations on foot, by bike, or by car. For the purposes of developing the TMN, destinations include Activity Centers, schools, parks, places of worship, grocery stores, hospitals, libraries, and museums.

Figure 3.3 illustrates key destinations that include:

- » Neighborhood and Regional Activity Centers such as the Town Center Activity Center and the Imperial Activity Center around Constellation Field
- » Areas designated for growth in the Land Use Plan
- » The concentration of hospitals near Town Center and Lake Pointe Activity Centers
- » The multiple schools near Main Street and Eldridge Road
- » The Park and Ride location at AMC First Colony
- » Major parks like Memorial Park and Cullinan Park

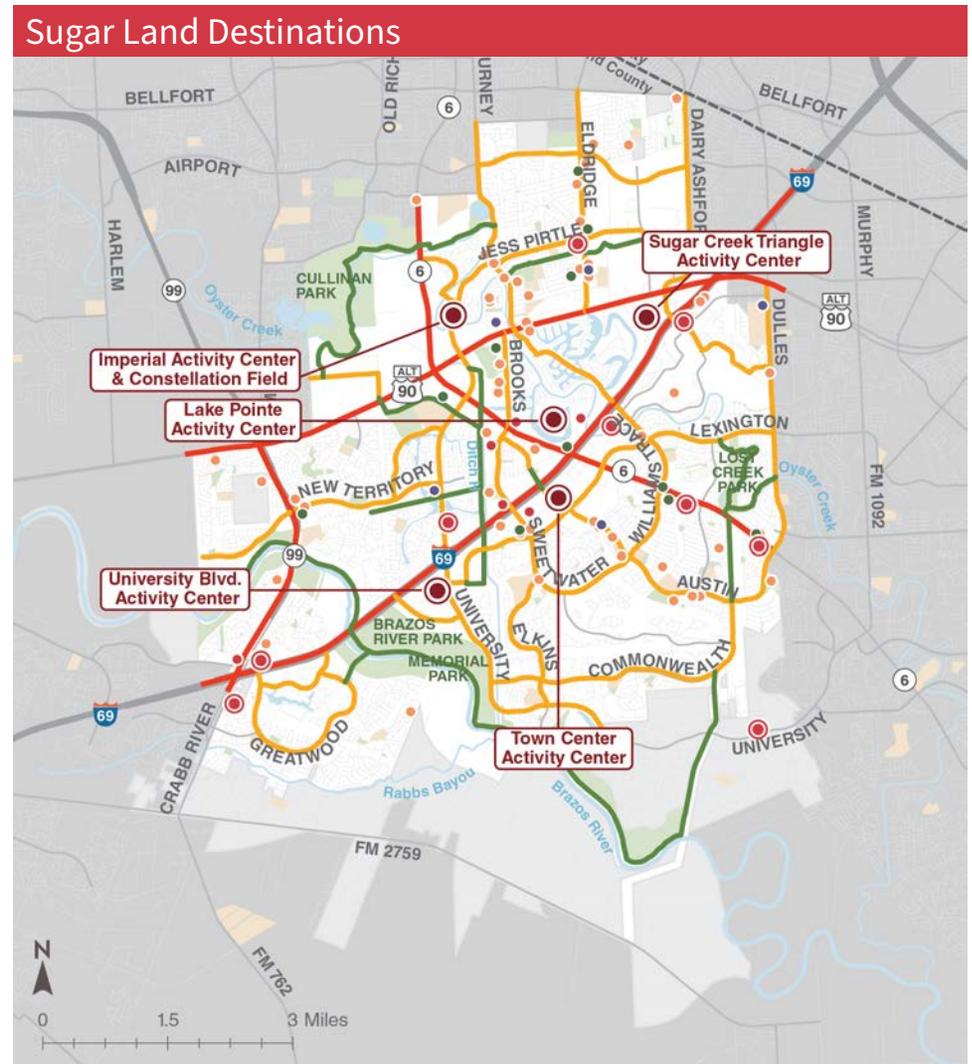


Figure 3.3 Key Destinations

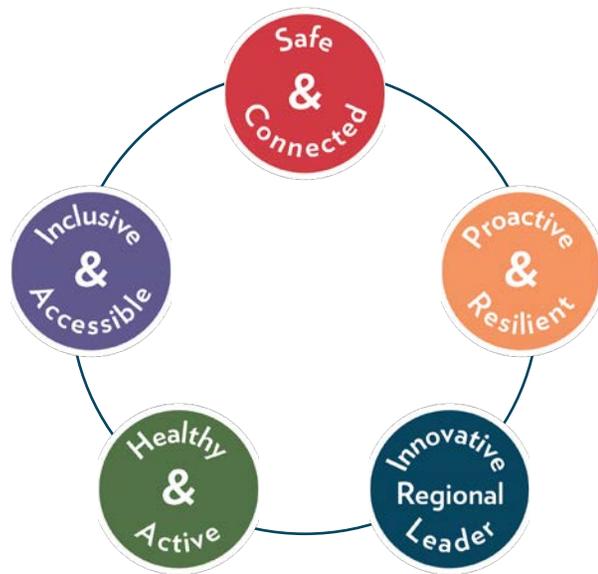
Source: City of Sugar Land, Team Analysis, 2022



The Value of a Network

Every part of Sugar Land’s transportation infrastructure—its streets, trails, intersections, curbs, and everything in between—exist as part of an interconnected network. Corridors in the network do not exist in a vacuum, but instead work together to link the City’s many residential neighborhoods, Activity Centers, and all other land uses. As a consequence, the corridors in this network must work together to serve all types of modes safely and conveniently. Any “weak link,” such as a street with unsafe crossings, reduces the value of the network as a whole. The TMN represents the most important corridors for investment to ensure a high-quality network that serves all modes well.

The Core Values of the Mobility Master Plan shaped the development of the TMN. They also provide a lens for visualizing what the network can accomplish. The following maps show how, when fully implemented, the TMN can answer key questions related to each Core Value and work towards accomplishing Sugar Land’s ultimate vision of Superior Mobility. The following section showcases how each of the Core Values shaped the creation of the TMN.



Designing the Network

The City should adhere to national best practices for all roadway projects. Best practice multimodal design treatments can be referenced from leading national organizations like the National Association of City Transportation Officials (NATCO) and the American Association of State Highway and Transportation Officials (AASHTO) which regularly publish design guides outlining specific aspects of roadway design to improve safety and comfort for all roadway users.

These resources describe best practices for all types of facilities such as preferred and minimum widths for sidewalks, trails, and vehicle lanes. They also document ideal design of turn-lanes, intersection turning radii, widths of safety buffers, corridor design speeds, and other critical geometric design elements of a roadway.

In the case of bikeway design, best practices are evolving quickly as communities across the country test and apply new bikeway designs. Likewise, Sugar Land will be implementing new designs for bikeways and trails as the City pursues projects along the TMN. This plan refers to “high-comfort” bikeway designs as best practice. This means:

- » Sufficient **physical separation** (both vertical and horizontal) between people biking and vehicle traffic.
- » **Short crossing distances** at intersections or mid-block crossings for people biking (and walking).
- » **Slower vehicle speeds** through intersections and in locations where vehicles will be adjacent to people biking.

The City can codify and update these best practices in its Design Standards and Development Code, as described in **Action Item B.2** in the next chapter.

The Value of a Network: Safe & Connected



Build upon Sugar Land’s previous successes to create mobility networks that are safe and connected for all users.

While densities of crashes are not the only indicator of areas that are unsafe, they do highlight areas where infrastructure could be changed to provide more mobility options and/or increase safety. The TMN addresses key crash hot spots, especially those for bicyclists and pedestrians (**Figure 3.4**).

Figure 3.5 shows how the network can connect people to parks and schools, two key destinations for all users. At full build out, 92% of schools and 95% of parks Bay would be within a half mile (10-minute walking distance) of the network.

KEY QUESTIONS

- » What does this network connect people to?
- » How does this network increase safety for all users and abilities?
- » How does this network promote safe interactions between and across modes?

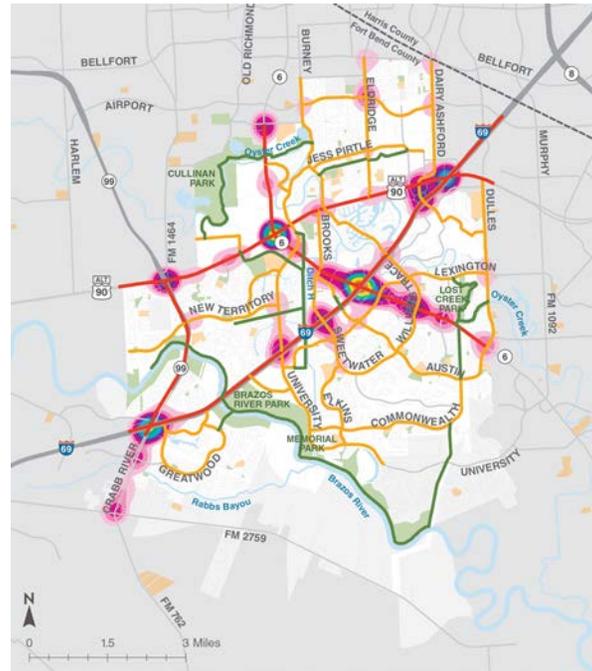


Figure 3.4 Crash Hot Spots

Source: Team Analysis, 2020

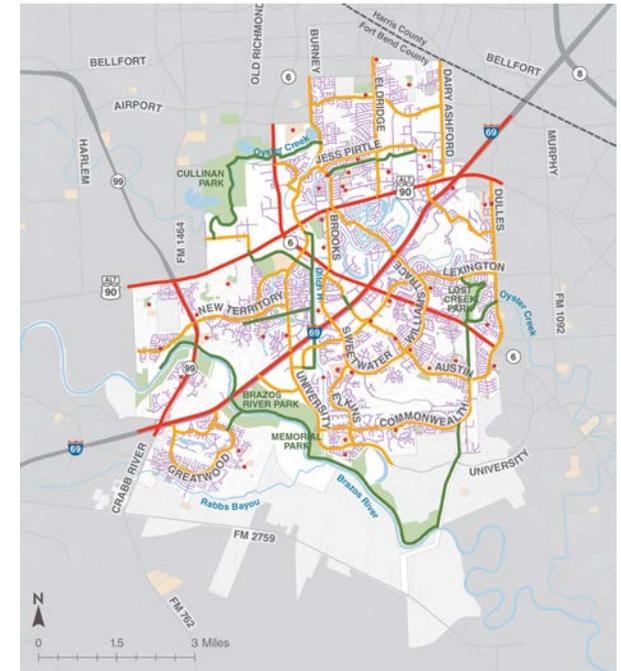
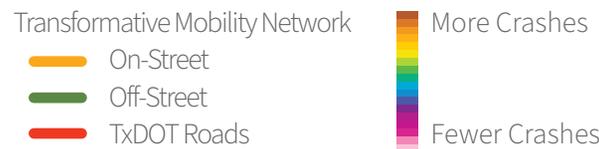


Figure 3.5 School and Park Access

Source: Team Analysis, 2020



The Value of a Network: Inclusive & Accessible



Enhance travel within Sugar Land to be more convenient, inclusive, and reliable by addressing critical barriers to mobility.

Railroads, Texas Department of Transportation (TxDOT) roadway crossings, and the Brazos River all represent key physical barriers to mobility in Sugar Land. **Figure 3.6** highlights the connections that could be provided by the TMN through and across these barriers. Building multimodal infrastructure that safely crosses these barriers and connects destinations will give Sugar Land residents more travel options. This will provide the opportunity for people to convert their short trips, shown in **Figure 3.7** to active modes like walking and biking.

KEY QUESTIONS

- » How does this network overcome key barriers, and which specific barriers are addressed?
- » How does this network provide convenient mobility choices?

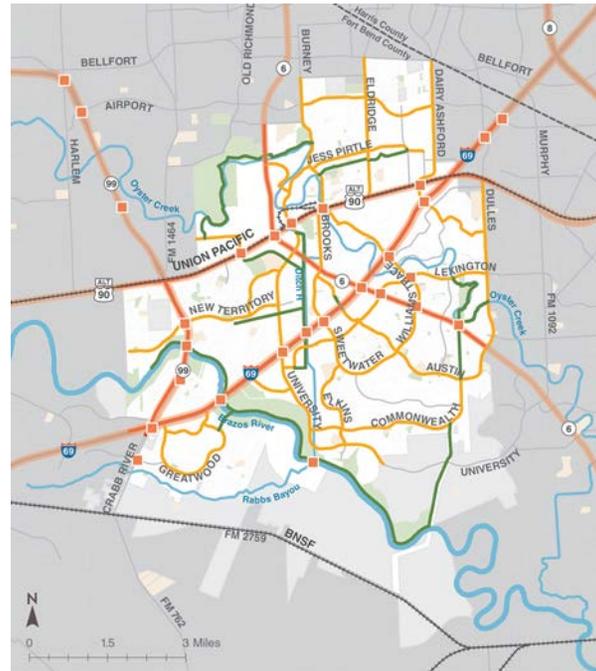


Figure 3.6 Key Barriers Source: Team Analysis, 2020

Transmogrific Mobility Network

- On-Street
- Off-Street
- TxDOT Roads
- Major Barriers
- + Railroads

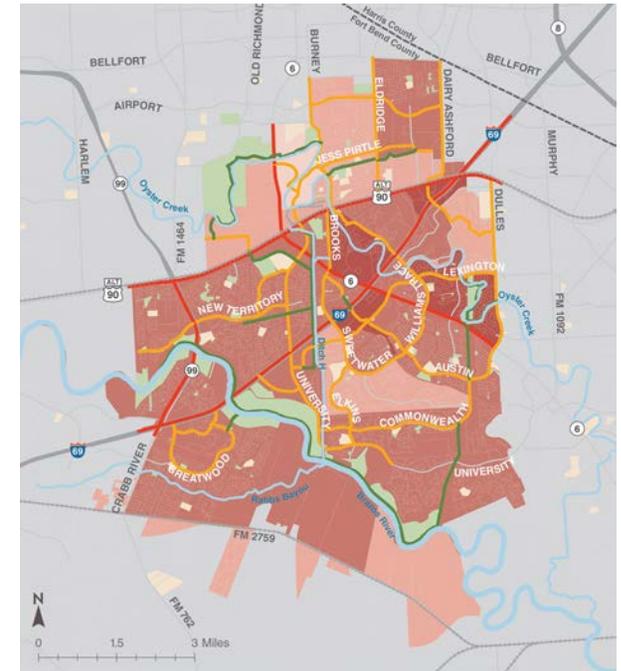


Figure 3.7 Short Trips Source: Team Analysis, 2020

Transmogrific Mobility Network

- On-Street
 - Off-Street
 - TxDOT Roads
- % of Trips Under 3 Miles:
- High
 -
 -
 - Low

The Value of a Network: Healthy & Active



Establish Sugar Land as an active lifestyle city where residents' daily activities are accessible without the need to always drive.

The foundation of an active lifestyle community is a network of trails and active transportation facilities that allow people to reach their destinations with active modes of transportation like walking and bicycling. Commuting patterns, shown in **Figure 3.8** emphasize the importance of network connections into and along the outskirts of Sugar Land where commuting by single occupancy vehicle is highest.

Figure 3.9 also shows that at full build out, 86% of the population will be within a half-mile (10-minute walk) of an existing or proposed trail.

KEY QUESTIONS

- » How does this network reduce the need for single occupancy vehicle trips?
- » How does this network connect people to nature?

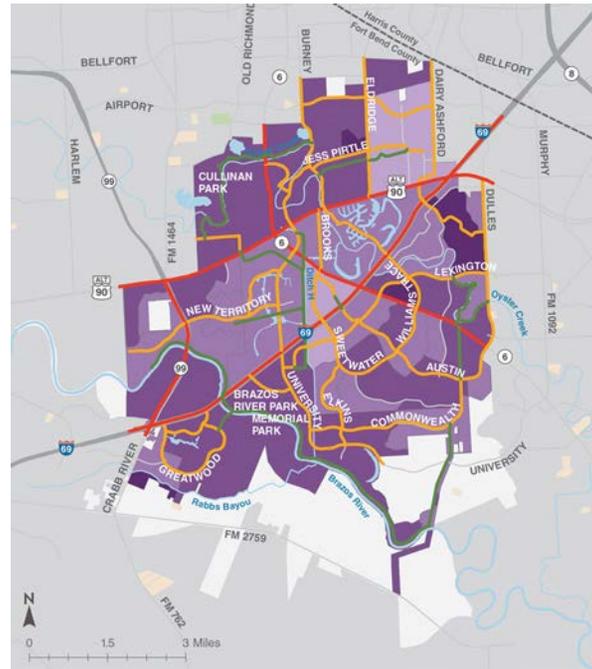


Figure 3.8 Journey to Work

Source: Team Analysis, 2020

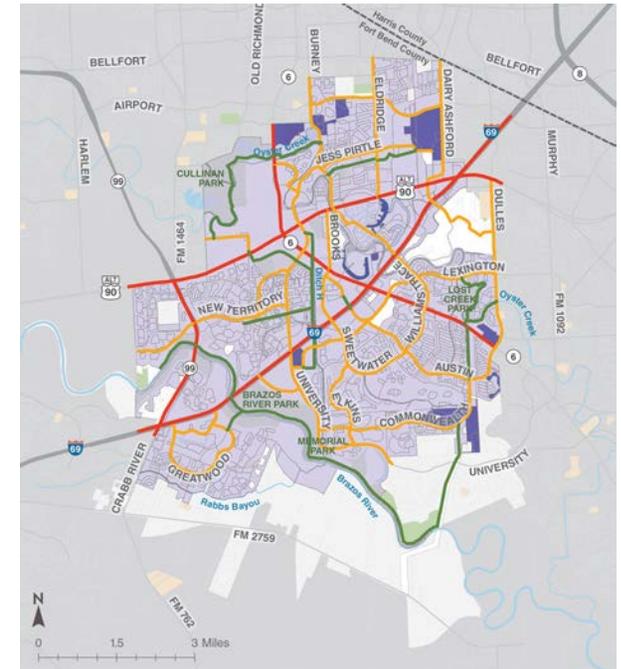
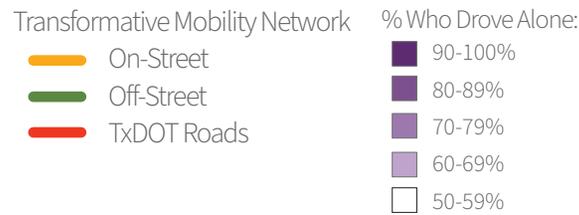


Figure 3.9 Trail Access

Source: Team Analysis, 2021



The Value of a Network: Innovative Regional Leader



Strengthen Sugar Land’s position as an innovative mobility leader that sets the standard for quality of life and a thriving economy.

The TMN positions Sugar Land as an innovative regional leader by connecting people to jobs and by providing access to commercial and industrial areas. **Figure 3.10** shows the ways the TMN provides access to the concentration of jobs near Town Center and First Colony Mall. The TMN also connects within a ¼ mile to 76% of commercial land uses and 90% of industrial land uses.

The TMN includes corridors that are key thoroughfares that would benefit from ITS expansion or upgrades, specifically adaptive signal timing technology at key locations, to continue to efficiently and effectively move vehicles.

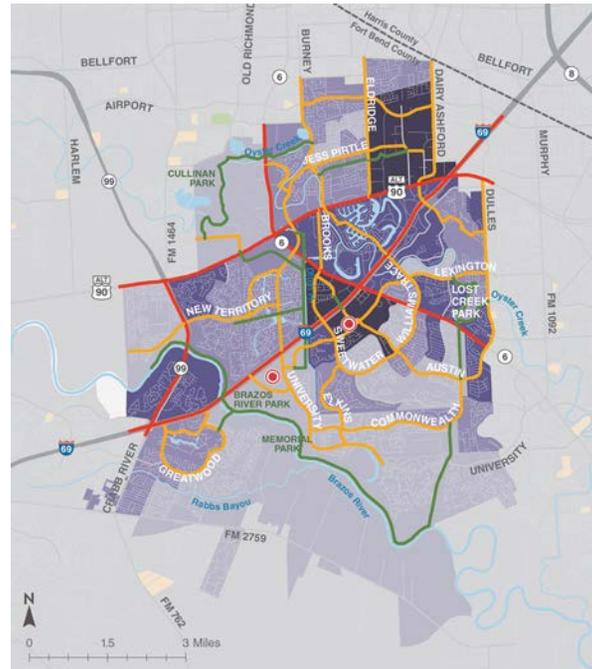


Figure 3.10 Job Density

Source: Team Analysis, 2020

Transformative Mobility Network

- On-Street
- Off-Street
- TxDOT Roads
- Transit Stops

Job Density:

- High
-
- Low

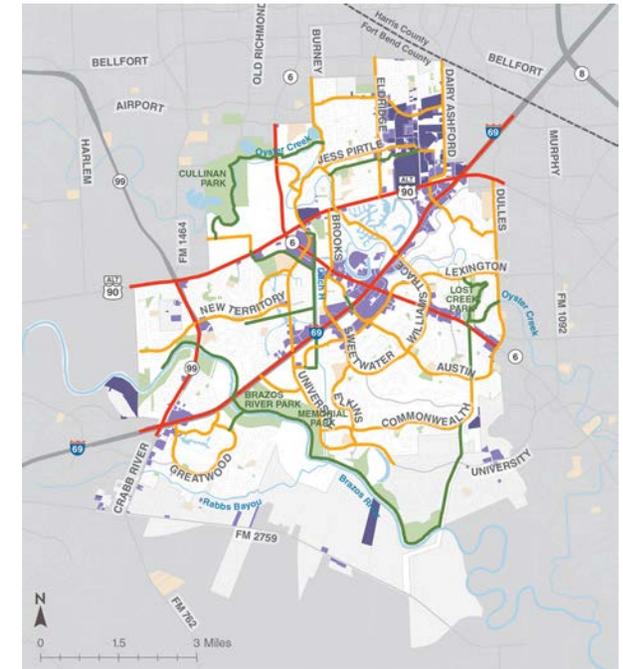


Figure 3.11 High Freight Traffic

Source: Team Analysis, 2021

Transformative Mobility Network

- On-Street
- Off-Street
- TxDOT Roads

Commercial
Industrial

KEY QUESTIONS

- » Where does this network give trucks access to industrial sites?
- » How does this network tie into neighboring and regional connections?
- » Where should the City expand its ITS programming?

The Value of a Network: Proactive & Resilient



Create a resilient mobility network that can withstand environmental, social, and economic changes over time.

While the TMN aims to meet the current mobility needs of people in Sugar Land today, it also provides for a growing and changing transportation landscape in the future. Corridors provide increased mobility options for both older residents and attracting new, younger residents (**Figure 3.13**) and new off-street connections follow potentially flood prone area and future park land (**Figure 3.12**). Proactive and Resilient investments in the TMN also means ensuring that all facilities are in a state of good repair through intelligent use of the asset management program. A well maintained system will save tax dollars and allow the City to better target funds for critical projects.



Figure 3.12 Flood Zones & Parks Source: Team Analysis, 2020

Transformative Mobility Network

- On-Street
- Off-Street
- TxDOT Roads
- Water
- Parks & Green Space
- FEMA Flood Zone

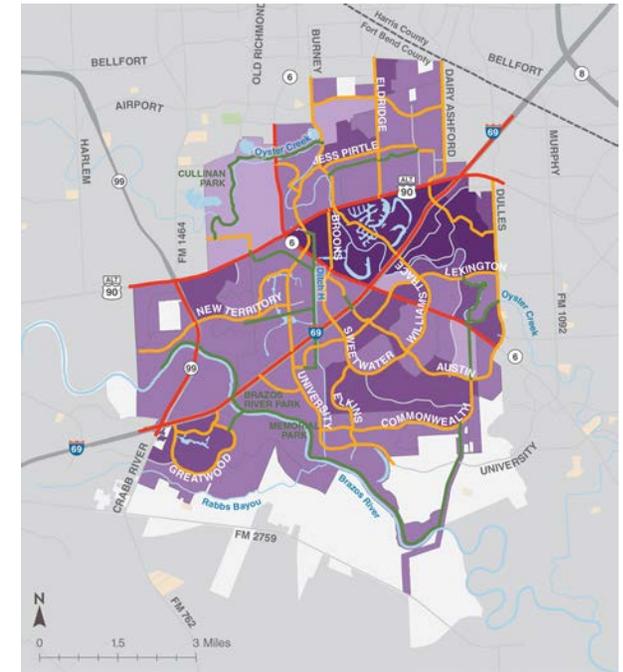


Figure 3.13 Median Age Source: Team Analysis, 2020

Transformative Mobility Network

- On-Street
- Off-Street
- TxDOT Roads

Median Age:

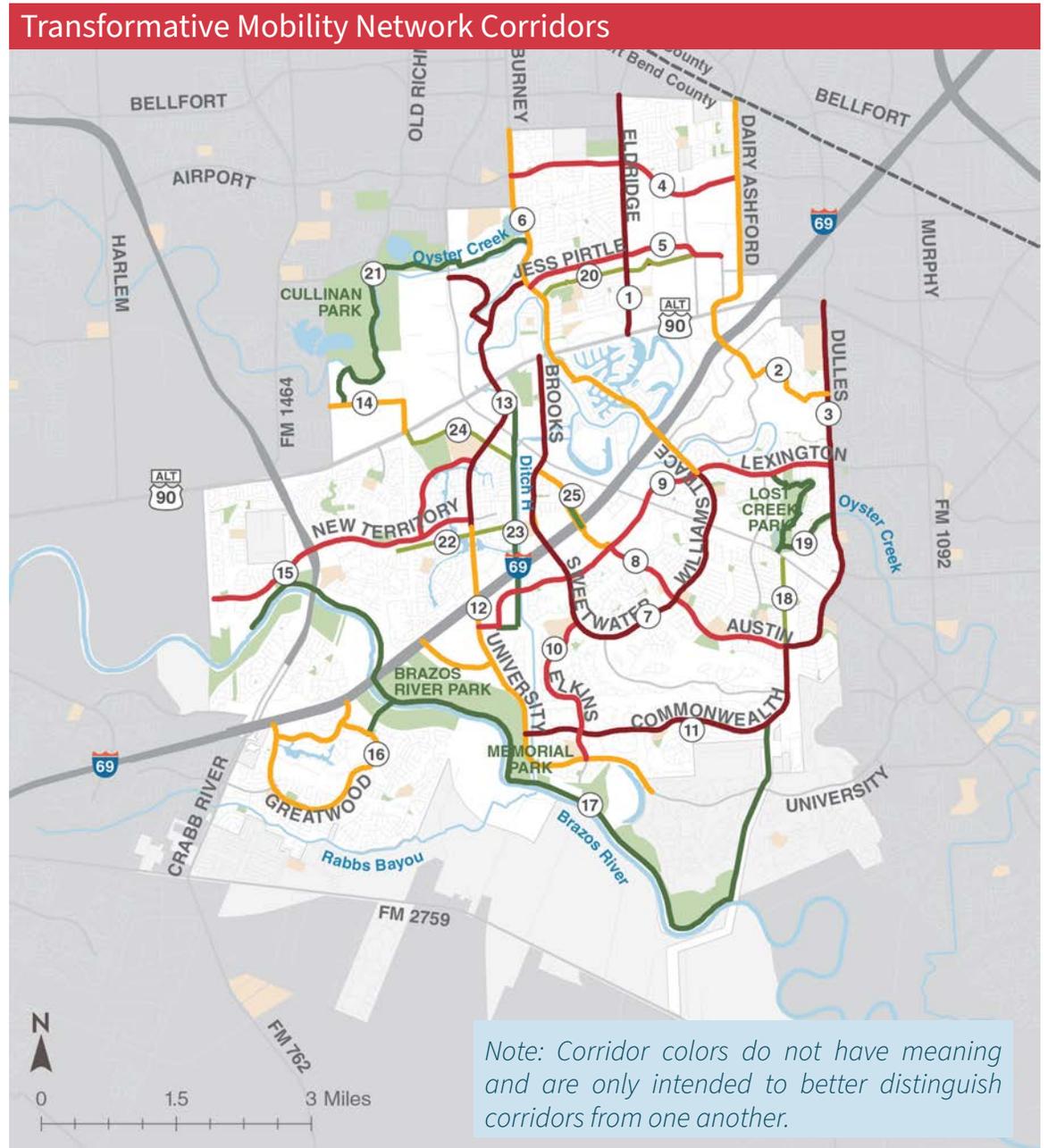
- Over 55
- 45-54
- 35-44
- 25-34
- Under 25

KEY QUESTIONS

- » How can this network serve existing and future residents aging in place?
- » How will this network promote resiliency to climate change?

TMN by Corridor

TRANSFORMATIVE MOBILITY NETWORK CORRIDORS	
On-Street	1 Eldridge Rd
	2 South Dairy Ashford Rd/ Sugar Creek Blvd/ Fairway Dr/ Broadmoor Dr
	3 Dulles Ave/ Austin Pkwy
	4 West Airport Blvd
	5 Jess Pirtle Blvd/ Industrial Blvd/ Reed Rd
	6 Burney Rd/ Main St/ Bay View Dr/ Sugar Lakes Dr/ Williams Trace Blvd
	7 Brooks St/ First Colony Blvd/ Sweetwater Blvd/ Williams Trace Blvd
	8 Austin Pkwy
	9 Lexington Blvd
	10 Elkins Rd
	11 Commonwealth Blvd
	12 University Blvd South of New Territory Blvd
	13 Crown Garden Trail/ Imperial Blvd + Stadium Drive/University Blvd
	14 John Sharp Rd
	15 New Territory Blvd and Chatham Ave
	16 Riverbrook Dr and Greatwood Parkway Loop
Off-Street	17 Brazos River Greenway
	18 East Utility Corridor Greenway
	19 Oyster Creek Greenway
	20 City Park Greenway
	21 Cullinan Park Greenway/Gannonway Greenway
	22 New Territory Trail
	23 Sugar Land Trail
	24 Bullhead Bayou Greenway
	25 Soldiers Field Dr/Mall Ring Rd/Meadow Lake Park Greenway



Transformative Mobility Network

- On-Street
- On-Street
- On-Street
- On-Street
- Off-Street
- Off-Street

②① Corridor Label

Figure 3.14 TMN by Corridor
Source: Team Analysis, 2022

#	CORRIDOR	LIMITS	TYPE
1	Eldridge Rd	West Bellfort Ave to US 90A	On-Street
2	South Dairy Ashford Rd/ Sugar Creek Blvd/ Fairway Dr/ Broadmoor Dr	West Bellfort Ave to Dulles Ave	On-Street
3	Dulles Ave/ Austin Pkwy	US 90A to Commonwealth Blvd	On-Street
4	West Airport Blvd	Burney Rd to South Dairy Ashford Rd	On-Street
5	Jess Pirtle Blvd/ Industrial Blvd/ Reed Rd	Burney Rd to Julie Rivers Dr	On-Street
6	Burney Rd/ Main St/ Bay View Dr/ Sugar Lakes Dr/ Williams Trace Blvd	Florence Rd to Lexington Blvd	On-Street
7	Brooks St/ First Colony Blvd/ Sweetwater Blvd/ Williams Trace Blvd	US 90A to Lexington Blvd	On-Street
8	Austin Pkwy	Lexington Blvd to Commonwealth Blvd	On-Street
9	Lexington Blvd	University Blvd to Dulles Ave	On-Street
10	Elkins Rd	Sweetwater Blvd to University Blvd	On-Street
11	Commonwealth Blvd	University Blvd to Austin Pkwy	On-Street
12	University Blvd South of New Territory Blvd	Telfair Community Association to Riverstone Development	On-Street
13	Crown Garden Trail/ Imperial Blvd + Stadium Drive/ University Blvd	SH 6 and Burney Rd to Telfair Community Association	On-Street
14	John Sharp Rd	Sugar Land western city limits to US 90A	On-Street
15	New Territory Blvd and Chatham Ave	Sugar Land western city limits to University Blvd	On-Street
16	Riverbrook Dr and Greatwood Parkway Loop	Loop to and from IH-69	On-Street
17	Brazos River Greenway	Connections: Brazos Parkland, Greatwood Parkway, Commonwealth Blvd	Off-Street
18	Utility Corridor Greenway between Chimneystone and Lakefield	Connections: SH 6 to Austin Pkwy	Off-Street
19	Oyster Creek Greenway	Connections: Lexington Blvd, SH 6, Dulles Ave	Off-Street
20	Sugar Mill Greenway	Connections: Burney Rd, Eldridge Rd, Gillingham Ln, Industrial Blvd	Off-Street
21	Cullinan Park Greenway/Gannonway Greenway	Connections: Circle Drive, Cullinan Park, Burney Rd	Off-Street
22	New Territory Trail	Connections: Homeward Way, University Blvd, Western Ave, Sugar Land Trail	Off-Street
23	Sugar Land Trail	Connections: University Blvd, Bullhead Bayou Greenway, Meadowcroft Blvd, Lexington Blvd	Off-Street
24	Bullhead Bayou Greenway	Connections: Circle Drive, University Blvd, Sugar Land Trail	Off-Street
25	Soldiers Field Dr/Mall Ring Rd/Meadow Lake Park Greenway	First Colony Blvd to Lexington Blvd (Connections: Great Oak Lane, IH-69, First Colony Mall)	Both

Using the TMN for Decision Making

The TMN is more than just a map of important corridors for investment. It is the backbone of future mobility investments for all the reasons described in this chapter. Staff and leadership will use the TMN as a tool for decision making to implement projects through future Capital Improvement Programs (CIP), bonds, grants, and other opportunities. That is not to say projects outside of the TMN are prohibited. However, the conversation should always start with the TMN, including ways to improve connectivity to the TMN.

Chapter Six, **Implementation Framework**, will demonstrate the recommended process for utilizing the TMN as a key tool for decision making. This will include how to leverage the **Six Mobility Metrics** of Chapter Five as indicators for high-need corridors along the TMN. Every corridor along the TMN has the potential to make a significant impact on mobility in Sugar Land. This, combined with the Five Core Values and commitment to Complete Streets means that every project along the TMN is a good project for mobility. Staff will use the TMN map as a key input for identifying and defining projects.



Strategies & Action Items

Chapter 4

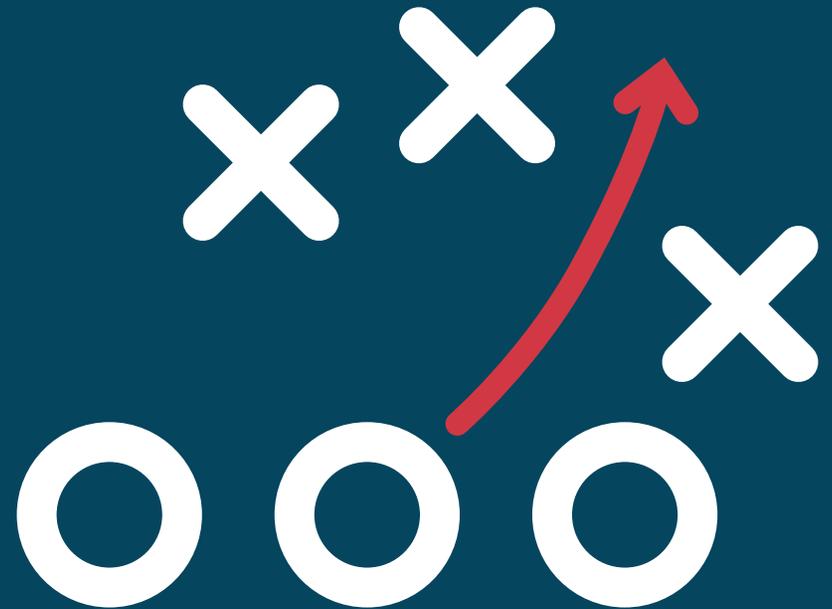


A Mobility Game Plan

The bedrock Core Values of this plan must be translated into tangible actions to invest in mobility. This chapter presents a set of 14 recommended Strategies and 101 subsequent Action Items that, together, bring the Core Values to life.

The Strategies and Action Items provide a menu of next steps for City departments and their staff to undertake. Their recommendations range from detailed updates to the City's regulatory language and forward-thinking roadway maintenance to continued leadership at the regional level.

The Strategies are intended to encompass the full gamut of mobility-related issues facing Sugar Land; Action Items provide specific projects, policies, programs, and future planning and coordination efforts to build a game plan for Plan implementation.



Strategies & Action Items

Getting Specific

Strategies and subsequent Action Items are the specific steps that the City and its partners can take to achieve Superior Mobility in Sugar Land. This includes capital projects and maintenance along the Transformative Mobility Network as well as policies and programs related to Superior Mobility.



Strategies and Action Items will help Sugar Land continue the City's focus on both improving existing infrastructure and investing in new mobility projects.

What is a Strategy?

Strategies describe recommended operational changes and policy direction for the City to better align its current policies, programs, and project delivery with the Five Core Values. Strategies provide affirmative direction for the City and encompass distinct but related Action Items.



Strategies will guide the staff of Sugar Land to make decisions and policies that will support Superior Mobility.

What is an Action Item?

Action Items offer detailed recommendations for starting or improving a project, program, policy, or planning effort. Action Items identify and name City documents and existing policies and programs, departments, partners, and stakeholders involved in implementation.



Action Items will identify recommendations to existing programs as well as new programs to achieve Superior Mobility.

Building on Core Values

The specific Strategies and Action Items build on the previous work of this plan and were selected because they support the Five Core Values and the City's overall vision of Superior Mobility in Sugar Land.

Each of the 14 Strategies and 101 subsequent Action Items pertain directly to one or more of the Core Values. For example, an Action Item to “Develop and implement a Safe Routes to Parks program in coordination with the Parks Department” supports the **Safe & Connected**, **Inclusive & Accessible**, and **Healthy & Active** Core Values. The relationship between each of the Strategies, Action Items, and Core Values is detailed in the Strategy Profiles starting on page 61.



Strategy & Action Item Inputs

Recommended Strategies and Action Items are intended to strengthen existing policies, programs, and initiatives by the City or create new initiatives that address mobility needs in Sugar Land. Several key inputs shaped the final list:

- » **Existing City Projects & Programs** reveal the current direction of mobility investments in Sugar Land and represent the starting point for any recommended set of projects, programs, and policies.
- » **Previous Plans & Studies** about mobility, such as the 2013 Pedestrian and Bicycle Master Plan, offer insight into recent thinking about the direction of mobility planning in Sugar Land. The 2018 Land Use Plan and the Activity Centers defined in that plan help tie mobility policy to the broader development trends in the City.
- » **The State of Mobility** (Appendix A) for this plan summarized the most up-to-date demographic and mobility data to illustrate the specific mobility characteristics and needs of Sugar Land. These data offer a necessary foundation for selecting Strategies and Action Items.
- » **Feedback from Residents, Workers, Visitors, & Business Owners** through three rounds of community engagement shed light on the most important needs of the people who use Sugar Land's streets every day. This feedback, paired with regular guidance from the **Mobility Task Force** (Appendix D) served as a major factor in determining the appropriate Strategies and Action Items to recommend.
- » Finally, input from **Local & Regional Partners** (Appendix E) helped contextualize Strategies and Action Items into a larger regional context that will ensure they can be implemented in partnership with other agencies.



14 Mobility Master Plan Strategies

- A** Centralize and streamline **transportation decision-making**.
- B** **Update standards and ordinances** to align with the Mobility Master Plan.
- C** Implement the **Transformative Mobility Network** (TMN).
- D** Develop a **safe streets program** with dedicated implementation funding to proactively and systematically address community safety concerns around mobility.
- E** Continue to invest in **innovation and technology** to leverage existing assets and position the City as an attractive place for research and development.
- F** Expand the **asset management program** to analyze the life cycle of transportation infrastructure.
- G** Formalize a comprehensive **active transportation infrastructure program** to address aging infrastructure, create new network connections, and improve experiences for people walking and biking.
- H** Initiate **small area mobility plan & corridor studies** program.
- I** Provide consistent, centralized, and **transparent mobility-related information and resources** about the City's mobility initiatives.
- J** **Integrate health** into transportation projects, programs, and policies.
- K** Invest in **transit to support economic development and regional connectivity** to, from, and within Sugar Land.
- L** Collaborate with surrounding cities, Fort Bend County, Texas Department of Transportation (TxDOT), school districts, and other regional entities to **create meaningful transportation partners and leverage resources**.
- M** **Incorporate resiliency** into the City's mobility-related decision-making.
- N** Refine funding processes to **leverage local dollars with grants, partnerships, and other innovative financing solutions** supporting Superior Mobility in Sugar Land.

14 Mobility Master Plan Strategies

STRATEGY PROFILE PAGES

The following pages describe each Strategy and Action Item in detail. The introduction pages outline today's context and explain the impact each Strategy will have on helping Sugar Land achieve Superior Mobility.

ACTION ITEM MATRIX

After each Strategy profile page, an Action Item table shows the specific actions related to that Strategy, including a description of the Action Item, its category (e.g., Program, Project, Policy, or Planning & Coordination), and the Core Values pertaining to the Action Item.

The matrix also indicates which Action Items should be part of the City's 100-Day Action Plan. These Action Items represent key early wins and initiatives that can lay the groundwork for future Action Items. The 100-Day Action Plan is further explained in the Implementation Framework Chapter starting on page 109.

Example Action Item Matrix

Action Item Number	Action Item Description	Pertinent Core Values	Pertinent Category
#.1	Description of each Action Item includes specific language about what City staff should achieve through the Action and who should be involved.	 	Planning & Coordination
#.2	Description for Action Item 2	 	Project
#.3*	Description for Action Item 3	    	Program
#.4	Description for Action Item 4	 	Policy

*Action Item is part of the 100-Day Action Plan.

Strategy



Centralize and streamline **transportation decision-making.**

A NEW PHASE WITH NEW DEMANDS

The City has grown rapidly over the last several decades thanks to quick construction of master planned developments and the annexation of communities within the City's extraterritorial jurisdiction (ETJ). This growth relied on developers to build new roadways as part of construction. Sugar Land is now transitioning from an era of speedy growth to the next stage in its lifecycle. Its population is aging, fewer new subdivisions are under construction, and investments in mobility will need to adapt to meet changing demands and a shifting funding landscape.

ADAPTING FOR THE FUTURE

This Strategy will help the City redefine its current structure so that infrastructure planning, construction, and maintenance leverages Sugar Land's multidisciplinary expertise across all departments. The Mobility Master Plan effort is an early example of this cross-departmental collaboration with guidance from Public Works, Engineering, and Planning & Development Services staff.

This Strategy will ensure that the City lives up to the Five Core Values of this plan. Clear and streamlined decision-making will help staff and elected officials face the next stage of Sugar Land's lifecycle with a clear vision and an operational structure that can implement great projects efficiently.

Key Action Items bolster the City's current project delivery pipeline, prioritize intelligent data collection, and ensure that departments are working in tandem to meet shared goals.

Strategy **A** Centralize and streamline transportation decision-making.

Action Item	Core Values	Category
A.1* Continue to engage the Mobility Task Force through the 100-Day Action Plan to help advance the critical first set of Action Items of this Mobility Master Plan.		Planning & Coordination
A.2 Expand the Transportation & Mobility Innovation Program to support the implementation of the Mobility Master Plan and to continue to expand coordination with other agencies and departments across the City.		Planning & Coordination
A.3 Develop and implement a citywide transportation model. Use the model to inform mobility decisions and project identification, and to refine City's traffic impact analysis (TIA) process to align City objectives with new development and redevelopment.		Planning & Coordination
A.4 Initiate regular cross-departmental mobility strategy meetings to formalize the use of the Implementation Framework as outlined in Chapter 6.		Planning & Coordination
A.5 Coordinate all mobility projects, programs, and policies with the Placemaking Program and 2018 Land Use Plan to ensure alignment. Build upon the 2018 Land Use Plan recommendations to support mixed-use developments that allow for many activities in one place and increase mode choices.		Planning & Coordination
A.6* Ensure that the Development Code aligns with the Mobility Master Plan Core Values, Transformative Mobility Network, and Implementation Framework using the 2018 Land Use Plan and associated regulations.		Planning & Coordination
A.7 Enhance mobility data collection and reporting across all departments to support future plans, funding applications, and community engagement.		Planning & Coordination
A.8 Continue to include mobility focused questions on the biannual Citizen Satisfaction Survey. If possible, include additional questions to better understand the long term impacts of the COVID pandemic on travel behaviors to pivot mobility decision making as needed, or develop a separate survey initiative to inform the Comprehensive Plan and future City efforts.		Planning & Coordination
A.9 Partner with Economic Development and Sugar Land employers to initiate a biennial commute survey to better understand where employees live and how they get to work. The survey can also assist with better understanding the long-term impact of the COVID pandemic on travel behaviors and the needs of employers within Sugar Land.		Planning & Coordination
A.10 Complete the necessary data collection and analysis to fully measure and report on all citywide Six Mobility Metrics as presented in Chapter 5.		Planning & Coordination

*Action Item is part of the 100-Day Action Plan.

Strategy **B**

Update standards and ordinances to align with the Mobility Master Plan.

A REGIONAL POLICY LEADER

Sugar Land maintains a well organized and implementable set of design standards and mobility related ordinances that guide City staff during the planning and design of transportation infrastructure. The Design Standards document provides parameters for the design of roadways, including lane widths, intersection and signal requirements, construction material types, and more. The guidance of the Design Standards works in tandem with the City's Development Code, which details the regulations that developers and property owners must follow when building or renovating in the City.

UPDATING TO ALIGN WITH GOALS

The City can fill remaining gaps in its current standards and ordinances to align with the Core Values of this Plan. Doing so would establish a more comprehensive framework for infrastructure design, construction, and maintenance.

Key Action Items include a cross-departmental review of the City's design standards, development of new policies where needed, and an update to standards that prioritize the construction of trails and Complete Streets with safe walkways, bikeways, and crossings.

Strategy **B** Update standards and ordinances to align with the Mobility Master Plan.

Action Item	Core Values	Category
B.1* Apply the Implementation Framework to all mobility decision making.		Policy
B.2* Perform a comprehensive review of the City's Design Standards and update in alignment with the Mobility Plan, Implementation Framework, and national best practices for roadway design such as National Association of City Transportation Officials (NACTO) and American Association of State Highway and Transportation Officials (AASHTO). Update sections that include, at a minimum, anything related to vehicular speeds and roadway, sidewalk, bikeway, and intersection design.		Policy
B.3* Incorporate the existing Major Thoroughfare Network (formally part of the Master Thoroughfare Plan) into the Implementation Framework. Formalize name of network and corresponding GIS data set as the <i>Major Thoroughfare Network</i> and update any reference in City codes or standards. Utilize network as a tool to define corridor functional classification, existing and proposed right-of-way, and locations for new roadways. Network should be reviewed yearly with regular network updates adopted by City Council.		Policy
B.4 Change City Development Code and Design Standards to require sidewalks all new development and redevelopment and remove existing sidewalk exemptions. If an existing sidewalk is below City standards, it should be upgraded to meet minimum standards.		Policy
B.5 Update design standards to require consideration of low-impact development (LID) strategies for all mobility projects.		Policy
B.6 Update the design standards to ensure that new bike facilities do not end abruptly and are designed to connect logically and safely to the broader street network.		Policy
B.7 Develop a City parking management strategy to align parking supply and management with parking demand, particularly during peak hours.		Planning & Coordination
B.8 Continue coordinating with CenterPoint to build trails through easements.		Policy
B.9 Develop a strategy in partnership with Cullinan Park Conservancy to create access for bicyclists in or around the park.		Planning & Coordination
B.10 Create a set of curb management strategies to track, measure, and plan for curb uses like parking, deliveries, ride sharing, and school zone queuing.		Planning & Coordination

*Action Item is part of the 100-Day Action Plan.

Strategy



Implement the Transformative Mobility Network.

HISTORIC ROADWAY INVESTMENTS

During its decades of rapid growth, Sugar Land made major investments in a roadway network to serve booming residential, commercial, and industrial demand. These investments created a network of streets that prioritized the steady and rapid movement of vehicles through the City. In recent years, forward-looking investments in Intelligent Transportation Systems (ITS) have used technology to maximize the efficiency of Sugar Land's roadways.

The historic car-first investments established a safe and convenient roadway network for people driving in Sugar Land, but did not include a similar magnitude of projects for people walking, biking, and riding transit.

DEFINING A NEW NETWORK

Implementation of the Transformative Mobility Network (TMN), presented in Chapter Three will largely maintain vehicle capacity on Sugar Land roadways while targeting new investments to prioritize safety and connectivity for non-auto users of all ages and physical abilities. This includes using small area mobility plans and corridor studies to identify segments of the TMN that can be redesigned to allocate more room for people walking, biking, and rolling. As part of implementation, segments may be Maintained, Repurposed, or Built New depending on the roadway and land use context.

Key Action Items under this Strategy include a feasibility analysis for a bridge across the Brazos River and selecting three projects along the TMN for rapid implementation.

Strategy **C** Implement the **Transformative Mobility Network**.

Action Item	Core Values	Category
<p>C.1* Initiate the Implementation Framework steps to identify the first series of projects from the Transformative Mobility Network; establish a timeline and phased approach for implementation. The first series could include 3 on-street and 3 off-street projects and should be inclusive of both repurposing and new construction.</p>		Projects
<p>C.2 Draft language for a mobility bond to implement the Transformative Mobility Network. Develop a process and timeline for the City to pursue a mobility bond that balances City needs with community expectations.</p>		Planning & Coordination
<p>C.3 Begin feasibility analysis for new crossing(s) of the Brazos River to close the mobility gap for all modes. A key focus of the analysis will be additional pedestrian connections.</p> <p>Note: This Action Item will be a specific standalone project and include a preliminary assessment of where to locate the crossing. Plans will include detailed feasibility analysis, cost assessments, alternatives assessment, and evaluation of tradeoffs.</p>		Projects

*Action Item is part of the 100-Day Action Plan.

Strategy



Develop a **safe streets program** with dedicated implementation funding to proactively and systematically address community safety concerns around mobility.

STATE OF SAFETY IN SUGAR LAND

Input from residents and the Mobility Task Force (MTF) highlighted safety as a top mobility priority. Recent crash data shows nearly 10,000 crashes on Sugar Land roadways in a five-year span. Nearly half of crashes are intersection-related and more than one-third are due to speed.

Maps of crash density highlight high-speed roadways like SH 6, IH-69, the Grand Parkway, and US 90A as corridors where safety concerns remain. These same roadways act as major barriers between destinations in Sugar Land and prevent people from crossing safely, particularly on foot or by bicycle.

THINKING SYSTEM-WIDE

This Strategy will position the City to better address safety needs across the network. A new safe streets program will provide a framework for City staff to identify safety concerns and use dedicated funding to thoughtfully address those concerns.

The program should use a safe system approach, meaning that the City considers the underlying systemic factors behind each crash — from roadway and vehicle design to education and emergency response. A safe system approach takes a holistic view of safety. This includes the ways safety is impacted by the City’s roadway network, operations, the people who are using the network, enforcement, and more. The approach is also proactive, meaning that the City should analyze trends in safety and apply best-practice design changes to corridors and intersections across the network, not just the ones where crashes occur today.

Key Action Items under this Strategy include identifying “high-crash” corridors throughout the City and establishing partnerships between City departments and outside agency partners to address safety concerns.

Strategy **D** Develop a **safe streets program** with dedicated implementation funding to proactively and systematically address community safety concerns around mobility.

Action Item	Core Values	Category
<p>D.1* Expand the current Traffic Evaluation & Safety Improvements Program to establish a comprehensive citywide Safe Streets Program process. Introduce specialized local studies along with a citywide safety assessment. Enhance initiatives to ensure that recommendations and actions are prioritized and implemented in a timely fashion.</p>		Policy
<p>D.2 Work with Sugar Land Police Department to enhance existing crash data collection system and create analytic systems to quickly identify problems and possible root causes for further investigation.</p>		Planning & Coordination
<p>D.3* Analyze and establish a high-crash network across Sugar Land and identify streets to prioritize safety improvements. Identify strategies to reduce crashes on the high-crash network.</p> <p>Note: This network should be a tool for the City and partners to ensure that new mobility projects, programs, or policies align with objectives of the Safe Streets Program.</p>		Planning & Coordination
<p>D.4 Explore methods for collecting and analyzing data on the location and circumstances of “near-miss crashes” or “close-calls” to help inform other crash data.</p> <p>Potential methods include (1) using AI technology based software(s) with currently installed cameras at intersections throughout the City to collect data and track trends and/or (2) start collecting self-reported data on near-misses. See Appendix I for additional information on potential methods.</p>		Planning & Coordination
<p>D.5 Establish a yearly funding allocation to address safety enhancements on the high-crash network.</p>		Program
<p>D.6* Develop a Neighborhood Streets Program to make improvements that encourage safe speeds on streets outside of the Transformative Mobility Network.</p>		Program
<p>D.7 Coordinate with TxDOT to improve their on-system roadways and crossings in a way that prioritizes safety for all roadway users.</p>		Planning & Coordination
<p>D.8 Create a City-led Safe Streets Education Program with rotating topics/themes (e.g., safe biking, safe speeds, distracted driving, etc.) to disseminate information to residents and visitors about mobility safety. Coordinate this effort with travel demand management (TDM) programming.</p>		Program

*Action Item is part of the 100-Day Action Plan.

Strategy



Continue to invest
in **innovation**
and **technology**
to leverage existing
assets and position the
City as an attractive
place for research
and development.

LEADERS IN INNOVATION

Sugar Land has established itself as a leader in implementing new technologies to address the City's transportation challenges. Investments such as the Traffic Management Center (TMC), real-time traffic volume data, emergency signal preemption, freight crossing alerts and more all indicate a commitment to problem-solving through technology. The City has maximized every opportunity to adopt and apply useful technologies, especially to reduce congestion on major roadways. For example, the City has taken an approach of maximizing existing capacity as much as possible to improve corridor operations using Intelligent Transportation Systems (ITS) and the installation of Adaptive Signal Timing along the right-of-way constrained SH 6 corridor.

THINKING SYSTEM-WIDE

This Strategy celebrates the City's embrace of technology and encourages Sugar Land to not only continue those investments, but to also leverage existing technologies to further enhance capacity across the entire mobility network. This could include partaking in pilot studies of new technologies or partnering with local schools and think tanks to better understand data trends.

Key Action Items of this Strategy include upgrading to current technologies and working to pair existing ITS systems with new technologies like automated and connected vehicles.

Strategy **E** Continue to invest in **innovation and technology** to leverage existing assets and position the City as an attractive place for research and development.

Action Item	Core Values	Category
E.1 Continue to invest in intelligent traffic control technologies (adaptive AI, predictive systems, other future technologies) to improve traffic flow while maximizing capacity of existing infrastructure and capitalizing on the City's state-of-the-art ITS system. Invest in systems that automate traffic insights and analytics to help with preemptive responses to traffic system failures and planning improvements within the roadway system.		Projects
E.2 Create a roadway count program to regularly gather data (vehicle volumes and speeds) on streets not already covered by the ITS network.		Program
E.3 Upgrade the City's existing ITS data collection systems to also detect people walking, biking, and rolling.		Projects
E.4 Implement and regularly update the City's ITS Master Plan to support the Core Values of the Mobility Master Plan.		Planning & Coordination
E.5 Partner with H-GAC to establish an active transportation counter program to gather data on sidewalk, trail, and bikeway network usage to support planning and funding applications.		Program
E.6 Ensure that the City's ITS infrastructure can reliably communicate with automated and connected vehicles.		Policy
E.7 Continue to invest in technologies that share real-time traffic conditions with motorists to help save time, fuel, and reduce frustration caused by congestion.		Projects
E.8* Investigate opportunities for the City to plan for urban air mobility, including policies for safe operations of automated aircraft, construction of landing and delivery infrastructure, and other pertinent policies, regulations, and projects.		Policy
E.9 Be an attractive place for research and testing of new technologies and mobility types through partnerships, pilots, and other programs.		Planning & Coordination

*Action Item is part of the 100-Day Action Plan.

Strategy



Expand the asset management program to analyze the life cycle of transportation infrastructure.

A BUILT-OUT NETWORK

Nearly all large tracts of real estate and empty parcels in Sugar Land have been fully developed, meaning that the City's land and its transportation network are mostly built out. In other words, the City will not be constructing many new roads. Instead, as Sugar Land enters a new phase of its lifecycle, the City will maintain and enhance its existing network of roads, trails, and sidewalks. The City's right-of-way is one of its most valuable assets. The intent of this strategy is to make sure that the full value of the right-of-way is realized.

MAINTAINING PAST INVESTMENTS

City staff have already developed a meaningful asset management program to gather data about roadway quality and lifespan to better plan for maintenance. This Strategy encourages the City to broaden that program to include all types of mobility infrastructure, like sidewalks and trails, and strengthen the program to collect data that closely reflects the priorities represented in the Core Values of this plan. A responsible asset management strategy will also create a more resilient transportation system by allowing the City to save money through targeted maintenance. Funds saved can be directed toward other projects, stretching the overall impact of tax dollars spent on mobility.

Key Action Items associated with this Strategy include establishing a new model for sidewalk, trail, and bikeway maintenance and developing a system to clearly communicate pertinent infrastructure maintenance data to the public.

Strategy **F** Expand the **asset management program** to analyze the life cycle of transportation infrastructure.

Action Item	Core Values	Category
<p>F.1 Establish a Bridge and Roadway Maintenance Program that sets standards, designated funding, and a regular schedule for rehabilitating and improving the City’s network of existing roadways and bridges. Outputs of this model will be incorporated into the Mobility Master Plan metrics (i.e., Network Condition) to be used as part of the Implementation Framework outlined in Chapter 6.</p>		Policy
<p>F.2 Establish a Sidewalk, Trail, and Bikeway Maintenance Model similar to the City’s existing roadway condition model that sets standards, designated funding, and a regular schedule for rehabilitating and improving the City’s network of existing sidewalks, bikeways, and trails. Coordinate with Sidewalk construction/rebuild prioritization methodology. Outputs of these models will be incorporated into the Mobility Master Plan metrics (i.e., Network Condition) to be used as part of the Implementation Framework outlined in Chapter 6.</p>		Policy
<p>F.3 Establish an ITS Maintenance Model similar to the City’s existing roadway condition model that sets standards, designated funding, and a regular schedule for repairing and updating the City’s network of ITS technologies. Outputs of this model will be incorporated into the Mobility Master Plan metrics (i.e., Network Condition) to be used as part of the Implementation Framework outlined in Chapter 6.</p>		Policy
<p>F.4 Incorporate staff level-of-effort into the City’s existing maintenance model to capture the true cost of maintaining existing infrastructure and inform staff when it is more cost effective to invest in new infrastructure instead of continued maintenance.</p>		Policy
<p>F.5 Develop a system and schedule for communicating pertinent information from the asset management system to the public. This data should be coordinated with the recommended Mobility Dashboard.</p> <p>Note: Information can include when roadways are scheduled for construction, maintenance, or rehabilitation and can allow for input from residents.</p>		Program

Strategy



Formalize a comprehensive **active transportation infrastructure program** to address aging infrastructure, create new network connections, and improve experiences for people walking and biking.

TODAY'S ACTIVE NETWORK

Nearly all of Sugar Land's streets have sidewalks and the City has miles of trails. However, not all of these facilities are in great condition, nor do they include safe connections across major barriers. Similarly, the City's bikeways and trails are not linked in a high-comfort network that facilitates safe and convenient access for people walking or biking to all of the destinations that Sugar Land has to offer.

AN ACTIVE LIFESTYLE CITY

There is a clear desire for access to healthy mobility options like walking and biking according to community feedback from this plan. This Strategy would create the structure for City staff to build new and maintain existing active transportation infrastructure that helps Sugar Land be an active lifestyle city.

Key Action Items under this Strategy include strengthening the City's sidewalk prioritization methodology and developing a Safe Routes to School program.

Strategy **G** Formalize a comprehensive **active transportation infrastructure program** to address aging infrastructure, create new network connections, and improve experiences for people walking and biking.

Action Item	Core Values	Category
G.1 Continue to incorporate active transportation improvements in all roadway construction and maintenance projects throughout the City.		Policy
G.2 Expand on the sidewalk prioritization methodology to better target the City's existing sidewalk program. The methodology should place a high priority on sidewalks in poor repair, critical gaps in sidewalk network, areas near schools and parks, areas with higher number of people walking, and other key metrics. This should be coordinated with asset management program for sidewalk, trails, and bikeways.		Planning & Coordination
G.3 Create a Safe Routes to School Study and Program to identify recommendations for capital projects and to encourage safe access to schools for students walking and biking. Partner with school districts (FBISD, LCISD and private schools) on this effort.		Program
G.4 Conduct an ADA Transition Plan and develop an ADA compliance program with a dedicated compliance officer for persons with limited mobility and older adults.		Program
G.5 Develop an application-based funding program for residents to advocate for neighborhood/cul-de-sac trail connections within their neighborhood.		Program
G.6 Identify locations where bikeways end abruptly and design improvements for better transitions with the rest of the street network.		Projects
G.7 Construct short trail connections that increase access to off-street trails and fill gaps in the City's existing trail network.		Projects
G.8 Identify and construct short trail connections to connect the trail network with on-street bikeway network and area sidewalks within the roadway ROW.		Projects

Strategy



Initiate a small area mobility plan & corridor studies program.

CURRENT PLANNING EFFORTS

During Sugar Land's years of rapid growth, transportation planning largely occurred at the citywide scale with neighborhood networks driven by the designs of master planned developments. This approach proved valuable in establishing a coherent vision for Sugar Land's growth and coordinating across departments on key citywide issues. However, the focus on planning at a larger scale makes it difficult to plan, design, and construct individual projects that impact smaller neighborhoods.

THINKING AT THE CORRIDOR LEVEL

By establishing a program of small area mobility plans and corridor studies, the City can apply the Core Values of this Mobility Master Plan to smaller neighborhood networks. These plans will consider the specific mobility challenges and opportunities for people who live, work, and own businesses in each neighborhood of Sugar Land. These plans will help the City determine project priorities and appropriate roadway designs for the Transformative Mobility Network. They also offer a platform to think through connections across major barriers like TxDOT roadways and freight rail lines.

Key Action Items under this Strategy include outlining a community engagement approach for neighborhood plans and leveraging regional funds to complete the first small area mobility plan.

Strategy **H** Initiate a **small area mobility plan & corridor studies** program.

Action Item	Core Values	Category
H.1* Refine the purpose and goals for small area plans and corridor studies as outlined within this Plan to ensure alignment with the Comprehensive Plan process. Purpose and goals to include: safety, complete streets, neighborhood access points, needs of community, etc.		Planning & Coordination
H.2 Develop a community engagement approach for small area plans and corridor studies to ensure early and frequent community engagement that sets expectations and understands needs.		Planning & Coordination
H.3* Identify corridors from the Transformative Mobility Network to be studied further in a designated Corridor Study. Use the Implementation Framework to prioritize corridors and develop projects and identify funding.		Planning & Coordination
H.4* Implement the City's first small area plan through the 2023 H-GAC Livable Center Study.		Planning & Coordination
H.5 Use small area planning process and/or corridor studies planning process to identify and address feasibility of potential grade-separated rail crossings of the UPRR along 90A to reduce the number of at-grade crossings within the City. Assessment to include crossing for all modes.		Planning & Coordination

*Action Item is part of the 100-Day Action Plan.

Strategy



Provide consistent, centralized, and **transparent mobility-related information and resources** about the City's mobility initiatives.

AN ENGAGED PUBLIC

Sugar Land is fortunate to have residents, workers, and business owners who care about the City's future and want to engage in conversations that impact their lives and community. The City collects a wealth of mobility related data that can be shared with the public to build transparency and intelligent dialogue with community members. Staff currently gathers data such as real-time traffic volumes, roadway condition, Census data and much more to better understand the state of Sugar Land's roads and its users. The City also creates and maintains important information about mobility projects, including project timing, design details, cost estimates, and extents. Together, this mobility data illustrates the key characteristics of Sugar Land's transportation network.

PROACTIVE TRANSPARENCY

This Strategy encourages City staff to package data in a way that is accessible to the public and easy to understand. This strategy will give current and prospective residents, workers, and businesses the tools to understand how Sugar Land is working toward Superior Mobility. This information can enable residents to learn more about projects before providing feedback and can help all stakeholders understand how specific projects fit within the City's broader efforts. Building tools to share information can also help educate the public about using new modes of transportation, safe travel behaviors, healthy habits, and related topics.

Key Action Items associated with this Strategy include creating a mobility dashboard to track progress on Mobility Master Plan implementation and expanding the topics and reach of the City's existing social media presence.

Strategy 1 Provide consistent, centralized, and **transparent mobility-related information and resources** about the City’s mobility initiatives.

Action Item	Core Values	Category
1.1* Create a Mobility Dashboard to track and communicate the City's progress in Mobility Master Plan achieving Superior Mobility. The Dashboard should include (1) the status of key Plan Metrics, (2) an interactive map of the Transformative Mobility Network, and (3) links to additional data from the Traffic Management Center and other data sources that help residents understand mobility in Sugar Land.		Planning & Coordination
1.2 Build on the City's robust community engagement, including the MySugarLand App and social media presence, to share information about traffic congestion on local streets, construction impacts, and mobility topics to improve safety and knowledge of local traffic laws.		Program
1.3 Build on existing Capital Improvement Program (CIP) Story Map to develop a citywide project dashboard to communicate proposed design, funding, timing, and other details for City transportation projects.		Planning & Coordination
1.4 Work with Economic Development Department to define metrics that align mobility improvements with the City's economic attractiveness for business and employers to best meet the needs/aspiration of existing and future employers.		Planning & Coordination
1.5 Develop a transportation demand management (TDM) program and a mobility communications strategy to encourage more people to walk, bike, and take transit.		Program

*Action Item is part of the 100-Day Action Plan.

Strategy



Integrate health into transportation projects, programs, and policies.

CHANGING COMMUNITY NEEDS

In 2022, the U.S. News & World Report ranked Fort Bend County among the healthiest counties in the nation, scoring in the top ten percent based on a range of metrics. This ranking is due in part to the emphasis that Sugar Land and surrounding communities have placed on investments in greenspace and trails that allow for healthy activities like biking, jogging, and walking. These types of investments attract young families looking for a community where they can live and work within a short distance of outdoor activities.

Investments that prioritize public health will also become even more important as Sugar Land's population ages. Older residents will face new health challenges that limit their mobility.

A HOLISTIC VIEW OF MOBILITY

As Sugar Land's population changes, the City can view mobility investments as one of many tools to help build a healthier community for residents at every stage of life. City staff should integrate public health considerations into all facets of transportation decision-making. This includes expanding greenspace for healthy activities, improving air quality, and ensuring that everyone can access their day-to-day destinations without a car.

Key Action Items associated with this Strategy include partnerships with the Fort Bend County Health Department and defining the City's policy toward micromobility including scooters and bike share.

Strategy **J** Integrate health into transportation projects, programs, and policies.

Action Item		Core Values	Category
J.1	Partner with Fort Bend County Health & Human Services to support and apply recommendations from County health studies and programs. Ensure that the City is a partner in the current/ongoing county health assessment.	 	Planning & Coordination
J.2	Develop a new "Slow Streets" or "Sunday Streets" program to temporarily close streets for special events to encourage walking, biking, and rolling.	 	Program
J.3	Develop and implement a Safe Routes to Parks program in conjunction with the Parks Department.	  	Program
J.4*	Develop and implement a micromobility policy to define and enforce the City's approach to bike share, scooter share, and any other micromobility modes.	 	Policy
J.5	Implement a pilot micromobility program with a partner that meets the City's objectives and expectations.	 	Program

*Action Item is part of the 100-Day Action Plan.

Strategy

Invest in transit to support economic development and regional connectivity to, from, and within Sugar Land.

TODAY'S TRANSIT

Fort Bend County Transit and the University of Houston both provide transit services within Sugar Land. The University of Houston connects students, staff, and faculty traveling between the University of Houston at Sugar Land campus and the main University of Houston campus. Fort Bend County Transit provides park & ride commuter service between Sugar Land and major employment centers in Houston like the Texas Medical Center.

In addition to commuter service, Fort Bend County Transit operates a demand response service that allows Fort Bend County residents to request a transit ride between destinations in the County. This service is largely used by people with mobility challenges to access daily needs like grocery shopping and medical appointments.

STRONGER REGIONAL CONNECTIONS

The existing transit services in Sugar Land provide important mobility options for residents who are unable or choose not to drive. However, new and innovative transit initiatives could strengthen Sugar Land's connectivity to the region and boost the City's role as an employment, health, and entertainment hub.

This Strategy supports further investment in the existing demand response and park & ride services within Fort Bend County while also exploring other options, including microtransit, that support connectivity and access for Sugar Land residents, businesses, and commuters. This includes boosting economic development by providing more mobility options for the people who work and shop in Sugar Land but live elsewhere.

Key Action Items included in this Strategy are to build permanent park & ride facilities in Sugar Land and to work with regional leaders in developing transit policy.

Strategy **K** Invest in **transit to support economic development and regional connectivity** to, from, and within Sugar Land.

Action Item		Core Values	Category
K.1	Partner with Fort Bend County Transit to construct permanent Park & Ride locations in the City with real-time information, shade, seating, and other amenities that improve the experience for people riding transit.	  	Projects
K.2	Support Fort Bend County Transit as it returns to pre-COVID service levels. Collaborate with Fort Bend County Transit on data collection and ridership information to assist with strategies that best align with the Sugar Land community's needs.	  	Planning & Coordination
K.3	Coordinate with the University of Houston and Fort Bend County Transit Park & Ride services to reduce trip redundancies and increase overall transit service. Coordination can provide the opportunity to leverage grant and funding opportunities due to higher combined ridership between the two services.	 	Planning & Coordination
K.4	Continue to partner with Fort Bend County Transit to provide demand response service to residents. Ensure that demand response service meets the community's needs. Find opportunities to expand the service, including microtransit options, to better support those that can not drive. This should help meet the City's objectives of supporting aging in place.	    	Planning & Coordination
K.5	Participate in regional transit conversations, including at H-GAC's High-Capacity Transit Taskforce. Sugar Land's location can benefit from two regional corridors under consideration for potential future high-capacity, frequent transit - US 90A and IH69. Joining conversations and providing a clear vision of how the City can benefit from a potential future service can influence conversations and plans in a manner to best benefit residents and expand access to destinations within Sugar Land.	 	Planning & Coordination
K.6*	Explore the feasibility of providing innovative transit services, including, but not limited to, microtransit, gondolas, and other emerging technologies.	  	Planning & Coordination
K.7	Coordinate with senior living centers and/or medical providers that have existing services to identify areas of synergy between private services and existing public services. Identify partnerships if possible.	 	Planning & Coordination
K.8	Expand marketing efforts with Fort Bend County Transit to develop and distribute marketing materials to increase transit ridership for existing Park & Ride services. Coordinate this effort with TDM programming.	  	Program

*Action Item is part of the 100-Day Action Plan.

Strategy



Collaborate with surrounding cities, Fort Bend County, TxDOT, school districts, and other regional entities to create meaningful transportation partners and leverage resources.

CRITICAL PARTNERSHIPS

The City depends on partnerships to plan, construct, and maintain mobility infrastructure. Fort Bend County and TxDOT own right-of-way for roadways through Sugar Land and pay for mobility projects that directly impact the City and its residents, businesses, and workers. Cities sharing a border with Sugar Land design and maintain roadways that connect directly into its transportation network. Agencies like local school districts, Fort Bend County Transit, and H-GAC also have unique mobility interests in and around Sugar Land. In this role as a regional employment and entertainment hub, the City has played an important role to guide transportation decisions that align with this plan's Core Values and maximize the impact of partnerships.

WIN-WIN OPPORTUNITIES

The City should embrace its role as a regional leader and continue to invest in these partnerships for developing win-win projects, plans, and policies at the local, state, and national levels. This means collaborating where possible to share the cost, and convening local partners to determine the best approach to difficult mobility challenges. It also means serving on boards and commissions to impact mobility policies.

Key Action items for this Strategy include close coordination with school districts about bus operations and school siting, and continued coordination with the Union Pacific Railroad and TxDOT.

Strategy **L Collaborate** with surrounding cities, Fort Bend County, TxDOT, school districts, and other **regional entities** to create meaningful transportation partners and leverage resources.

Action Item		Core Values	Category
L.1	Continue to coordinate with school districts on bus operations, parent pick-up and drop-off, and new school siting to improve mobility to and from school campuses.	 	Planning & Coordination
L.2	Coordinate with Fort Bend County to plan for new street connections to and within the ETJ to proactively design infrastructure that encourages walking and biking. Collaborate on ensuring new infrastructure in the City's ETJ aligns appropriately with both County and City standards.	  	Planning & Coordination
L.3	Establish regular coordination meetings with adjacent jurisdictions and regional partners as mobility-related and economic extensions into/out of city limits. Sugar Land should lead these endeavors. Regular coordination meetings can lead to the creation of a Fort Bend County Mobility Consortium.	 	Planning & Coordination
L.4	Partner with other agencies to proactively invest in mobility infrastructure that anticipates and complements population growth in nearby communities.	 	Planning & Coordination
L.5	Expand the data sources available to the Traffic Management Center by collaborating with new agencies (e.g., rail, TxDOT, etc.) to support more integrated planning and emergency response.	  	Planning & Coordination
L.6	Continue frequent coordination with UPRR to share information and concerns about existing freight movement through the City and highlight opportunities for improvement and collaboration.	  	Planning & Coordination
L.7	Continue participating regional planning committees and expand participation in state-level groups such as TxDOT's advisory committees to coordinate closely with statewide mobility-related initiatives.	 	Planning & Coordination

Strategy



Incorporate
resiliency into the
City's mobility-related
decision-making.

FACING EXTERNAL CHALLENGES

Sugar Land has been impacted by a variety of natural disasters in its recent past such as Hurricane Harvey in 2017, and the week-long extreme winter freeze in 2021. Like much of southeast Texas, hurricanes, drought, excessive heat waves, flooding, and even cold snaps regularly effect the local area. These intense weather events can weaken mobility infrastructure, causing disruptions in access to daily needs and resulting in costly repairs for Sugar Land and its residents.

The City's mobility network also plays an important role for emergency and disaster response; the Police Department and Fire Department rely on roadways to respond to emergencies. During storm events, roadways also help residents get out of harm's way along designated evacuation routes. Beyond disaster response, Sugar Land's mobility network plays a necessary role in transporting hazardous materials, particularly along the freight rail lines and streets in and around the business park in the City's northeast.

BOUNCING BACK BY DESIGN

Sugar Land can implement policies that help the City quickly respond to emergencies and bounce back from natural disasters. This resiliency is possible with collaboration among departments, thoughtful data collection about the state of infrastructure, and proactive investments to better prepare Sugar Land's streets, bridges, and signals for extreme weather.

Key Action items under this Strategy include developing a citywide vulnerability assessment for the City's transportation network and ensuring that roadway design standards support stormwater drainage needs in case of large flooding events.

Strategy **M** Incorporate **resiliency** into the City's mobility-related decision-making.

Action Item		Core Values	Category
M.1	Institutionalize the exploration and use (through pilot programs as warranted) of innovative construction materials and methods to ensure lasting and resilient infrastructure.		Policy
M.2	Create an electric vehicle plan (either internally or with external consultation) to guide the City's policy and actions for siting and constructing electric vehicle charging stations.		Policy
M.3	Ensure that Design Standards for roadways are aligned with storm water drainage needs and incorporate low impact/green infrastructure design and materials.		Policy
M.4	Conduct a citywide infrastructure vulnerability assessment to define a baseline for existing infrastructure condition and prioritize resilient investments.		Planning & Coordination
M.5	Incorporate air quality improvement solutions into mobility decision-making and explore grant funding for these programs. Improvements could include: decreasing vehicular delay, reducing daily trips by vehicle, increasing mode choices for active transportation, and supporting the incorporation of electric vehicles into City infrastructure.		Program
M.6	Coordinate with the Emergency Management Department on the Hazard Mitigation Plan and identify mobility projects to include within the Hazard Mitigation Plan.		Planning & Coordination
M.7	Coordinate with the Emergency Management Department on Hazard Mitigation Grant Opportunities to fund/implement mobility projects included in the Hazard Mitigation Plan.		Projects
M.8	Formalize and enforce hazardous material routes through the City to keep hazardous materials on regional roadways and off of local roads.		Policy
M.9	Participate in quarterly hazard risk assessment drills.		Planning & Coordination

Strategy



Refine funding processes to leverage local dollars with grants, partnerships, and other innovative financing solutions supporting Superior Mobility in Sugar Land.

CONSTRAINED MOBILITY FUNDING

Mobility projects can be expensive. Important features like bridges, signal technology, landscaping, and stormwater drainage are all important for successful projects but can increase costs. Sugar Land has been innovative in funding past mobility projects but it is constrained — like many municipalities — by a limited local budget for a long wish list of new projects and maintenance obligations.

LEVERAGING THE WHOLE TOOLKIT

As the City looks forward to implementing the Mobility Master Plan, staff can be inventive in leveraging funds in new and strategic ways. Partnerships with other local governments like Fort Bend County will be crucial to addressing many mobility needs. Likewise, staff will need to utilize the Core Values of this plan to navigate a bevy of new and expanded regional, state, and federal grant dollars available for mobility infrastructure projects.

It will be essential for Sugar Land to identify multiple funding streams in addition to existing local funds. A focus should be on growing the number and variety of funding opportunities to increase the size of the “funding pie” available for project implementation. The City should track and report City funding obligation percentages across projects and programs to assess progress towards diversifying funding sources. In addition, the City should continue to communicate funding obligation for projects and programs to the public to ensure good stewardship of public finances.

Key Action Items emphasize close coordination with other departments and partner agencies in identifying and securing new funding options.

Strategy **N** Refine funding processes to **leverage local dollars with grants, partnerships, and other innovative financing solutions** supporting Superior Mobility in Sugar Land.

Action Item	Core Values	Category
<p>N.1* Hire a grants coordinator staff member to proactively lead and pursue grant and funding opportunities leveraging local dollars supporting mobility and quality of life projects. The grants coordinator would keep a pulse on local, regional, statewide, and national public or private grant opportunities that align with the Mobility Master Plan’s Vision for Superior Mobility and Five Core Values. The coordinator would also work closely with other City departments (ex: Parks & Recreation, etc.) to identify and develop larger-scale improvement projects to seek grants that enhance mobility as well as quality of life, health, economic development, etc. The coordinator would also support the City in tracking funding obligation across projects and programs to report on success in diversifying funding streams.</p>		<p>Planning & Coordination</p>
<p>N.2 Create a grants database based off of the Funding Matrix to match types of projects (and/or specific projects) to grant opportunities and sources, and tracks estimated timing and requirements.</p>		<p>Planning & Coordination</p>
<p>N.3* Utilize the Implementation Framework to develop and maintain a comprehensive list of mobility-related projects for implementation that can be packaged quickly and easily (including cost, City funding obligation, level of effort, timing) for a grant application or local non-routine funding opportunity.</p>		<p>Planning & Coordination</p>
<p>N.4* Identify projects and programs through the use of the Implementation Framework to be included in an upcoming bond to secure designated funds to implement thoughtful projects. Projects and programs could include specific mobility projects and/or maintenance needs supporting Superior Mobility.</p>		<p>Projects</p>
<p>N.5 Develop a routine maintenance program framework that proactively sets aside projects, time, and money to provide preventative maintenance on the City’s infrastructure – saving money and time in the long run.</p>		<p>Policy</p>
<p>N.6 Explore assessment fee opportunities in special areas around the City where money can be generated and directly reinvested into the public infrastructure supporting safe places to walk, bike, drive, or take transit.</p>		<p>Policy</p>
<p>N.7 Continue close coordination with other City departments, specifically the Economic Development department to identify potential partnership opportunities on projects or efforts that support mobility, commerce, and enhanced quality of life in the City.</p>		<p>Planning & Coordination</p>
<p>N.8 Set up an annual coordination meeting (at minimum) to meet with statewide grant coordinators at TxDOT to understand potential grant opportunities hosted by the state in line with Mobility Master Plan.</p>		<p>Planning & Coordination</p>
<p>N.9* Explore opportunities for strategic investments through the Infrastructure Investment and Jobs Act (IIJA) and future federal grant opportunities, state grant opportunities, and H-GAC.</p>		<p>Planning & Coordination</p>

*Action Item is part of the 100-Day Action Plan.

The 100-Day Action Plan

SETTING THE STAGE FOR SUCCESS

The 100-Day Action Plan highlights the tasks that will give staff the tools and resources to be more efficient as they undertake the remainder of the Action Items. By highlighting the key “must-come-first” items, it eliminates the need to set Action Item priorities in the first months after the completion of the Plan.

The City can leverage these select Action Items to garner early successes and build momentum for the Plan. The tables on the next two pages call out the Action Items that comprise the 100-Day Action Plan for quick reference. Action Items are listed based on which should come first. Staff can use this sequence of Action Items or choose to prioritize others as they begin Plan implementation.

CONTINUING GOOD WORK

The 100-Day Action Items should be implemented in conjunction with the many existing efforts already underway at the City. These “continued” efforts are acknowledged throughout the Action Items in this chapter and include ongoing collaboration with regional partners such as Fort Bend County and continued coordination among City departments.

These Action Items work together with the 100-Day Action Plan to create a meaningful set of next steps for the City.

100-Day Action Items	
A.1	Continue to engage the Mobility Task Force through the 100-Day Action Plan to help advance the critical first set of Action Items of this Mobility Master Plan.
A.6	Ensure that the Development Code aligns with the Mobility Master Plan Core Values, Transformative Mobility Network, and Implementation Framework using the 2018 Land Use Plan and associated regulations.
B.1	Apply the Implementation Framework to all mobility decision making.
B.2	Perform a comprehensive review of the City’s Design Standards and update in alignment with the Mobility Plan, Implementation Framework, and national best practices for roadway design such as National Association of City Transportation Officials (NACTO) and American Association of State Highway and Transportation Officials (AASHTO). Update sections that include, at a minimum, anything related to vehicular speeds and roadway, sidewalk, bikeway, and intersection design.
B.3	Incorporate the existing Major Thoroughfare Network (formally part of the Master Thoroughfare Plan) into the Implementation Framework. Formalize name of network and corresponding GIS data set as the <i>Major Thoroughfare Network</i> and update any reference in City codes or standards. Utilize network as a tool to define corridor functional classification, existing and proposed right-of-way, and locations for new roadways. Network should be reviewed yearly with regular network updates adopted by City Council.
C.1	Initiate the Implementation Framework steps to identify the first series of projects from the Transformative Mobility Network; establish a timeline and phased approach for implementation. The first series could include 3 on-street and 3 off-street projects and should be inclusive of both repurposing and new construction.
D.1	Expand the current Traffic Evaluation & Safety Improvements Program to establish a comprehensive citywide Safe Streets Program process. Introduce specialized local studies along with a citywide safety assessment. Enhance initiatives to ensure that recommendations and actions are prioritized and implemented in a timely fashion.

The 100-Day Action Plan

100-Day Action Items

D.3	Analyze and establish a high-crash network across Sugar Land and identify streets to prioritize safety improvements. Identify strategies to reduce crashes on the high-crash network. Note: This network should be a tool for the City and partners to ensure that new mobility projects, programs, or policies align with objectives of the Safe Streets Program.
D.6	Develop a Neighborhood Streets Program to make improvements that encourage safe speeds on streets outside of the Transformative Mobility Network.
E.8	Investigate opportunities for the City to plan for urban air mobility, including policies for safe operations of automated aircraft, construction of landing and delivery infrastructure, and other pertinent policies, regulations, and projects.
H.1	Refine the purpose and goals for small area plans and corridor studies as outlined within this Plan to ensure alignment with the Comprehensive Plan process. Purpose and goals to include: safety, complete streets, neighborhood access points, needs of community, etc.
H.3	Identify corridors from the Transformative Mobility Network to be studied further in a designated Corridor Study. Use the Implementation Framework to prioritize corridors and develop projects and identify funding.
H.4	Implement the City's first small area plan through the 2023 H-GAC Livable Center Study.
I.1	Create a Mobility Dashboard to track and communicate the City's progress in Mobility Master Plan achieving Superior Mobility. The Dashboard should include (1) the status of key Plan Metrics, (2) an interactive map of the Transformative Mobility Network, and (3) links to additional data from the Traffic Management Center and other data sources that help residents understand mobility in Sugar Land.
J.4	Develop and implement a micromobility policy to define and enforce the City's approach to bike share, scooter share, and any other micromobility modes.
K.6	Explore the feasibility of providing innovative transit services, including, but not limited to, microtransit, gondolas, and other emerging technologies.
N.1	Hire a grants coordinator staff member to proactively lead and pursue grant and funding opportunities leveraging local dollars supporting mobility and quality of life projects. Potential grants coordinator would keep a pulse on local, regional, statewide, and national public or private grant opportunities that align with the Mobility Master Plan's Vision for Superior Mobility and Five Core Values. The coordinator would also work closely with other City departments (ex: Parks & Recreation, etc.) to identify and develop larger-scale improvement projects to seek grants that enhance mobility as well as quality of life, health, economic development, etc. Coordinator to also support the City in tracking funding obligation across projects and programs to report back success in diversifying funding streams.
N.3	Utilize the Implementation Framework to develop and maintain a comprehensive list of mobility-related projects for implementation that can be packaged quickly and easily (including cost, City funding obligation, level of effort, timing) for a grant application or local non-routine funding opportunity.
N.4	Identify projects and programs through the use of the Implementation Framework to be included in an upcoming bond to secure designated funds to implement thoughtful projects. Projects and programs could include specific mobility projects and/or maintenance needs supporting Superior Mobility.
N.9	Explore opportunities for strategic investments through the Infrastructure Investment and Jobs Act (IIJA) and future federal grant opportunities, state grant opportunities, and H-GAC.

Measuring Success Citywide

Chapter 5



Measuring Mobility Success

Sugar Land has established itself as a national leader in leveraging data to act on the City's highest needs while saving time, money, and resources. The implementation of this plan should reflect this.

The City will need to track progress toward Plan implementation to understand what projects, programs, and policies move Sugar Land closer to Superior Mobility. The Plan includes Six Mobility Metrics that collectively help answer the question for Council, staff, and the public:

How are we doing with mobility?

The Six Mobility Metrics are detailed on the following pages and include: Safety, Destination Connectivity, Increased Mobility Options, Network Quality, Active Lifestyles, and Community Satisfaction.



Alignment with Five Core Values

Core Values & Goals

The City of Sugar Land's vision of Superior Mobility will be fulfilled through the Five Core Values and supporting Goal Statements, presented at right. The Six Mobility Metrics outlined in this chapter provide a framework for measuring progress and success toward these Five Core Values and Plan's vision of Superior Mobility.

The Six Mobility Metrics, like the Core Values, are interconnected. Often, success in one area will make it easier to achieve progress in another. Likewise, each individual Strategy and Action Item (presented in Chapter Four) can impact the success of multiple metrics.

CORE VALUES



Supporting Goal Statement

To Achieve Superior Mobility Sugar Land Will...

Build upon the City's previous successes to create mobility networks that are safe and connected for all users.



Enhance travel within Sugar Land to be more convenient, inclusive, and reliable by addressing critical barriers to mobility.



Establish Sugar Land as an active lifestyle city where resident' daily activities are accessible without the need to always drive.



Strengthen Sugar Land's position as an innovative mobility leader that sets the standard for quality of life and a thriving economy.



Create a resilient mobility network that can withstand environmental, social, and economic changes over time.

Measuring Outcomes

Process → Outputs → Outcomes

The Six Mobility Metrics offer a targeted approach to measuring true progress toward Sugar Land’s vision of Superior Mobility. The metrics are not an exhaustive list of the things that the City currently measures; they are a select set of indicators that represent the true state of mobility in the City. They do, however, incorporate important data that the City is already collecting, and provide steps to begin collecting new data with the adoption of this plan.

The traditional approach to planning typically creates a one-to-one relationship between metric and strategy. This can result in a large amount of data collection and less clarity on progress and success of Plan implementation. In addition, large amounts of data collection and analysis can require substantial staff time and capacity and be challenging to synthesize into outcomes to explain to the general public.

Therefore, the Six Mobility Metrics were created to stand alone and be overarching of the entire Plan. They are focused on measuring external outcomes to tell a clear story of mobility progress citywide. These metrics are intended to be transparent to the public, track progress and success, and evaluate ongoing work. They are intended to work in conjunction with, not replace, existing processes for internal reporting and data collection.

Progress and **success** for these metrics rely on successfully completing the Strategies and Action Items in this plan. It will take the completion of many Action Items together to move the needle towards measurable change across the City.

Overarching themes, including resiliency, equity, funding, and organizational structure, are integrated into all Six Mobility Metrics. They influence all strategies and actions, and therefore are not stand-alone metrics.



Six Mobility Metrics to measure progress and success to achieve Superior Mobility

Six Mobility Metrics

METRIC		ALIGNED CORE VALUES
SAFETY	The number of crashes and severity of crashes across all modes of transportation.	 
DESTINATION CONNECTIVITY	The ability to safely and comfortably reach nearby Activity Centers through short trips.	   
INCREASED MOBILITY	Increase the movement of people and goods through expanded multimodal options on the Transformative Mobility Network (TMN).	   
MOBILITY NETWORK CONDITION	The infrastructure condition for people walking, biking, and driving along the TMN.	  
ACTIVE LIFESTYLES	The number of people walking and bicycling at destinations, within Activity Centers, and along the TMN and trails.	 
COMMUNITY SATISFACTION	Community's perceptions and satisfaction with mobility.	 

Safety: The number of crashes and severity of crashes across all modes of transportation.



Why Safety?

Safety is a top community priority. During the first round of community engagement “improving safety for all roadway users” was the top ranked desired outcome for the Plan. This was echoed during the second round of community engagement when 91% of community respondents agreed with the importance of the **Safe & Connected** Core Value and supportive goal statement. Members of the Mobility Task Force have continuously emphasized the importance of safety for all network users as a key priority for them and their neighbors.

To assess citywide mobility safety, staff will continue to track all recorded crashes within the City. The City will make progress and reach success by focusing on existing safety hotspots, implementing a safe systems approach, and being proactive by putting safety first in the design and implementation of all future projects. Designing for safety for all roadway users in conjunction with **Strategy D** (*Develop a safe streets program with dedicated implementation funding to proactively and systematically address community safety concerns around mobility*) will ensure the City achieves success.

Where we are today?

CRASHES

- » **8,924** crashes on Sugar Land roadways from 2014-2018
- » **47** crashes involved a person bicycling
- » **29** crashes involved a person walking
- » **130** serious injury crashes resulting in **147** incapacitating injuries

FATALITIES

- » **8** fatalities
- » **2** were people bicycling
- » **3** were people walking

Achieving Superior Mobility

PROGRESS

- » Reduce fatal and serious injury crashes along Transformative Mobility Network
- » Reduce fatal and serious injury crashes along entire street network

SUCCESS

- » Zero* fatal and serious injury crashes along the Transformative Mobility Network
- » Zero* fatal and serious injury crashes in Sugar Land

**Zero crashes to be defined by crashes that can be lessened or avoided through design improvements and enhancements*

How to measure Safety?

MEASURING PROGRESS & SUCCESS:

Continue Collecting:

- » Geospatial Crash data, including:
 - » Fatalities
 - » Serious Injuries
 - » Crashes involving a person walking
 - » Crashes involving a person bicycling

ADDITIONAL DATA COLLECTION FOR DECISION MAKING:

This additional data is not required to measure safety citywide but should be used for further discussion on targeted initiatives to improve safety throughout the City. This additional data will be useful for the Implementation Framework presented in Chapter Six.

Continue Collecting:

- » Traffic volume data at signals and along corridor segments to calculate intersection crash rates and corridor crash rates as a comparison tool to assess safety
 - » Calculate intersection crash rates using FHWA standard: crashes per million entering vehicles (MEV)
 - » Calculate corridor crash rate using FHWA standard: crashes per 100 million vehicle-miles of travel
- » Posted and measured speed along corridors to assess speed differentials
- » Speeding tickets issued along a corridor

Start collecting:

- » Safety related service requests via 311 or other City resources
- » Information from traffic apps, such as WAZE, to supplement official crash reports collected via police departments
- » Trends in crash patterns to identify commonalities across the City to develop a safe systems approach to address safety concerns
- » Near-miss crash data of high-priority intersections (**Action Item D.4**)

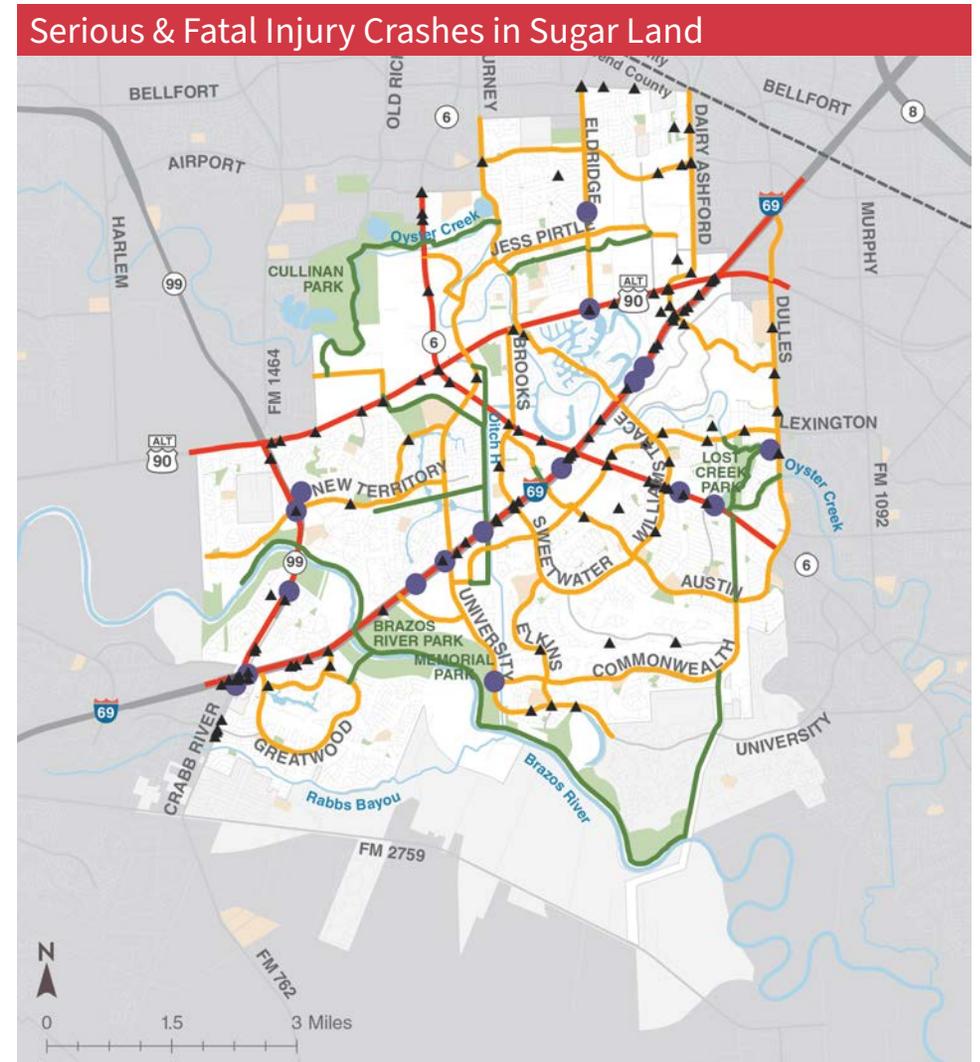


Figure 5.1 Serious & Fatal Crashes

Source: TxDOT CRIS Data, 2015-2019

- | | |
|---------------------------------|------------------|
| Transformative Mobility Network | ● Fatality |
| On-Street | ▲ Serious Injury |
| Off-Street | |
| TxDOT Roads | |

Destination Connectivity: The ability to safely and comfortably reach nearby Activity Centers through short trips.



Destination Connectivity

Transportation and land use are closely linked. The **Land Use Plan** guides the City's policy and future decisions relating to land use and development, and includes a Future Land Use Map for the City and its extraterritorial jurisdiction (ETJ). It balances different land uses, preserves the character of neighborhoods, and focuses redevelopment in Regional Activity Centers (RAC) and Neighborhood Activity Centers (NAC) with a concentration of office, housing, retail, entertainment, and civic institutions. The Plan recognizes the relationship between transportation and land use and encourages investments in walkability and mixed-use development within RACs and NACs. This plan builds upon the Land Use Plan to ensure multimodal access within Activity Centers and to/from Activity Centers.

Connecting people to places is the key motivator of this metric. The ability to safely and comfortably reach nearby Activity Centers through short trips supports community objectives as residents have clearly stated a desire to improve access to nearby destinations. As development continues in Sugar Land, short trips (3 miles or less) should grow at a higher rate than longer trips, offering opportunities for people to shift to more active modes of transportation if safe and comfortable infrastructure is provided (see analysis within the **State of Mobility** in Appendix A).

This metric aligns with the **Safe & Connected**, **Inclusive & Accessible**, and **Healthy & Active** Core Values and supporting goal statements. Building upon the City's previous successful investment in connectivity, progress and success for this metric is focused on providing safe and comfortable connections through enhanced sidewalks and high-comfort bicycling facilities between neighborhoods and Activity Centers. Progress is focused on the TMN while success includes all City streets near NACs and RACs.

Focusing on both Regional and Neighborhood Activity Centers also enhances the impact of investment as they are major trip generators. Prioritizing safe and comfortable multimodal access to, from, and within Activity Centers is an effective use of City time and resources. Activity Centers are key economic drivers for the City and improving access for all modes supports the **Innovative Regional Leader** Core Value to support quality of life and a thriving economy.

Where are we today?

- » **80%** of TMN corridors within a 1/2 mile of an Activity Center have sidewalks, however not all are high-quality
- » **18%** of TMN corridors within 2 miles of an Activity Center have a high-comfort bikeway (including sidepaths, bicycle lane, buffered bicycle lane, or slow and safe neighborhood shared streets)

Achieving Superior Mobility

PROGRESS

- » Every TMN corridor within a 1/2 mile of an Activity Center* has a continuous high-quality sidewalk
- » 50% increase in number of residential neighborhoods with access to all Activity Centers* within 1/2 mile via high-quality sidewalk
- » Every TMN corridor within 2 miles of an Activity Center* has a high-comfort bikeway
- » 50% increase in number of residential neighborhoods with access to all Activity Centers* within 2 miles via high-comfort bikeway

SUCCESS

- » Every street within a mile of an Activity Center* has a continuous high-quality sidewalk
- » Every street within 2 miles of an Activity Center* has a high-comfort bikeway
- » Every residential neighborhood has access to all Activity Centers* within 1/2 mile via high-quality sidewalk
- » Every residential neighborhood has access to all Activity Centers* within 2 miles via high-comfort bikeway

**Includes Regional Activity Centers (RAC) and Neighborhood Activity Centers (NAC)*

How to measure Destination Connectivity?

MEASURING PROGRESS & SUCCESS:

Continue Collecting:

- » Geospatial data of sidewalk location
- » Geospatial data of high-comfort bikeway locations
- » Activity Center (NAC and RAC) locations and characteristics

Start collecting:

- » GIS network analysis outputs and measurements of roadway network, including sidewalks and bikeways, around all Activity Centers
- » GIS network analysis of all neighborhoods and subdivision within 1/2 mile, 1 mile, and 2 miles of all Activity Centers

ADDITIONAL DATA COLLECTION FOR DECISION MAKING:

This additional data is not required to measure destination connectivity citywide but can be used in support of improved connections to all Activity Centers. This additional data will be useful for the Implementation Framework presented in Chapter Six.

Continue Collecting:

- » Detailed geospatial data on sidewalk condition and sidewalk amenities throughout the City

Start collecting:

- » Percent of population within 1/2 to 1 mile walk to all Activity Centers
- » Percent of population within a 2 mile bike ride to all Activity Centers
- » Intersection characteristics for all intersections near Activity Centers that include information on intersection crash rates, vehicular capacity and operations, and pedestrian and bicycle crossing conditions
- » Bluetooth based data like Streetlight or similar to collect origin and destination travel data

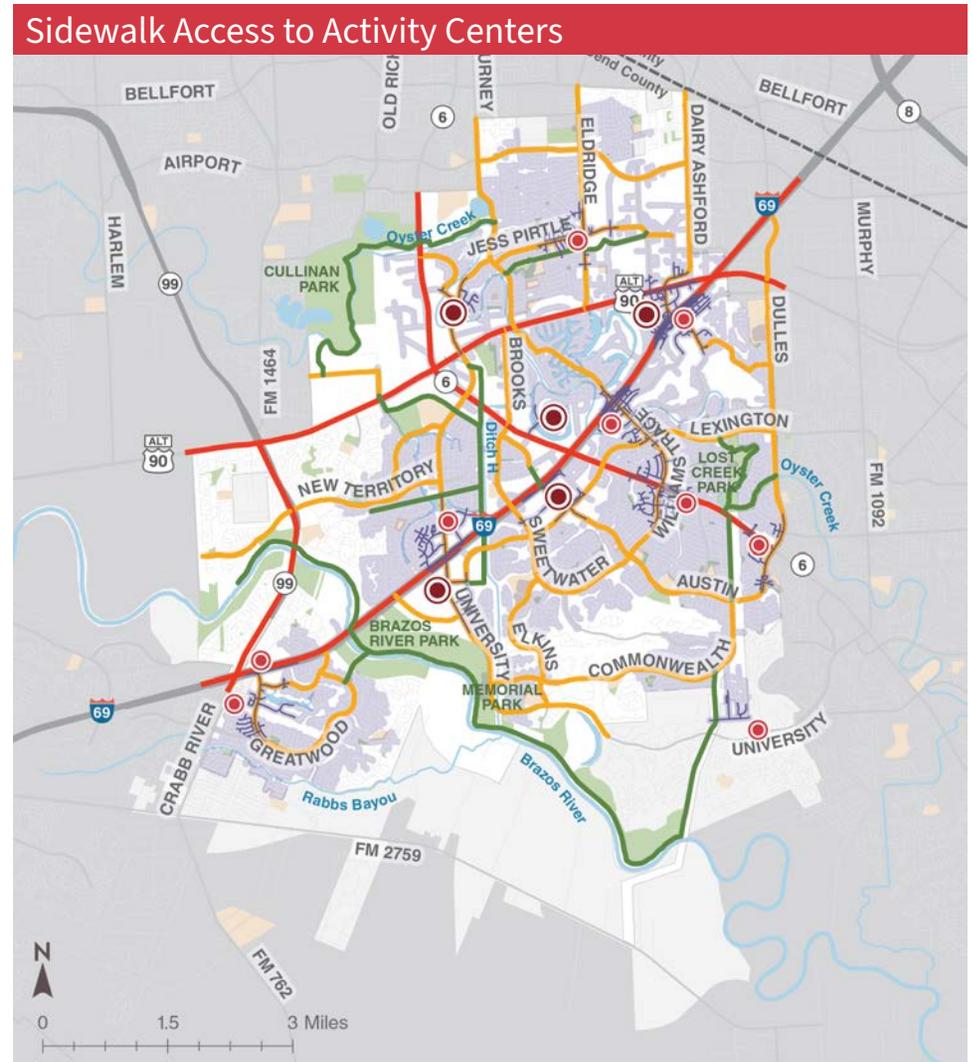


Figure 5.2 Sidewalk Access to All Activity Centers

Source: Team Analysis 2022

- | | |
|---------------------------------|--------------------------------|
| Transformative Mobility Network | ● Regional Activity Center |
| — On-Street | ● Neighborhood Activity Center |
| — Off-Street | Sidewalk Access: |
| — TxDOT Roads | — Half mile radius |
| | — Two mile radius |

Increased Mobility: Increase the movement of people and goods through expanded multimodal options on the TMN.



Measuring Mobility

Mobility is the ability to move people and goods safely and easily regardless of mode. This metric focuses on increasing the movement of people and goods through expanded multimodal options to support quality of life and to maintain a thriving economy within Sugar Land. In the first round of public engagement, 61% of respondents desired “increasing choices for how to move around the city” as a critical Plan outcome.

A measure of mobility activity is vehicle miles traveled (VMT), which is the average daily vehicle traffic on a roadway multiplied by the roadway’s length. It is a simple calculation often used to assess how people move along a network. In addition, there are existing Texas Department of Transportation (TxDOT) procedures to assist with calculations of both corridor and citywide VMT. While it may seem VMT is focused on motor vehicle movement only, measuring and monitoring VMT over time provides a key indicator of how people are moving along a network, no matter their mode choice. Constant or decreasing VMT while Sugar Land experiences population and economic growth indicates an increase in the efficient movement of people and goods throughout the City. Shifting the mode for some roadway users away from motor vehicles will result in a decrease in citywide VMT, allowing for increased freight mobility with more reliable travel times and a decrease in freight congestion.

Constant or decreasing VMT indicates increased mobility as access to destinations has increased and mode choices have expanded. This measure aligns with the goal statements of the **Safe & Connected**, **Inclusive & Accessible**, and **Healthy & Active** Core Values. Decreasing VMT along with economic growth also support the **Innovative Regional Leader** Core Value.

An additional measure to supplement VMT in gauging Increased Mobility is Corridor Completeness. Corridor Completeness is the total miles of corridors within the City that are a Complete Street.

Where are we today?

VMT: The City does not measure VMT, however the City regularly collects all data inputs necessary to calculate VMT.

Corridor Completeness: A measure of corridor miles of Complete Streets. A preliminary calculation found that: **100%** of TMN streets provide space for cars, **33%** provide sidewalk on both sides of the street for pedestrians, and less than **5%** provide dedicated space for bicyclists.

Delay at Blocked Rail Crossings: The City currently measures delay due to blocked rail crossings, with a focus on the US 90A corridor. Delay due to these blocked crossing hinders the movement of people and freight within the City and is a key area for improvement.

Achieving Superior Mobility

PROGRESS

- » No increase in VMT along the TMN
- » Doubling the total miles of corridor completeness along the TMN
- » 5% reduction in delay due to blocked rail crossings

SUCCESS

- » A 10% reduction in VMT along the TMN.
- » All corridors along the TMN are Complete Streets
- » 10% reduction in delay due to blocked rail crossings

How to measure Increased Mobility?

MEASURING PROGRESS & SUCCESS:

Continue Collecting:

- » Annual Average Daily Traffic (AADT) along Sugar Land roadways
- » AADT data from TxDOT for state roads
- » Geospatial data of sidewalk locations
- » Geospatial data of high-comfort bikeway locations
- » Delay due to blocked rail crossings

Start collecting:

- » Annual Average Daily Traffic (AADT) data along all TMN corridors, including speed distribution and vehicle classification
- » VMT calculations for all TMN corridors using TxDOT methodology
- » Modes served along all TMN corridors to develop measure of Corridor Completeness

ADDITIONAL DATA COLLECTION FOR DECISION MAKING:

This additional data is not required to measure increased mobility citywide but can be used for further discussion on increasing mobility across the City. This additional data will be useful for the Implementation Framework presented in Chapter Six.

Start Collecting:

- » Planning-level corridor Level of Service (LOS) for all TMN corridors using Highway Capacity Manual methodology
- » Modes served along all City streets to develop measure of Corridor Completeness for all City streets

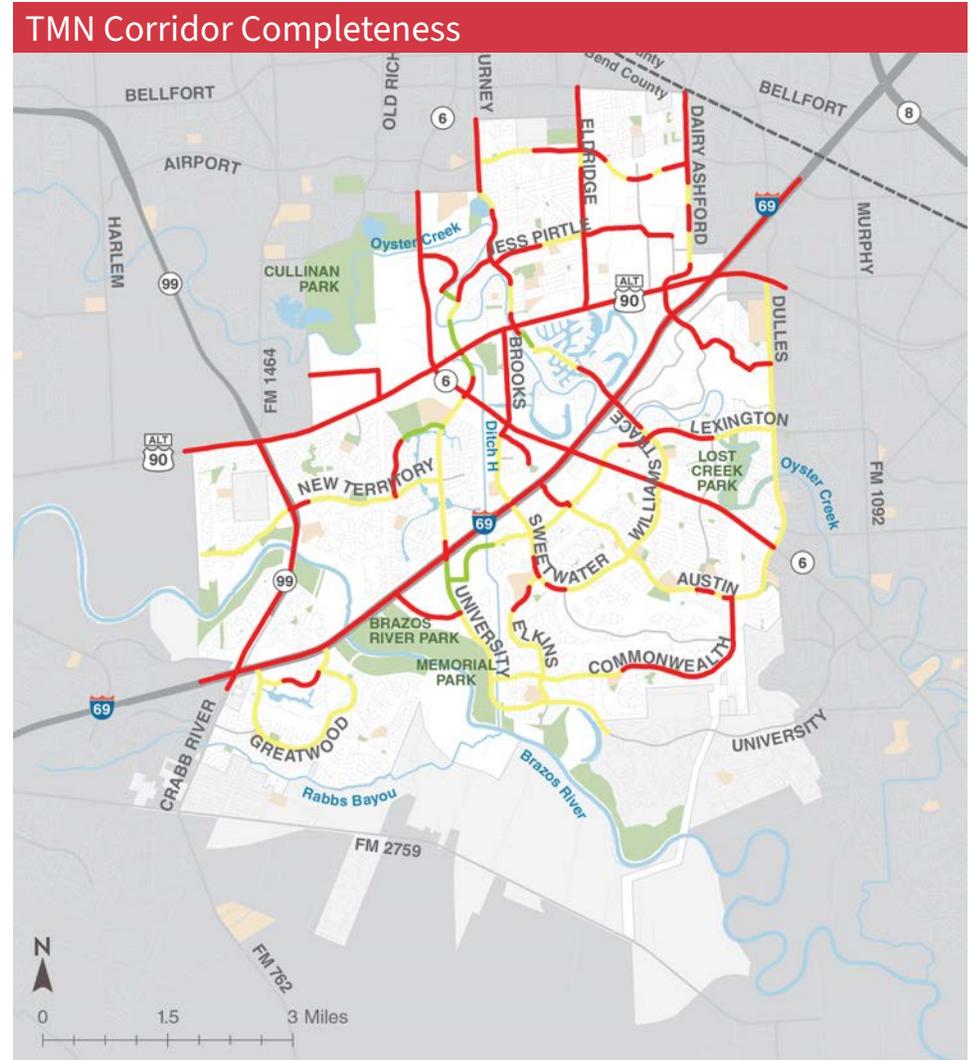


Figure 5.3 TMN Corridor Completeness

Source: Team Analysis 2022

Corridor Completeness

- Serves 1 Mode
- Serves 2 Modes
- Serves 3 Modes

Mobility Network Condition: The infrastructure condition for people walking, biking, and driving along the TMN.



Measuring Condition

Measuring the condition of the City's mobility infrastructure ensures all elements of the network are in a state of good repair. Maintenance is a critical component of all mobility networks for preservation and continued utility. Maintenance is also a critical area of investment and expenditure. Therefore, developing data driven programs focused on creating regular maintenance cycles with dedicated funding sources is critical for the City to meet expectations of residents and maintain a state of good repair.

This metric encourages the City to be proactive about improving the condition of the mobility network. During the first round of public engagement, the respondents ranked "Street Maintenance" as the second highest priority for investment within the City. As the City continues its path through the City Life Cycle (see Chapter One), maintenance becomes an even more critical need requiring increasing investment. Working towards success for this metric supports the creation of a network of **Safe & Connected**, **Inclusive & Accessible**, and **Healthy & Active** streets and trails within the city.

The focus of this metric is the condition of infrastructure along the TMN, however, maintenance is a critical part of the entire

City roadway and trail network. Progress and success for this metric will primarily result from maintenance focused Strategies and Action Items (presented in Chapter Four). A key strategy to move toward success is **Strategy F** (*Expand the asset management program to analyze the life cycle of transportation infrastructure*).

Where we are today?

- » PCI (Pavement Condition Index) is currently calculated per lane of roadway. PCI by lane is useful for granular study, however for high-level assessment, PCI for an entire corridor section is preferred. A methodology needs to be developed to take PCI per lane and convert it into a value that averages PCI for an entire corridor width.
- » **3.4** is the average Level of Traffic Stress (LTS) along all TMN corridors (see the **State of Mobility** in Appendix A for definitions)
- » **435** miles of sidewalks (citywide) that are 5' or wider
- » Bridge condition scores range from **26** to **100**, (Data set is based on National Bridge Inspection (NBI) data and maintained by TxDOT)

Achieving Superior Mobility

PROGRESS

- » **50%** of all corridors along the TMN have a corridor PCI of **70** or above
- » **50%** of all corridors along the TMN have a Level of Traffic Stress of **2 or 1**
- » **25%** increase in mileage of high-quality TMN sidewalks that meet or exceed City standards
- » Every bridge along the TMN has a Bridge Condition Score of 85 or above

SUCCESS

- » **All** corridors along the TMN have a corridor PCI of 70 or above
- » All corridors along the TMN have a Level of Traffic Stress of **2 or 1**
- » **All** TMN sidewalks are high-quality and meet or exceed City standards
- » Every bridge along the TMN has a Bridge Condition Score of 90 or above (TxDOT)

How to measure Mobility Network Condition?

MEASURING PROGRESS & SUCCESS:

Continue Collecting:

- » PCI, a measure of pavement condition for all roadways
- » Bridge Condition Score from TxDOT
- » Geospatial data of sidewalk locations
- » Geospatial data of high-comfort bikeway locations
- » Geospatial pavement assessment information for sidewalks, sidepaths and trails to assess condition of facility and to track if the facility is “high-quality”
 - » A scoring methodology should be created to measure environmental quality for all sidewalks and trails and allow for comparisons between corridors

Start collecting:

- » PCI for an entire roadway width (instead of per lane)
- » Level of Traffic Stress (LTS) for the entire City. See the **State of Mobility** in Appendix A for preliminary analysis conducted for this plan. LTS is based on:
 - » Number of vehicle travel lanes
 - » Posted speed limit
 - » Existing bikeway facilities
 - » Traffic volume
- » Environmental quality index score for sidewalks and trails; scoring methodology to be developed by City

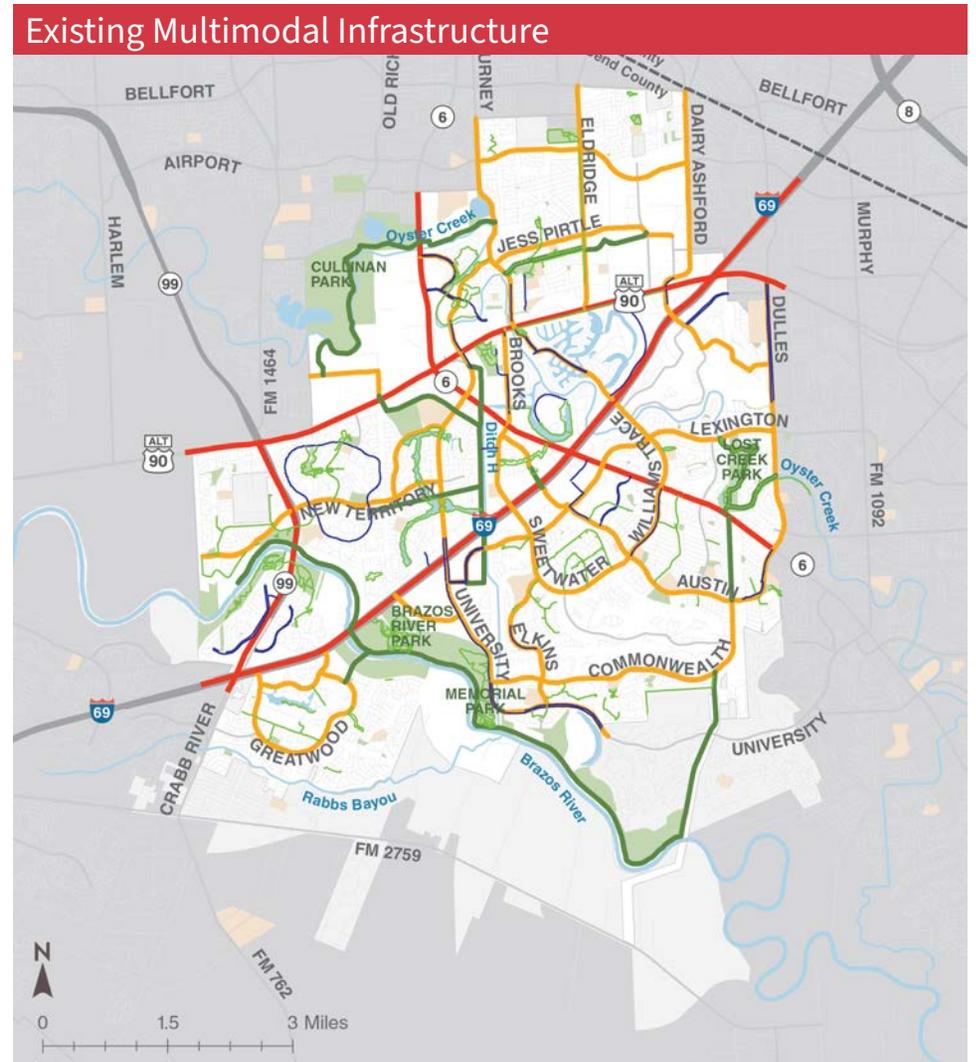


Figure 5.4 Sugar Land's Existing Pedestrians & Bike Infrastructure

Source: Team Analysis 2022

- | | | |
|--|---|---|
| ■ School | — Existing Bike Lane | — Transformative Mobility Network On-Street |
| ■ Park | — Existing Shared Use Path | — Transformative Mobility Network Off-Street |
| ■ Water | | — TxDOT Roads |

Active Lifestyles: The number of people walking and bicycling to destinations, within Activity Centers, and along the TMN and trails.



Why Active Lifestyles?

Sugar Land has been a national leader in investments focused on enhancing quality of life. Throughout Plan development, community members have expressed a desire for transportation options that support **Healthy & Active** movement across the City. In the first round of public engagement, the fourth highest preferred community outcome, with 68% of residents supporting, was “Encouraging Healthy & Active Lifestyles”.

Mobility decisions have real impacts on people’s ability to live healthy and full lives. Strong networks that encourage walking and bicycling have shown health benefits nationwide, improving quality of life and lowering health costs. A mobility network that allows for healthy and active lifestyles is supported by creating **Safe & Connected** networks. It is also supported through the implementation of programs and policies focused on encouraging people to use active modes. **Strategy G** (*Formalize a comprehensive active infrastructure program to address outdated and/or aging infrastructure, create new network connections, and improve experiences for people walking and biking*) and **Strategy J** (*Integrate health into transportation projects, programs, and policies*) are two Strategies with Action Items to support an increase in active modes throughout the city.

Where we are today?

- » Walking and bicycling to school is popular with the number of students varying by school and location (see analysis in the **State of Mobility** within Appendix A). School crossing counts are currently collected by FBISD for a majority of elementary schools and some middle schools within the City. There is an opportunity to collect more complete, seasonal data for all schools within the City.
- » Some counts collected within the City, either along a corridor, or at an intersection include counts for people walking and bicycling. Currently there is no official count program to systemically count people walking and bicycling across the City.

Strategy E (*Continue to invest in innovation and technology to leverage existing assets and position the City as an attractive place for research and development*) includes Action Items that will establish systems for regular counting of people walking and bicycling through the City.

Achieving Superior Mobility

PROGRESS

- » 5% increase, year over year, of students walking or biking to school
- » 5% increase, year over year, of people walking or biking within Active Centers
- » 15% increase of people walking or biking along the City’s trail network
- » 15% increase of people walking or biking along or across the TMN

SUCCESS

- » 10% increase, year over year, of students walking or biking to school
- » 10% increase, year over year, of people walking or biking within Active Centers
- » 25% increase of people walking or biking along the City’s trail network
- » 25% increase of people walking, biking, jogging, or rolling along or across the TMN
- » Those that wish to walk or bike are able to

How to measure Active Lifestyles?

MEASURING PROGRESS & SUCCESS:

Start collecting:

- » Number of students walking or biking to school
 - » Work with FBISD and LCISD to create a consistent methodology to count the number of students who walk and bicycle to school
- » Number of people who walk and bike within Activity Centers (including both NAC and RAC)
- » Number of people walking or biking along the City's trail network
- » Number of people walking or biking along the TMN

ADDITIONAL DATA COLLECTION FOR DECISION MAKING:

This additional data is not required to measure active lifestyles citywide but can be used for further discussion on targeted initiatives to increase active modes within the City. This additional data will be useful for the Implementation Framework presented in Chapter Six.

- » Where possible, document outcomes of programs for encouraging people to walk or bike
- » Create a repository of data that include pedestrian and bicycle counts anywhere within the City to track trends



Community Satisfaction: Community's perceptions and satisfaction with mobility.



Measuring Community Satisfaction

The people who know Sugar Land the best are the people who live, work, and spend time in the City. The community is a fantastic resource and sounding board when it comes to defining mobility priorities and the high level of engagement throughout this planning process is proof that community members care about mobility and want to contribute their ideas to achieve success. The City should continue to rely on the community for input and engagement to inform decision making.

There are a variety of ways to engage with the community and receive feedback. The City should continue their current practice while expanding on avenues that can be useful during Plan implementation to assess success.

Where we are today?

Every two to three years, the City conducts the Citizen Satisfaction Survey which measures and assesses citizen satisfaction with the delivery of major City services and helps set community priorities for improved services and long-range planning.

The survey asks a variety of questions that inform the City on residents' satisfaction with a variety of infrastructure types and mobility factors.

2020 CITIZEN SATISFACTION SURVEY:

- » **73%** of residents state they are satisfied with the “flow of traffic & congestion management”
- » **81%** of residents stated they are satisfied with the “maintenance of streets/ sidewalks/infrastructure”

In addition, the survey asks a series of questions focused on each mobility type to assess the overall satisfaction. These questions, and trends over the years, provide critical insight into community perceptions and satisfactions from traffic signals to bike lanes and sidewalks. This data is a useful tool for the City to make decisions on additional studies, future projects, and maintenance needs across the City.

Achieving Superior Mobility

PROGRESS

On the next survey:

- » **75%** of residents state they are satisfied with the “flow of traffic & congestion management”
- » **85%** of residents stated they are satisfied with the “maintenance of streets/ sidewalks/infrastructure” *

SUCCESS

In 10 years:

- » **80%** of residents state they are satisfied with the “flow of traffic & congestion management”
- » **90%** of residents stated they are satisfied with the “maintenance of streets/ sidewalks/infrastructure”

**This percentage is the same as the Citizen Satisfaction Survey results from 2015*

How to measure Community Satisfaction?

MEASURING PROGRESS & SUCCESS:

Continue collecting:

- » Continue including mobility questions in each Citizen Satisfaction Survey to see year-over-year trends

Start collecting:

- » Update or add a mobility question that better captures sentiment about the Five Core Values and Goals instead of focusing on traffic flow congestion or maintenance (**Action Item A.8**)
- » Partner with Economic Development and Sugar Land employers to initiate a biennial Commute Survey (**Action Item A.9**)

ADDITIONAL DATA COLLECTION FOR DECISION MAKING:

This additional data is not required to measure community satisfaction citywide but can be used for increasing understanding of mobility satisfaction across the community over time. This additional data will be useful for the Implementation Framework presented in Chapter Six.

- » As the number of potential mobility related questions on the Citizen Satisfaction Survey is limited, and due to the structure and time frame of the survey, find other methods for assessing mobility satisfaction citywide
 - » If another regular survey method is defined, track year-over-year results and develop progress and success objectives for this series of questions in combination with questions from the Citizen Satisfaction Survey
- » Collect and analyze 311 data and serve requests
 - » Focus on collecting and summarizing safety issue inquiries, connectivity issue inquiries, and network condition issue inquiries
- » Community feedback from other planning initiatives, corridor studies and small area plans
- » Work with communications department and utilize social media and other resources to better understand needs and expectations of residents



How are we doing with Mobility?

Once the City puts in the effort to collect and analyze all Six Mobility Metrics, what comes next? Every year, the staff will report the metrics to leadership, Council, and residents as an update on Plan progress year by year. This annual reporting will ensure accountability for Plan implementation and inform decision making about prioritizing projects, programs, and policies that have a greater impact on metrics. **Action Item I.1** includes the creation of a Mobility Dashboard as a transparent platform for the City's performance on mobility metrics and an easy way to show annual reporting.

Beyond gauging citywide mobility, the metrics data serves a dual purpose as a way to identify and develop projects and programs. The next chapter (Chapter Six, Implementation Framework) demonstrates how metrics data can highlight high-need corridors to target City time and resources on the most impactful projects. The versatility of the Six Mobility Metrics for both citywide and project-level measurements creates a new mobility vernacular for the City to use that supports the creation of a network of Complete Streets to safely and effectively move people and goods.



Safety



Destination Connectivity



Increased Mobility



Network Quality



Active Lifestyles



Community Satisfaction

Implementation Framework

Chapter 6



A New Path to Implementation

This plan proposes bold ideas backed up by specific strategies to achieve the City of Sugar Land's vision of Superior Mobility.

The Implementation Framework described in this chapter offers a practical blueprint to bring these ideas into reality while adhering to the Five Core Values at the foundation of the Mobility Plan. The framework gives the City a set of steps and applicable tools that should be employed for all mobility related decision making. The Implementation Framework is transparent and easy to communicate to the public and provides a logical path for identifying and defining mobility improvements that yield no bad projects.

The Implementation Framework is built on three stages, each outlined in more detail later in this chapter: the Opportunity Analysis, the Project Definition, and Mobility Funding.



Unifying the City's Decision Making Process

Platform for Decision Making

The last few decades have seen rapid growth in Sugar Land, largely through annexation. City staff and leadership had to match this fast pace to keep up with a booming population and build high-quality roadways and mobility technology to better move vehicles within and through the City.

As Sugar Land reaches total build-out and into the redevelopment phase of its lifecycle, a proactive decision making structure will help address new challenges and meet changing needs of residents and businesses to create a truly multimodal mobility network.

The implementation of this plan will link existing City codes and standards through one process and will serve as the platform for three departments — Public Works, Planning & Development Services, and Engineering — to make deliberative and data-driven mobility decisions. The existing **Major Thoroughfare Network**, presented in **Figure 6.1**, and the **Pedestrian & Bicycle Network**, presented in **Figure 6.2**, will serve as inputs for mobility decision making in support of the Transformative Mobility Network (TMN). The City's **Design Standards** and **Development Code** will be updated to reference the Mobility Master Plan and the Implementation Framework, while continuing to play a key role in project implementation.

The Implementation Framework will be a pivotal part of the City's regulatory authority and will be informed by existing City standards, codes, and ordinances.

Design Standards & Development Code Sugar Land's existing roadway Design Standards and Development Code will be updated to align with the Mobility Plan and serve as an input into the Implementation Framework (**Action Item B.2**).

Major Thoroughfare Network The Major Thoroughfare Network will be used as an input into the Implementation Framework to define corridor functional classification, right-of-way needs, and the location of new roadways where applicable (**Action Item B.3**)

Pedestrian & Bicycle Network The existing Pedestrian & Bicycle Plan future network from the previous Master Plan will inform roadway design through the Design Standards and be an input into the Implementation Framework (**Action Item G.1**)

Land Use Plan The Land Use Plan will be a key recommendation input as part of the Implementation Framework (**Action Item A.5**).

Major Thoroughfare Network

The Major Thoroughfare Network was previously an element of the City’s 2012 Master Thoroughfare Plan. The most updated network map and corresponding table (see Appendix L) — adopted by City Council in 2019 — highlight key characteristics of major corridors in Sugar Land (Figure 6.1). In particular, the useful corridor characteristics of the Major Thoroughfare Network are:

- » **Functional Classification:** Classification is based on the ownership of the roadway, its design, vehicle volume, and context. The six functional classifications are Freeway, State Highway, Arterial, Major Collector, Minor Collector, and Other.
- » **Right-of-way (ROW) needs:** Each corridor of the network has corresponding recommended ROW needs. Some corridors require no additional ROW to meet expected demand while others are proposed to be widened. By defining ROW needs, this network allows the City to acquire ROW along a corridor as part of private development processes and future roadway projects.
- » **Alignment of new roadways:** Primarily within the City’s extraterritorial jurisdiction (ETJ), the network highlights proposed alignment of new roadways. This is a critical input into developments of large parcels and areas as future roadway networks get built out.

This network map and table (included within Appendix L) will continue to provide useful information for mobility decision moving forward. For that reason, the Major Thoroughfare Network should be maintained as a living document. For the purposes of mobility decision making, the Major Thoroughfare Network is a tool for both the City and private developers to understand key characteristics of a roadway and gauge ROW needs. It is a forward-looking tool to ensure continuous development of a functional roadway network that meets the City’s mobility objectives of efficiently and safely moving people and goods.

The Major Thoroughfare Network should be reviewed yearly with regular network updates adopted by City Council (**Action Item B.3**).

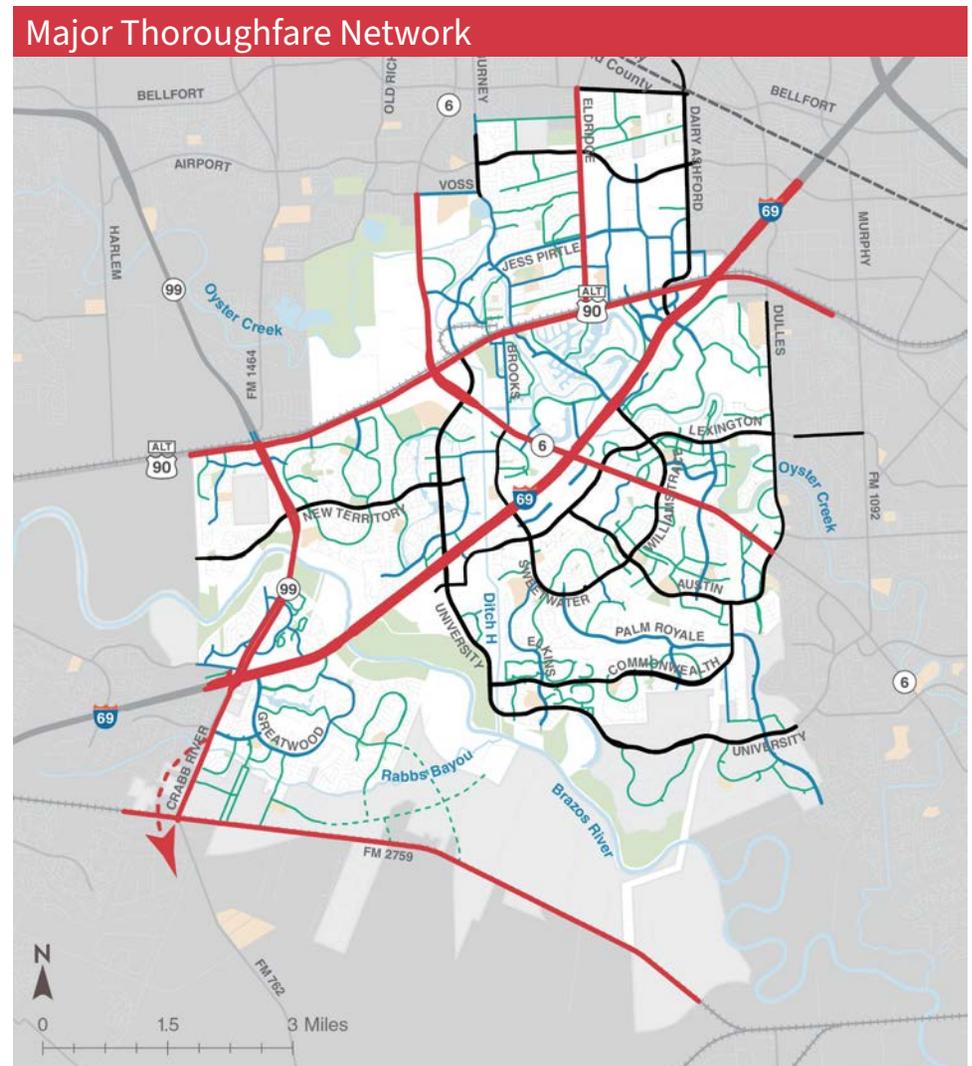


Figure 6.1 Major Thoroughfare Network Functional Classifications Source: City of Sugar Land 2019

Functional Classification (Existing Roadways)		Functional Classification (Proposed)	
— Freeway/State-Owned	— Major Collector	- - - Proposed Freeway/State-Owned	- - - Proposed Minor Collector
— Arterial	— Minor Collector		
	— Other		

Pedestrian & Bicycle Network

The Pedestrian & Bicycle Network was originally developed for the 2013 Pedestrian & Bicycle Master Plan, and is present within **Figure 6.2**. The network was created with a focus on connecting all neighborhoods via readily accessible, safe, and attractive pedestrian and bicycle facilities. Much like the Major Thoroughfare Network, the Pedestrian & Bicycle Network includes critical information that will offer a great tool for mobility decision making in the future. In particular, the Network identifies locations for enhanced pedestrian and bicycle connectivity using three key elements:

- » **Facility Classifications:** The classification categories from the 2013 Plan have been simplified as presented in **Figure 6.2**. The Pedestrian & Bicycle Network includes three classification for existing facilities including Separated, Delineated, and Shared. The **State of Mobility** includes details of each of these classifications starting on page A-38.
- » **Opportunities for Connections:** The network includes proposed alignments for new pedestrian and bicycle connections. These are represented by dotted lines and are intended to show opportunists for connections. A connection opportunity may be along the corridor presented on the network or may be along a parallel route.
- » **Focus on High-Comfort:** Implementation should be focused on designing and implementing high-comfort facilities. A variety of Strategies & Action Items state the need to regularly update and align the **Design Standards & Development Code** for pedestrian and bicycle facilities with national best practices.

The Implementation Framework will use this network, along with the TMN, and other inputs to define projects and identify locations and facility type for future pedestrian and bicycle connections. The Pedestrian & Bicycle Network should be reviewed yearly with regular network updates. Standards and codes should always meet national best practices for facility type.

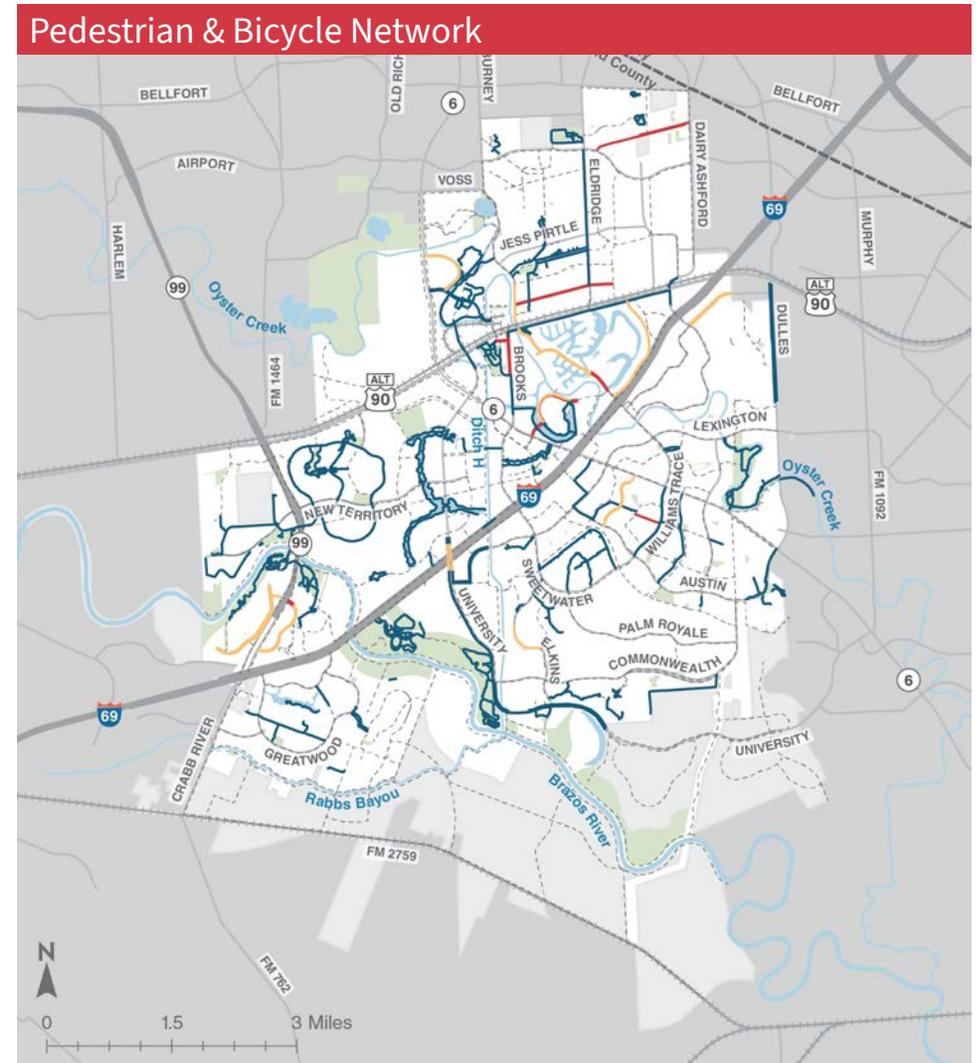


Figure 6.2 Pedestrian & Bicycle Network

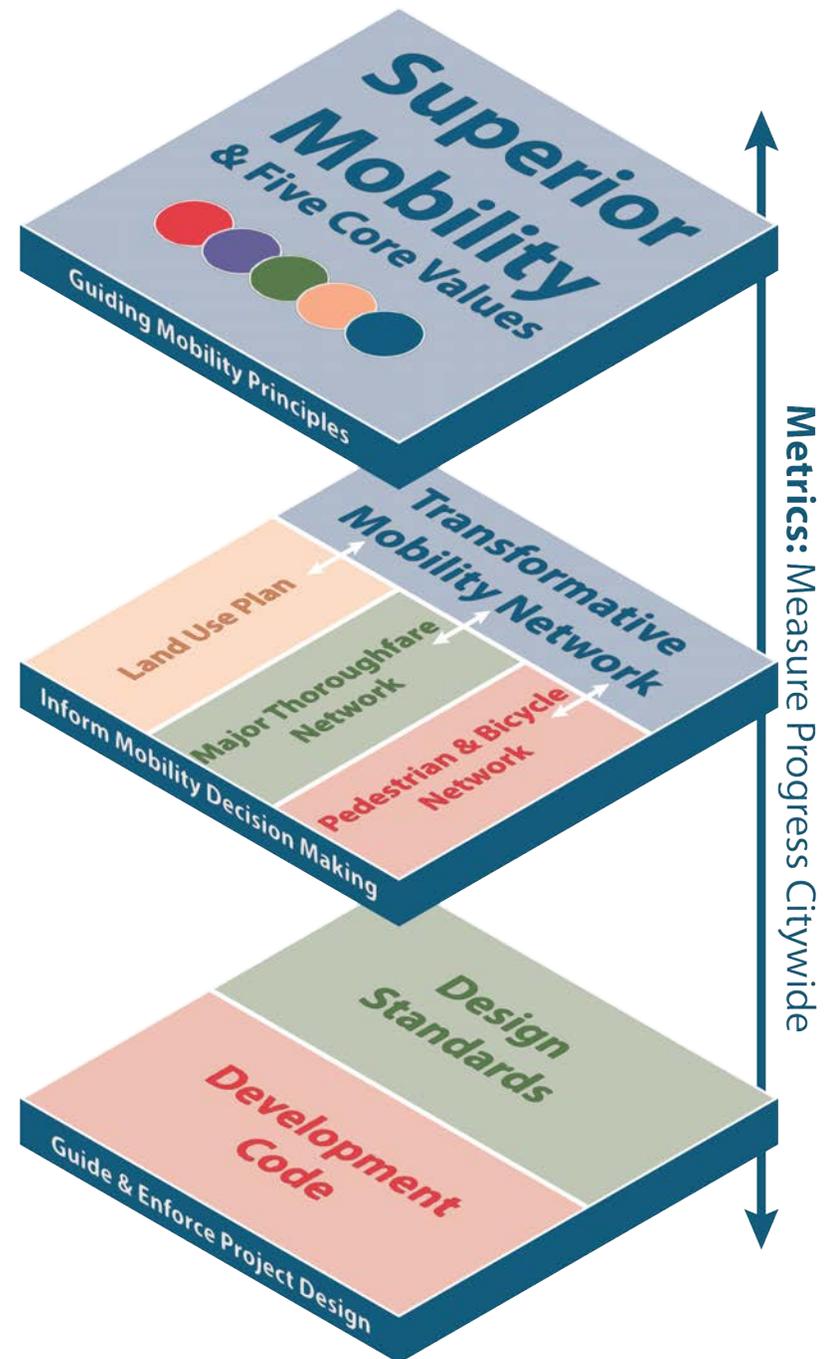
Source: City of Sugar Land and Team Analysis, 2020

- Separated (shared use path, sidepath, bridges)
- Delineated (bike lane, buffered bike lane)
- Shared (shared lane, signed route)
- Pedestrian and/or Bikeway Connection Opportunity

Layering Mobility Networks, Design Standards, & Development Code

The Major Thoroughfare Network, the Pedestrian & Bicycle Network, and the Land Use Plan are supported by the City’s Design Standards and Development Code and have been used to inform the City in mobility decision making and project definition. These existing tools will be updated based on this Plan, as outlined within the **Strategies and Action Items** in Chapter 4, and will be layered with the **Transformative Mobility Network** detailed in Chapter 3. The Land Use Plan, Major Thoroughfare Network, and Pedestrian & Bicycle Network should help inform potential improvements and needs for the TMN. Similarly, they may provide direction for any necessary projects that arise outside of the TMN because they include a larger number of streets.

Together, these documents create the City’s regulatory and policy framework to guide all mobility decision making. They are united underneath the vision of Superior Mobility and Five Core Values, and tied to the overarching **Six Mobility Metrics**. These regulatory and policy tools will be the key inputs for the Implementation Framework presented within this chapter.



Implementation Framework: Three-Pronged Approach

The Implementation Framework will serve as the platform for three departments — Public Works, Planning & Development Services, and Engineering — to make deliberative and data-driven mobility decisions. It is designed to be action-oriented, proactive, and adaptive. It is intended to be flexible as mobility decision making is not prescriptive or overly formulaic. The Implementation Framework is to be used at all levels of mobility decision making from annual Capital Improvement Program (CIP) decisions and large citywide projects to the development of corridor studies and small area plans.

The Implementation Framework is a 3-stage approach for planning and constructing projects from major capital improvements to routine resurfacing. It gives a framework that helps the City move toward a unified vision of safe, comfortable, and convenient mobility for all. Each of the three stages—Opportunity Analysis, Project Definition, Mobility Funding Options—is detailed further in this chapter and rely on actionable tools for City staff to utilize.

Opportunity Analysis

What needs to change to make a complete street?

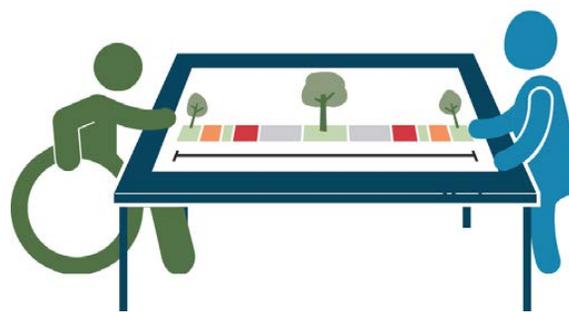


Implementation Tools

- Transformative Mobility Network
- Land Use Plan
- Metrics Data within an Interactive Mobility Map

Project Definition

What should mobility improvements look like?

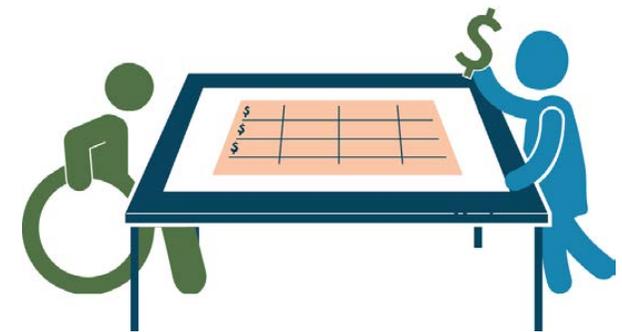


Implementation Tools

- 4-Step Project Definition Process
- Design Standards
- Major Thoroughfare Network
- Pedestrian & Bicycle Network

Mobility Funding Options

How are projects and programs funded?



Implementation Tools

- Funding Matrix
- Future Funding Database (Action Item N.2)

Implementation Framework: Opportunity Analysis



Opportunity Analysis

Overview

Opportunities arise from need. As the City invests in improvements along the TMN, the primary motivation will be the need for safe multimodal facilities that expand access to opportunities for Sugar Land residents. The Opportunity Analysis will help determine where to start. While corridors along the TMN may have a variety of needs, the Opportunity Analysis focuses on identifying corridors with the most evident and urgent needs. This stage of the Implementation Framework will ensure that all mobility investment decisions align with the Plan's Core Values and ultimately answer the question: *what needs to change to provide quality mobility options for all?*

Tools

When staff meets to perform the Opportunity Analysis, they will start with the TMN and the Metrics Data included in the Interactive Mobility Map. These two tools provide a basis for discussion between departments about corridor needs using data tied to the Six Mobility Metrics. Using this process to intentionally select corridors will help the City achieve success in those metrics.

Guiding Principles

Opportunity Analysis for new projects is rooted in the following principals, explained further in this chapter.

- 1 Complete Streets
- 2 No Bad Choices
- 3 Data-Driven Decisions

**What needs to change
to make a complete street?**



Implementation Tools

Transformative Mobility Network
Metrics Data within an Interactive Mobility Map

Opportunity Analysis Principle 1: Complete Streets

Complete Streets provide space and options for multiple modes and people of all ages and abilities. While today many corridors on the TMN provide for efficient vehicle throughput, a majority are incomplete, providing little to no space for people walking, biking, wheeling, and using transit. **Figure 6.3** shows that today while 100% of the TMN streets provide space for cars, only 33% provide sidewalk on both sides of the street for pedestrians, and less than 5% provide dedicated space for bicyclists. Thus, while projects may ultimately be selected for a variety of reasons, the foremost need for any project should be to construct Complete Streets.

According to the Federal Highway Administration, **“a Complete Street is safe, and feels safe, for all users”** regardless of mode. This includes “pedestrians, bicyclists, public transportation users, children, older individuals, individuals with disabilities, motorists, and freight vehicles.”

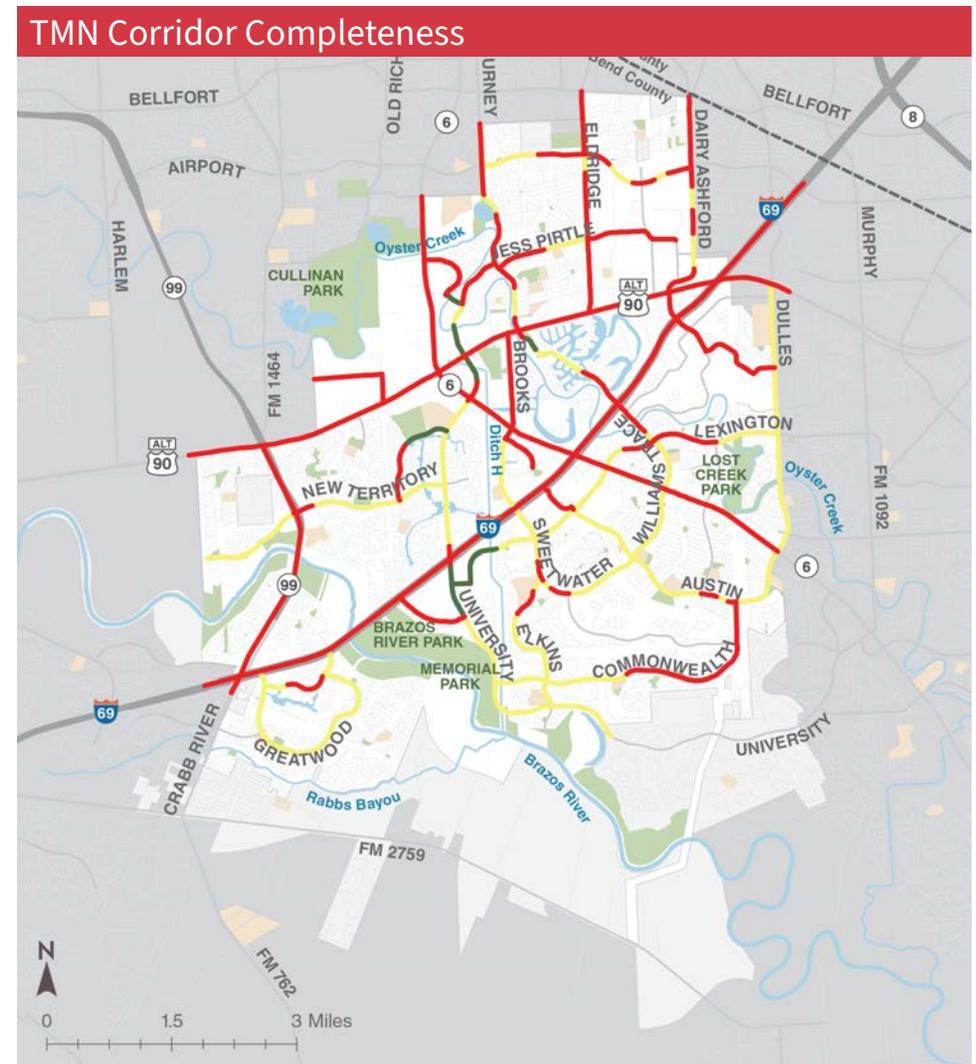


Figure 6.3 Visualization of TMN Corridor Completeness Assessment Source: Team Analysis 2022

- Corridor Completeness
- Serves 1 Mode
 - Serves 2 Modes
 - Serves 3 Modes

Opportunity Analysis Principle 2: No Bad Choices

Every corridor along the TMN has the potential to make a significant impact on mobility in Sugar Land. This, combined with the Five Core Values and commitment to Complete Streets means that every project along the TMN is a good project for mobility. **Figure 6.4** shows the TMN broken into 25 on-street and off-street, each of which have opportunities for multiple projects of varying scales. The boundaries for these projects were created to intentionally extend across key barriers such as large intersections and the Brazos River. The table on this page provides a full list of the corridors. The extents of each segment can be found on page 52.

TRANSFORMATIVE MOBILITY NETWORK CORRIDORS	
On-Street	1 Eldridge Rd
	2 South Dairy Ashford Rd/ Sugar Creek Blvd/ Fairway Dr/ Broadmoor Dr
	3 Dulles Ave/ Austin Pkwy
	4 West Airport Blvd
	5 Jess Pirtle Blvd/ Industrial Blvd/ Reed Rd
	6 Burney Rd/ Main St/ Bay View Dr/ Sugar Lakes Dr/ Williams Trace Blvd
	7 Brooks St/ First Colony Blvd/ Sweetwater Blvd/ Williams Trace Blvd
	8 Austin Pkwy
	9 Lexington Blvd
	10 Elkins Rd
	11 Commonwealth Blvd
	12 University Blvd South of New Territory Blvd
	13 Crown Garden Trail/ Imperial Blvd + Stadium Drive/University Blvd
	14 John Sharp Rd
	15 New Territory Blvd and Chatham Ave
	16 Riverbrook Dr and Greatwood Parkway Loop
Off-Street	17 Brazos River Greenway
	18 East Utility Corridor Greenway
	19 Oyster Creek Greenway
	20 City Park Greenway
	21 Cullinan Park Greenway/Gannonway Greenway
	22 New Territory Trail
	23 Sugar Land Trail
	24 Bullhead Bayou Greenway
	25 Soldiers Field Dr/Mall Ring Rd/Meadow Lake Park Greenway

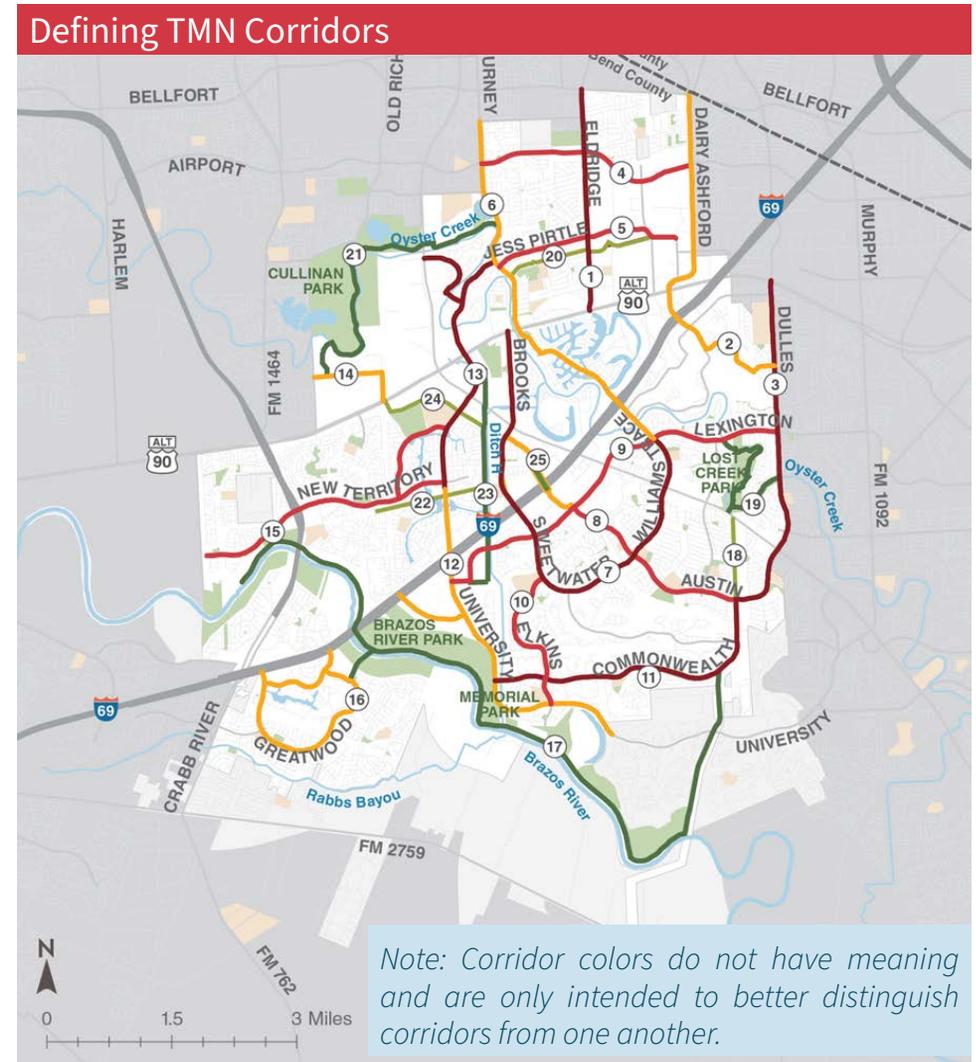


Figure 6.4 TMN Corridors

Source: Team Analysis, 2022

Transformative Mobility Network

- On-Street
- On-Street
- Off-Street
- Off-Street

②① Corridor Label

Opportunity Analysis Principle 3: Data Driven Decisions

While there are no bad choices for where to start, Sugar Land will need to start somewhere to identify specific corridors for the short term to prepare for grant applications, CIP funding, maintenance, additional planning, and many other activities. The table on this page shows how the Six Mobility Metrics, introduced in Chapter Five, can be used to prioritize corridors for selection in alignment with the Core Values. The supporting data corresponding to each metric is available in the Interactive Mobility Map. The Interactive Mobility Map was created for this plan and is an online, living, georeferenced, GIS data map. This map is designed to allow staff, public officials, and community members to easily toggle layers on and off and compare corridors to each other.

Not all of this data currently exists, and City staff will need to initiate Action Items that will help collect, analyze, and present this data on the Interactive Mobility Map. Overlapping impacts of all six metrics layers will determine how corridors are ultimately scored and prioritized. See Appendix J for an overview of all metrics data.

Table 6.1 Using Six Mobility Metrics for Opportunity Analysis and Corridor Selection

Metric	Core Values	Key Questions	Metrics Data
Safety	 	<ul style="list-style-type: none"> » What is the crash rate along this corridor? » How many fatal and/or serious injury crashes have occurred on this corridor? » Is there a speeding issue along this corridor? 	<ul style="list-style-type: none"> » Corridor crash rate per 100 million VMT » Number of fatal and serious injury crashes; number of pedestrian and bicycle crashes » Observed vehicular speeds vs. posted speed limit
Destination Connectivity	   	<ul style="list-style-type: none"> » How many Neighborhood and Regional Activity Centers are along this corridor? » How many people have access to the Activity Centers within 1/2 mile walk along the corridor? » How many people have access to the Activity Centers within 1/2 mile bike ride along the corridor? 	<ul style="list-style-type: none"> » Activity Centers along or near corridor » Pedestrian connectivity to Activity Centers » Bicycle connectivity to Activity Centers
Increased Mobility	   	<ul style="list-style-type: none"> » How much multimodal mobility capacity could be added to this corridor? » Which mode(s) are missing and/or need improvements? » Can we increase freight mobility along this corridor? 	<ul style="list-style-type: none"> » Corridor completeness/modes served » Planning-level corridor Level of Service (LOS) » Number of blocked rail crossings within past year
Network Conditions	  	<ul style="list-style-type: none"> » What are the infrastructure conditions along this corridor? » Are the conditions for one mode disproportionately better or worse? 	<ul style="list-style-type: none"> » PCI (Pavement Condition index) for the corridor » Environmental quality index score for sidewalks and trails » Level of Traffic Stress (LTS)
Active Lifestyles	 	<ul style="list-style-type: none"> » What are the current counts of people walking and biking on this corridor (if data exists)? » What destinations and/or trip generators exist along this corridor? 	<ul style="list-style-type: none"> » Count data » Destinations points including parks, schools, and other key civil/community destinations along the corridor
Community Satisfaction	 	<ul style="list-style-type: none"> » What comments/requests have been made by the public? 	<ul style="list-style-type: none"> » Citizen satisfaction survey » Safety issue inquiries, connectivity issue inquiries, network condition issue inquires

Opportunity Analysis in Practice

The City can use the Opportunity Analysis and supporting metrics data in a variety of ways to identify corridor priorities. Each metric can be posed as a question that helps determine the level of need for a corridor.

Figure 6.5 illustrates how those questions can inform discussions about multiple corridors.

Using guidance from the Mobility Task Force (MTF), the Six Mobility Metrics are also assigned weights based on importance, see the table on this page. Each metric has a distinct weight and they sum to a total of 100 points. A higher weight indicates that a metric should be given more consideration relative to others during mobility decision making. MTF members assigned the highest weight to Safety (35 points) in keeping with feedback throughout the course of the Plan. This gives the City a directive to make safety the main priority when reviewing corridors for priorities. Destination Connectivity and Network Conditions both received 20 points, indicating the Opportunity Analysis utilizes the weighted metrics to facilitate a data-based discussion among staff and leadership to determine the best path forward.

Metric	Weight (out of 100)
Safety	35 pts
Destination Connectivity	20 pts
Increased Mobility	10 pts
Network Conditions	20 pts
Active Lifestyles	5 pts
Community Satisfaction	10 pts



Figure 6.5 Using the Implementation Framework to Select Between Two Corridors

Opportunity Analysis: TMN Corridors

Using Metrics for Prioritizing

These metrics and their weights can be applied to the full TMN as a way to identify needs across the network. It is important to note that any analysis of metrics should be used as a starting point for discussion among staff, community members, and City leadership and never as a final answer about where to invest. The metrics data provides a strong foundation for well-informed decisions, and the City must add to this quantitative analysis by considering a number of other key factors. These other factors can include:

- » Ongoing or planned projects that impact other corridor priorities
- » Geographic equity across the City
- » Resiliency of the transportation network
- » Available funding opportunities
- » Trends in recent community feedback and outcomes of City planning initiatives

Likewise, as described by the Opportunity Analysis Principle 2 on previous pages, there are no bad choices when it comes to improvements on the TMN. A Core Values-driven investment anywhere on the TMN should yield positive results for the City.

The tables on this page and the next page demonstrate how the weighted metrics can be used to understand and compare TMN corridors. The data and scoring shown here is just a starting point. The City should continue to adjust and refine this process as new data is collected, analyzed, and discussed. In addition, City staff should review the weights developed by the MTF yearly to ensure they still align with City objectives. Staff should make adjustments to ensure that the outcomes are in line with the Five Core Values.

These tables and point distributions are also useful for the other steps of the Implementation Framework when data is required to support project prioritization and selection.

Table 6.2 Using Metrics Data for Opportunity Analysis and Corridor Selection

Metric	Weight	What Data Indicates High Need/Importance?
Safety	35 pts	<ul style="list-style-type: none"> » High corridor crash rates (per 100 million VMT) » Evidence of speeding (high differential between observed vehicular speeds and posted speed limit)
Destination Connectivity	20 pts	<ul style="list-style-type: none"> » Proximity and existing connections to Regional and Neighborhood Activity Centers
Increased Mobility	10 pts	<ul style="list-style-type: none"> » Poor corridor level of service (indicating high corridor delay) » Incomplete corridors (only serving one mode) » High number of blocked rail crossings
Network Conditions	20 pts	<ul style="list-style-type: none"> » Poor pavement condition (based on pavement PCI) » Poor sidewalk/trail condition » High-stress for people biking (based on Level of Traffic Stress)
Active Lifestyles	5 pts	<ul style="list-style-type: none"> » High number of destinations such as parks, schools, places of worship, community centers, etc.
Community Satisfaction	10 pts	<ul style="list-style-type: none"> » High number of reported concerns from community members over a 3 year period including: safety issue inquiries, connectivity issue inquiries, and network condition issue inquires

Opportunity Analysis: Priority TMN Corridors

Table 6.3 Example Rubric to use Metrics Data for Opportunity Analysis and Corridor Selection

Scoring Corridors

As previously mentioned, there is data to still be collected by the City. However, an initial “score” for all TMN corridors can be developed using the data that is currently available. The data and scoring shown on this page is only the first iteration and is meant to exemplify the process the City will conduct on a regular basis as corridor opportunities are assessed. The table to the right (**Table 6.3**) shows an example rubric based on the weighted metrics developed by the MTF. The rubric shows the indicators used for each metric and how they total to the full weight of that metric. Each data set has a variety of data inputs for scoring. The example rubric only shows the categories that will get the maximum available points or the lowest available points.

The lowest amount of points are assigned to the data points indicating the highest need for investment. Scores for each corridor are summed and **the lowest scored corridors have the highest need for investment** and are prioritized.

	Indicators		Point Allocation	Maximum Score
Safety (35 pts)	Crash Rate (per 100 million VMT)	High crash rate	Highest Points	20
	Difference between posted & observed speeds	Large difference	Highest Points	15
Destination Connectivity (20 pts)	Corridor does not connect to a RAC or NAC		Highest Points	20
	Corridor directly connects to one or more NAC or RACs		Lowest Points	
Increased Mobility (10 pts)	Planning Level Corridor Level of Service (LOS is scored from A to F)	LOS C or better	Highest Points	4
		LOS F	Lowest Points	
	Network Completeness	3 or more modes	Highest Points	4
		1 mode	Lowest Points	
Number of blocked rail crossings within past year	Less than 2	Highest Points	2	
	5 or more	Lowest Points		
Mobility Network Condition (20 pts)	Roadway Pavement Condition (Score of 1 to 100)	80 or above	Highest Points	7
		20 or below	Lowest Points	
	Sidewalk/Trail Condition	TBD		8
Level of Traffic Stress for bicyclists (Score of 1 to 4; 4 = most stress)	1 - 1.99	Highest Points	5	
	4	Lowest Points		
Active Lifestyles (5 pts)	Corridor connects to parks/recreation facility	0	Highest Points	2
		2 or more	Lowest Points	
	Corridor connects to schools	0	Highest Points	2
		2 or more	Lowest Points	
Corridor connects to other community destinations	0	Highest Points	1	
	2 or more	Lowest Points		
Community Satisfaction (10 pts)	Safety Issue Inquires	10 or more	Highest Points	5
		Less than 4	Lowest Points	
	Connectivity Issue Inquires	10 or more	Highest Points	3
		Less than 4	Lowest Points	
Network Condition Issue Inquires	10 or more	Highest Points	2	
	Less than 4	Lowest Points		
Total				100
<i>Lowest scored corridors have the highest need for investment</i>				

Prioritized Corridors

PRIORITIZING CORRIDORS FOR INVESTMENT

All on-street segments of the TMN were scored using the rubric in **Table 6.3**. Scoring each corridor provides a useful starting point for the City in identifying key areas for investment. As stated in previous pages, metrics data will continue to be collected and refined throughout the city resulting in this exercise of scoring corridors to be a first iteration of what will become a frequent practice for the City.

Some TMN corridors were segmented to account for recently completed projects along a corridor. This allowed for areas of need along each corridor to be more accurately defined. The corridor prioritization analysis grouped corridors into three tiers, as presented in **Figure 6.6**. All corridors demonstrate a need for investment; however Tier 1 corridors scored the lowest (indicating the most need for investment). The five Tier 1 corridor segments are listed within **Figure 6.6**. The City has begun to define preliminary details and concepts for each corridor as an input into the Project Definition step of the Implementation Framework. These preliminary concepts are included in **Appendix M**.

BUILDING UPON PREVIOUSLY DEFINED CONCEPTS

As the Mobility Plan was underway, the City faced important decisions for every new funding cycle and grant announcement. The City continued to develop and refine its list of mobility improvement concepts for each funding opportunity and began to use the tools of the Implementation Framework to outline a preliminary priority list of corridors and project concepts. This preliminary list, included in **Appendix M**, has been used to supplement and enhance the list of candidate projects to be used for near-term calls for projects, Capital Improvement Program (CIP) development, and bonding opportunities. This list has also been refined to ensure alignment with the **Five Core Values**.

The outputs of the Corridor Prioritization (**Figure 6.6**) and the refined list of mobility project concepts (**Appendix M**) are key inputs into the Project Definition step to define priority mobility projects and programs. This list is the first step in developing a cohesive and comprehensive list of mobility projects and programs to support the City in achieving Superior Mobility.

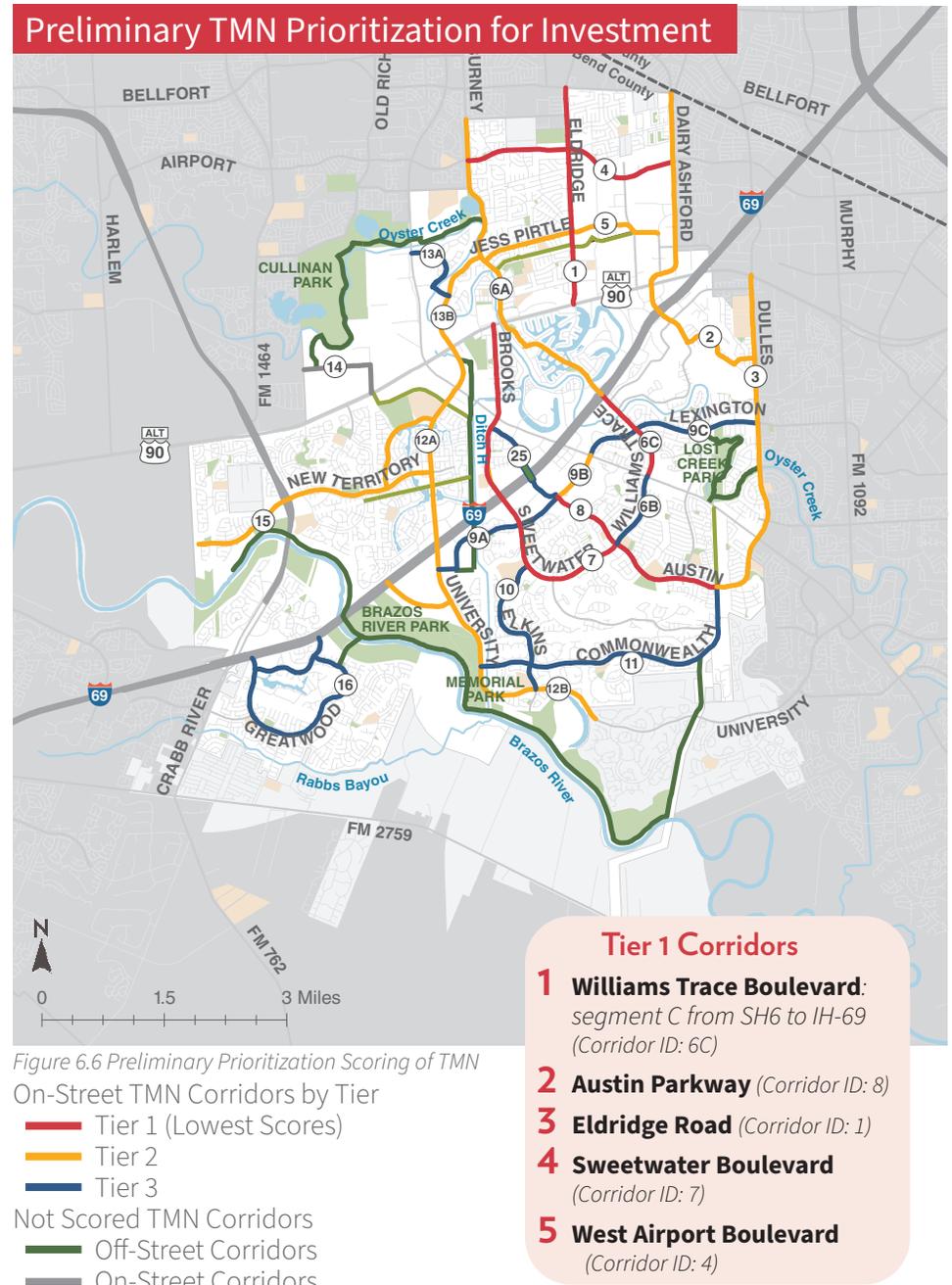


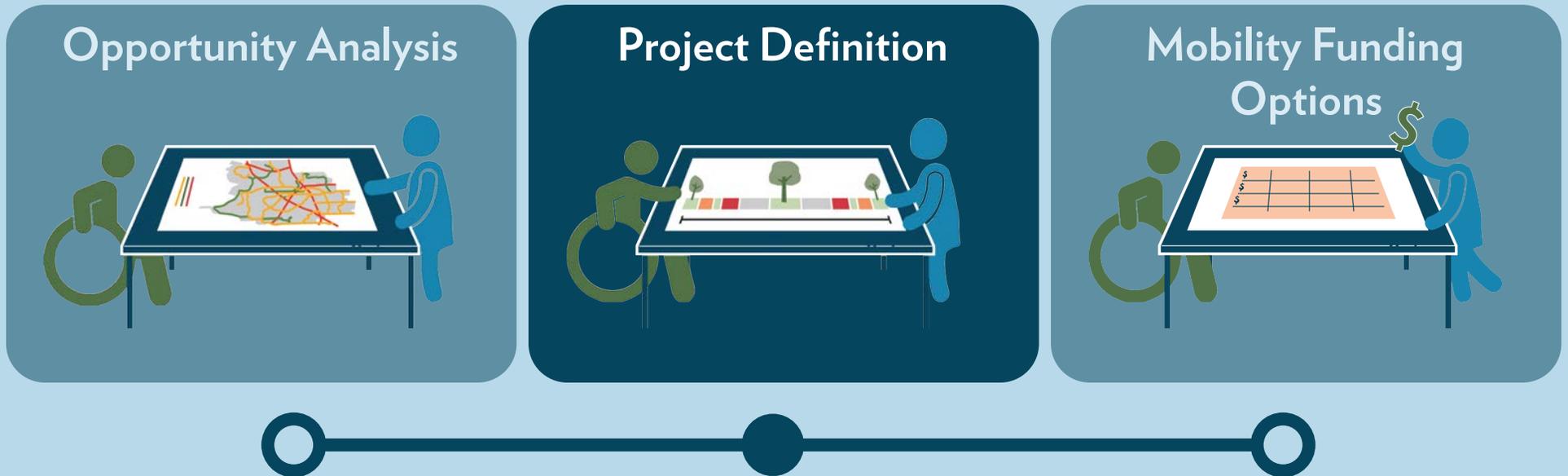
Figure 6.6 Preliminary Prioritization Scoring of TMN

On-Street TMN Corridors by Tier

- Tier 1 (Lowest Scores)
- Tier 2
- Tier 3

- Not Scored TMN Corridors
- Off-Street Corridors
 - On-Street Corridors

Implementation Framework: Project Definition



Project Definition

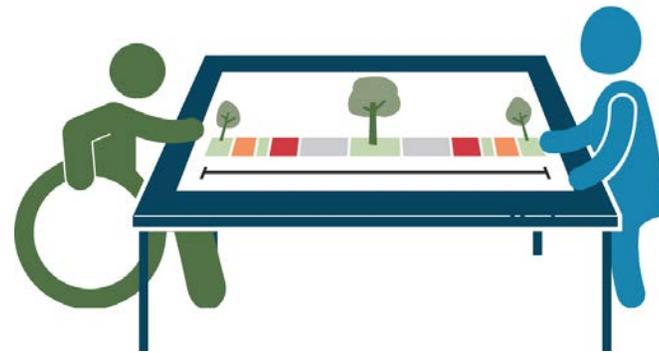
Overview

Once a corridor has been selected through the Opportunity Analysis, the next step is to define the specifics of a project, including the extent of the project and roadway design. The following steps are designed to guide the process of moving from corridor to project and can also be used to refine the type of project and determine details for budgeting. Each step includes key questions that should be discussed and answered during the Project Definition phase.

The Project Definition phase of the Implementation Framework is built around a Four-Step process to arrive at a final project cross section. The four steps are:

- 1 Define Purpose:**
What should this corridor do?
- 2 Identify Need:**
Who doesn't have enough space? Who feels unsafe?
- 3 Assess Current & Proposed Conditions:**
How much space is available?
- 4 Identify a Cross Section:**
How do we leverage space?

What should mobility improvements look like?



Implementation Tools

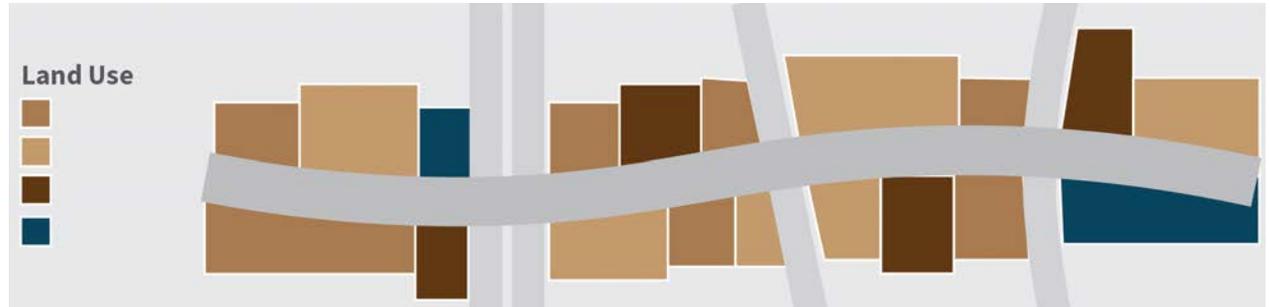
Four-Step Project Definition Process
Design Standards
Major Thoroughfare Network
Pedestrian & Bicycle Network

Step 1: Define the Purpose

Key Questions

- » What should this corridor do or accomplish?
- » What type of corridor is this? (Heavily trafficked commuter route, neighborhood connection, in an industrial area, etc.)

Understanding the purpose of a corridor frames the types of projects that will be needed. This first step includes analyzing land use and development patterns along the corridor, as well as identifying nearby destinations such as parks, schools, and activity centers that will impact the corridor's mobility needs.



Step 1 Sweet Lake Lane Example:

Sweet Lake Lane is a *hypothetical* three mile roadway that Sugar Land staff identified as a high-priority corridor during a recent Opportunity Analysis workshop because of a disproportionately high number of crashes in the last five years.

Staff use **Step 1** of the Four-Step Project Definition process to investigate the corridor further. The roadway carries approximately 14,000 vehicles per day and serves two elementary schools and one middle school in an otherwise residential part of the City. The corridor also terminates in a major retail hub that is a Regional Activity Center identified in the Land Use Plan.

Staff determine that this corridor should focus on serving its key destinations. Specifically, most of the corridor is a main connector between schools and surrounding neighborhoods with one end serving as a key link to a major commercial center.

Note: Sweet Lake Lane is a hypothetical corridor to demonstrate the Project Definition process.

Step 2: Identify Need

Key Questions

- » Who doesn't have enough space?
- » Who feels unsafe or uncomfortable?
- » What facilities exist for people driving, walking, and biking?

This step takes the themes of the Opportunity Analysis and applies them on a more granular level to a specific corridor. Because of the importance of planning on a network scale, this step should also consider connections that can be made to other existing multimodal facilities or TMN corridors as well as key barriers that may need to be overcome.



Step 2 Sweet Lake Lane Example:

Once the key needs of the corridor have been identified, staff take an in-depth look at the roadway infrastructure to determine what does or does not exist. In the case of Sweet Lake Lane, the roadway has four vehicle travel lanes with a tree-lined median and center turn lanes along its length. There are no bikeways along the corridor but both sides of the street have 6-foot sidewalks except for the three blocks to the west of the middle school. A proposed 12-foot trail will soon intersect Sweet Lake Lane where it crosses Imperial Canal. Recent community engagement has highlighted residents' frustration with speeding drivers along the street.

This review of the street's infrastructure has revealed that the street is lacking key infrastructure for people biking and for people walking, particularly near the middle school. There are opportunities to make better pedestrian and bicycle connections along the length of Sweet Lakes Lane and improve all crossings in the process.

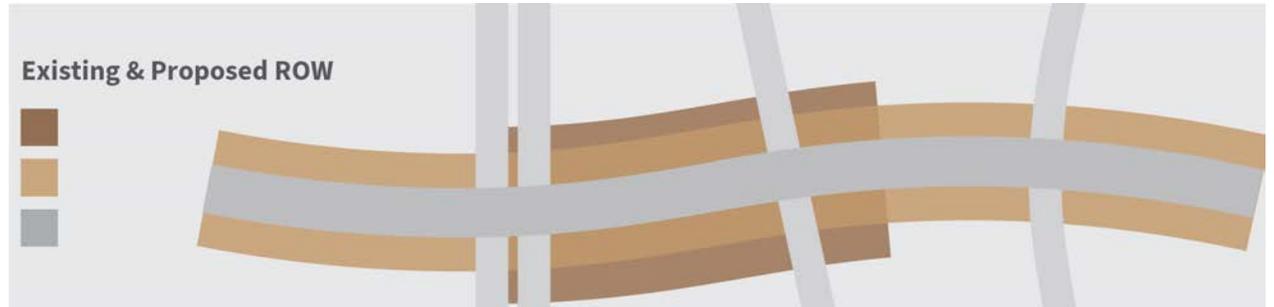
Note: Sweet Lake Lane is a hypothetical corridor to demonstrate the Project Definition process.

Step 3: Assess Current & Proposed Conditions

Key Questions

- » How much space is available?
- » How much space is the City planning to use for Mobility along this corridor?

Once the purpose of a corridor has been determined and the mobility needs have been identified, the specific physical conditions of the corridor should be assessed. This includes referencing the current and proposed right-of-way from the Major Thoroughfare Plan as well as other City documents which may have currently proposed projects.



Step 3 Sweet Lake Lane Example:

Diving further, the pavement width of Sweet Lake Lane is 60 feet for its entire length but right-of-way fluctuates. West of Space Cowboy Drive (*another hypothetical street*), right-of-way is 90 feet (15 feet behind the curb on both sides of the street); east of Space Cowboy Drive right-of-way is 100 feet (20 feet behind the curb on both sides of the street). The portion without a sidewalk near the middle school is near the 90-foot right-of-way.

Note: Sweet Lake Lane is a hypothetical corridor to demonstrate the Project Definition process.

Step 4: Identify a Cross Section

Key Questions

» How do we leverage space?

The previous three steps identify the overall purpose of a corridor, who does or does not have adequate infrastructure, and how much space is available to work with. Completing these steps should lead to the final step of identifying a multimodal cross section for a project that provides a Complete Street. The final project will incorporate findings from the previous steps and fall into one of three types:

MAINTAIN Segments of the corridor where existing facilities are adequately serving mobility needs. These areas may only require routine maintenance projects to ensure they continue functioning at their best.

BUILD NEW Corridor segments where more space is required for multimodal mobility and there is available (or planned) right-of-way to expand. Projects may include adding high-comfort bikeways, sidewalks, or additional infrastructure outside of the roadway width.

REPURPOSE Corridor segments that are built out to their maximum width. Projects here will require creatively repurposing existing right-of-way to meet corridor's purpose and needs. Projects may include reducing lane widths to add bicycle or pedestrian facilities, or repurposing a wide median to accommodate new storm-water infrastructure.



Step 4 Sweet Lake Lane Example:

Staff now have all the tools necessary to identify an ideal set of projects that can meet the needs of all users for this corridor. Given the changing right-of-way width on either side of Space Cowboy Drive, staff identified two distinct projects. The first project (on the east side) has sufficient right-of-way to **Build New** 10-foot shared-use paths to replace the sidewalks on both sides of Sweet Lake Lane. This will provide a safe, protected facility for people to walk and bike to destinations, particularly the schools. The second project (on the west side) does not have as much right-of-way, so will **Re-Purpose** one vehicle lane in each direction to make room for a protected bike facility in both directions. Vehicular volumes and corridor capacity analysis indicate there is sufficient capacity for the lane conversion. The project will also fill in the three-block gap of sidewalk connecting to the middle school. For both projects, the City will also invest in intersection improvements like high-visibility crosswalks and narrowed curb radii that increase visibility of people walking and biking and encourage responsible speeds along the corridor.

Note: Sweet Lake Lane is a hypothetical corridor to demonstrate the Project Definition process.

Tools for the Project Definition Step

Four-Step Project Definition Process

The core of the Project Definition step is its four steps to arrive at a design. These steps incorporate much of what the City is already doing to identify project designs. These four steps add credence to existing City processes and asks questions specifically targeted to achieve the goals of this plan.

Updated Standards & Codes

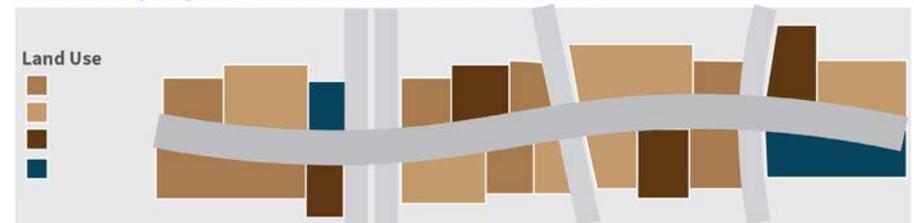
The Project Definition process is only as strong as the City's governing codes and standards that apply to street design. The adoption of this plan codifies a Complete Streets approach to mobility investments through the tools of the Transformative Mobility Network and Implementation Framework.

Several **Strategies & Action Items**, particularly those grouped under **Strategy B**, instruct staff to update specific regulatory language in the **Design Standards** and **Development Code**. The updated standards and codes will be particularly useful for steps three and four of the Four-Step Project Definition process.

The City should ensure standards and codes meet national best practices for safe and comfortable mobility infrastructure to support the vision of Superior Mobility. As projects are defined, the geometry of corridor cross-sections and intersection configurations will be dictated by both needs of the corridor along with City's standards. Standards can dictate everything from minimum lane widths, design of turn-lanes, widths of safety buffers, corridor design speeds, and other critical geometric design elements of a roadway.

There is finite space within the public right-of-way and balancing needs and required space constraints is a critical step in developing high-comfort and safe corridors for all roadway users.

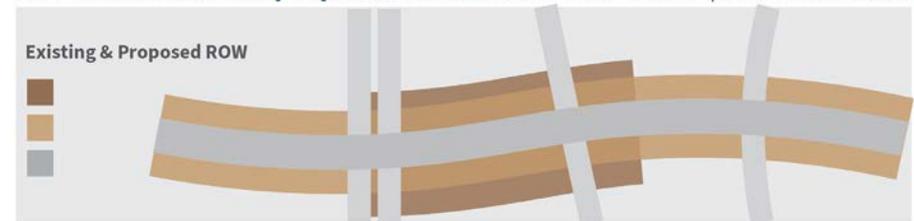
1. Define purpose: What should this corridor do?



2. Identify need: Who doesn't have enough space? Who feels unsafe?



3. Assess current & proposed conditions: How much space is available?



4. Select or identify a cross section: How do we leverage space?



Adapting Metrics for Project Prioritization & Selection

Table 6.1 and **Table 6.2** illustrated how data supporting the Six Mobility Metrics can be used during the Opportunity Analysis step of the Implementation Framework to identify which corridors should be prioritized for investment. Data supporting the Six Mobility Metrics can also be utilized after the completion of the Project Definition step when the City is identifying which projects to implement first. **Table 6.4**, at right, presents how the Six Mobility Metrics and the scoring rubric can be **modified to prioritize projects** instead of identifying corridor needs. Modifying the rubric presented in **Table 6.3** allows for the City to compare defined projects and prioritize where investment is needed most. Using data from the Six Mobility Metrics to define areas of investment ensures the City is focusing on projects that align with the Five Core Values and will have a positive impact on mobility citywide.

INCORPORATING FUNDING OBLIGATION

Scoring for project prioritization and selection can also be expanded to include a funding obligation metric. Unfortunately, there will be more mobility projects to implement than dollars available. The next section discusses the importance of growing the “funding pie” by diversifying and expanding mobility funding options. In addition, **Strategy N** highlights the need to leverage local dollars with grants, partnerships, and other innovative financing solutions. Still, even as the City implements the Action Items from Strategy N, staff may only be able to advance projects with a lower financial obligation.

Therefore, when funding obligation can be estimated, the prioritization rubric can be expanded to allow for bonus points related to funding obligation from the City. This category will help prioritize projects that use funds from a variety of sources like grants and partnerships.

As previously stated, the data and scoring shown here is just a starting point. The City should continue to adjust and refine this process as new data is collected, analyzed, and discussed. A review of the data used and scoring methodology should occur yearly.

Table 6.4 Using Metrics Data for Project Prioritization and Selection

Metric	What Data Indicates High Need/Importance?	Weight
Safety	<ul style="list-style-type: none"> » High crash rates (corridor and intersection) along a defined project extent » Evidence of speeding (high differential between observed vehicular speeds and posted speed limit) 	35 pts
Destination Connectivity	<ul style="list-style-type: none"> » The project is near, and provides connection to, Regional and Neighborhood Activity Centers 	20 pts
Increased Mobility	<ul style="list-style-type: none"> » The project extents have poor corridor level of service and high corridor and/or intersection delay » The project will serve all modes and create a complete street » High number of blocked rail crossings along the project extents 	10 pts
Network Conditions	<ul style="list-style-type: none"> » The existing pavement condition is poor » The existing sidewalk/trail condition is poor » The existing Level of Traffic Stress is high 	20 pts
Active Lifestyles	<ul style="list-style-type: none"> » The project will serve a high number of destinations such as parks, schools, places of worship, community centers, etc. 	5 pts
Community Satisfaction	<ul style="list-style-type: none"> » The project extents include a high number of reported concerns from community members over a 3 year period including: safety issue inquiries, connectivity issue inquiries, and network condition issue inquires 	10 pts
Total Project Points		100 pts
Bonus Points		
<i>To be used when funding obligation is known or can be estimated with confidence</i>		
Funding Obligation	<ul style="list-style-type: none"> » The project will require a low percentage of financial obligation from the City 	10 pts

Tools for the Opportunity Analysis Step

Transformative Mobility Network

The TMN serves as the starting point for all staff discussions about mobility improvements. Any investment in the TMN will maximize the impact of the City funds, staff capacity, and other resources. Staff in all three departments should grow familiar with the TMN corridor map and how the network connects major Sugar Land destinations.

Interactive Mobility Map

With the TMN as its primary focus, the Interactive Mobility Map allows staff and leadership to view TMN corridors in their broader context by showing data related to land use and destinations, safety, existing mobility conditions, and other data for all modes of travel.

The data in the Interactive Mobility Map will also correspond to the data collected for the Six Mobility Metrics. This will ensure that City decisions are made with the most complete set of data to move the needle on the Plan's Core Values.

The Interactive Mobility Map should be shared widely across the three departments and used as a tool to guide discussions about corridor selection. In cases where staff have identified a funding opportunity, the Interactive Mobility Map and its data can be used to locate the most effective corridors for that funding.



The Interactive Mobility Map recognizes that all modes are interrelated and exist within a broader context.

Implementation Framework: Mobility Funding Options



Mobility Funding Options

How are projects and programs funded?

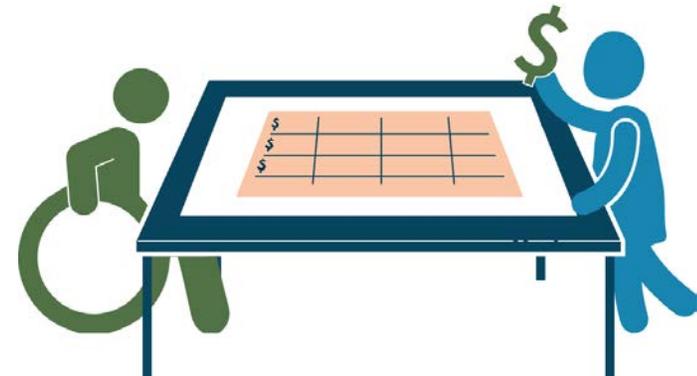
Overview

Implementation is inherently tied to resource availability, particularly funding. It will be essential for Sugar Land to identify multiple funding streams in addition to the existing local funds to support fulfillment of the Mobility Master Plan. A focus should be on growing the number and variety of funding opportunities to increase the size of the “funding pie” available for project implementation. This will only become more critical as the City continues along its life cycle. The proposed Plan funding strategy incorporates:

- » City’s General Funds
- » Fees
- » Bonds
- » Financing Tools
- » Grants
- » Partnerships & Coordination

Each of these six funding mechanisms have independent utility to carry out the Plan and can be leveraged together for greater impact. The role and opportunity of each are identified over the next few pages. These funding strategies are also supported by the funding related Action Items outlined in **Strategy N**.

A mix and flexibility of funding is key for implementing successful and innovative projects. As projects get implemented and the needs change over time, the mix of funding should also be reconsidered to best adapt to the project types and needs.



Funding Sources

CITY’S GENERAL FUNDS

The City of Sugar Land’s General Funds are programmed in the Capital Improvement Program (CIP), which houses all capital expenditures in a given year. General funds are the least restrictive, allowing the City to focus its use on projects that may not be a good fit for other funding mechanisms. To cast the widest net for funding opportunities, it is important to strategically incorporate General Funds and the CIP into an overall strategy so all capital funding can be put to their highest and best use while also supporting coordination, grant, and partnership opportunities.

CIP FUNDING TARGETS

The CIP is one of Sugar Land’s most valuable funding tools. In order to maximize its use to implement mobility improvements, the City should develop funding targets that align with

the goals of this plan. For example, the City could establish a target percent of CIP funds to spend on safety-related projects.

Targets can be used as a guide to understand where additional resources are most needed to implement the Plan and target additional funding mechanisms to support those needs. Staff can seek input about funding targets from the community by using participatory budgeting strategies. This would help ensure that targets best represent community needs, even as those needs evolve over time.

While funding targets are important to establish, it is also important to adjust the targets on a cycle aligned with evaluation of the Six Mobility Metrics to ensure the funding targets are continually applicable and account for where previous spending has made meaningful progress toward the goals.

FEES

Fees have become a popular way of boosting available transportation funding. Fees can be an attractive funding mechanism as they are typically tied directly to the need and use. The City of Sugar Land has recently enacted a Stormwater Compliance Fee as a way to invest in stormwater and pollution infrastructure needs. Similar fees could be enacted to help fund transportation.

A transportation maintenance fee (TMF, sometimes called a “use fee”) is a monthly fee collected from residential and/or commercial properties. The fee is most commonly based on the use of transportation infrastructure as measured by the average number of trips generated by different types of land uses. Similar to other fees, there must be an established nexus between the fee and use of funding.

This funding source provides a stable source of revenue to maintain transportation infrastructure, such as streets, sidewalks, pedestrian crossings, bike lanes, shared-use paths, and medians. Due to the nature of the fee, it can only be used for maintenance and cannot be used for capital projects. By focusing the fee on maintenance activities, the City’s General Funds can be freed up to provide local match to grants or fund new mobility investments.

Development Impact Fees may also be a supporting funding mechanism for the City of Sugar Land. Development Impact fees are a form of value capture, meaning the fee is based on the expected increment of new use that is anticipated from a new or redevelopment

project. The fee would be able to help fund capital needs in relation to the impacts from the project. Impact fees can be a way to ensure development projects contribute positively to the surrounding transportation network and can aid in coordination with developers.

BONDS

The City of Sugar Land has successfully used bonding authority to provide funding for capital improvements. Bonding, from either the City or Fort Bend County is an important tool to coordinate with other funding mechanisms as the bond typically is required to be spent on pre-identified projects or categories of projects. Past bonding efforts have focused transportation funding on streets and trails, making meaningful progress. It will be important for future bonds to recognize the multimodal nature of the transportation network as developed in this plan and fund projects that help meet the Core Values and goals of the City.

FINANCING TOOLS

There are a range of financing tools available to local governments that can help move large projects forward by providing borrowing against future expected revenues and other federal funding assistance. Financing tools are most likely to be used in conjunction with other funding mechanisms and are most appropriately leveraged for projects that may be complex or too large to fund through other means but meet a significant community need, typically with regional or national importance. The following are key financing tools that may

be appropriate for the City to consider.

- » Transportation Infrastructure Finance and Innovation Act (TIFIA)
- » State Infrastructure Banks (SIBs)
- » Section 129 Loans
- » Grant Anticipation Revenue Vehicles (GARVEEs)
- » Private Activity Bonds (PABs)

PARTNERSHIPS & COORDINATION

Partnerships with other public agencies, developers, property owners, non-profit organizations, and businesses are key to successful implementation of projects that are supported in the community and obtain grant funding. The recommendations in this plan will add significant value to the community and may attract investment interest from other agencies, such as H-GAC, TxDOT, Fort Bend County, developers, businesses, and philanthropic/non-profit organizations. To coordinate and partner effectively, the City must be able to clearly identify the project and its benefits to the partnering entity. Additionally, partnerships and coordination can be utilized to provide information, gather public support, and build capacity. Fort Bend County, for example, may include a regionally important project in its list of funding for the Texas Department of Transportation’s (TxDOT) County Transportation Infrastructure Fund grant.

While non-traditional partners, like hospitals, non-profits, businesses, and developers may not typically play a large role as a funding partner, there are examples from across the

country where these entities have been key to multimodal project implementation. Hospitals, for instance, inherently understand the link between activity and health. Several hospitals across the United States are providing patient care in new and innovative ways by creating complete and “livable” streets that enhance health and livability in the community. Many times organizations can be leveraged to help provide programs that enable or encourage the community to be active and take advantage of new or improved infrastructure investments. Historically, AARP, the American Heart Association, and the Centers for Disease Control and Prevention have provided grant opportunities to facilitate healthy activity in the community and built environment.

Some communities have developed conditions on building permits that require the developer to help pay for mobility infrastructure on or adjacent to the project. This may include streets, sidewalks, trails, or bikeways. Creating incentives or opportunities for developers to work with the City to achieve mobility goals can create meaningful opportunities and leverage the City’s available capital funding.

In addition to partnerships with other agencies and organizations, continued coordination with the City’s 4B Corporation may facilitate opportunities to advance projects or ensure alignment of projects that are developed and constructed through multiple departments or agencies. As mobility is an important piece of economic development, ensuring alignment of the Plan with future economic development projects can help the City leverage its funds and obtain additional funding.

A key step is asking questions within economic development projects about the mobility needs. This will help identify alignment with the Plan and opportunities to coordinate on proposed projects to enhance their impacts. As the City has an existing Joint CIP Program within the 4B Corporation, there is potential to build on this program through partnership, particularly for street, traffic, and site improvement projects.

GRANTS

Grants can be an effective way to leverage local funding streams to increase the amount of projects or programs that can be implemented. Strategic use of grant funding can help focus local dollars on where they are most needed. It is important to be proactive to be successful with grant funding. This includes ensuring the City has available funding for the required local match, that it can handle the grant administration, and that projects are aligned with the goals of the particular grant to be competitive.

Grant opportunities occur at the regional, state, and federal levels. The table on the next page identifies a variety of funding sources and grants that can be used in pursuing implementation of this plan. The multiple grants identified should be a starting point for the City and do not represent an exhaustive list of grant opportunities.

In order to be competitive in the grant process, it is important for the City to match the right project(s) to the right grant. The desired outcomes of the grant program should be achievable through the project and the benefits should be well communicated in the

grant application. It may also be key to pair recommendations together to create larger, citywide or regional projects that can accumulate greater overall benefits as a program of projects that work together to achieve goals. Combining projects can increase the benefits and make projects more compelling and competitive for grant funding.

On the other hand, taking pieces of recommendations applicable to grant opportunities and moving them forward independently of a holistic project can also be a way to provide forward movement toward implementing a recommendation, particularly for large and complicated recommendations that will ultimately require significant financial resources. The key is to understand the funding opportunity available, choose the right project, and be flexible to be competitive.

Beyond a targeted and strategic approach to grants, it is important for the City to ensure staff has capacity to pursue grant funding. Cities that have been successful in making grants a part of their funding strategy have dedicated staff to develop relationships with funding agencies, track grant application timelines to be prepared for their release, and work across departments to coordinate a variety of grant opportunities.

Action Item N.1 states: Hire a grants coordinator staff member to proactively lead and pursue grant and funding opportunities.

Grant Opportunities Matrix

The following funding matrix provides a starting point for identifying grant opportunities and developing a strategy for how to target and support these opportunities in conjunction with other funding mechanisms. The matrix is not an exhaustive list of all potential funding. It is based on existing grant programs that are most likely applicable to the City and will likely change over time. Working with other agencies may be required to be eligible for some funding opportunities. Additionally, the eligible areas of funding below are general and do not cover every potential type of project or project component. Grants outside of transportation may have eligible built environment or mobility components that can be included in funding. Emergency management grants, for example, may provide opportunities to improve safety for all users while ensuring emergency access within the community. City staff should continue to update and refine this matrix and eventually develop a usable database of funding options (**Action Item N.2**).

Grant	Source	Bicycle Improvements	Pedestrian Improvements	Multi-Use Trails	Mobility Safety	Intersection Improvement	ITS/Signal Improvements	Transit Enhancements	Active Transportation Programs	Safety Programs	Access Management	Added Capacity	Traffic Calming	Maintenance	Lighting	Streetscaping	Wayfinding/Signage
Community Challenge Grants	AARP	○	○	○	○	○		○			○		○		○	○	○
Congestion Mitigation & Air Quality (CMAQ)	H-GAC	○	○	○		○	○	○	○								
Highway Safety Improvement Program (HSIP)	TxDOT	○	○	○	○	○	○				○		○		○		○
National Highway Performance Program (NHPP)	TxDOT	○	○	○	○	○	○	○			○	○	○		○	○	
Recreational Trails	TxDOT		○	○											○		
RAISE Grants	U.S. DOT	○	○	○	○	○	○	○			○	○	○		○	○	○
Safe Routes to Schools (SRTS)	TxDOT	○	○	○	○				○	○					○		○
Safe Streets and Roads for All (SS4A)	U.S. DOT	○	○		○	○	○				○		○		○		○
Surface Transportation Block Grants (STBG)	H-GAC	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○
Transportation Alternatives (TA)	TxDOT	○	○	○	○		○	○	○				○		○	○	○

Putting the Implementation Framework to Work

Phasing the Framework

At its core, the Implementation Framework is an action-oriented process for City staff to bring the Plan to life. The three prongs of the Framework represent three distinct milestones in project delivery. The framework is designed to adapt to the variety of scenarios faced by staff and leadership.

The scenarios on this page demonstrate how the City can deploy the Implementation Framework and its tools in unique ways for common situations. No matter where the City starts in the framework, any direction will result in a project that adheres to the Core Values of the Plan.

General Fund Scenario

In most cases, the City will start with the Opportunity Analysis, move on to Project Definition, and then end with the Mobility Funding Options. This sequence of steps works for most of the City's implementation processes such as the general fund or developing Bonds.



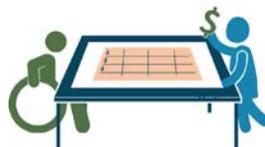
**STEP 1:
OPPORTUNITY
ANALYSIS**

The City should begin by identifying which corridors have the highest needs, starting with the corridors on the TMN and utilizing the metrics data and Interactive Mobility Map.



**STEP 2:
PROJECT
DEFINITION**

Once corridors have been selected, the City will then use the Four-Step Project Definition process to identify the extents and specific design for projects along the corridor.



**STEP 3:
FUNDING
OPTIONS**

After identifying projects, the City will determine an ideal funding source or mix of funding sources for each project.

Grant Scenario

In other cases, the City may seek funding from a state or federal grant opportunity. The three stages of the Implementation Framework still provide all of the tools necessary to develop a competitive grant application, just in a different phasing.



**STEP 1:
FUNDING
OPTIONS**

Since the City has identified a grant, this step is already complete.



**STEP 2:
OPPORTUNITY
ANALYSIS**

The City should use the grant application criteria to identify the corridors on the TMN that are best fits for the opportunity. This can be done using the metrics data and interactive map.



**STEP 3:
PROJECT
DEFINITION**

The grant criteria can also be used alongside the Four-Step Project Definition process to determine project design and extents.

Putting the Implementation Framework to Work

Developer Scenario

In some instances, the City may be approached by a developer who is planning a new or redevelopment project. The three stages of the Implementation Framework still provide all of the tools necessary to coordinate with the developer to ensure what is built meets the City's needs and coordinate opportunities to leverage the private investment.



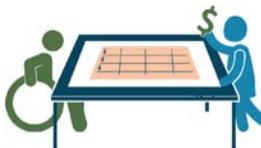
STEP 1: PROJECT DEFINITION

The City should work with the developer to ensure design is in alignment with the City's goals and standards and may apply the Four-Step Project Definition process. The City may also identify additional opportunities to build off of or enhance the proposed project.



STEP 2: OPPORTUNITY ANALYSIS

The City should reference the goals of the plans and needs of applicable corridors on the TMN to refine the project and identify potential additions. This can be done using the metrics data and interactive map.



STEP 3: FUNDING OPTIONS

While the developer's project will be privately funded, additional project improvements that coordinate with or enhance the project will need to identify funding opportunities.

Implement a Coordinated “Do It Once” Approach

The “Do It Once” approach is a method that encourages project development and implementation to be coordinated across departments and agencies where possible. For example, a water main may be funded to be replaced and require removal and replacement of street and/or sidewalk infrastructure. As part of that project development, coordination with mobility projects can provide an opportunity to fast-track implementation of a proposed mobility improvement. This could reduce the amount of funds required for the mobility project because some demolition and construction funds are also incorporated into the water main project. Ultimately, by thoughtfully coordinating projects across departments, project costs may be reduced and timing for implementation reduced. Another common practice for municipalities is to implement mobility improvements like striping and signage changes along with maintenance projects like roadway resurfacing.

This approach is applicable within each step of the Implementation Framework as there may be existing projects, needs and opportunities, or funding that can be easily coordinated to eliminate redundancy, reduce overall costs, and improve project implementation time.

Funding Obligation Transparency

A mix and flexibility of funding is key for implementing successful and innovative projects. The City should track and report its percent of funding obligation across projects and programs to assess progress towards diversifying funding sources. In addition, the City should continue to communicate funding obligation for projects and programs to the public to ensure good stewardship of public finances as stated in **Strategy N**. When prioritizing projects, the funding obligation category (**Table 6.4**) should be utilized as needed to inform project selection.

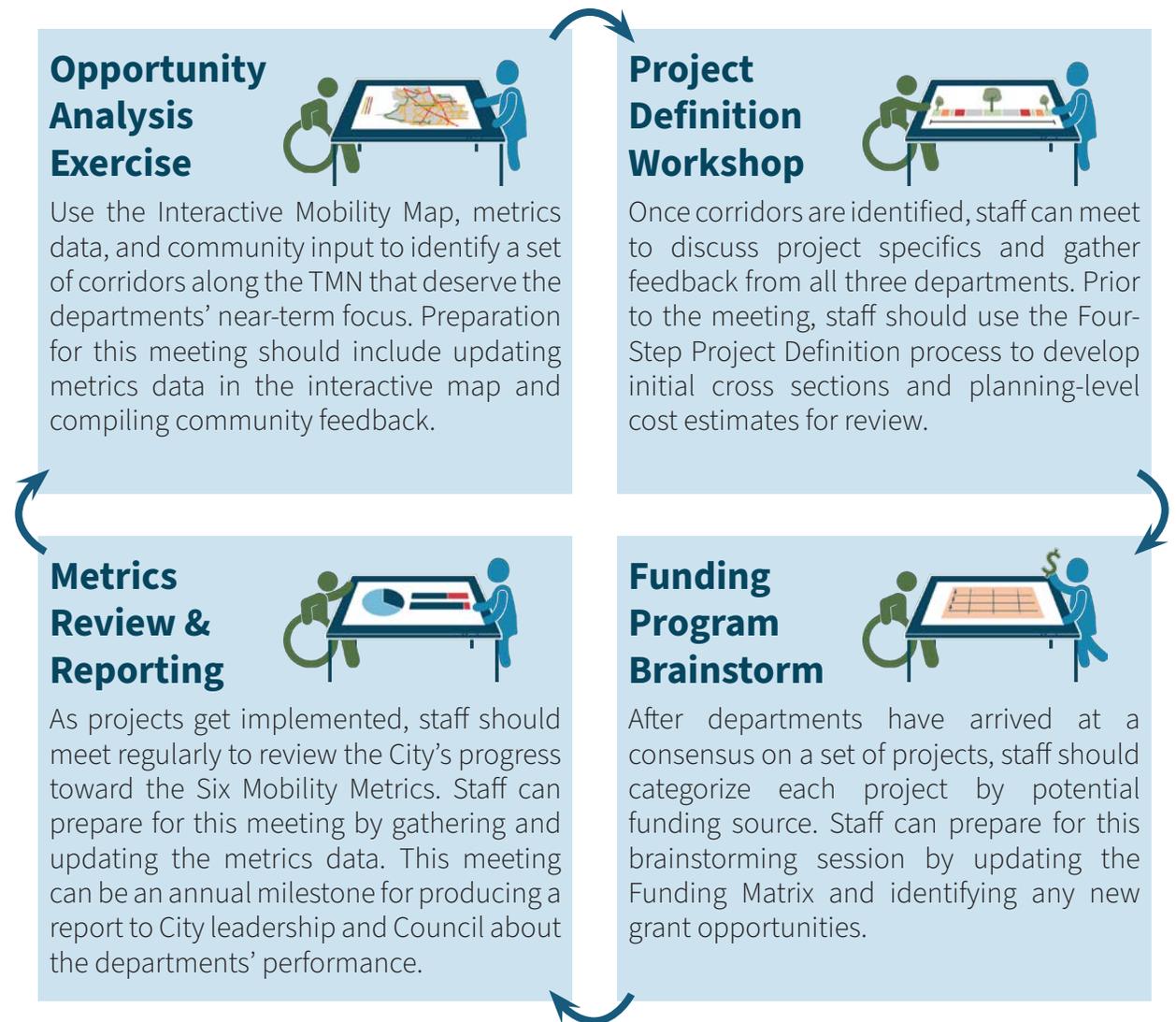
Putting the Implementation Framework to Work

Collaborating around the Framework

The Implementation Framework is a platform for collaboration between the Engineering, Planning & Development Services, and Public Works departments to deliver projects. Each of the three stages offer opportunities to share unique expertise from each department, reduce overlap in work, and unite behind a shared plan of action.

The three departments should establish regular meetings during which staff can walk through a portion or all of the Framework. The meetings could be monthly or quarterly depending on the direction of leadership and the needs of the three departments. This may look like the scenario on this page, or it could be adjusted based on existing City meetings and milestones. Staff may also identify other ways to utilize and collaborate with the Framework as they grow comfortable with it.

Data is an important input into decision making and each of the steps of the Implementation Framework. Data should aid decision making and ensure investment is in areas that will have the greatest impact on mobility. Data from the Six Mobility Metrics, as presented in **Table 6.1** through **Table 6.4**, should be used to aid in developing priorities and focusing investment.



Using the Framework to Plan

A Localized Framework

The Implementation Framework also provides a template for future small area plans and corridor studies conducted by the City. Using the tools of the Opportunity Analysis, Project Definition, and Mobility Funding Options (in that order) will yield plan recommendations that are ready-made to fit into the City's broader conversations about mobility priorities. This will mean that plans are more likely to be implemented after adoption.

How to Approach

For these neighborhood-level plans, the Opportunity Analysis phase is where existing condition data is collected and reviewed. This stage of the planning process will also include gathering feedback from the residents, workers, businesses, and visitors to the "small area" or corridor being studied. The outcome of the Opportunity Analysis would be a list of specific mobility needs for the area, including the specific corridors, segments, or intersections to target recommendations.

The Project Identification stage will use the same Four-Step process and the City's Design Standards to develop recommended cross

sections and cost estimates for the focus corridors and intersections. This phase is also an opportunity to identify any ideal programs specific to the "small area" or corridor that would help accomplish local mobility goals.

Finally, the Funding Matrix and future Funding Database (**Action Item N.2**) can be utilized to determine how plan recommendations will be implemented. These Mobility Funding Options and an analysis of the Six Mobility Metrics can comprise the plan conclusion.

Using the Implementation Framework for Planning Initiatives

Opportunity Analysis

Identify Needs &
Hear from the Community



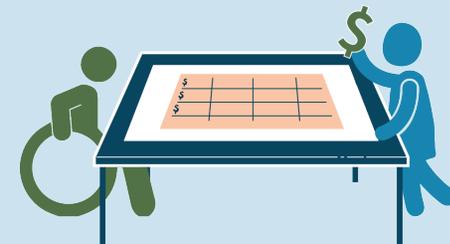
Project Definition

Outline recommended
project extents, designs & costs



Mobility Funding Options

Determine ideal funding source
for each recommendation.



Using the Framework to Build Mobility Programs

The focus of the Implementation Framework is to provide a clear and effective process to plan, design, and construct capital projects in Sugar Land. The questions and tools included in the Framework are targeted for infrastructure. However, key elements of the process can be adapted to developing programs to identify near term needs, program specifics, and funding.

OPPORTUNITY ANALYSIS

Use available data to determine which of the programs could address the highest needs in the community. Staff may pay special attention to community feedback during this process to

help identify the nature of issues that can be addressed through a program. For example, if staff receive consistent feedback about student safety commuting to and from school, they should focus on developing a Safe Routes to School program.

PROJECT (PROGRAM) DEFINITION

With slight modifications, City staff can utilize the Four-Step Project Definition process to guide the creation of a program. The table on this page shows how each question can be adapted to help staff guide the creation of programs and align them with Core Values.

MOBILITY FUNDING OPTIONS

The Funding Matrix and eventual Funding Database (**Action Item N.2**) are largely still useful for programs. These tools should be continuously updated to include programmatic funding opportunities alongside the infrastructure opportunities.

	Project Definition Steps for Infrastructure Projects	Program Definition Steps for Programs
1	Define the Purpose What should this corridor do?	Define the Purpose What should this program do? Where do residents and available data indicate needs?
2	Identify Need Who doesn't have enough space? Who feels unsafe or uncomfortable?	Identify Need Who does not have safe and convenient mobility options? Why?
3	Assess Current & Proposed Conditions How much space is available?	Assess Available Program Options & Structures What programs/program components are available to provide safer and more convenient mobility options? Look to national best practices.
4	Select or Identify a Cross Section: How do we leverage space?	Select or Identify Resources How can existing City resources (staff, partnerships, events, and funding streams) be leveraged to implement the program?

Pursuing Programs

Key Considerations

Sixteen Action Items are categorized as Programs in Chapter Four. Together, they offer a menu of items from which staff can prioritize. Some programs are related to the City's processes for developing capital projects while others may pertain to communications, data collection, and non-physical infrastructure.

As staff develops and fulfills programs, they must consider what role the City can and should play in each. At times, the City may be the sole agency implementing a program. Other times, partner agencies like Fort Bend County Transit may take the lead with the City offering support with its unique resources.

Programs also offer opportunities to include partnerships beyond governmental agencies to groups like business interests, community groups, and other stakeholders.

Program-Related Action Items

- D.5:** Establish a yearly funding allocation to address safety enhancements on the high-crash network.
- D.6:** Develop a Neighborhood Streets Program to make improvements that encourage safe speeds on streets outside of the Transformative Mobility Network.
- D.8:** Create a City-led Safe Streets Education Program with rotating topics/themes (e.g., safe biking, safe speeds, distracted driving, etc.) to disseminate information to residents and visitors about mobility safety. Coordinate this effort with travel demand management (TDM) programming.
- E.2:** Create a roadway count program to regularly gather data (vehicle volumes and speeds) on streets not already covered by the Intelligent Transportation System (ITS) network.
- E.5:** Partner with H-GAC to establish an active transportation counter program to gather data on sidewalk, trail, and bikeway network usage to support planning and funding applications.
- F.5:** Develop a system and schedule for communicating pertinent information from the asset management system to the public. This data should be coordinated with the recommended Mobility Dashboard.
- G.3:** Create a Safe Routes to School Study and Program to identify recommendations for capital projects and to encourage safe access to schools for students walking and biking. Partner with school districts (FBISD, LCISD and private schools) on this effort.
- G.4:** Conduct an ADA Transition Plan and develop an ADA compliance program with a dedicated compliance officer for persons with limited mobility and older adults.
- G.5:** Develop an application-based funding program for residents to advocate for neighborhood/cul-de-sac trail connections within their neighborhood.
- I.2:** Build on the City's robust community engagement, including the MySugarLand App and social media presence, to share information about traffic congestion on local streets, construction impacts, and mobility topics to improve safety and knowledge of local traffic laws.
- I.5:** Develop a transportation demand management (TDM) program and a mobility communications strategy to encourage more people to walk, bike, and take transit.
- J.2:** Develop a new "Slow Streets" or "Sunday Streets" program to temporarily close streets for special events to encourage walking, biking, and rolling.
- J.3:** Develop and implement a Safe Routes to Parks program in conjunction with the Parks Department.
- J.5:** Implement a pilot micromobility program with a partner that meets the City's objectives and expectations.
- K.8:** Expand marketing efforts with Fort Bend County Transit to develop and distribute marketing materials to increase transit ridership for existing Park & Ride services. Coordinate this effort with TDM programming.
- M.5:** Incorporate air quality improvement solutions into mobility decision-making and explore grant funding for these programs. Improvements could include: decreasing vehicular delay, reducing daily trips by vehicle, increasing mode choices for active transportation, and supporting the incorporation of electric vehicles into City infrastructure.

Where to Begin

This plan outlines a clear path to success. To maintain momentum and establish a new process for mobility investment, City staff and leadership can focus on a few key initiatives from this plan. The first steps will extend and formalize the inter-departmental coordination that has been critical to creating the Plan. This internal coordination will be combined with continued stakeholder and community outreach to ensure that partners, residents, and employers are brought along in implementation.

Finally, the City's mobility planning efforts will not end with the adoption of this plan. Mobility will play a key role in future planning initiatives and endeavors. Staff can also dedicate time and resources to the small area plans and corridor studies that will operationalize the ideas and tools from this Mobility Master Plan.

As you use this plan, remember the directive given by the Mobility Task Force members during the early days of plan development:

BE BOLD.

Next Steps:

Internal Coordination

Key 100-Day Action Items

A.4: Initiate cross-departmental mobility strategy meetings

B.3: Update standards & codes to align with Plan

A.4: Begin applying the Implementation Framework to mobility decision making

N.1, N.2: Hire a grants coordinator to lead the pursuit of funding opportunities and develop a grants database

Next Steps:

Stakeholder & Community Engagement

Key 100-Day Action Items

A.1 Continue to engage the Mobility Task Force

I.1 Create a Mobility Dashboard to track and communicate progress

L.5 Participate in regional transit conversations.

Next Steps:

Continued Planning Efforts

Key 100-Day Action Items

C.1 Use the Implementation Framework to ID the first set of projects

H.1, H.4 Refine the next steps for the first small area and corridor plans and implement the first small area plan in 2023.

K.6 Explore the feasibility of providing innovative transit services, including, but not limited to, microtransit, gondolas, and other emerging technologies

State of Mobility

Appendix A



Introduction

About Appendix A

Developing a solid foundation supports the creation of a strong Mobility Master Plan. This Baseline Conditions & Insights appendix is a key component of that foundation and compiles a comprehensive analysis of available and applicable existing data. This appendix reveals key insights built from looking at relevant data that support future goal setting and recommendations. This analysis is intended to inform subsequent components of the Mobility Master Plan, including goal setting, plan development, and clear implementation strategies.

This appendix will be within the final Mobility Master Plan document and may be modified and expanded on over this two-year planning endeavor.

Data and the COVID-19 Pandemic

The information presented in this report, including data about travel and commute behaviors, was collected before the COVID-19 pandemic and reflects pre-pandemic trends. While the pandemic has significantly changed the nature of mobility across the world, the data presented here represents the best available information and can still inform the way that Sugar Land plans for its future.

Appendix Sections

The next few pages present an overview of “10 Insights to Know” that are overarching findings supported by the following six sections listed here.

1 Study Area (pages A-6 to A-8)

» An overview of the study area and its context within the larger Houston region.

2 Who Lives & Works in Sugar Land (pages A-9 to A-13)

» Summary demographics of Sugar Land residents and the businesses based within the City.

3 Where People are Going (pages A-14 to A-18)

» Trips are driven by key destinations, activity centers, and land uses that allow for a variety of mode choices.

4 How People are Traveling Today (pages A-19 to A-25)

» An overview of travel trends within Sugar Land that are driven by work, school, and local activities.

5 Sugar Land’s Mobility Networks (pages A-26 to A-53)

» A presentation of the existing mobility networks within Sugar Land including major barriers and policy implications that support but sometimes hinder mobility.

6 Safety, Health, & Environment (pages A-54 to A-65)

» Safety, health, and environment are directly impacted by mobility networks. They are also all key elements of a community’s quality of life.

10 Insights to Know

1 Sugar Land is entering a new phase of the City's life cycle.

Sugar Land has been one of the fastest growing cities in Texas over the past 60 years, but now the City is becoming built-out. Growth and annexation can no longer be key drivers of continued expansion of the tax base. The City will need to look to new funding sources to continue to provide and maintain high-quality transportation infrastructure. The 2018 Land Use Plan provides an opportunity to rethink the relationship between land use and transportation for Sugar Land that may allow higher value uses in some places to support infrastructure investment.

NEW BRIDGE IN IMPERIAL DEVELOPMENT



2 Sugar Land is a regional hub of employment and entertainment.

Sugar Land is remarkably balanced between residential population and employment opportunities. This supports many people being able to make local trips to work and attracts what would traditionally have been reverse commuters. Over the past decade the City has also greatly expanded the entertainment destinations, which generate more local trips as well as regional trips to Sugar Land. The mobility systems need to adapt to serve more types of trips at more times of day.

3 There is increasing importance to optimize the City's existing assets and technology investments.

Significant investment has been put into streets and dedicated right-of-way (ROW), creating one of the City's most valuable assets. Sugar Land is a leader in utilizing technology to help manage and optimize its roadways to make the most use of what has been built. Intelligent transportation solutions (ITS) such as adaptive traffic signals and real-time data help reduce travel delays, especially on major corridors such as SH-6 and US-90A. This will become even more important as Sugar Land remains a regional hub and will have less available space for roadway widening. The City has an opportunity to optimize its existing ROW to benefit all potential users, rethinking space within excess ROW to provide new or expanded sidewalks, more street trees, and comfortable bikeways. Continued investments in streetscapes can provide more shade, improve ecologies, and enhance the physical appearance of streets.

4 Sugar Land has developed as a city of neighborhoods, resulting in a large and growing percentage of short trips.

Sugar Land has developed over time primarily through the development of master planned communities or neighborhoods. The design of these has evolved over time but many include key destinations within a short distance of homes. This has resulted in a high percentage of trips made in the City being short (under 3 miles). This share of trips is likely to increase as new development and redevelopment occurs. These trips should not require a personal vehicle and could be completed by walking and/or biking if safe, comfortable facilities are provided. This supports a goal of having most of life's daily needs accessible within 15 minutes of home.

5 Sugar Land has an extensive network of sidewalks that can be better maintained and connected.

As Sugar Land communities have developed, they have evolved from areas with no sidewalks at all to some highlighting walkability as key selling points to quality of life. Over time, the City has developed a robust network of sidewalks. Some of these sidewalks, however, have aged, creating maintenance challenges for the City and some provide widths that are not today's best practice. When available and in good condition, these sidewalks give people access to neighborhood activity centers, parks, and schools. Often, the biggest challenge to walkability is not the sidewalk but the challenge of crossing the street at intersections or mid-block. Expanding and connecting existing sidewalk networks with a focus on safer intersection crossings can unlock new levels of walkability for the City.

6 Sugar Land has made progress on its bikeways and trails, but they have not become a fully integrated network.

Sugar Land has great neighborhoods integrated with quality trails and has made some progress implementing on-street bikeways. Right now, these remain isolated from each other and barriers prevent the type of contiguous bikeway network that will support higher levels of use. Future projects are planned, such as the Ditch H trail that will begin to link the local networks together with continued focus and priority. Multiple streets have available ROW to expand the on-street bikeway network to connect more people to more destinations. Intersections continue to act as barriers to safe and comfortable trips for biking and wheeling.

7 Best practices in street design are evolving to consider all users. Cities with high quality of life are rethinking how they design and operate their streets and address barriers to mobility.

Most of Sugar Land's growth has occurred since 1980, developed around streets that were designed to primarily maximize vehicle throughput. This approach has created a successful city with high quality of life, especially for those with ready access to a vehicle. Many leading cities are starting to take a more holistic look at how their streets are designed for all users and to encourage a range of choices in how people travel. Tailoring street design to provide safe, comfortable walking and biking conditions in addition to accessibility for everyone can further enhance their value. While SH-6, IH-69 and US-90A and the parallel UP Railroad tracks are likely to continue to prioritize vehicle throughput, they also serve as major barriers to connectivity within Sugar Land. Breaking down these barriers can help better connect Sugar Land's citizens to all the opportunities the City provides.

8 Sugar Land residents use transit. It is critical to think through its role in the City's future.

Many of Sugar Land's residents utilize the commuter and local transit options provided through the City's partnership with Fort Bend County. Many also utilize METRO's service from the nearby West Bellfort Park & Ride with direct access to downtown Houston. Transit will continue to play a key role for the City as more residents age in place and may not be able or wish to drive. It is also a potential tool to manage growth of vehicular volumes as it is a more efficient travel mode to serve many people in dense activity centers or on high peak commute trips with transit than other forms of travel.

9 The City has an opportunity to better balance investments with stated Mobility goals.

This Plan builds upon years of strong planning work that has already been developed. These plans have also all included significant levels of public feedback. Although a lot of good thinking has already happened, resources have not always aligned with the priorities stated by the community. Implementation of recommendations across Plans varies with. Many factors contribute to the imbalance between goals and implementation and it will be important to align resources to achieve the Mobility Master Plan goals.

10 Many cities' mobility goals are evolving to integrate safety, health, and environmental leadership supporting overall quality of life for residents.

Through the Plan, Sugar Land has the opportunity to set and achieve goals consistent with the 2025 Comprehensive Plan supporting Superior Mobility, safety, and environmental responsibility. Best practices in mobility planning across that nation are evolving beyond level of service measurements and travel time for personal vehicle trips. They include bringing in factors like health outcomes from more active transportation, safety from reducing crashes, and air quality from reduced emissions as key components to their plan. The next stage of mobility thinking allows for more robust integration and alignment of the 2025 Comprehensive Plan Vision into broader mobility goals to maintain Sugar Land's position as a leader in quality of life.

TOWN SQUARE





Study Area

Sugar Land is a key City within the region, anchoring Fort Bend County to the Greater Houston Area.

SUGAR LAND'S REGIONAL CONTEXT

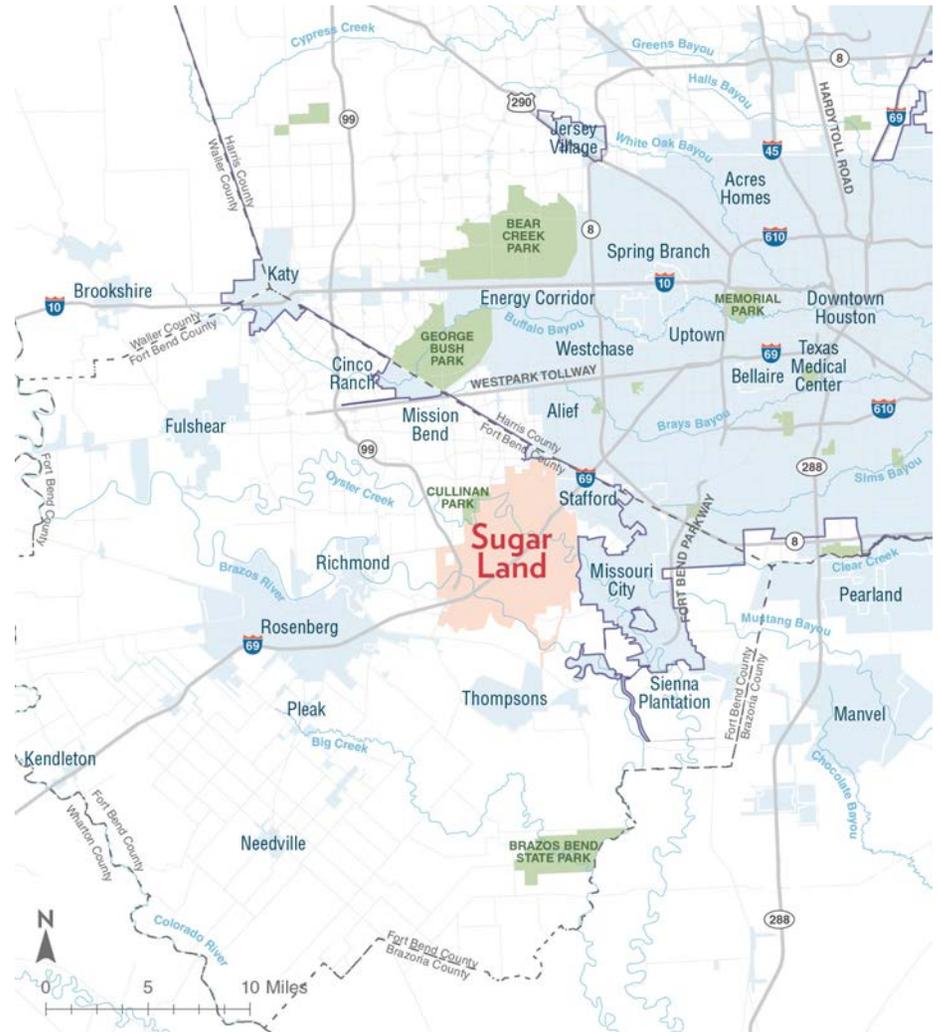


Figure A.1 Sugar Land's Regional Context

Source: H-GAC, 2020; METRO, 2020

- Freeways/Tollways —
- Major Roadways —
- County Lines - - -
- METRO Service Area □
- City of Sugar Land ■
- Other Cities ■
- Houston MSA Regional Parks ■
- Water ■

City of Sugar Land

Sugar Land owes its sweet name to Imperial Sugar, a sugar company that was based along Oyster Creek and near the Brazos River in the 20th century. A company town north of US-90A was built in the 1910s to support the Imperial Sugar workforce. Many homes built for the company town still stand within the Hill and Mayfield Park neighborhood. In 1959, the City was incorporated with the limits only encompassing 2,264 acres (approximately 10% of the current city limits). Over time, Sugar Land's boundaries expanded, largely through annexations of developed municipal utility districts (MUDs).

The City is located within Fort Bend County (**Figure A.1**) and is part of the *Houston-The Woodlands-Sugar Land* Metropolitan Statistical Area (MSA), which is currently the 5th most populous within the United States with a population nearing 7 million people. Located southwest of the City of Houston, IH-69 and US-90A which bisect Sugar Land, are key regional connections to and from the City. SH-6 is a key transportation corridor for the City and intersects both IH-69 and US-90A within the City. The City's present day boundaries, City Limit and Extra Territorial Jurisdiction (ETJ), are shown in **Figure A.2**.

- | | | | |
|-------------------|---|-------------|---|
| Freeways/Tollways | ■ | City Limits | □ |
| Major Roadways | — | City ETJ | □ |
| Local Roadways | — | County Line | □ |
| Rail Lines | + | Schools | ■ |
| Water | ■ | Parks | ■ |

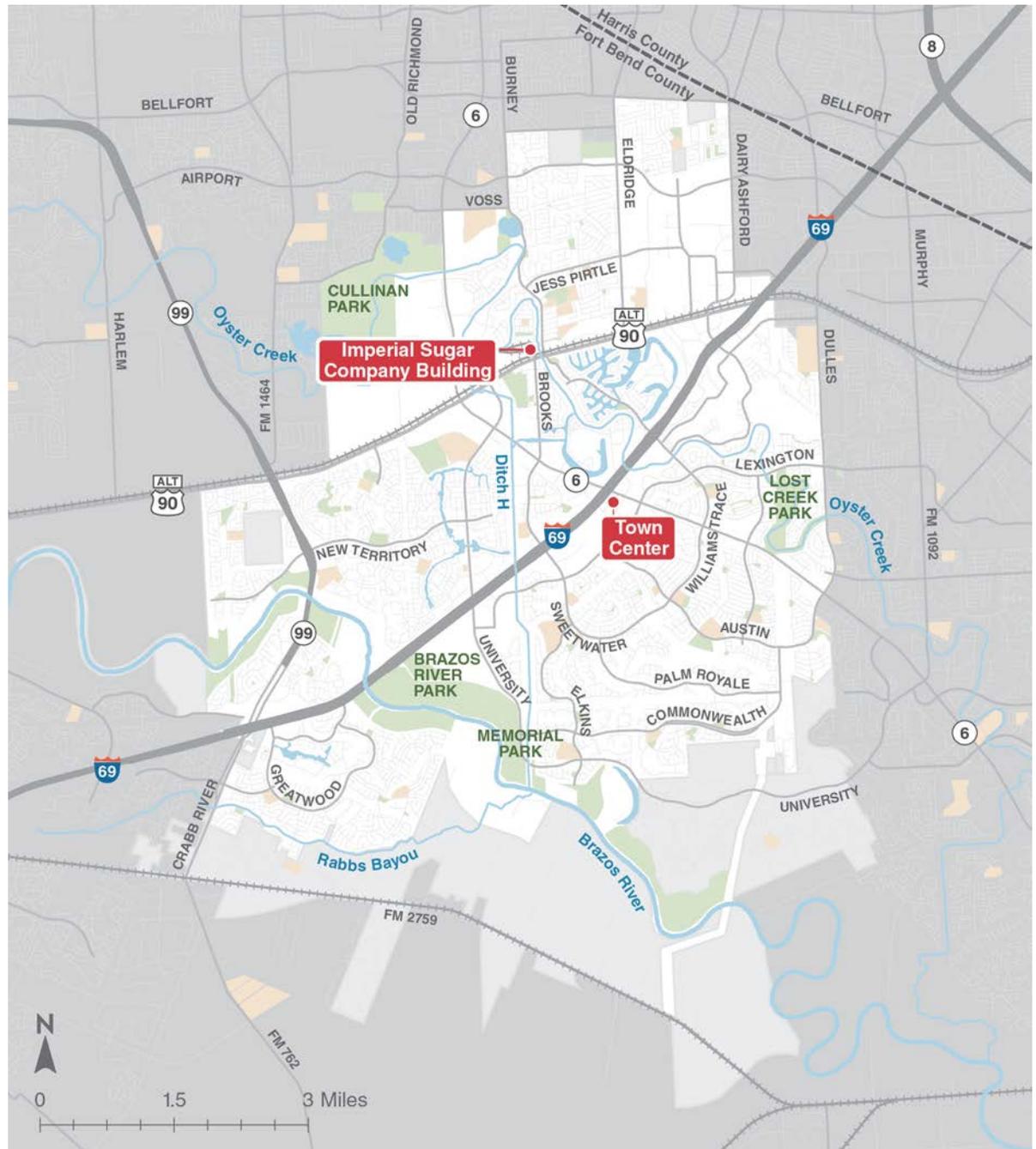


Figure A.2 City of Sugar Land & ETJ

Source: City of Sugar Land, 2020

Surrounding Cities

The City of Sugar Land is located in northeast Fort Bend County. It shares a border with:

- » City of Houston
- » City of Meadows Place
- » City of Missouri City
- » City of Stafford
- » City of Thompsons

Sugar Land has partnered with Fort Bend County and its neighbors on past transportation planning initiatives, including the Fort Bend County Subregional Plan. Mobility planning cannot be done in a silo. As the Mobility Master Plan is developed, understanding mobility networks outside the City Limits as well as future plans and projects will allow the City to better plan for its future. Cooperation with regional partners allows for more cohesive and connected mobility solutions for the region.

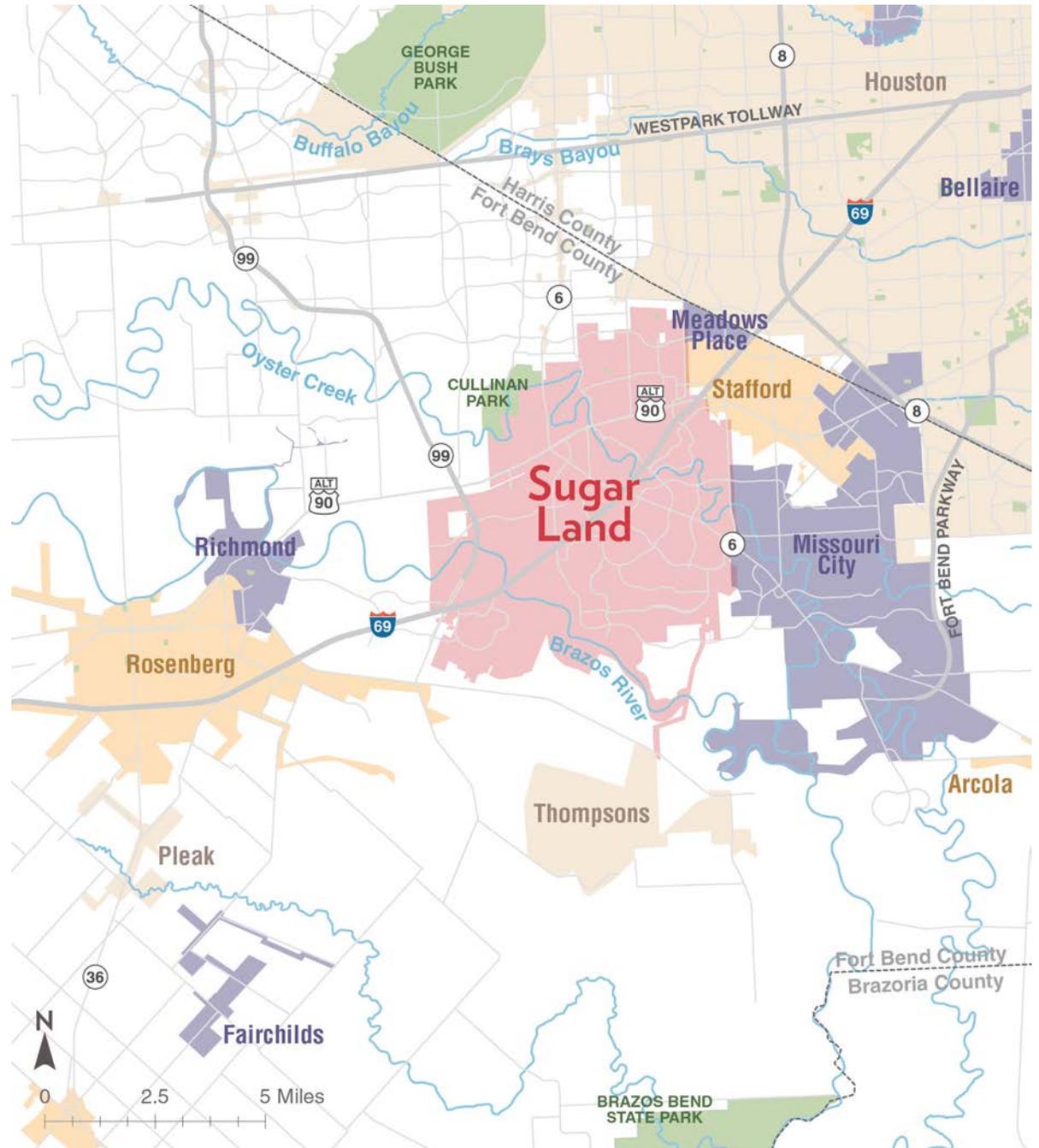
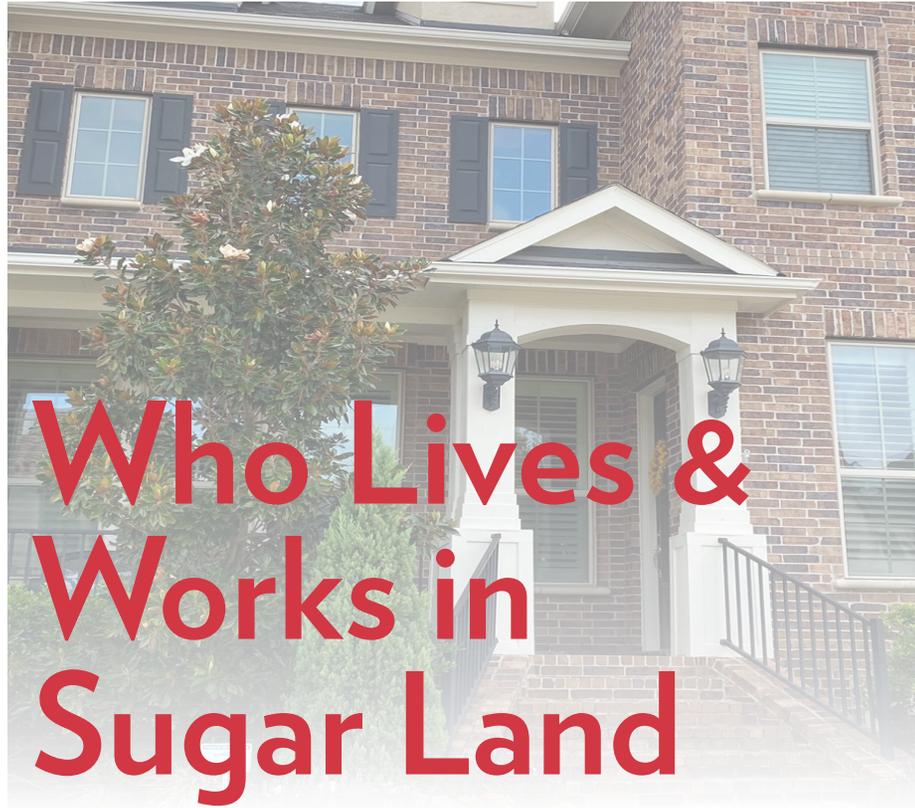


Figure A.3 Sugar Land & Neighbors

Source: Fort Bend County, 2020; H-GAC 2020



Who Lives & Works in Sugar Land

Residents of Sugar Land are educated, affluent, and diverse.

Sugar Land is home-base to many successful businesses supporting the region.

Rapid Growth & Success

Sugar Land has grown at a breakneck pace since its founding in 1959. With roots as an industrial company town, the City is now one of the region's major job centers and boasts a thriving and diverse population. This section highlights characteristics of those that live and work within Sugar Land.

POPULATION GROWTH AND CHARACTERISTICS

Rapid residential developments and a series of strategic annexations in the last few decades have boosted the City's population by more than 100,000 since its founding. The 2017 annexation of Greatwood and New Territory added around 30,000 new residents to Sugar Land's population.

Prior to the annexation of Greatwood and New Territory population growth within the City was stable with mild growth year over year. When a City reaches a point of slower population growth or possible population decrease, a City is reaching a new point in its Life Cycle that requires different planning strategies, policies, and programs. This section presents the City Life Cycle concept and how it applies to Sugar Land.

The City also has unique demographics when compared to Fort Bend County and the State. Sugar Land's residents are diverse and highly educated, attracted to the City's high quality of life. The population is also aging, and will require a transportation network that serves senior residents.

REGIONAL JOB CENTER

Sugar Land is a critical epicenter of employment in the Greater Houston region. The City is home to one out of every five jobs in Fort Bend County with concentrations of jobs around Town Center, Sugar Creek, and the industrial northeast. Sugar Land's roadways carry thousands of commute trips daily and its freeways and rail lines are among the major freight corridors that keep the regional economy healthy.

A Growing City

HISTORICAL POPULATION & JOB GROWTH

Sugar Land has been one of the fastest growing cities within the State. Current 2020 population estimates show the City's population over 118,000 residents. The 2020 US Census, currently underway, will provide an updated population estimate for the City. The US Census Longitudinal Employer-Household Dynamics (LEHD) data shows a steady increase in jobs within the City from 2006 (first year data available), to 2017 (most recent data available). The increase in jobs within the City

aligns with the City's initiative to be a regional job center by attracting large and prosperous employers. In 2017 (pre-annexation), the most recent year with population and employment values, there were 0.82 jobs per resident. This is a higher ratio than Houston (0.79), Rosenberg (0.50), and Missouri City (0.28) based on population and jobs values from Houston-Galveston Area Council (H-GAC).

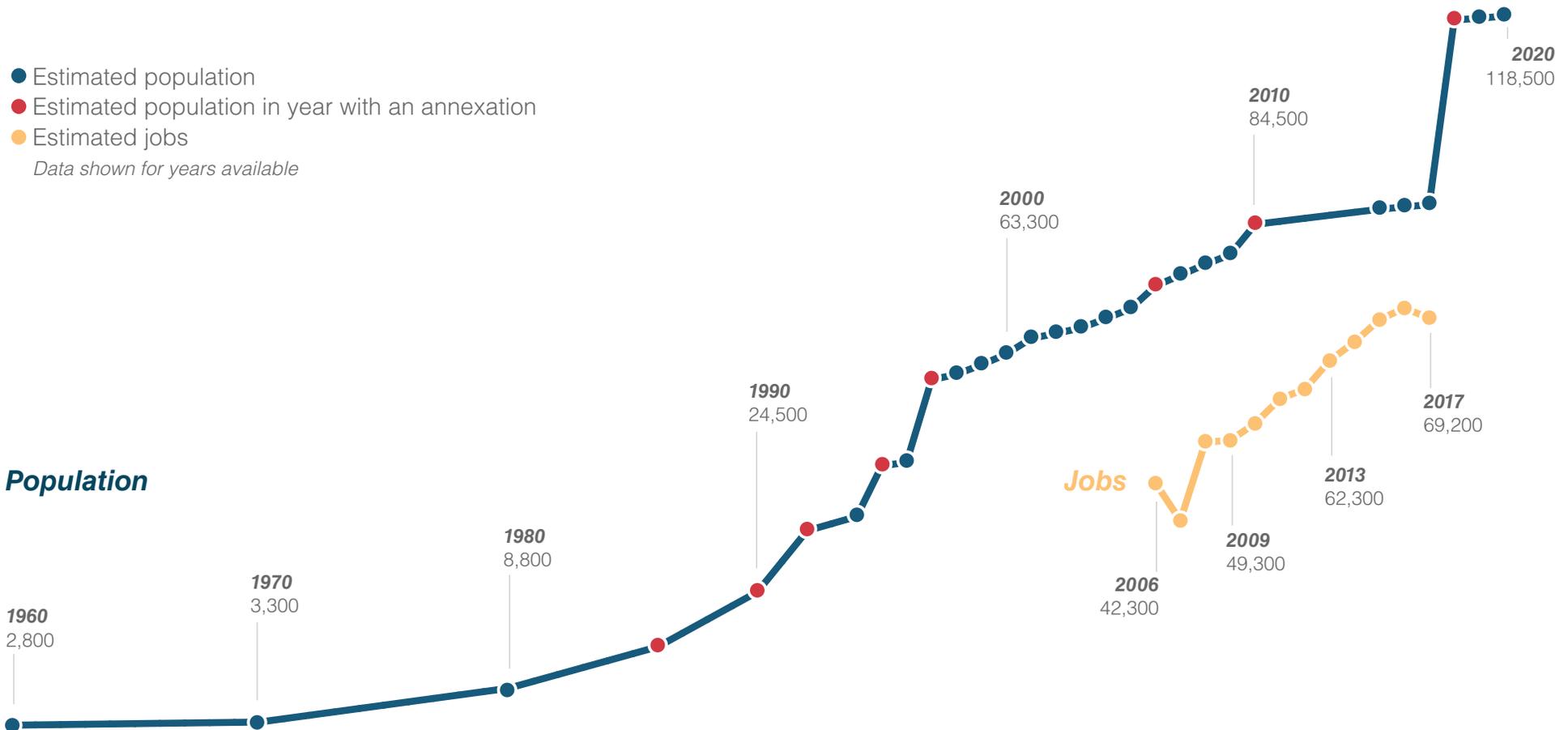


Figure A.4 Job and Population Growth in the City of Sugar Land Population Source: City of Sugar Land, 2020; Job Source: Source: US Census Bureau LEHD (All Jobs), 2017

City Life Cycle

LOOKING TO THE FUTURE

As shown, prior to the 2017 annexation of Greatwood and New Territory, population growth within the City was stable with mild growth year over year. When a City reaches a point of slower population growth or possible population decrease, a City is reaching a new point in its Life Cycle that requires different planning strategies, policies, and programs. The City's 2018 Land Use Plan discussed Sugar Land's Life Cycle as shown within **Figure A.5**.

Lower population growth trends within Sugar Land are likely due to the aging population and household sizes decreasing as children age and move out of their parents' homes. These changes to households and population are very different than what is expected across Fort Bend County where a 2% population growth per year is expected for the next 25 years.

Population growth is a great revenue source that will now be less available to the City. With the City undergoing this mobility planning process and knowing population growth is likely to stagnate, the Mobility Master Plan can develop a series of creative and new funding sources to ensure that the City continues to provide high-quality transportation infrastructure and maintain the infrastructure it currently has.

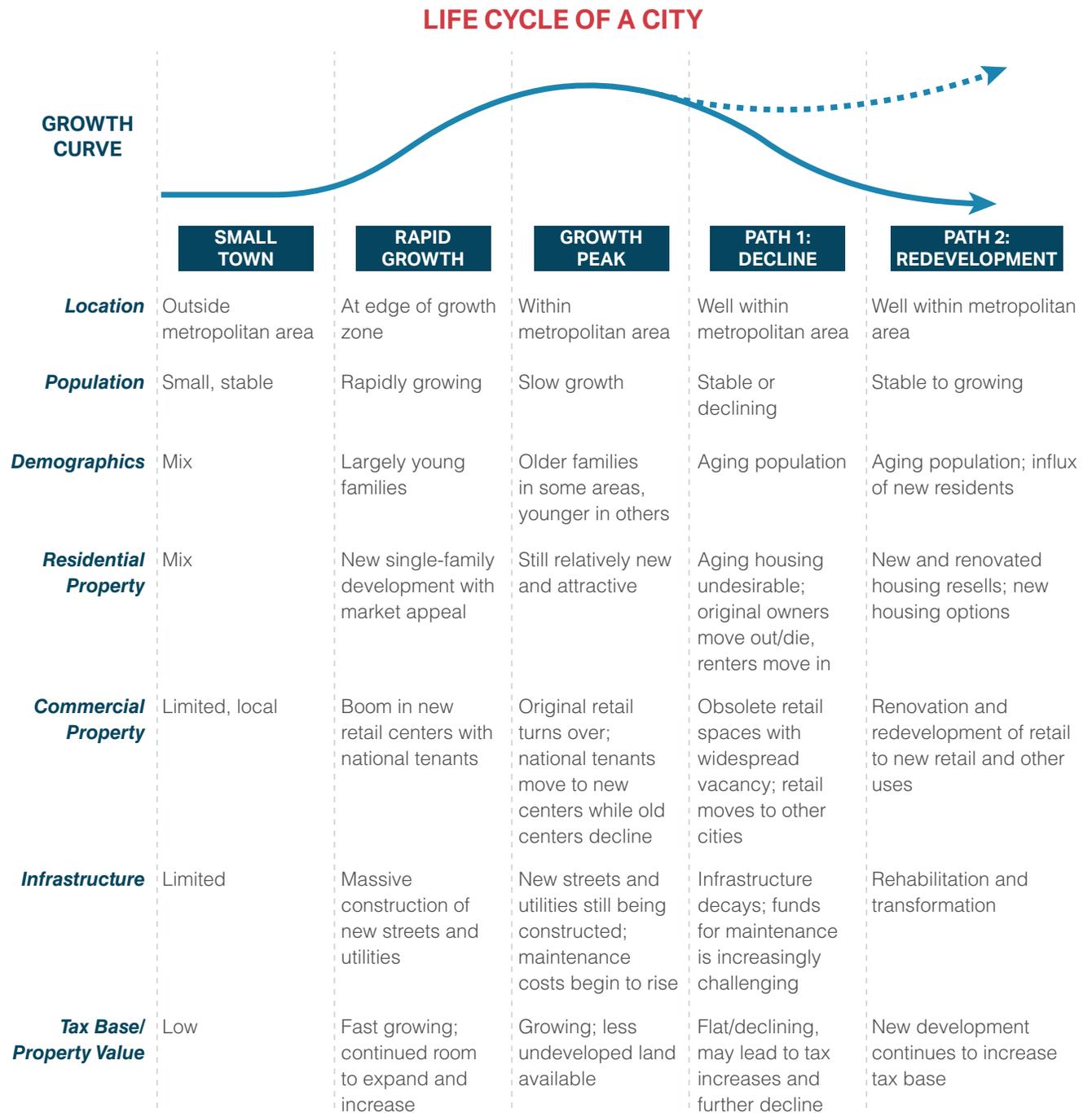


Figure A.5 Life Cycle of a City from 2018 Land Use Plan

Population Density

Sugar Land's residents mostly live in low-density single-family neighborhoods. The City-wide average population density is approximately 3,000 residents per square mile.

Portions of the City and ETJ have higher density than others, with concentrated populations near Town Center, in the City's north, around Williams Trace Boulevard, and south of Rabbs Bayou near Crabb River Road. In these areas, smaller lot sizes are more common, increasing the density of the neighborhoods, or there are multi-level apartment complexes providing some density specifically around Town Square.

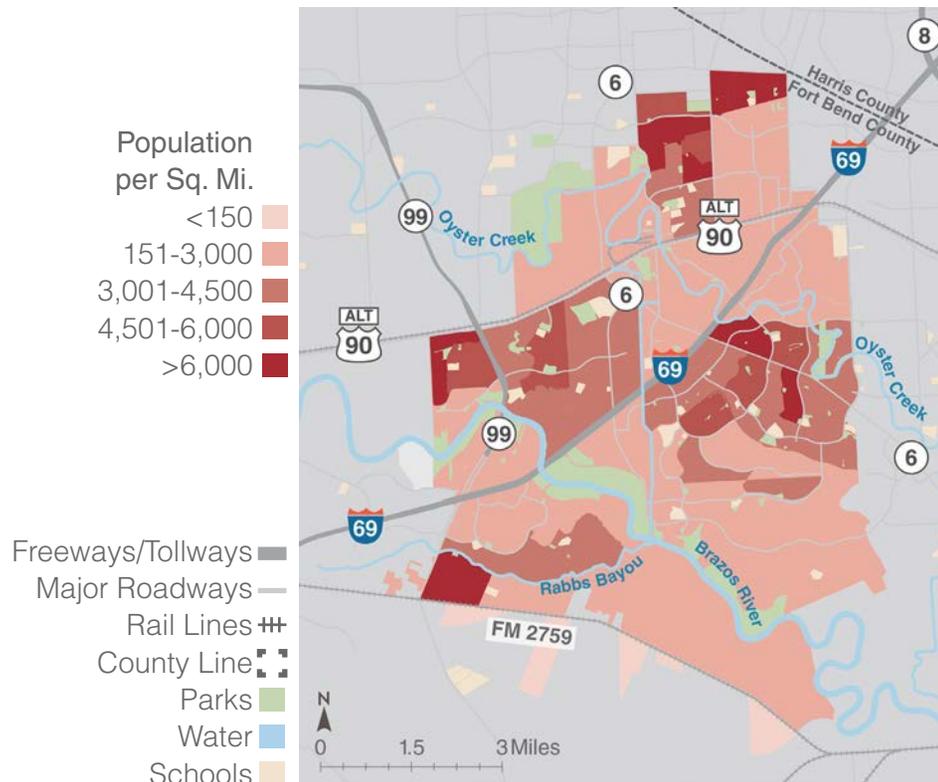


Figure A.6 Population per Square Mile
Source: US Census Bureau, 2018

Job Density

Sugar Land had around 69,200 jobs in 2017 according to the latest US Census Bureau data. Those jobs are concentrated in the center of the City in Census Block Groups that have high concentrations of office buildings, like in Town Square. The other major job hub is the Sugar Land Business Park: an industrial center area zoned M-1 (Restricted Industrial) and in close proximity to both US-90A and the UPRR.

Other job concentrations with less density are located along the City's commercial corridors, like Dulles Avenue and north of IH-69 along SH-99, among others.

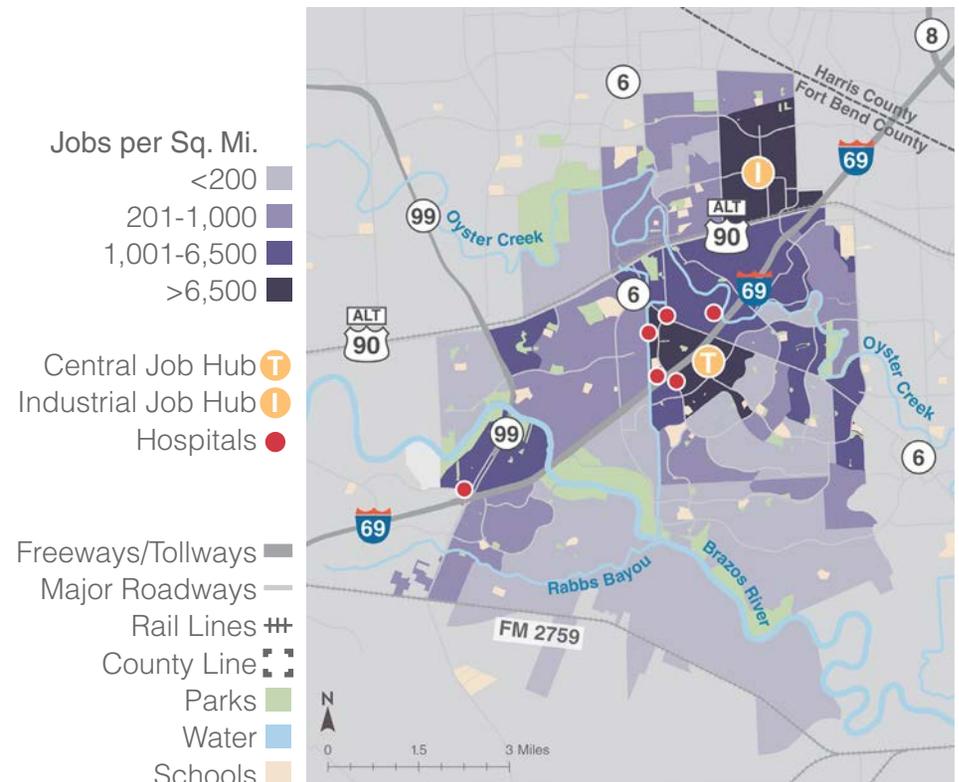


Figure A.7 Job Density per Square Mile
Source: US Census Bureau, 2018

Who Lives in Sugar Land?

Sugar Land is a diverse, wealthy, and aging community according to data from the US Census Bureau.

- » **Age** Sugar Land residents are older than the County as a whole with a median age of 43 compared to the County median age of 36.5. One in four (25%) of the City's residents are over the age of 60, compared to only 17% in Fort Bend County. Sugar Land also has a smaller percentage of children.
- » **Race & Ethnicity** Sugar Land is diverse, contributing to Fort Bend County's status as the most diverse County within the United States. The County has a higher percentage of Black and Hispanic residents than Sugar Land, but Sugar Land has a higher percentage of foreign-born population (34.5%).

	SUGAR LAND	FORT BEND COUNTY	TEXAS
Population	118,614	787,858	28,701,845
Median Age	43	36.5	35
Median Household Income	\$110,495	\$91,931	\$60,629
Households with no Vehicle	3%	2.6%	5%
Foreign Born Population	34.5%	28%	17%
Percent Households Renting	17%	23%	38%
People with a Disability	7.5%	7%	11%
Poverty Rate	3%	8%	15%
Unemployment Rate	5%	5%	5%

Table A.1 Demographic Comparison

Source: US Census Bureau, 2018

Who Works in Sugar Land?

According to 2017 data from the US Census Bureau:

- » Sugar Land had just over 69,200, nearly one out of every five jobs in Fort Bend County.
- » Only 11% of workers live within the City.
- » About one-quarter of Sugar Land's workers are under 30 years old, and one in five are 55 years or older.
- » Sugar Land workers tend to make a little more than the County and State averages.

Sugar Land's economy is diverse, but focused on the service sector with more than half of all jobs coming from health care, education, retail, and food service and hospitality. Many public employers like Fort Bend County and public school districts, and large private employers like the ones in **Table A.3** are part of those major four industries.

FOUR LARGEST INDUSTRIES IN SUGAR LAND

- Health Care & Social Services **17%**
- Educational Services **12.5%**
- Accommodation and Food Services **12.5%**
- Retail Trade **12%**

Table A.2 Industries with the Most Workers in Sugar Land
Source: US Census Bureau LEHD (All Jobs), 2017

LARGEST PRIVATE EMPLOYERS IN SUGAR LAND

- | | |
|-------------------------------|---|
| ChampionX | AmerisourceBergen Drug Company |
| Schlumberger | Encompass Health Hospital of Sugar Land |
| Methodist Sugar Land Hospital | Tramontina |
| Fluor Enterprises, Inc. | Applied Optoelectronics |
| Memorial Hermann Sugar Land | Baker Hughes |

Table A.3 Major Private Employers in Sugar Land
Source: Sugar Land Economic Development, 2020; Team Analysis, 2020

NOTE: All worker and workplace data are based on data collected prior to the COVID-19 pandemic and do not reflect any resulting shifts in employment patterns.



Where People Are Going

Sugar Land is home to a wide variety of destinations that attract both local and regional trips, particularly to neighborhood and regional activity centers.

Destinations & Land Uses

LAND USE & TRANSPORTATION

Land uses and mobility choices go hand-in-hand with each influencing the other. Mobility networks shape land development while the types of land uses, their typologies, and their characteristics have a direct impact on travel patterns. The strongest and most successful mobility networks are those that are context sensitive and respond to the needs and land uses of surrounding development and the people accessing it. This Mobility Master Plan needs to be responsive both to the land uses and activity centers of Sugar Land today and also be proactive in providing a transportation network that supports future new development and redevelopment within the City.

ACTIVITY CENTERS

A key element of previous planning efforts within the City was focused around activity centers. The 2012 Comprehensive Plan, 2012 Fort Bend Subregional Plan, and 2018 Land Use Plan all recommend building and improving activity centers as key nodes of economic and social life. The plans call for activity centers with safe, well-designed streetscapes that are well-connected through a variety of modes to surrounding communities, other activity centers, and the region as a whole.

LAND USE PLAN (2018)

The most recent update to the Land Use Plan was completed in 2018. This Plan guides the City's policy and future decisions relating to land use and development, and includes a Future Land Use Map for the City and ETJ. The Plan offers recommendations that recognize the relationship between transportation and land use.

The Plan's stated vision was that Sugar Land will develop and redevelop to remain a desirable place to live and do business. The City will change in response to long-term shifts in market demands and demographic trends, managing that change to preserve the City's appeal. It will balance different land uses, preserve the character of its neighborhoods, and create new walkable mixed-use Regional and Neighborhood Activity Centers.

City Destinations

Sugar Land is home to many destinations that attract both City residents as well as those from the surrounding region, see **Figure A.8**. The City has libraries, grocery stores, schools, hospitals, and places of worship – all serving residents, workers, and visitors. An abundance of outdoor amenities offer recreation, including Cullinan Park, Lost Creek Park, Oyster Creek Park, and large greenspaces like Brazos River Park and Memorial Park.

REGIONAL ACTIVITY CENTERS

The City draws visitors from the region to destinations like Town Square, University of Houston at Sugar Land, Smart Financial Centre, museums, Sugar Land Regional Airport, and Constellation Field.

Most of these larger destinations are located in five Regional Activity Centers defined in the 2018 Land Use Plan, shown on the map. These centers are current and planned hubs of dense activity within the City and have unique mobility characteristics.

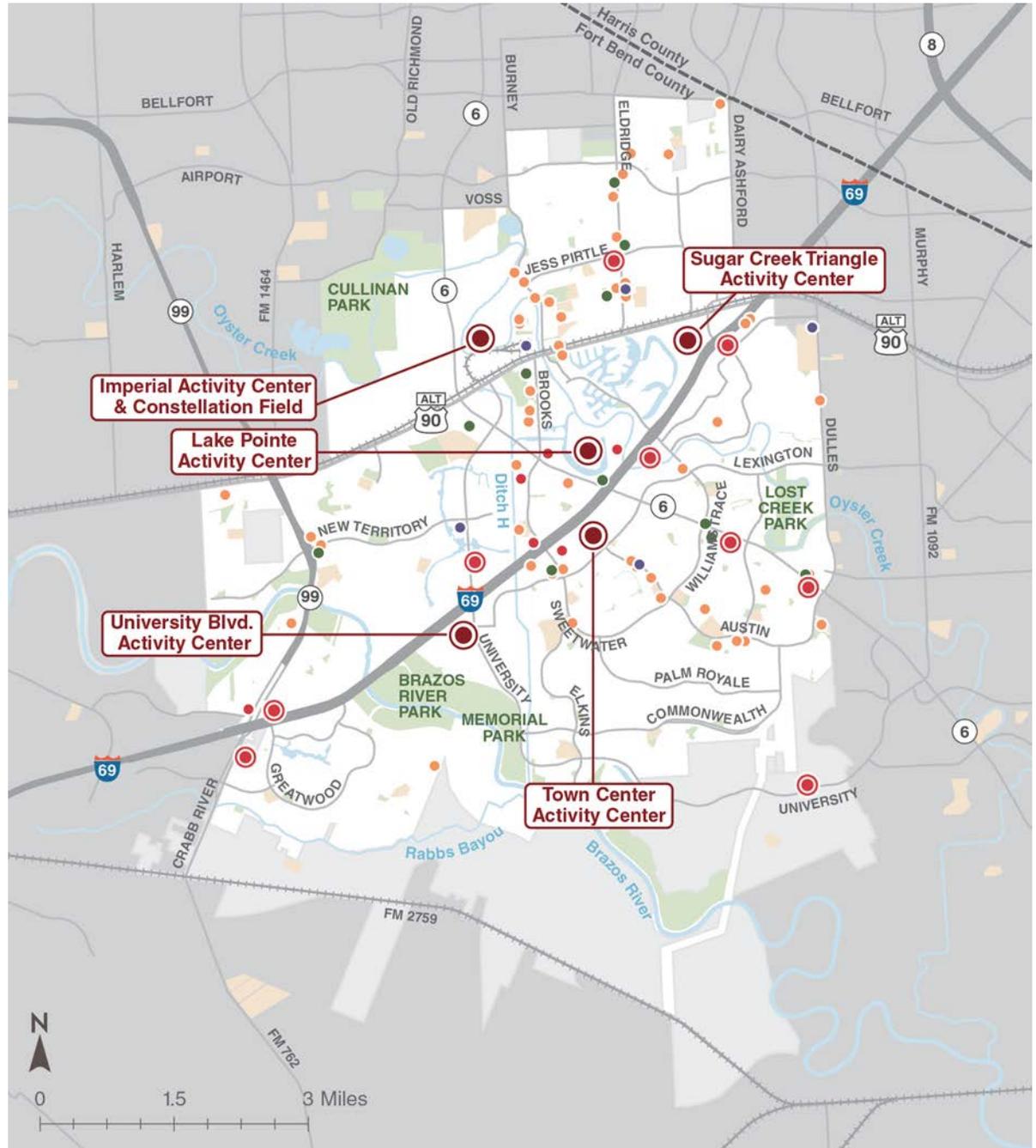
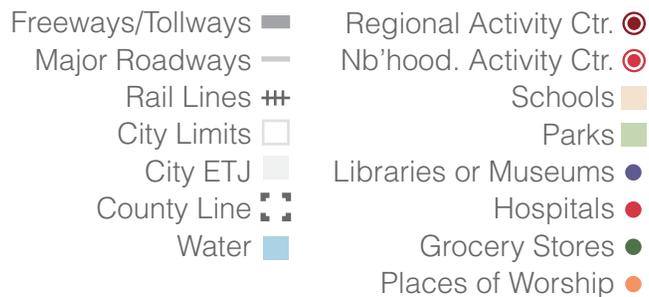


Figure A.8 Local Destinations

Source: City of Sugar Land, 2020

Current Land Use

Sugar Land has a standard pattern of suburban land use with low-density single-family residential covering the majority of the City and commercial concentrations near major arterials and highways, particularly IH-69 and SH-6. Higher-density residential uses are less common.

Parks and civic uses, like schools, are spread evenly across most of Sugar Land.

The area north of US-90A and the UPRR and east of Eldridge Road is home to the majority of the City's industrial land uses.

Sugar Land is mostly built-out, with little room for new development. The remaining tracts of vacant land are near the Smart Financial Centre, around the Imperial Sugar Company building, as well as a large tract west of the airport. The City's ETJ south of the Brazos River also has large tracts that could be developed in the future.

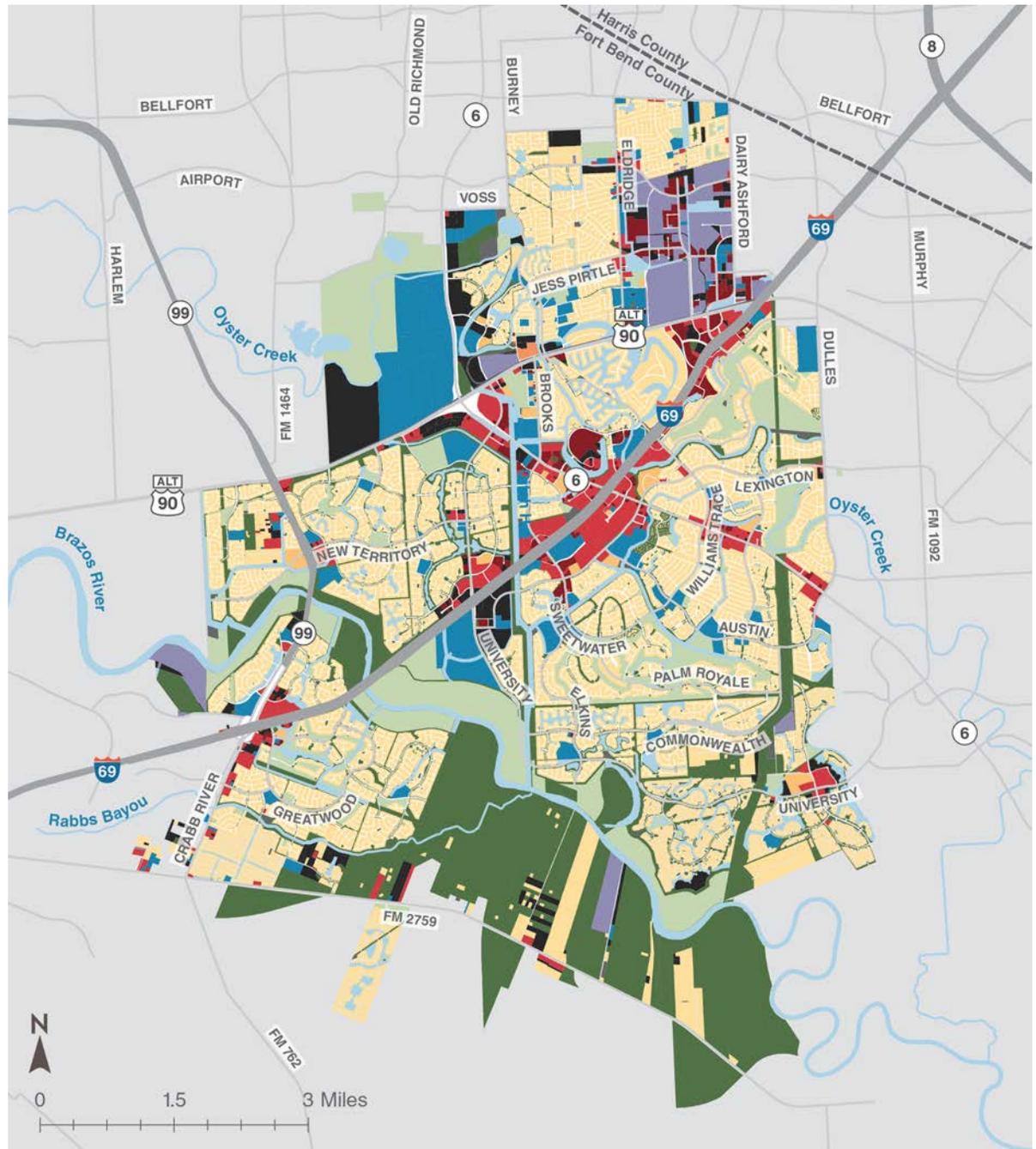


Figure A.9 Current Land Use

Source: City of Sugar Land; 2019

Future Land Use

The City's 2018 Land Use Plan offers a vision for Sugar Land's future development. The Plan encourages a dense mix of uses concentrated in the Regional and Neighborhood Activity Centers. The Plan also recommends preserving the character of the City's historic company town neighborhoods around Brooks Street and US-90A.

The 2018 Land Use plan developed land use categories that are more specific to Sugar Land that paint a clearer vision of today's land uses and planned land uses for the City's future.

This Mobility Master Plan will incorporate the 2018 Land Use plan recommendations to ensure cohesion between land use and mobility planning continues in Sugar Land.

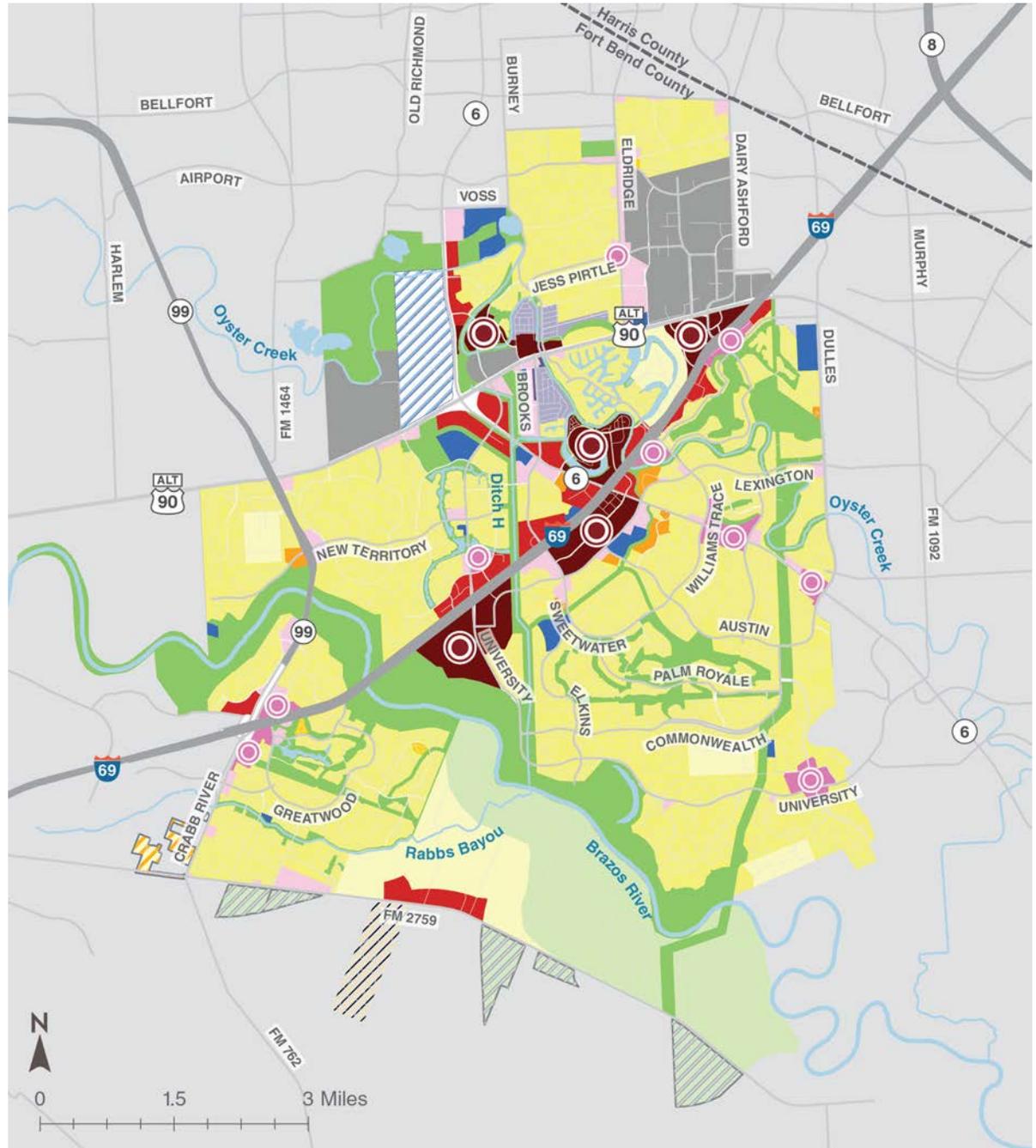


Figure A.10 Future Land Use

Source: City of Sugar Land; 2018

Schools

Sugar Land is split by the boundaries of two school districts. Most of the City is within the Fort Bend Independent School District (FBISD) catchment area, but everything south of the Brazos River falls within Lamar Consolidated Independent School District (LCISD). The City is also home to several private schools for many different age ranges as well as the University of Houston at Sugar Land.

A key driver of Sugar Land's attractiveness to new (and current) residents is the excellent reputation of both FBISD and LCISD, especially when compared to other districts within the Houston region.

Safe routes to school is a top interest for residents of Sugar Land as many walk or bike to school or wish they were able to walk or bike to school. A detailed assessment of how students get to school is included in the **Table A.5** in the next section.

- | | | | |
|-------------------|----|----------------|---|
| Freeways/Tollways | █ | Parks | ■ |
| Major Roadways | — | Water | ■ |
| Local Roadways | — | FBISD Boundary | □ |
| Rail Lines | ≡≡ | FBISD School | ■ |
| City Limit | □ | LCISD Boundary | □ |
| City ETJ | ▨ | LCISD School | ■ |
| County Line | ⊠ | Private School | ■ |

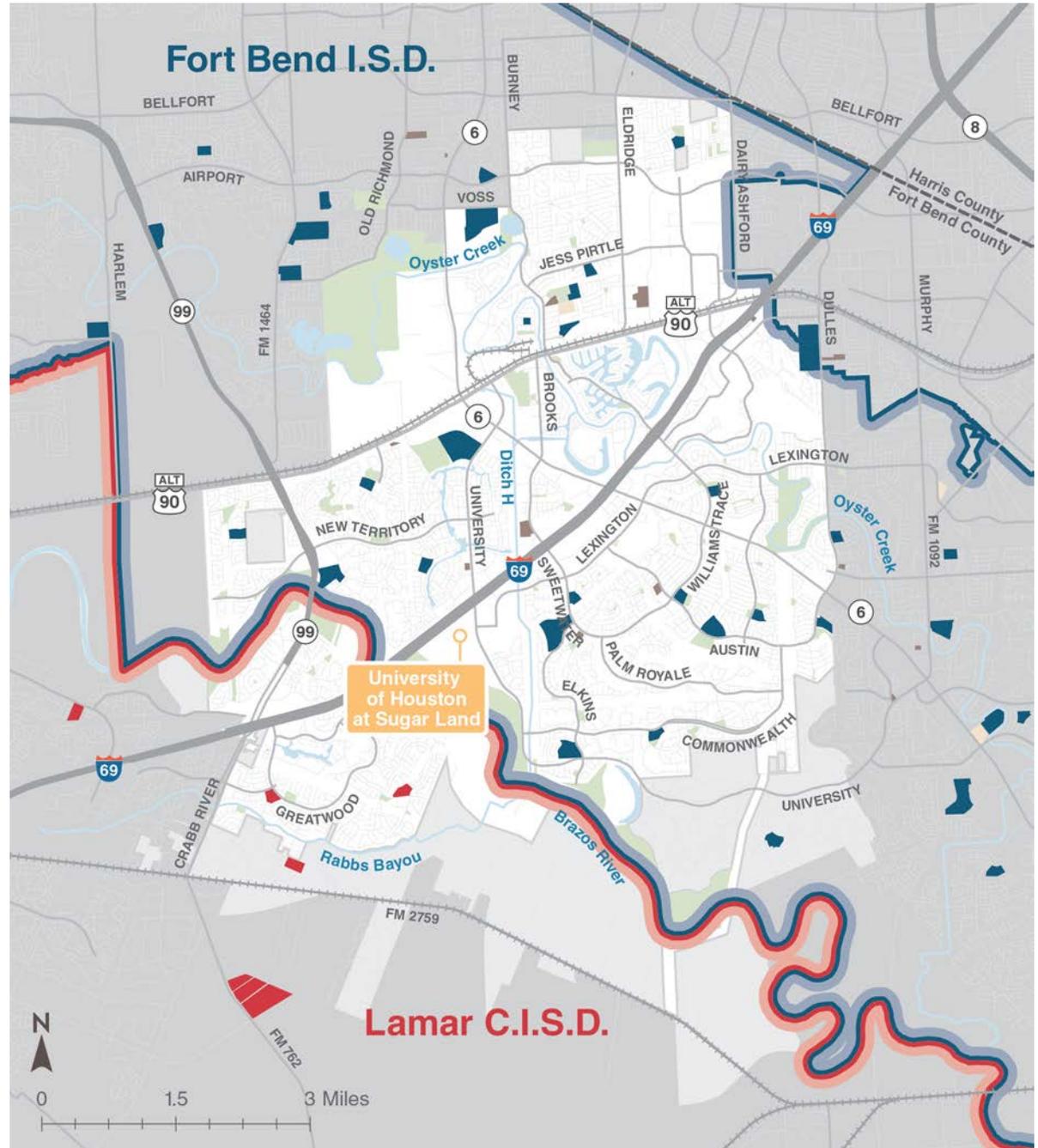


Figure A.11 Schools by District

Source: City of Sugar Land, 2020; Team Analysis, 2020



How People Are Traveling Today

Sugar Land residents rely on their car for most trips, however trends indicate an opportunity to shift to more sustainable modes for short trips

Going Places

Sugar Land's residents, businesses, and visitors rely on the City's transportation network every day. Whether it be biking to school, driving to work or walking the dog, when added together these trips reflect the City's mobility needs.

TRIP TYPES AND DISTANCE

Although rush hour traffic is often top-of-mind for residents' transportation concerns, trip data reveals a more nuanced view of travel behavior.

- » Only 13% of all trips in Sugar Land are from home to work. Meanwhile, half of all trips are from the home to a non-work destination like the grocery store or a place of worship.
- » A significant number of trips in the City are short trips, 0-3 miles, an ideal distance to walk or bike.
- » Trips to school are a common short trips. Crossing guard data for Fort Bend I.S.D. shows thousands of students walking to class every day.
- » Short trips are expected to grow in the next few decades, offering opportunities for people to shift to more active modes of transportation.

WORK COMMUTES

- » Commute data shows that most Sugar Land residents primarily drive to work with carpooling the second most popular way to get to work.
- » The time it takes for Sugar Land residents to get to work is longer, on average, than the State, with nearly one in three Sugar Land residents taking more than 45 minutes to commute.
- » The City's residents work across the region with concentrations in major employment centers like Downtown Houston, the Texas Medical Center, and Greenway Plaza. However, a large number of Sugar Land's residents work in the City.
- » People who work, but do not live in Sugar Land are also using the City's roadway network to get to their jobs. Many workers come from the communities surrounding Sugar Land inside Fort Bend County.

Commute Characteristics

Sugar Land residents work all over the Houston MSA region. Understanding commute behaviors and how residents get to and from their jobs is a helpful input into mobility planning. Data about travel behavior is historically difficult to find, and expensive to collect. Data about commuting collected from the US Census American Community Survey (ACS) can reveal information about Sugar Land's broader travel trends. However, in Sugar Land, commute trips are approximately 13% of all trips made by residents (see **Figure A.15**). Mobility planning best practices put an emphasis on planning for all trips, not just commute trips.

COMMUTE CHOICE

Sugar Land's mode split mirrors the trends in the State.

- » Four out of every five Sugar Land residents drive alone to work, with around 9% carpooling and another 6% working from home
- » The remaining Sugar Land commuters are split between transit (1.3%), walking (1.5%), and biking to work (0.2%).

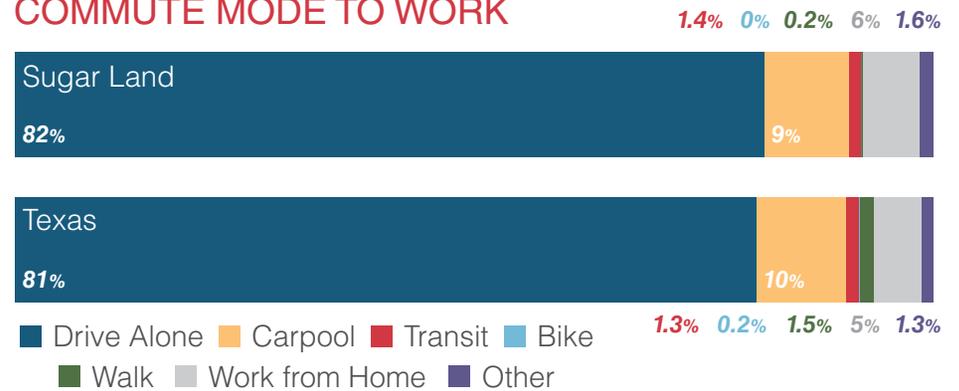
COMMUTE LENGTH

- » Compared to the State as a whole, Sugar Land residents have longer commutes with an average travel time to work of 31 minutes compared to 28 minutes for workers across Texas.
- » Nearly 28% of the City's residents take 45 minutes or more to get to work. Only 17% of residents in the State have the same long commutes.

Impact of the COVID-19 Pandemic

The data presented in this report, including data about travel and commute behaviors, was collected before the COVID-19 pandemic and reflects pre-pandemic trends. While the pandemic has significantly changed the nature of mobility across the world, the data presented here represents the best available information and can still inform the way that Sugar Land plans for its future.

COMMUTE MODE TO WORK



TRAVEL TIME TO WORK

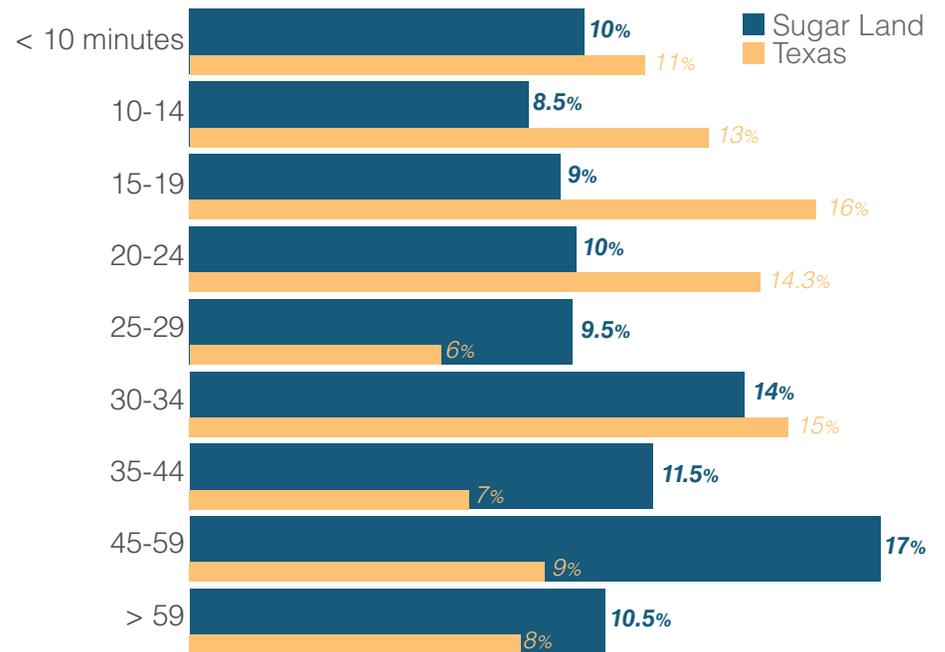


Figure A.12 Travel Infographics

Source: US Census Bureau, 2018

Where Sugar Land Residents Work

Sugar Land residents work across the region. Data from the 2017 US Census Bureau Longitudinal Employer-Household Dynamics (LEHD), indicate the top ten areas where Sugar Land residents work are:

- 1 Downtown Houston
- 2 Texas Medical Center
- 3 Sugar Land Town Center
- 4 Sugar Land Business Park
- 5 Sugar Creek Triangle & Lake Pointe
- 6 Stafford
- 7 Sugar Land near SH-99/IH-69
- 8 Uptown Houston (South)
- 9 Greenway Plaza
- 10 Uptown Houston (North)

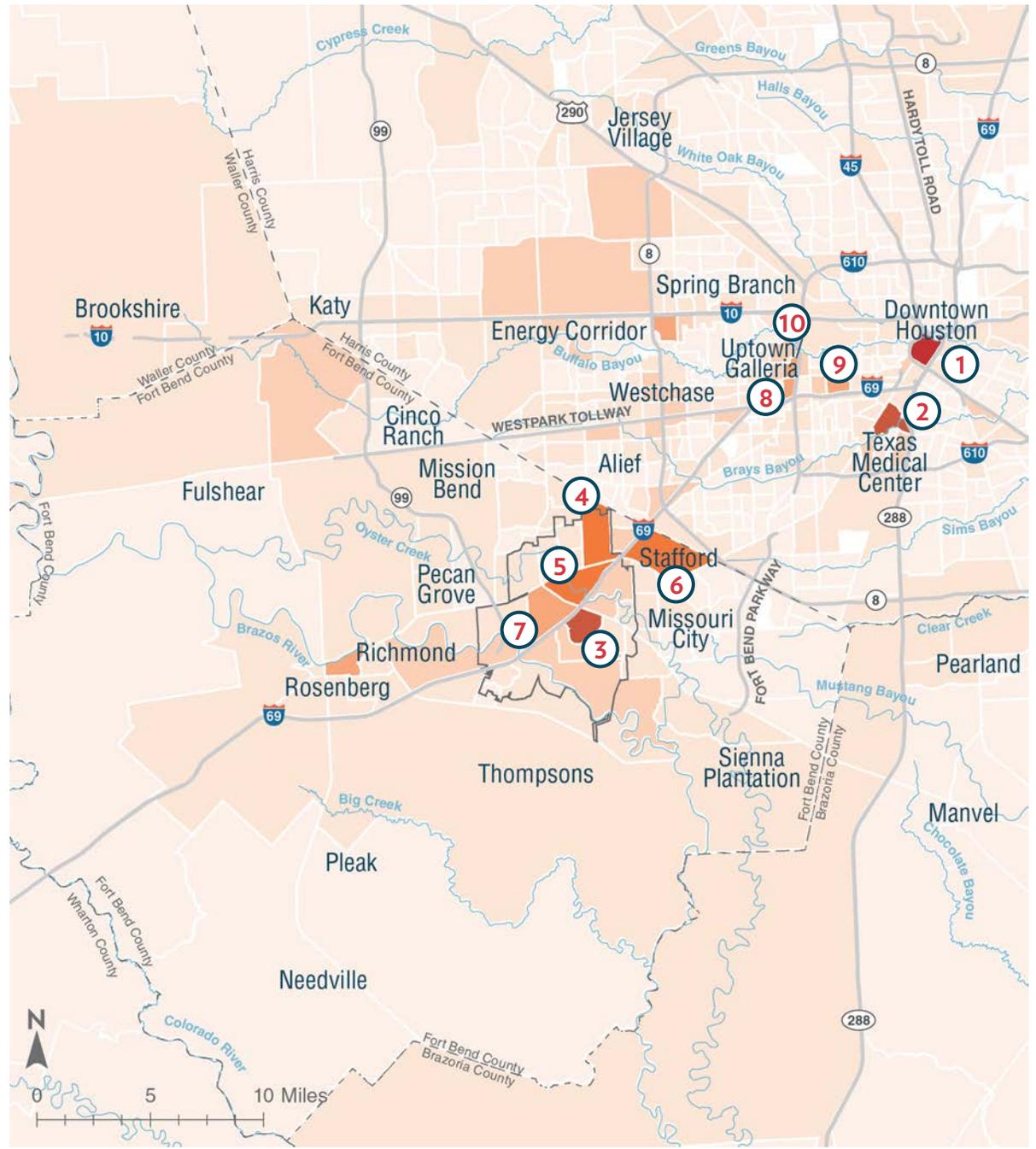
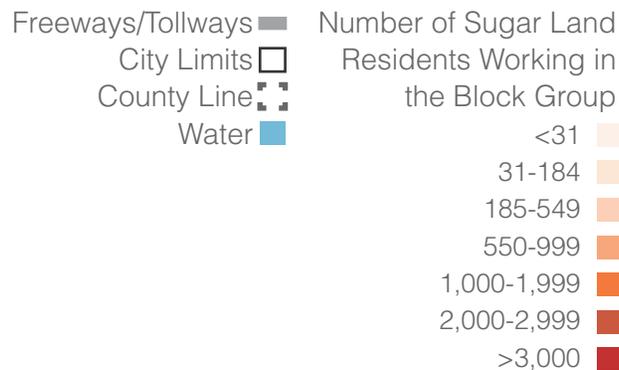


Figure A.13 Where Residents Work

Source: LEHD, 2018

Where Sugar Land Workers Live

The people who work in Sugar Land primarily live inside the City, but also come from nearby communities like:

- » Mission Bend
- » Thompons/south of the Brazos River
- » Sienna Plantation
- » Pecan Grove

As presented on page A-10, employment within Sugar Land has been steadily rising and the City is home to many successful businesses. The data shown in **Figure A.14**, indicates that many who work at these businesses have chosen to live in or near the City.

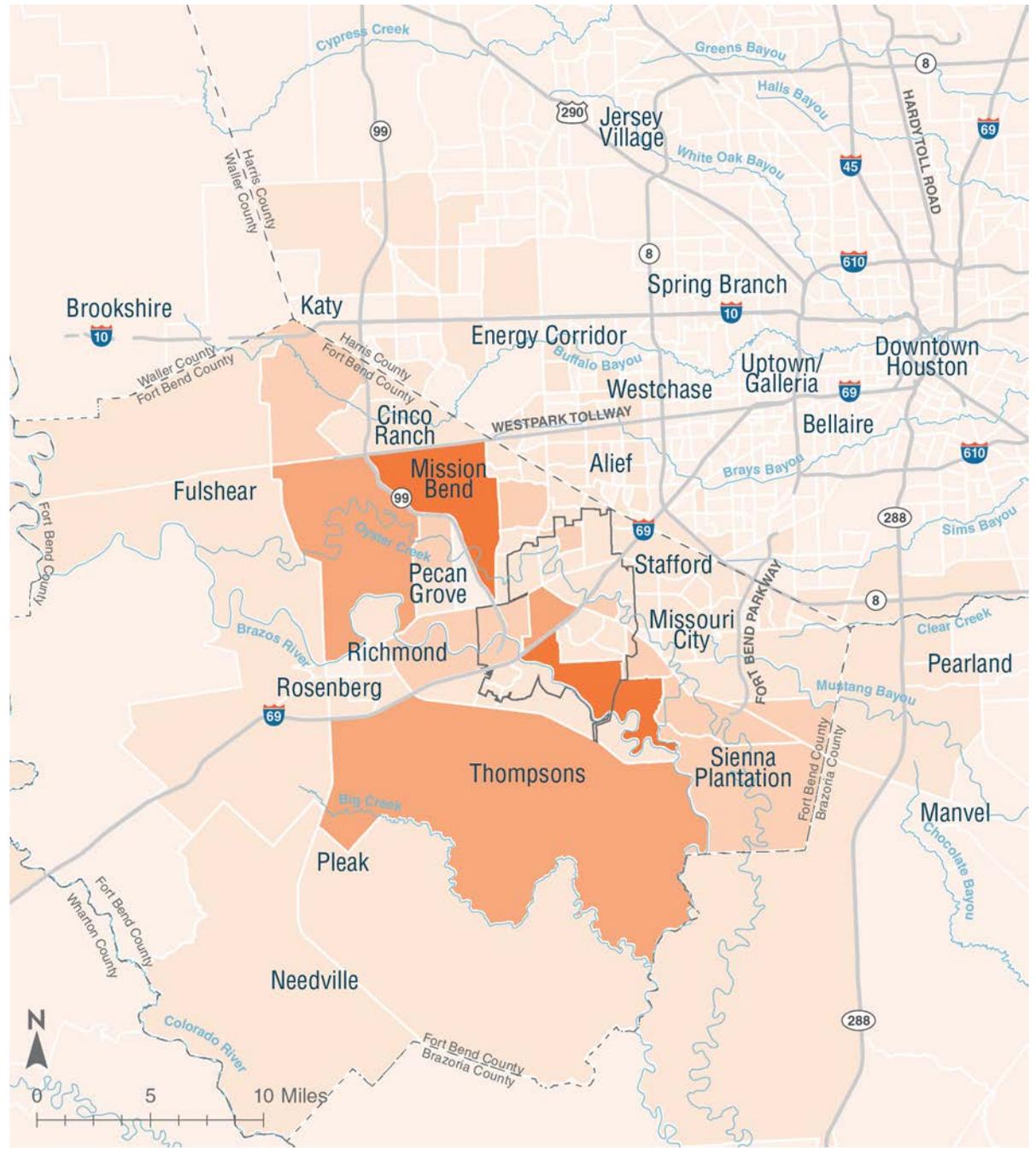
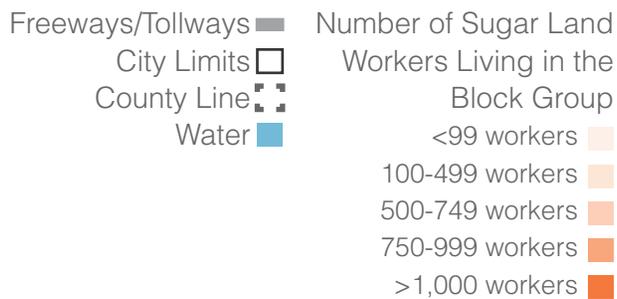


Figure A.14 Where Workers Live

Source: LEHD, 2018

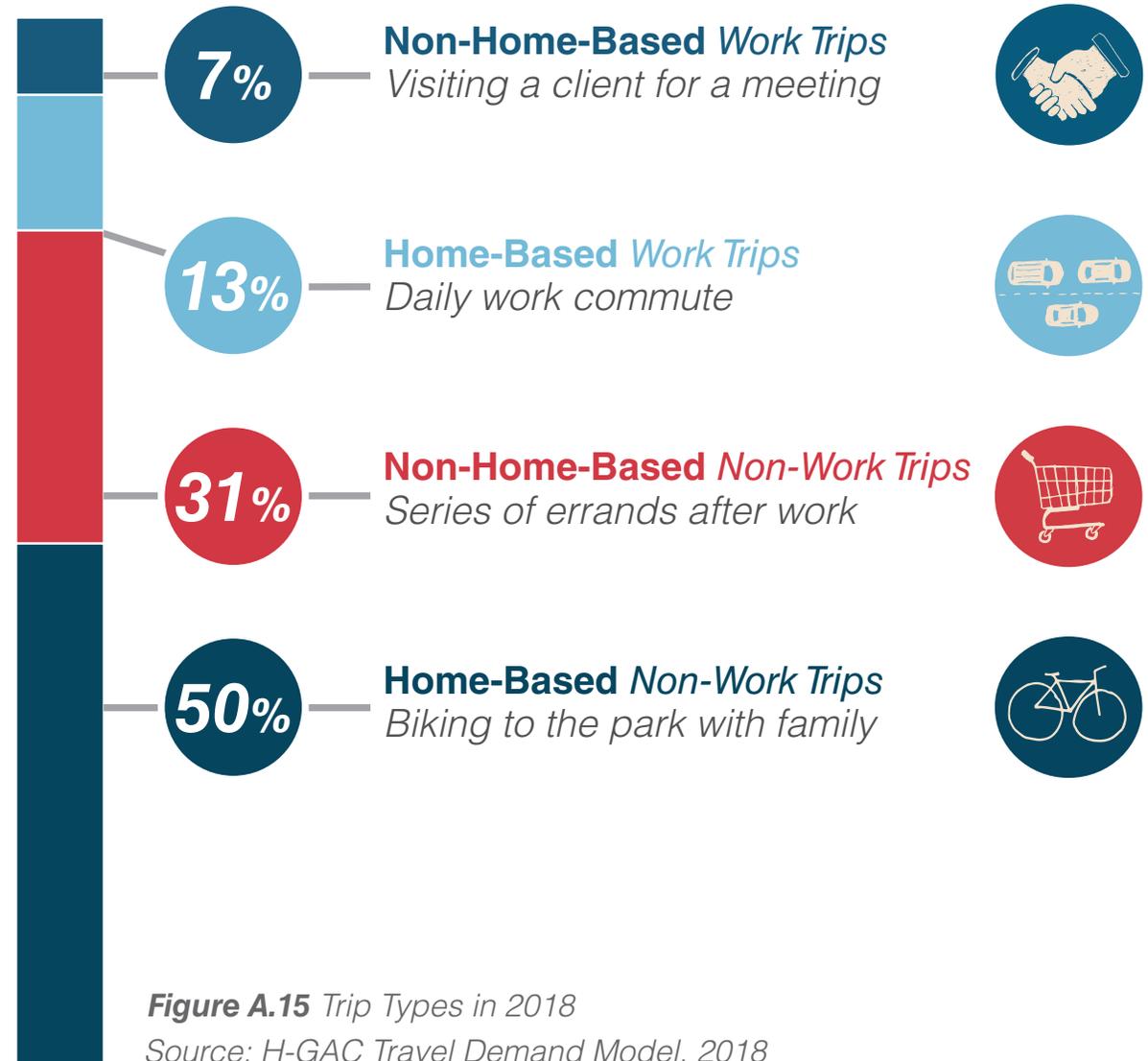
Trip Types

The Houston-Galveston Area Council (H-GAC) Travel Demand Model (TDM) includes estimates of trip types and trip distances for a region. All trips that originate within Sugar Land were assessed. Trips are classified into four types, based on their origin and destination, as shown in **Figure A.15**.

For the City of Sugar land, 2018 trip type data indicates:

- » Home to work (or home-based work trips) only account for 13% of all trips. This closely matches trends for the nation as a whole.
- » Half of all trips (50%) are home-based, not for work. This may be going to church or the grocery store from home, or biking to the park with family.
- » 31% are non-home based, non-work trips. These are often trip-chaining trips, for example running errands on the way home from work or after picking the kids up from school.
- » Non-home based works trips make are the smallest percentage of total trips.

TRIP TYPES IN SUGAR LAND



Trip Distances

The H-GAC TDM data also assess distance for each trip. Trip distance is a key factor for decision making when someone is determining how they will get to their intended destination. Shorter trips may allow for a person to walk or ride a bike, while a longer trip may require a personal vehicle.

Short trips, within this document, are classified as trips that are three miles or less. These short trips are often trips that can be made comfortably while walking or bicycling, see **Table A.4**. National trends indicate a growing desire to have a variety of mobility choices for short trips. Within Sugar Land, short trips make up 31% of all trips that originate within the City. When assessing trip distance by trip type, see **Figure A.17**, the percentage of short trips is highest for home-based non-work trips and lowest for home to work trips.

The H-GAC TDM data also indicates that short trips are expected to grow at a higher rate than longer trips over the next few decades, offering opportunities for people to shift to more active modes of transportation. This data was projected prior to the COVID-19 pandemic. Shifts in work and travel habits from the pandemic will likely reshape the City's mobility patterns by 2045.

WALKING & BIKING DISTANCES

	WALK	BIKE
5 MIN	0.25 miles	1 mile
10 MIN	0.5 miles	2 miles
15 MIN	0.75 miles	3 miles
20 MIN	1 mile	4 miles

Table A.4 Typical Walking and Biking Times for Varying Distances
Source: Team Analysis

TRIP DISTANCES IN SUGAR LAND

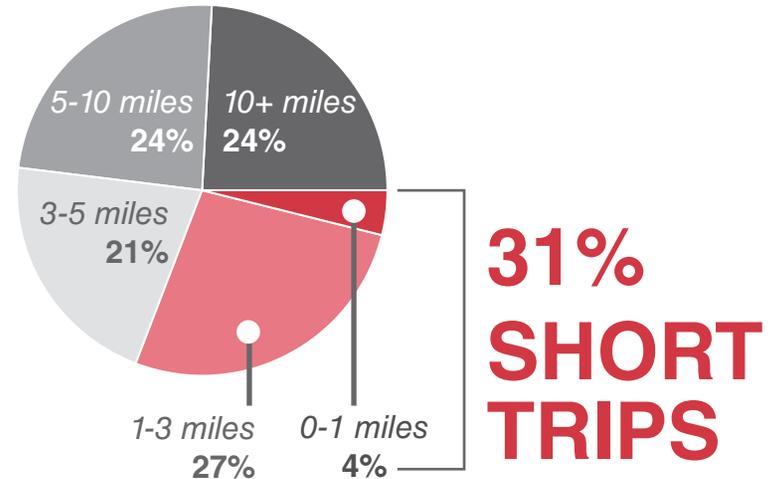


Figure A.16 Trip Distances in 2018
Source: H-GAC Travel Demand Model, 2018

TRIP DISTANCES BY TRIP TYPE

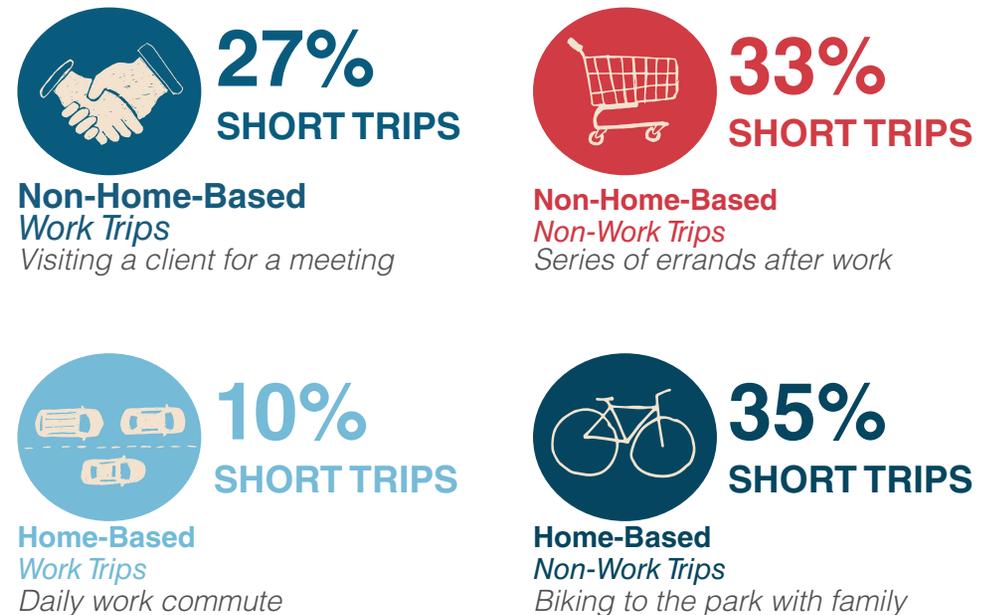


Figure A.17 Trip Distances in 2018
Source: H-GAC Travel Demand Model, 2018

Trips to Schools

Daily trips to school are common short trips in Sugar Land, and students often walk or bike to get to their school. Elementary schools have smaller attendance zones than middle and high schools, meaning a large portion of students live close enough to walk or bike to class regularly.

To get a sense of how students get to school, Fort Bend ISD crossing guards collect crossing counts at fourteen elementary schools and two middle schools in Sugar Land. **Table A.5** shows the average daily crossings of before school and after school and how that compares to the schools' enrollment numbers.

The crossing data also shows a higher portion of elementary school students using crosswalks than middle school students, supporting the idea that smaller attendance zones increase the likelihood that a student will walk or bike. Usage is also higher in the afternoon for nearly all schools.

Safe routes to school has been identified as a key topic of interest for residents. Understanding reasons for schools with higher cross-walk usage versus less usage may lead to recommendations for improving safety for students and all family members near schools through-out Sugar Land.

SCHOOL FORT BEND ISD	AVG. DAILY CROSSINGS	% OF ENROLLMENT	AVG. DAILY CROSSINGS	% OF ENROLLMENT
Middle Schools	Before School		After School	
Fort Settlement	394	28%	694	50%
Dulles	254	6%	290	7%
Elementary Schools	Before School		After School	
Cornerstone	887	64%	806	58%
Sugar Mill	613	44%	682	49%
Settlers Way	480	35%	558	40%
Austin Parkway	274	20%	751	54%
Sullivan	321	23%	488	35%
Colony Bend	255	18%	484	35%
Walker Station	200	14%	445	32%
Commonwealth	276	20%	332	24%
Highlands	98	7%	448	32%
Brazos Bend	120	9%	384	28%
Colony Meadows	190	14%	307	22%
Barrington Place	107	8%	379	27%
Lexington Creek	195	14%	212	15%
Lakeview	52	4%	160	12%

Table A.5 FBISD. School Crossings

Source: Fort Bend ISD, 2020

Data Context

Daily crossing numbers likely include some parents who escort their children through the crosswalk, or children who may ride in their parent's car to school but walk the last few blocks to the school building.

Many schools also bus a large percentage of students to school. Those students are typically dropped off at the school entrance and do not use the crosswalks.

Even with these caveats, the numbers still indicate that thousands of children (and parents) across the City rely on safe crosswalks every school day.

Mobility Choice & Barriers

RANGE OF EXISTING FACILITIES

Sugar Land boasts a range of transportation infrastructure, including sidewalks, well-designed trails, on-street bikeways, two rail lines, two Park & Ride locations, and many miles of roadways.

These existing facilities are part of a largely built-out City, with few tracts of land remaining for development. As a result, the framework of Sugar Land's transportation network is largely a function of history. The majority of the City was built after World War II and follows the standard curvilinear suburban layout.

BARRIERS TO CONNECTIVITY

As Sugar Land has grown, its boundaries have encompassed highways, and new highways have been constructed. Although the highways provide regional access in, around, and through Sugar Land, they may act as physical barriers to a person walking, biking, rolling, or driving across safely to and from local destinations. Gaps in the City's bikeways are apparent in multiple locations where a trail or bike lane is unable to make the connection across a highway, waterway, railroad track, or other barrier.

POLICIES, PROGRAMS, & CIP

There are existing (and proposed from previous City plans) policies and programs that support mobility and transportation improvements for Sugar Land. The Capital Improvement Program, or CIP, presents upcoming capital projects that will be constructed in the next one to five years in line with the City's budget. Mobility-related improvements are included in the City's CIP, but oftentimes the policies for construction-ready projects may not be in line with mobility goals defined in previous master planning efforts. This presents challenges for achieving the City's vision of "Superior Mobility" when projects are identified and implemented without regard to an overarching plan.



Sugar Land's Mobility Networks

The City has a variety of transportation options, but development trends, physical barriers, and inconsistent policies present challenges.

Today's Network

Roadways | The majority of the City is covered by a curvilinear suburban street network. Four state-owned high-speed, high-capacity facilities cross Sugar Land's limits and connect to surrounding cities like Houston and Rosenberg.

Transit | Fort Bend County Transit operates two Park & Rides in Sugar Land, both of which connect riders to the Texas Medical Center, Greenway Plaza, and Uptown Houston. The City borders METRO's service area, including its West Belfort Park & Ride with service to Downtown Houston.

Sidewalks & Bikeways | Most of Sugar Land's streets have sidewalks and the City has many neighborhood trails shared by people walking and biking. A few streets include on-street bikeways or shared lanes but the City's bike network remains largely disconnected with few ways to cross major barriers.

Freight Rail | Two, primarily freight, rail lines cross the City – one parallel to US-90A owned by Union Pacific, and one along FM 2759 owned by BNSF Railway. AMTRAK's Sunset Limited service (Los Angeles to New Orleans) uses the rail line along US-90A, but the train does not make a stop in Sugar Land.

Freeways/Tollways	■	City Limits	□
Major Roadways	—	City ETJ	□
Local Roadways	—	County Limits	■
TxDOT-Owned	—	Park	■
Rail Lines	≡	Water	■
Separated Bikeways	—	METRO Service Area	■
Delineated Bikeways	—	Park & Rides	●
Shared Bikeways	—	METRO Local Routes	—
Bike-Pedestrian Bridge	○	Airport	⊙

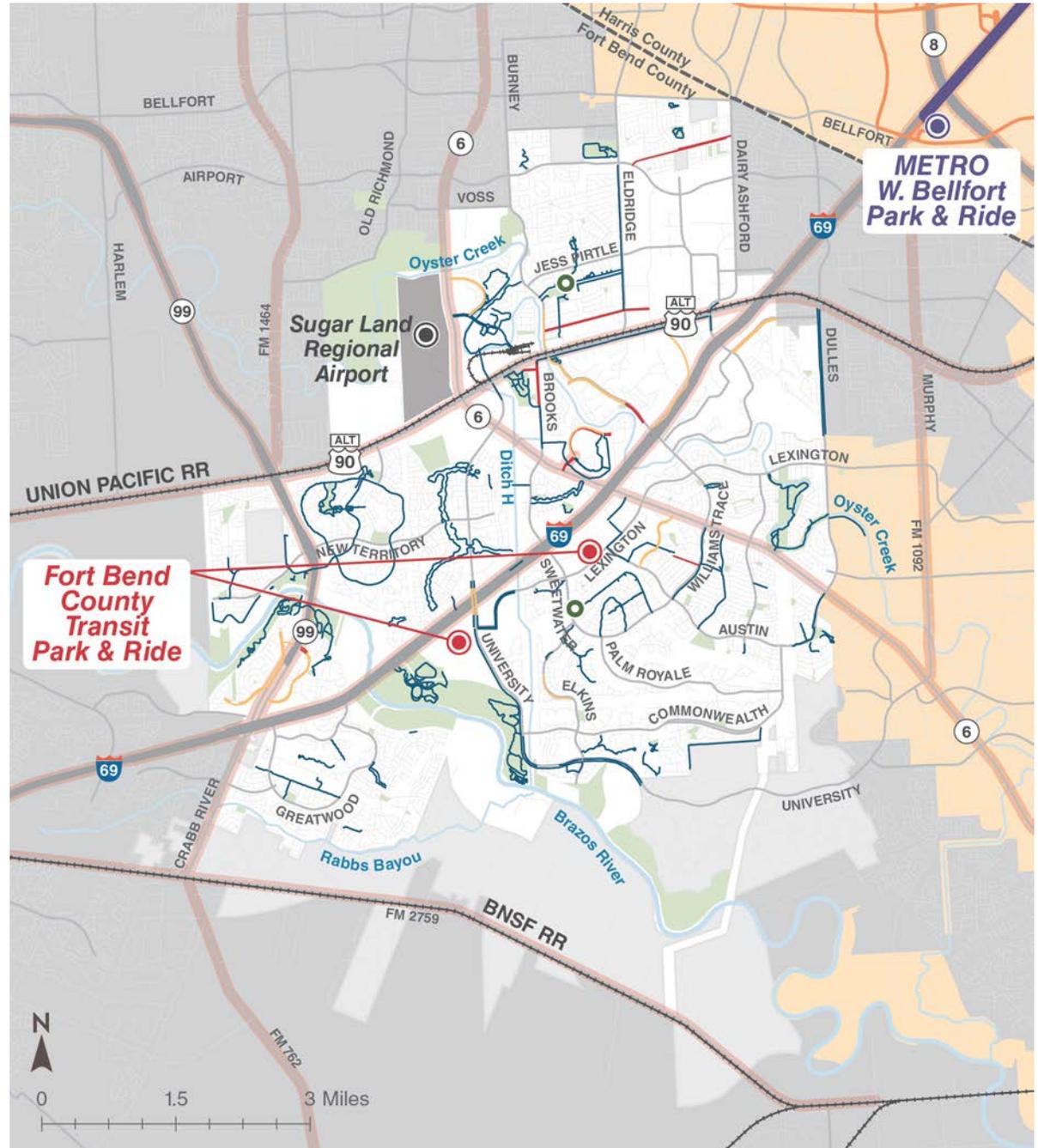


Figure A.18 Today's Transportation Network

Source: City of Sugar Land, METRO, TxDOT; 2020

Residents' Views on the Existing Networks

2017 CITIZEN SATISFACTION SURVEY

Every few years, the City of Sugar Land conducts a "Citizen Satisfaction Survey" to get feedback on City services, programs, and to understand needs/desires of the community to help shape community priorities. The survey is statistically representative of the community and can be used to plan and program City priorities for the next few years. Survey responses are presented on a five-point scale with results that show: Very Satisfied; Satisfied; Neutral; Dissatisfied; and Very Dissatisfied.

The most recent survey was completed in 2017. The next survey will be administered in Fall 2020. The mobility-related questions gauge resident satisfaction of the following:

- » Maintenance of sidewalks, streets, and infrastructure
- » Satisfaction of the overall flow of traffic and congestion management on streets
- » Conditions of major and neighborhood street
- » Conditions of city and neighborhood sidewalks
- » Condition of street and traffic signals
- » Accessibility of streets, sidewalks, and buildings for people with disabilities
- » On-street bicycle infrastructure (bike lanes/signs/sharrows); condition of pavement markings on streets
- » Condition of landscaping or streetscaping in medians
- » Adequacy of street lighting

Overall, the majority of residents are satisfied with the City of Sugar Land with over 60% satisfaction for all things mentioned above.

Flow of traffic and congestion management was identified as the top priority for investment to raise the overall satisfaction rating of the city. Although more than half of residents (61%) were very satisfied or satisfied with the flow of traffic and congestion management, that category has the lowest rate of satisfaction out of all topics presented within the survey. One other mobility-related priority for the City includes maintenance of streets/sidewalks/infrastructure.

DRIVING AND WALKING ALONG SH-6



WALKING OYSTER CREEK



A Suburban Network

Sugar Land has grown rapidly since its founding in 1959. As the City grew, its roadways were built to the standards and trends of the time. The City's earliest neighborhoods – like those near the historic Imperial Sugar Company building – were built with narrower streets in a grid pattern characteristic of pre-World War II development. Recent developments, like those in Imperial Park, put an emphasis on density and walkability.

However, the large majority of Sugar Land was built as a standard post-World War II suburb focused around the automobile. Curvilinear neighborhood streets are grouped into standalone, distinct residential enclaves. Each neighborhood connects to arterials and major collectors like New Territory Boulevard or Austin Parkway. **Figure A.20** shows the Master Thoroughfare Plan (MTP) classifications for roadways within the City.

The MTP analyzes Sugar Land's roadway network and assigns one of six functional classifications to its major streets based on the ownership of the roadway, its design, and vehicle volume. While the MTP showcases the difference in roadway types primarily based on function and design, there is little consideration towards the roadways context and the areas and uses it is serving.

MASTER THOROUGHFARE PLAN CLASSIFICATIONS

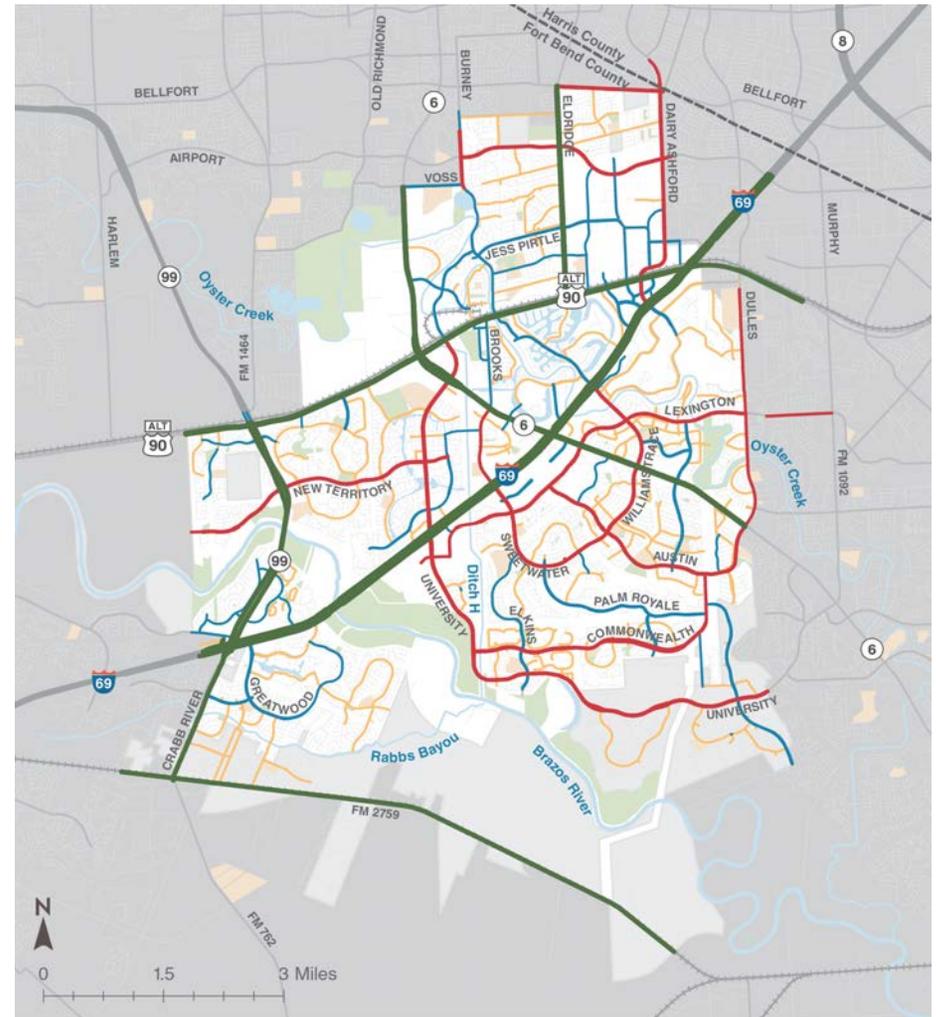


Figure A.20 MTP Functional Classifications

Source: City of Sugar Land; 2020

Functional Classification

- Freeway/State-Owned █
- Arterial █
- Major Collector █
- Minor Collector █
- Other █

Rail Lines

- City Limits □
- County Line □
- City ETJ □
- Schools □
- Parks □
- Water □

HOUSEHOLD CAR OWNERSHIP

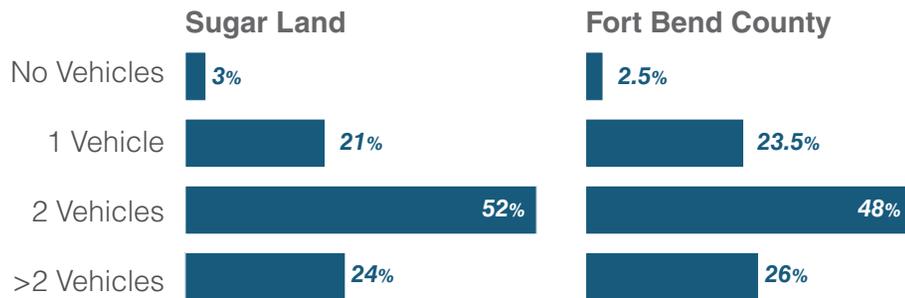


Figure A.19 Car Ownership

Source: US Census Bureau, 2018

Utilization of Public ROW

The public right-of-way (ROW) is City-managed property that holds many types of infrastructure: streets, sidewalks, lighting, landscaping, signage, as well as water, wastewater, and other utilities located below the surface. Meeting a variety of public needs all within a narrow sliver of land like a street, can be challenging at times to allow space for everything that is needed. The Master Thoroughfare Plan recommends a minimum ROW for corridors based on their classification and future expected volumes.

STREETS WITH EXCESS ROW

In Sugar Land, many streets have substantial ROW with wide medians, buffers between sidewalks and vehicle lanes, and many other amenities. Sweetwater Boulevard at Foxhall Crescent (**Figure A.21**) has a ROW of approximately 150-feet. Pavement width is approximately 80-feet leaving 70-feet outside the roadway curbs. Currently this space is utilized by mature oak trees and 5-foot sidewalks. There could be opportunities to enhance this excess space with shared use paths, dedicated bikeway facilities separated from vehicular traffic, and more. The corridors with excess ROW may present opportunities to rethink the space to accommodate all users.

STREETS WITH CONSTRAINED ROW

Other corridors have been widened due to traffic demand and further expansion would require encroachment on the surrounding developments. These corridors, like SH-6, are “ROW constrained”. **Figure A.22** shows SH-6 near First Crossing Boulevard. At this point, the ROW is approximately 135-feet. Curb to curb, the roadway is approximately 105-feet. This leaves 13-feet on the east side and 17-feet on the west side behind the curb for infrastructure like sidewalks and lighting. Widening this segment of SH-6 would require ROW acquisition from the adjacent properties.

The City has taken an approach of maximizing existing capacity as much as possible to improve corridor operations using Intelligent Transportation Systems (ITS) and the installation of Adaptive Signal Timing along the corridor (see **Figure A.24**).

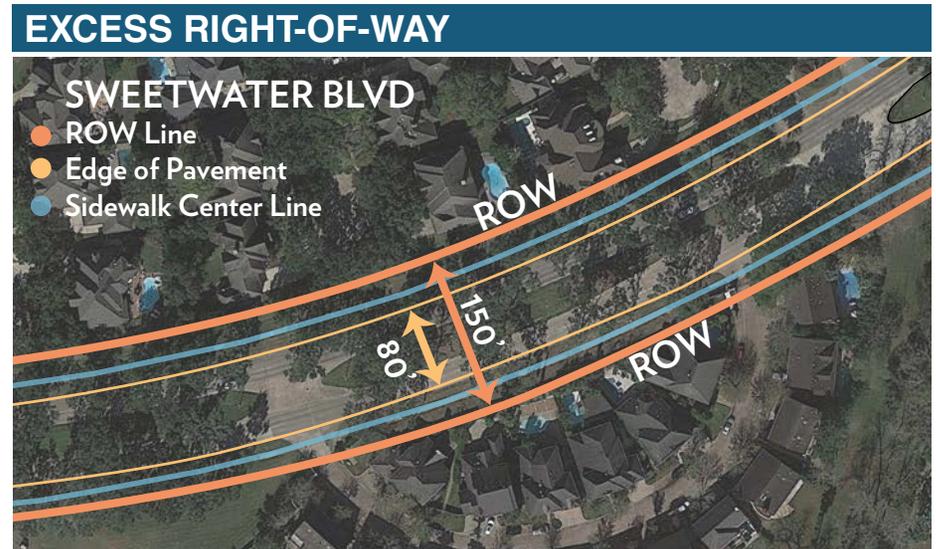


Figure A.21 Sweetwater Blvd Right-of-Way Diagram

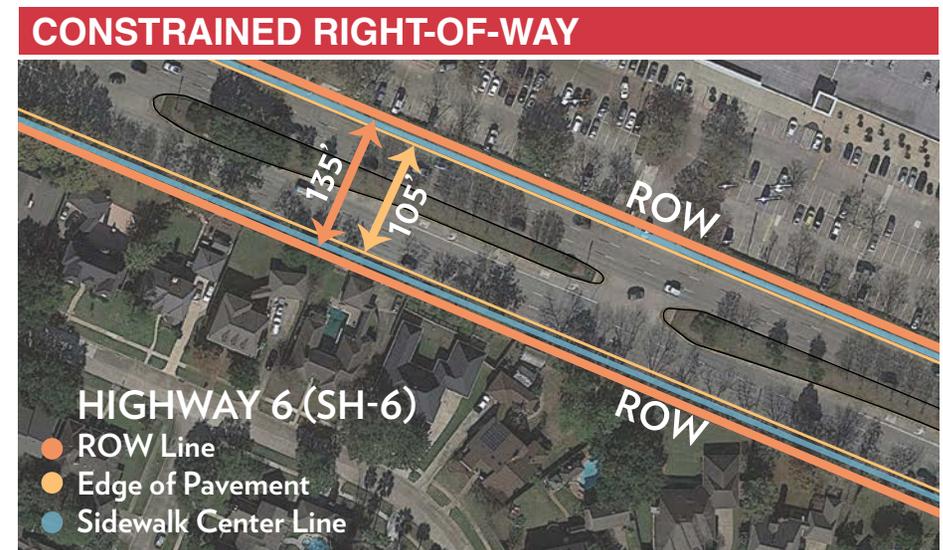


Figure A.22 SH-6 Right-of-Way Diagram

Connectivity Barriers

BARRIERS TO ALL MODES

There are four key barrier types within Sugar Land:

- » Natural barriers
- » Highway and freeway barriers
- » Rail barriers (UPRR and BNSF)
- » Major street barriers

Each barrier presents its own challenges to mobility and the impact varies based on the mode of the user wishing to cross that barrier. For example, a high-speed arterial may not present a challenge for a person driving, but could become a restrictive barrier to a person walking that needs to reach a destination on the other side of that arterial.

- | | | | | | | | | | | | | | | |
|-------------------|-----------|------------------|------------------|----------------|-------------|----------|-------------|------------|---------------------|-------------------|--------------|---------|-------|-------|
| Highways/Freeways | Arterials | Major Collectors | Minor Collectors | Local Roadways | City Limits | City ETJ | County Line | Rail Lines | Roadway Interchange | Railroad Crossing | Brazos River | Schools | Parks | Water |
| | | | | | | | | | | | | | | |

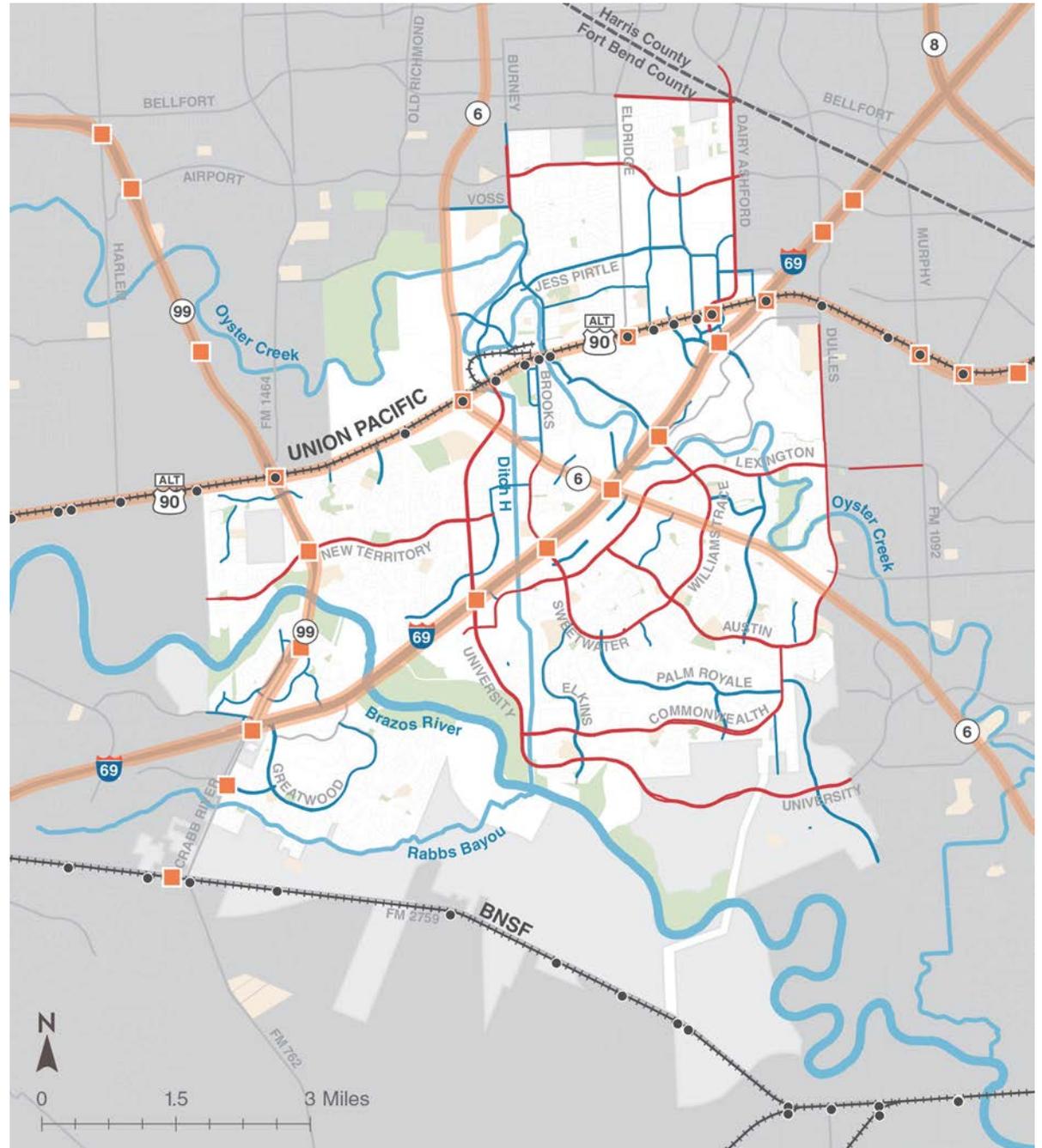


Figure A.23 Major Barriers

Source: City of Sugar Land, 2020; Fort Bend County, 2020

Barrier Types

NATURAL BARRIERS

2 crossings of Brazos River, 7 crossings of Ditch H



HIGHWAYS & FREEWAYS

7 crossings of IH-69, 16 crossings of SH-6



RAIL LINES

13 crossings of UP Railroad, 40 trains every 24 hours



MAJOR STREETS & INTERSECTIONS

10 arterials, 67 major collectors



Impact of Barriers and Street Connectivity

Street layout and barriers like highways or drainage ditches can add miles to an otherwise short trip (see **Figure A.24**). In the map to the right, it takes 2.5 miles to access First Colony Middle School from a nearby neighborhood. In this instance, Steep Bank Creek creates a barrier to neighborhood connectivity and requires a significant detour for all road users.

Aside from creating longer trips, these barriers also put a heavier strain on the few streets that do connect, in this instance Commonwealth Boulevard. Regional connections and major arterials that cross barriers are more important to a suburban network than a grid network. Due to the importance of these corridors, like Commonwealth Boulevard, SH-6, US-90A, and University Boulevard, Sugar Land has invested in ITS technology to improve corridors operations as shown on the next page.

Sugar Land has done a lot to minimize the impact of barriers and the suburban roadway network on walking and biking. Many neighborhoods include connections to nearby trails, like the one from the Imperial Development shown in the photo on the right.

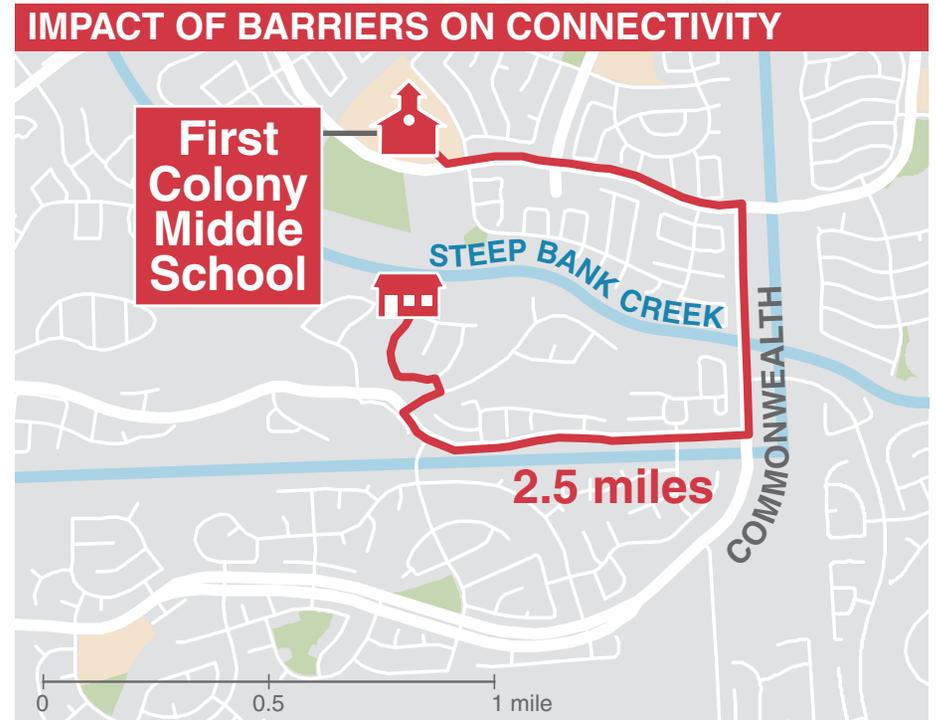


Figure A.24 Connectivity Across Barriers Source: H-GAC, 2020; Team Analysis, 2020



Intelligent Transportation Systems (ITS)

Sugar Land has invested substantially in ITS to improve traffic operations and provide essential connectivity to and through the City (see the full list of ITS below). The City's ITS allows for monitoring of all 90 signalized intersections, real-time data collection, Bluetooth travel time readings, and integration into WAZE and GoogleMaps to provide real time information to drivers using mapping software on their smart phones. These services provided through the Traffic Management Center (TMC) allow for improved operations and improved efficiencies on Sugar Land roadways. ITS can be a cost-effective strategy for improving operations and reducing congestion for automobile traffic. Supporting these efforts, the City is in the process of initiating the ITS Master Plan.

City of Sugar Land ITS

- » Traffic Management Center (TMC) with Operations
- » Fiber & Wireless Communication Network
- » Advanced Traffic Management System Software (ATMS)
- » **Adaptive Signal System (more on next page)**
- » Advanced Transportation Controllers (ATC)
- » Vehicle Detection with High-Accuracy Counts
- » Bluetooth Travel Time Readers
- » Point & Tilt Zoom Cameras
- » Dynamic Messaging Signs (DMS)
- » ITS Website that is Waze Integrated (its.sugarlandtx.gov)
- » Rail Monitoring System
- » **Rail Preemption System (RPS)**
- » Connected Vehicle Module (Audi)
- » Connected School Beacons
- » Emergency GPS System

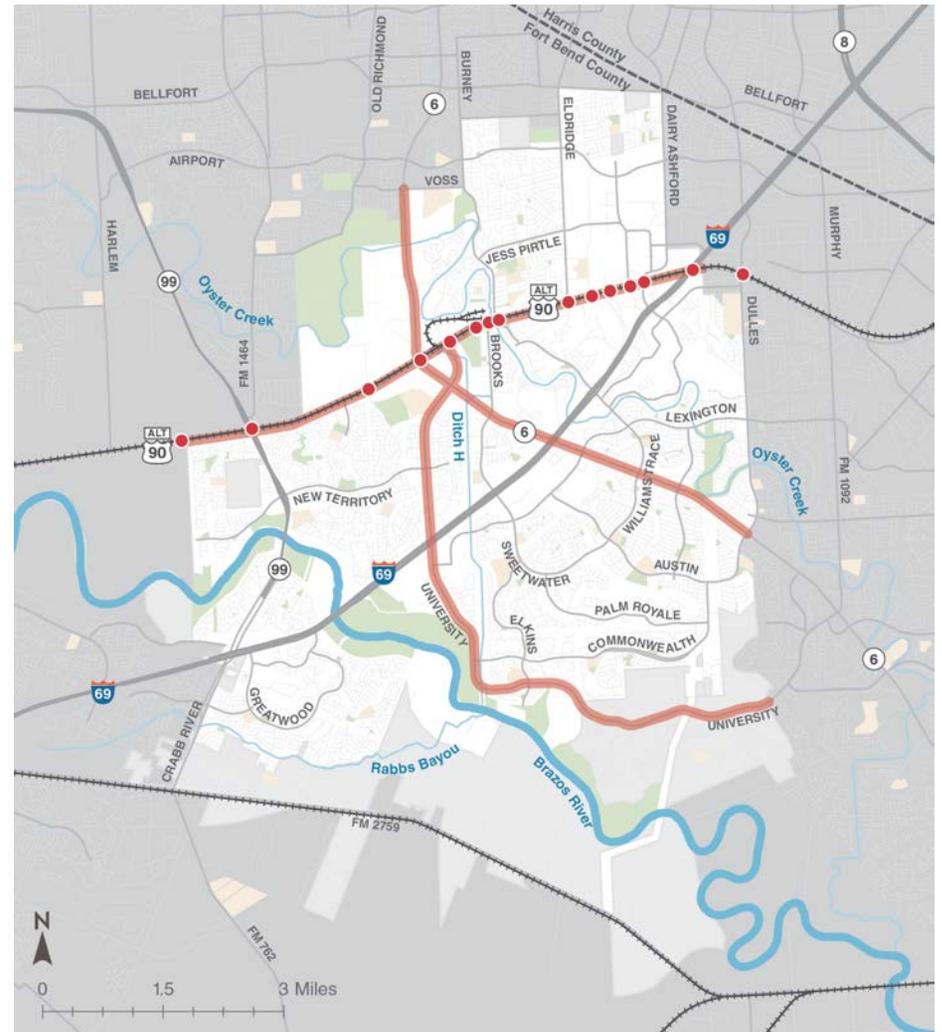


Figure A.25 Intelligent Transportation Systems

Source: City of Sugar Land, 2020

- | | | | |
|------------------------|---|-------------|---|
| Rail Crossings | ● | City Limits | □ |
| Rail Lines | — | County Line | ⋯ |
| Adaptive Signal Timing | — | City ETJ | □ |
| Freeways/Tollways | — | Schools | ■ |
| Major Roadways | — | Parks | ■ |
| Local Roadways | — | Water | ■ |

ITS for Traffic Flow

Two technologies in particular have had a significant impact on traffic flow in Sugar Land – adaptive signal timing and intelligent rail crossings. Continued investments in these technologies will help decrease congestion and allow residents to better navigate major barriers.

ADAPTIVE SIGNAL TIMING

A key part of the City's ITS system is Adaptive Signal Timing along SH-6 and planned for US-90A and University Boulevard. This system is a traffic management strategy in which traffic signal timings adapt to real-time vehicular demand versus signal timings that are based on a set time of day schedule. The system is comprised of traffic sensors embedded in the pavement that measure traffic, and software which performs calculations in real time every traffic signal cycle to optimize the timings along a coordinated corridor. This automated process benefits traffic with faster response times to fluctuations in traffic along a day, week, and even year. The adaptive system implementation has shown travel time reductions along SH-6.

SMARTER RAILROAD CROSSINGS

For all signalized intersection along US-90A that intersect a roadway that cross the UPRR, the TMC can monitor these signals when a train is present and minimize the associated delay. With over 40 trains per day, the disruption to mobility on US-90A and intersecting corridors can be significant. Being able to monitor operations at these intersections and keep vehicles moving as much as possible is critical. Unfortunately, trains on the UPRR can stop and sit, compounding delay issues.

ADAPTIVE SIGNALS



INTELLIGENT RAIL CROSSINGS



Existing Sidewalks

The City has more than 800 miles of sidewalks, enough to reach from Sugar Land to Kansas City. Sidewalk coverage throughout the City is a benefit to residents and visitors. Most neighborhoods have sidewalks present. However, condition varies greatly from not only neighborhood to neighborhood but sometimes street to street.

Figure A.26 shows where sidewalks are present and their width. City standards state sidewalk minimum width shall be five feet (5') and be located on both sides of all public streets with the exception of IH-69, SH-99, and some areas within the Sugar Land Business Park.

Standards for adequate width of sidewalks have evolved over time and older sidewalk segments may be too narrow according to today's best practices. Sidewalks that exceed five feet are more comfortable for side-by-side pedestrian use along with passing, including wheelchairs and similar wheel-based mobility devices.

A walking experience depends on more than just if a sidewalk is present. A sidewalk is as good as its worst segment and a poor segment can greatly limit a persons ability to get to where they want to go while walking or rolling.

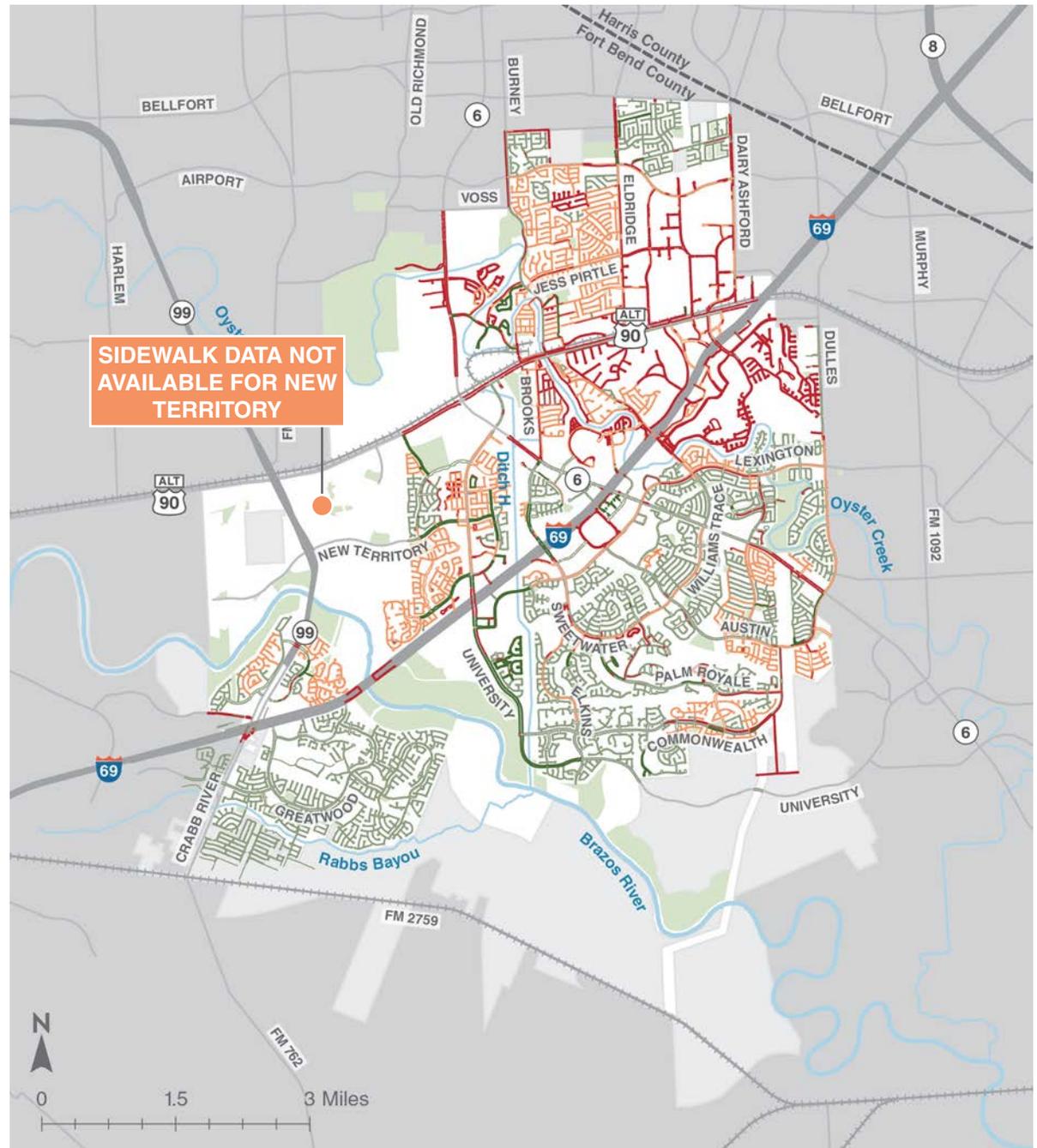


Figure A.26 Sidewalk Width & Presence

Source: City of Sugar Land, 2020

Walking Experience

While the presence of a sidewalk can be a critical element to providing a safe walking experience for a person, the condition of that sidewalk, nearby amenities, and what happens at intersections, are also critical elements that can make or break a walk.

SIDEWALK CONDITION & COMFORT

» **Sidewalk condition**, in addition to width, is a key component of a walking experience. Often sidewalks degrade due to environmental factors with tree roots doing the most damage to condition. If the vertical deflection (rise or dip) of a sidewalk exceeds 1" it can cause significant impact to a person rolling or a person with mobility challenges.

Many sidewalks in Sugar Land appear to be in good condition, however there are sections of sidewalk that would likely present challenges to traverse if someone has mobility challenges.

» **Shade** is a critical component of a comfortable walking experience as shade trees can lower temperatures for a person walking by more than 10 degrees. Areas with older sidewalks that may be plagued by tree roots are also some of the sidewalk segments with the most shade.

» **Lighting** is another element that can improve a walking experience. Traditional street lighting may not always illuminate the sidewalk requiring human scale lighting to actually light the walking area.

CROSSINGS & INTERSECTIONS

- » The City requires curb ramps at **all intersections** and driveways. However, like sidewalks, the condition of the ramp is critical.
- » Best practices state crossings of all roadways should be designed with thought of comfort and safety of the person crossing.
- » Sugar Land's arterials and major collectors are typically high-speed and wide enough to make crossing difficult if intersections are not well-designed. More details on these crossing types on page A-43.

NARROW & UNEVEN



WIDE SIDEWALK



LONG CROSSINGS



ESSENTIAL BRIDGES



SIDEWALKS & CURB RAMPS TO NOWHERE



Bikeway Network

Sugar Land boasts a variety of bicycle facilities across the City. The bikeways vary in type, but can be grouped into three main categories: **separated bikeways**, **delineated bikeways**, and **shared bikeways**.

SEPARATED FACILITY - SHARED USE PATH, SIDEPATH, BRIDGES

Bikeways that include both a horizontal and vertical separating feature are included. Separated facilities can be on- or off-street bikeways and can use one of several vertical separators, including but not limited to parked cars, vertical curbs, or greenspace/landscaping. Greenway trails are included within this category. It is critical to note that not all trails within Sugar Land allow bicycles, for example trails within Cullen Park prohibit bicycles.



DELINEATED FACILITY - BIKE LANE, BUFFERED BIKE LANE

Dedicated space along a street that uses roadway striping to designate space for bicyclists and can also increase horizontal separation with painted buffers.



SHARED FACILITY - SHARED LANE, SIGNED ROUTE

On-street connections that do not have any dedicated space for people riding a bicycle.

NOTE: in many cases, shared lanes and signed routes are not considered bikeways unless additional traffic calming measures are included to establish a bicycle boulevard or neighborhood bikeway.



Existing Bikeways

The 2013 Pedestrian & Bicycle Master Plan was created to impact the walking and bicycling environment by creating a citywide system of interconnected on- and off-street pedestrian and bicycle facilities. The Plan's stated vision was for connections to all neighborhoods via readily accessible, safe and attractive facilities that are efficient, cost effective and focused on providing facilities that are frequently used. 23% of projects from the Pedestrian & Bicycle Master Plan have been completed resulting in the existing bikeway network shown in **Figure A.27**.

EXISTING BIKEWAYS

Several bikeway types exist within the City of Sugar Land. Bikeways categories have been established to group facilities that may have similar comfort levels together. Descriptions and images are provided on the previous page.

- | | | | |
|-------------------|---|------------|---|
| Freeways/Tollways | █ | Bikeways | |
| Major Roadways | — | Separated | █ |
| Local Roadways | — | Delineated | █ |
| Rail Lines | ≡ | Shared | █ |
| City Limits | □ | | |
| City ETJ | □ | | |
| County Line | ⊠ | | |
| Parks | ■ | | |
| Water | ■ | | |

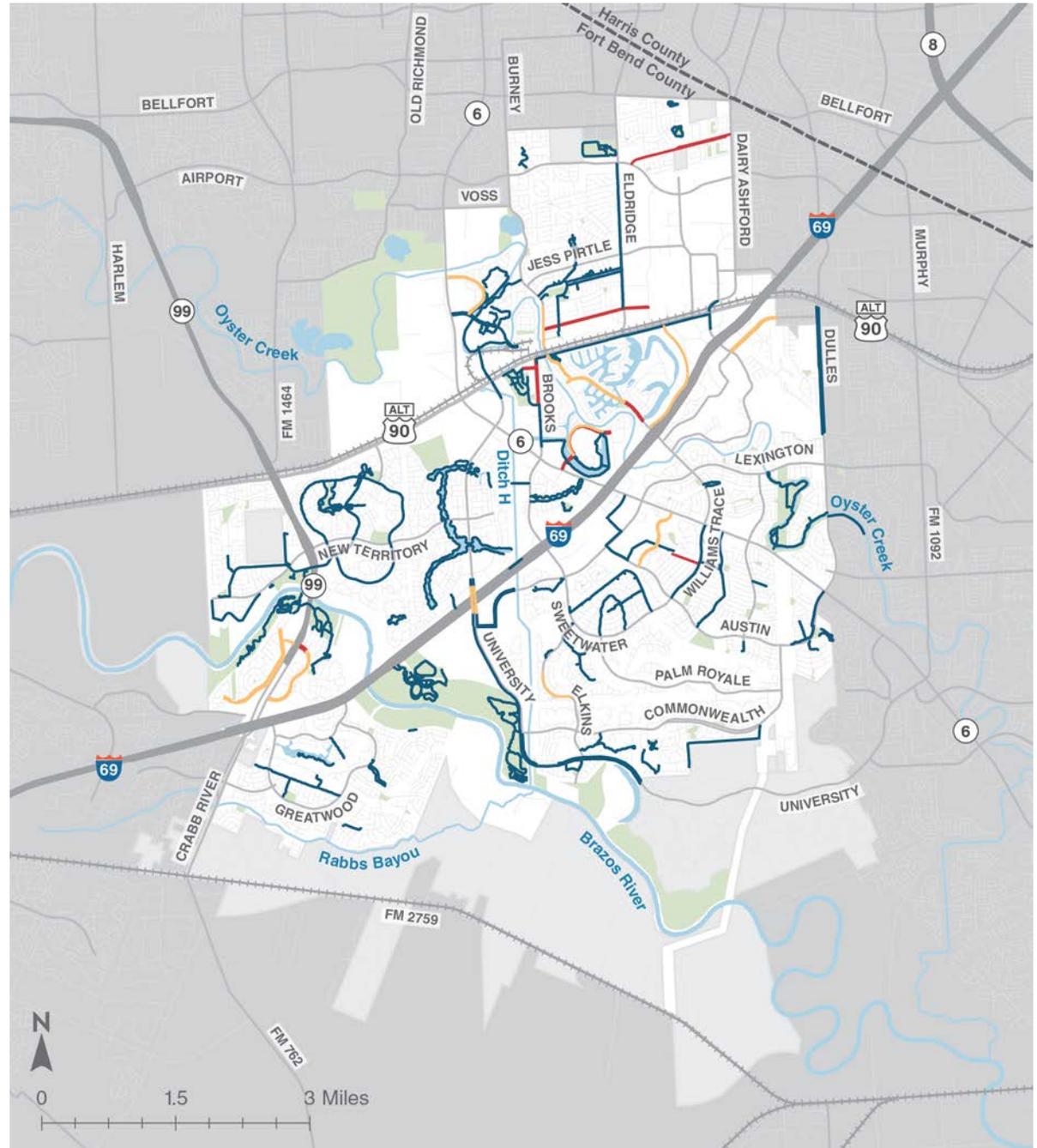


Figure A.27 Existing Bikeway Network

Source: City of Sugar Land & Team Analysis, 2020

Bikeway Access

The existing bikeway network includes over 100 miles of facilities throughout the City of Sugar Land and provides trail and bikeway access to most of Sugar Land's residents. Access for purposes of this map was defined by one-quarter mile away from existing bikeway infrastructure. Although this map shows residents all over Sugar Land have access to numerous bikeways, it does not illustrate how these networks are interconnected or not, nor barriers that limit overall connectivity. There are still several key connections that are needed to establish a safe and convenient network for all users.

This Bikeway Access analysis along with the Level of Traffic Stress analysis illustrate how major streets and difficult crossings can become barriers to access for all ages and abilities, and may only cater to the most confident of bicyclists. Although low stress networks exist, they are not well connected to the overall network.

- Freeways/Tollways
- Major Roadways
- Rail Lines
- City Limits
- City ETJ
- County Line
- Water
- Existing Bikeways
- W/in 1/4 mi. of Bikeway

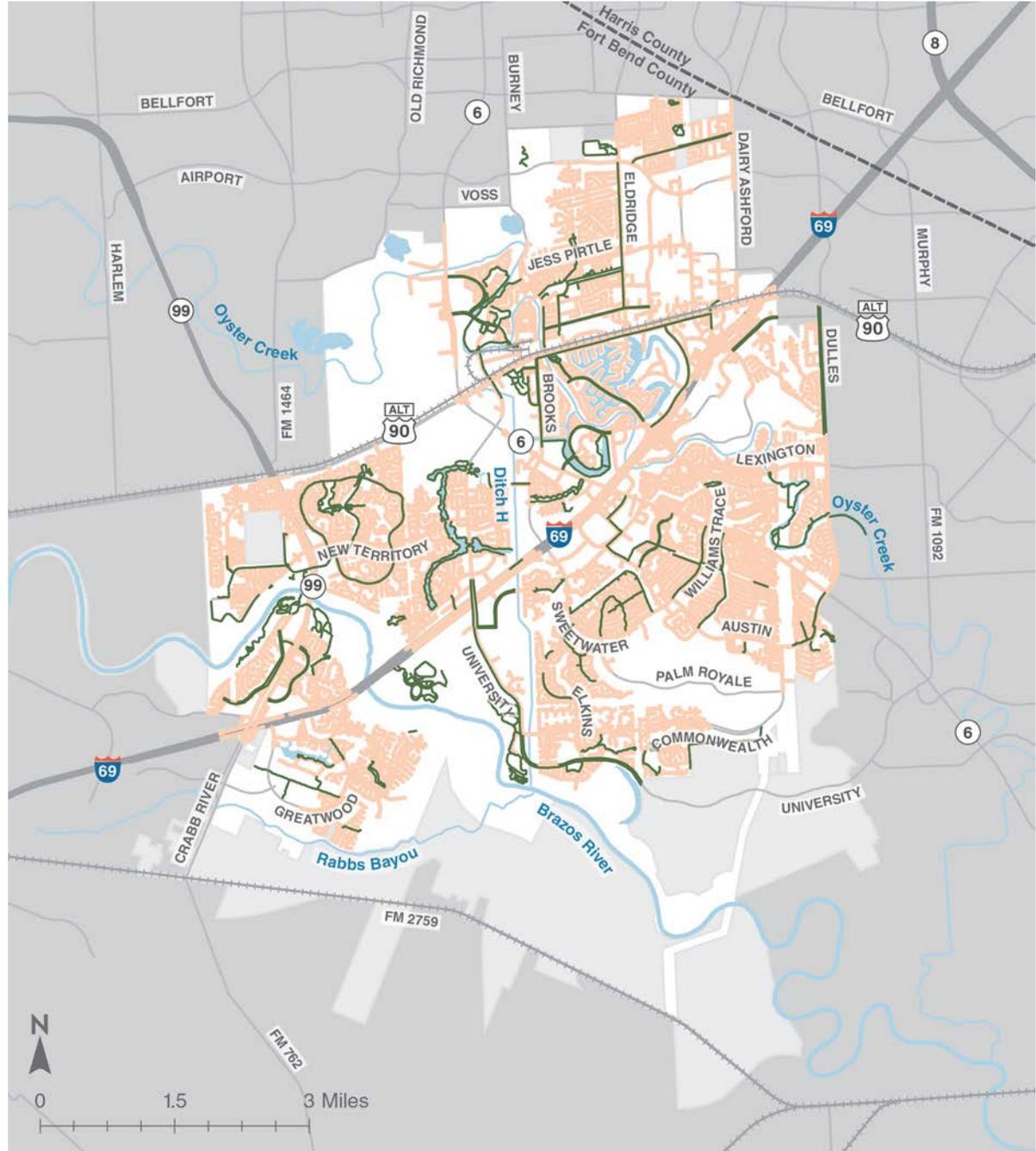


Figure A.28 Bikeway Access

Source: City of Sugar Land and Team Analysis, 2020

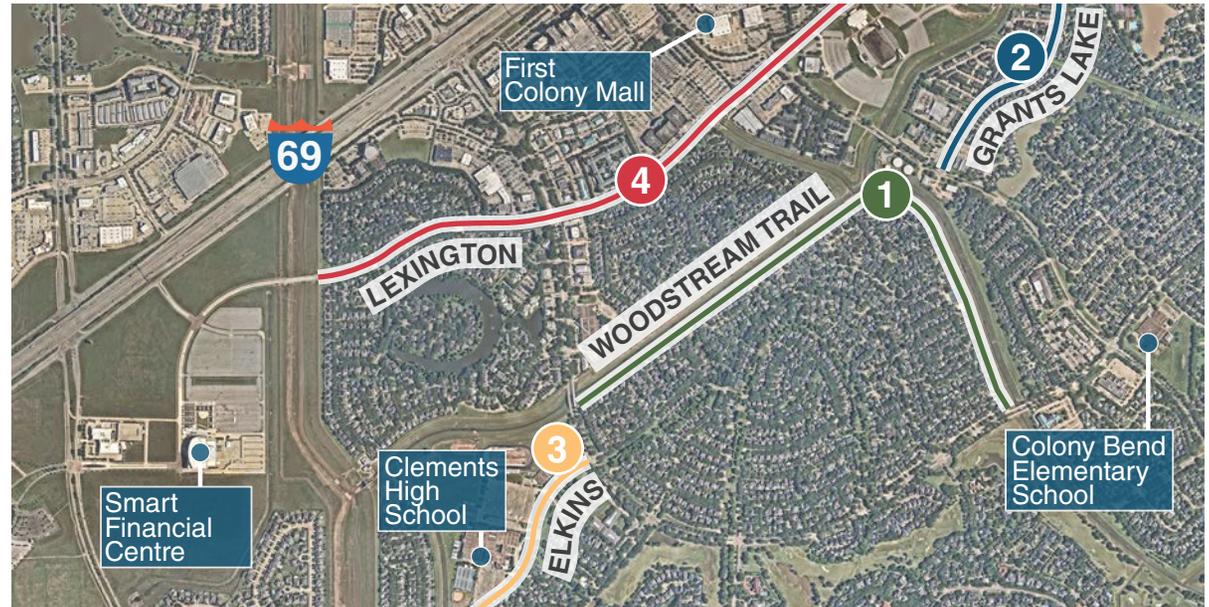
Bikeway Level of Traffic Stress

LEVEL OF TRAFFIC STRESS

This analysis quantifies a bicyclists' experience using a given segment of street based on measurable characteristics. Criteria used in this analysis include:

- » Number of lanes
- » Posted speed limit
- » Existing bikeway facilities
- » Traffic volume

Level of Traffic Stress (LTS) is measured on a range of 1 to 4 with 1 representing the least stressful streets in the network for bicyclists and 4 representing the high stress and least comfortable streets. In Sugar Land, most of the local neighborhood streets are lower stress due to low volumes and posted speeds. While there are several lower stress routes, intersections with streets that are higher stress can create barriers to connectivity.



1 WOODSTREAM TRAIL

LOWEST STRESS



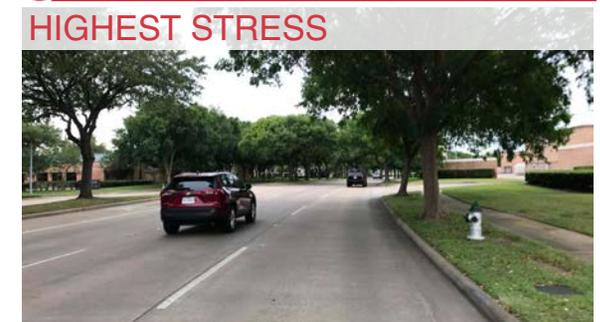
2 GRANTS LAKE



3 ELKINS



4 LEXINGTON



Bikeway Level of Traffic Stress

LEVEL OF TRAFFIC STRESS

Research findings show that most people have little tolerance for interacting with traffic while riding a bike; “would-be” bicyclists may choose not to bike for trips because they are afraid or uncomfortable in mixed-traffic scenarios. This group of people, often called the “interested but concerned” group, comprise approximately 51-56% of the US population. They prefer slow-speed streets, trails, and other “low-stress” or “high-comfort” places to bike that have limited motor vehicle traffic or are separated from traffic. The visual and physical separation between bicyclists and motorized traffic helps bicyclists to feel safer and more confident.

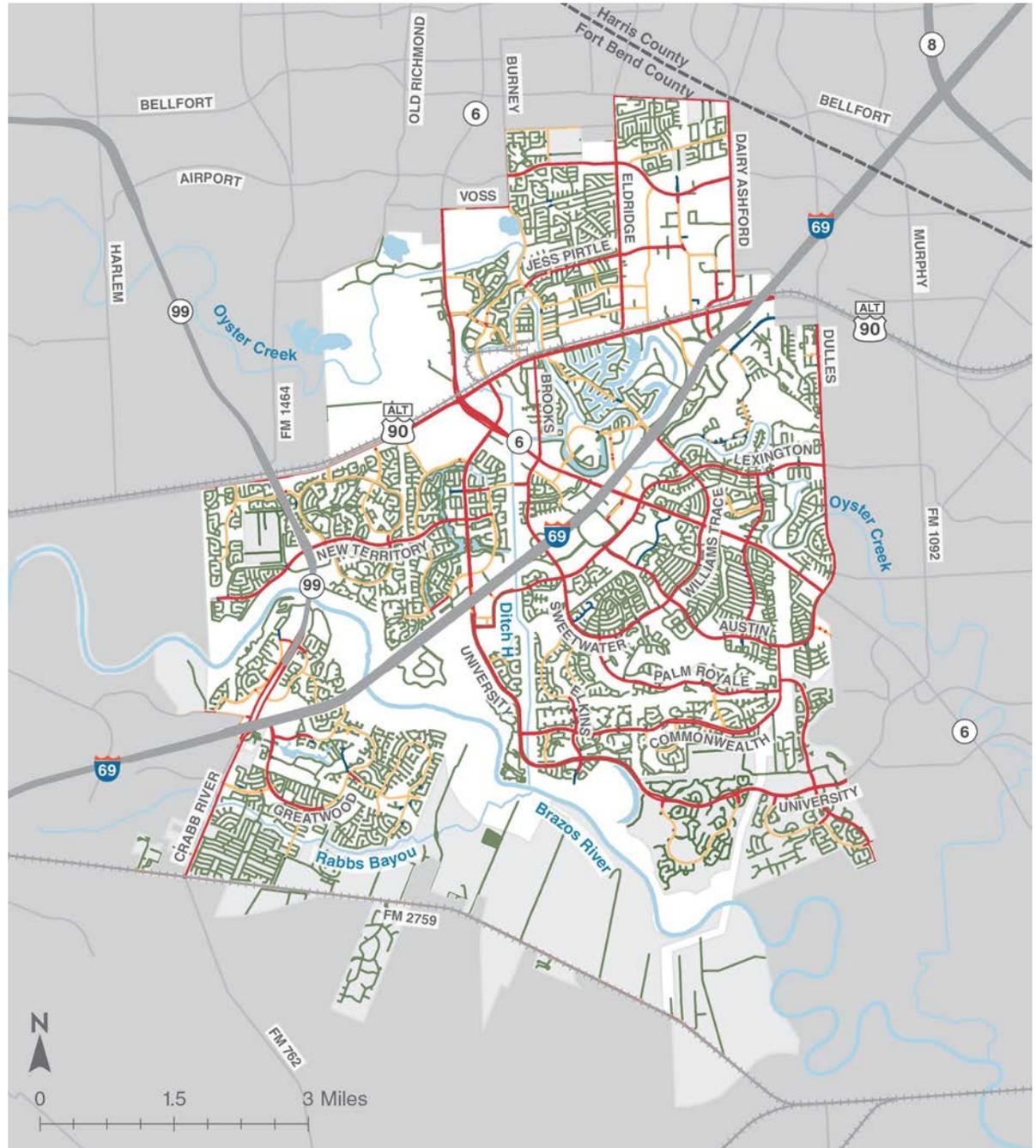


Figure A.29 Level of Stress

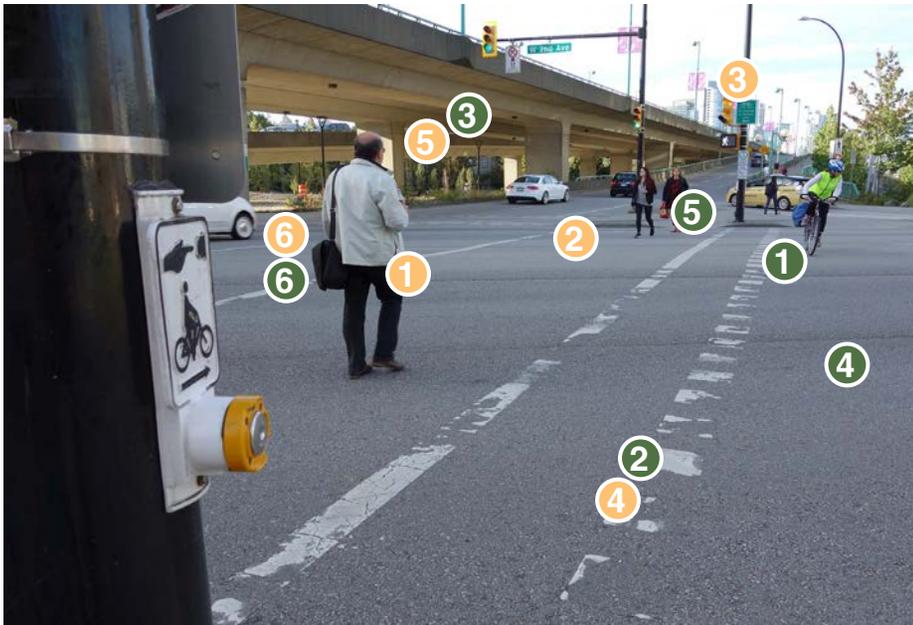
Source: City of Sugar Land & Team Analysis, 2020

Barriers to Mobility: Intersections & Crossings

Intersections and street crossings define how comfortable, well-connected, safe, and convenient the bicycle and pedestrian network is in a community. Different transportation modes interact at intersections, presenting more opportunities for conflicts and crashes to occur. A few characteristics define and communicate whether an intersection or crossing will hinder or facilitate mobility:

- SAFETY
- CONNECTIVITY
- CONVENIENCE
- ACCESSIBILITY

As pedestrians and bicyclists approach intersections they absorb cues from their environment – including infrastructure, wayfinding, and signage – that affect whether their experience crossing the road will be seamless or stressful. The following graphics illustrate what pedestrians and bicyclists must consider before they cross the road.



IS WALKING OR WHEELING SUPPORTED?

- 1 Do I have a designated space through this intersection, and does it continue after the intersection? ●●●
- 2 Do I and other users know who should cross first or has the right of way? ●
- 3 Is there wayfinding and signage present and is it easily understood and visible? ●●●
- 4 Is my infrastructure through the intersection free of debris and well-maintained? ●●
- 5 Are sight lines clear, so I can see where I am going, and all drivers can see me? ●●
- 6 Are drivers encouraged to slow down and yield for me? ●

IS BIKING SUPPORTED?

- 1 Do I have a designated space through this intersection, and does it continue after the intersection? ●●●
- 2 Is my infrastructure through the intersection free of debris and well-maintained? ●●
- 3 Are sight lines clear, so I can see where I am going, and all drivers can see me? ●●
- 4 Is my mobility prioritized over all other modes? ●
- 5 Does this crossing serve people of all ability levels? ●●
- 6 Are drivers encouraged to slow down and yield for me? ●

Existing Transit Service

Transit service within Sugar Land is primarily focused around commuter park and ride service and demand response service, see **Figure A.30**.

PARK & RIDE SERVICE

FORT BEND TRANSIT

Fort Bend County (FBC) Transit operates two Park & Ride stations in the City, one at the UH at Sugar Land campus and another at the First Colony AMC Theater parking lot.

- » Buses from both locations provide weekday service to Greenway Plaza, Uptown/Galleria, and the Texas Medical Center.
- » Fares are \$3.50 in each direction.
- » Beginning in 2021, Fort Bend Transit will offer park and ride services to Downtown Houston.
- » There are also potential opportunities for reverse commute from Houston to Sugar Land.

METRO

METRO, whose service area borders Sugar Land to the north and west, operates the nearby West Bellfort Park & Ride on IH-69.

- » The Park & Ride serves five express routes operate trips to and from Downtown Houston, the Texas Medical Center, and Westchase.
- » Fares from West Bellfort Park & Ride are \$3.25 in each direction
- » West Bellfort serves one local METRO route, the 8 West Bellfort. This route terminates at the end of the METRORail Red Line which runs through the Texas Medical Center and Downtown Houston.

In November 2019, voters in the METRO service area approved the METRONext Plan to fund the expansion and improvement of METRO's services. The plan includes improved service to the West Bellfort Park & Ride, including to the METRORail Red Line. The plan also proposes a bus rapid transit line connecting Missouri City, Westchase, City Centre, and Jersey Village. Although it was not funded through the METRONext ballot measure, the plan includes a future METRORail corridor connecting to Sugar Land.

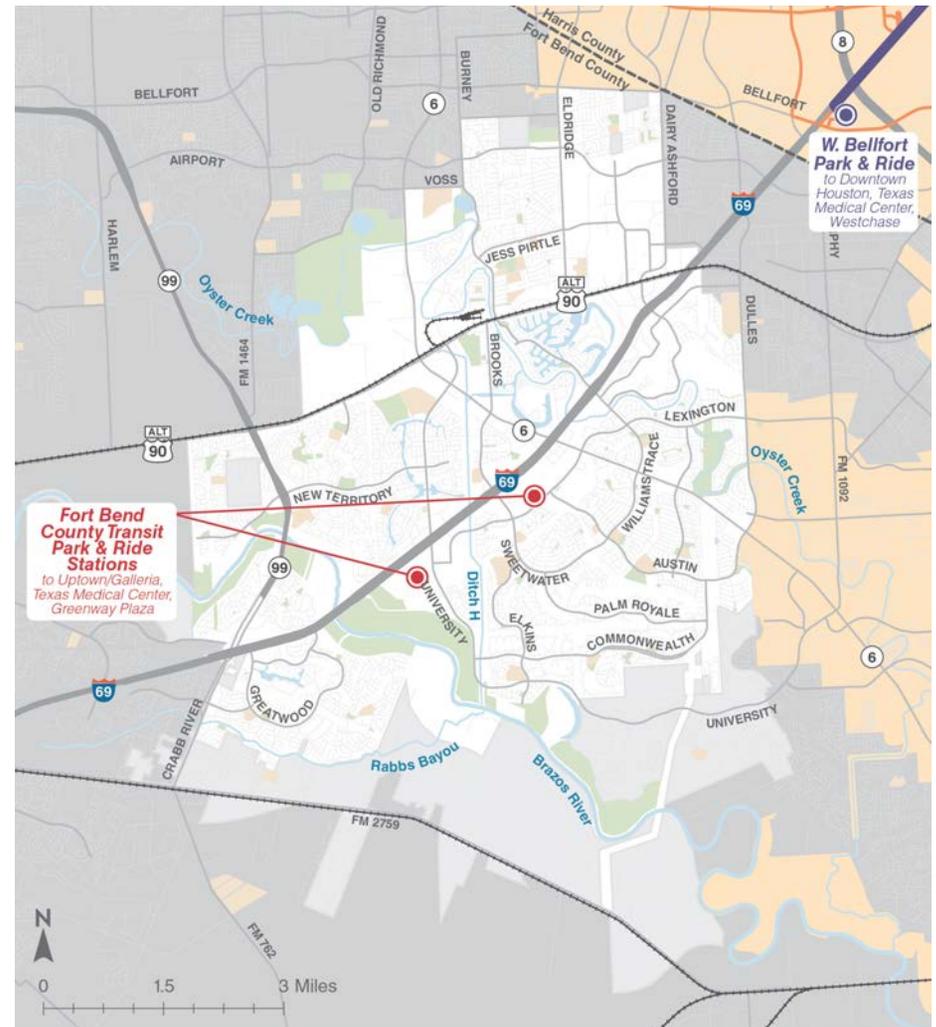


Figure A.30 Transit Services Source: Fort Bend County Transit, 2020; METRO, 2020

Existing Transit Service, continued

DEMAND RESPONSE SERVICES

FBC Transit operates a demand response service for residents in the County, including in Sugar Land. In 2019, this service provided 37,400 direct door-to-door rides within the County for any resident, see **Table A.6**. Demand response primarily benefits older adults and people with mobility challenges who may not be able to drive. Fares for demand response trips are \$1.00 per trip.

2019 DEMAND RESPONSE RIDERSHIP - FBC TRANSIT	
Picked up in Sugar Land	14,600 (39%)
Dropped off in Sugar Land	15,200 (41%)
Picked up & Dropped off in Sugar Land	7,600 (20%)
Total Rides	37,400

Table A.6 FBCTransit Demand Response Ridership, Source: FBCT, 2020

METRO also runs a demand response service in Missouri City called the Missouri City Community Connector. The Community Connector service boundaries touch, but do not enter the Sugar Land city limits.

TRANSIT USAGE

Data from FBC Transit and METRO indicate that many Sugar Land residents rely on public transit for commutes and other trips, both regionally and locally.

In 2019, the two FBC Transit Park & Rides in Sugar Land counted 128,000 boardings to their three destinations. The Texas Medical Center route was the most popular, with 82,000 boardings alone.

In addition, the West Belfort Park & Ride averaged 2,100 daily weekday boardings (545,000 rides annually) with another 352 daily boardings on weekends. Although it is difficult to gather data on the number of Sugar Land residents using the West Belfort Park & Ride station, a license plate survey from 2015 indicates that a significant portion of riders are from the City, see **Figure A.31**.

SERVICE	DAILY BOARDINGS (ANNUAL)
FBC Transit Park & Ride	
To the Texas Medical Center	315 daily (82,000 annual)
To Greenway Plaza	105 daily (27,350 annual)
To Uptown/Galleria	72 daily (18,700 annual)
METRO West Belfort Park & Ride	
All Services	2,100 daily (545,000 annual)

Table A.7 Transit Usage, Source: METRO, 2020; FBCT, 2020

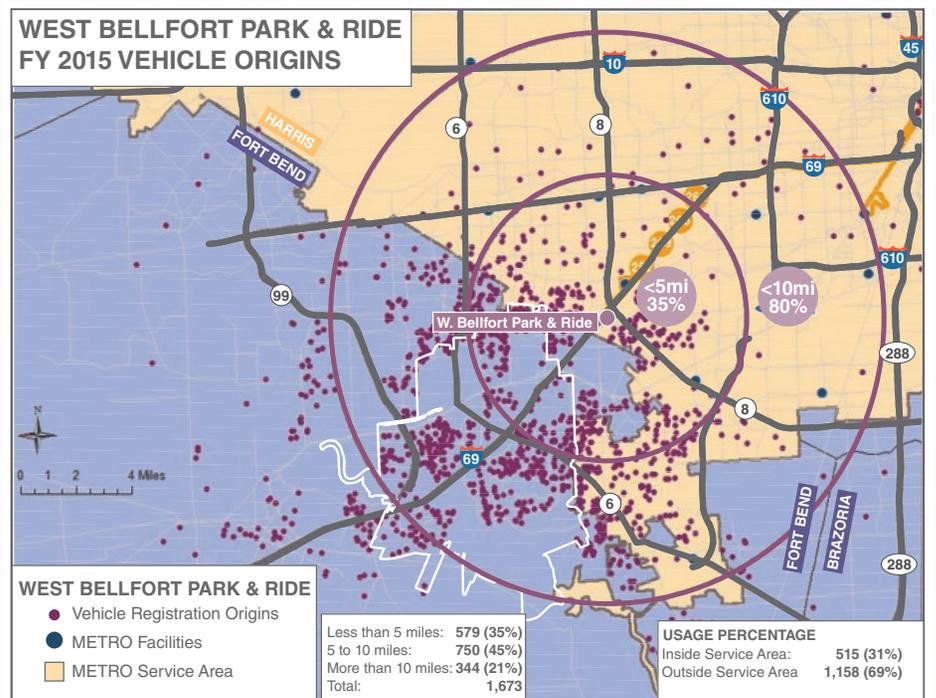


Figure A.31 Vehicle Origins of West Belfort Park & Ride Users, Source: METRO, 2015

Park & Ride Access

ACCESS TO PARK & RIDE LOCATIONS

The two Fort Bend County Park & Ride lots and the METRO West Bellfort station are located in activity centers along the IH-69 corridor and are not easily accessible to all Sugar Land neighborhoods via a short walk or bike ride. Only 3% of residents and 16% of jobs are within a half-mile of the Park & Rides. A half-mile walk on comfortable infrastructure without barriers takes about 10 minutes. That number increases to 75% of residents and 85% of jobs within a three-mile buffer. Three-miles can be completed within 15 minutes on bike without barriers.

The locations of stops are accessible via a short vehicle trip as shown in **Figure A.32**. However, multiple studies indicate that Park & Rides are most successful when they do not require riders to “back-track” a significant amount in the opposite direction of their trip and that the drive to the stop location does not exceed 1/3 of the total trip time to their final destination. Therefore, while accessible by short trip vehicle trips, the stop location must still be convenient and appealing for riders.

BUFFER DISTANCE	POPULATION	JOBS
1/2 Mile	3%	16%
1 Mile	14%	35%
3 Miles	75%	85%

Table A.8 Park & Ride Buffer Access, Source: US Census Bureau, 2018

PARK & RIDE BUFFERS

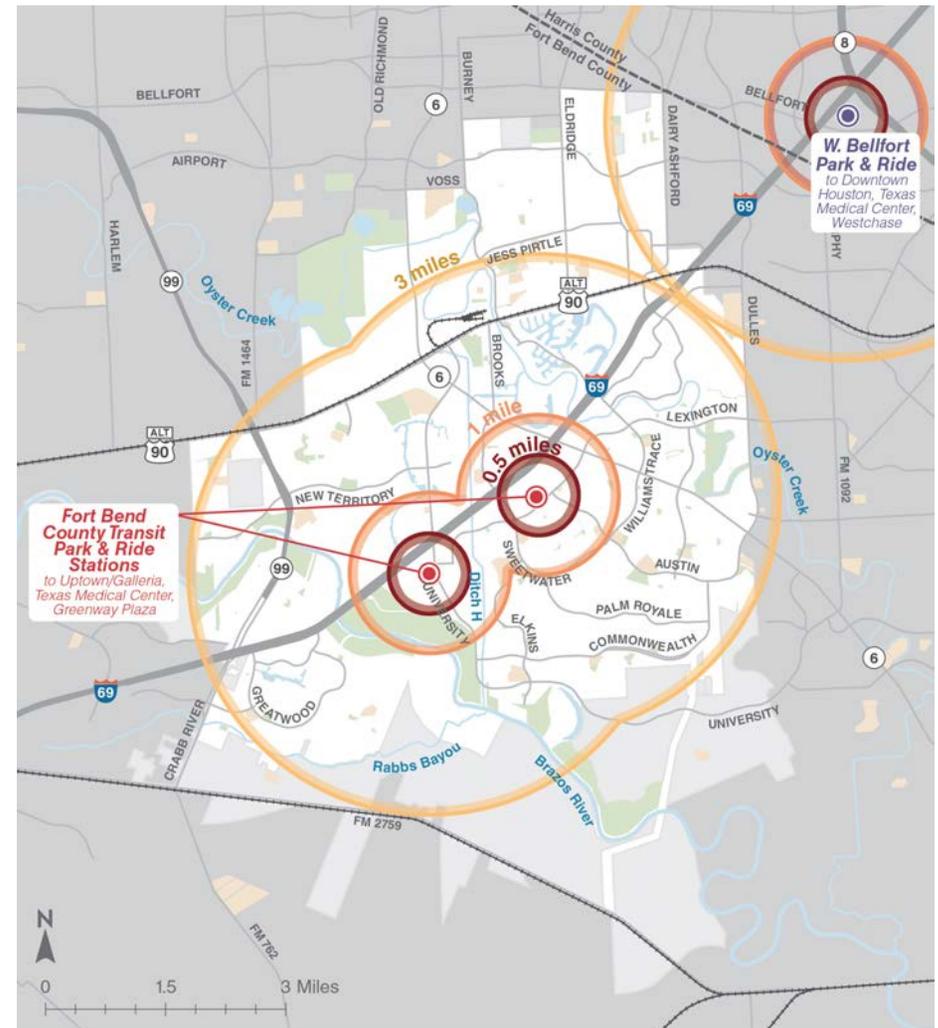


Figure A.32 Park & Ride Access

Source: FBT Transit, 2020; US Census, 2018

- Freeways/Tollways —
- Major Roadways —
- Rail Lines —
- City Limits □
- City ETJ □
- County Line - - -
- Park & Rides ●
- 0.5-mile Buffer ○
- 1-mile Buffer ○
- 3-mile Buffer ○
- Schools ■
- Parks ■
- Water ■

Transportation Policies

The City has a few policies in place that address traffic and mobility-related issues and operations. Through the plan review, policies have been identified through prior mobility planning efforts that have not been formalized into City policies, but are acknowledged as important to pursue through the Mobility Master Plan effort.

NEIGHBORHOOD TRAFFIC POLICY

This policy was created in 2010 to address local and collector traffic concerns within local neighborhoods. If a resident, business, or group has a concern about a neighborhood traffic issue, they may submit a request to have the issue reviewed, studied, and/or addressed by the Traffic Operations department. That department works closely with the entity issuing the request to understand the issue and address it as appropriate. Improvements may include traffic calming, parking, cut through treatments, sign requests, and other safety or traffic-related treatments. The projects that are identified through this policy and procedure may be considered for funding through the CIP or through the operations and maintenance budget of the Traffic Operations department. The Traffic Operations department is currently working to update the policy based on current practices and changes in technology.

WAYFINDING POLICY

Through the 2011 Comprehensive Mobility Plan and the 2013 Pedestrian and Bicycle Master Plan, a wayfinding policy was defined that provides minimum requirements for wayfinding signage and implementation. Wayfinding is aimed at visitor orientation to destinations within the City. The current CIP has wayfinding for pedestrian and bikes local routes identified for fiscal years 2019 through 2021.

FUNDING

Although there is not a specific policy for funding transportation projects in the CIP, there are regulations in place where voters must approve general obligation bonds (GO) that can allocate dollars towards specific

projects that will be included in the CIP. In November 2019, voters passed four general obligation bond propositions to allocate funds towards specific improvements. One of the propositions, Proposition C, will provide streets projects supporting mobility and reinvestment into the city's street network. The following are policies or concepts that have been identified in multiple master plans and planning studies, but have not been formalized by the City of Sugar Land. These are policies that will be covered in the Mobility Master Plan.

Transportation-related policies that have been identified through past planning efforts, but are not policies currently in place include:

COMPLETE STREETS POLICY

Through plan review of the City's Comprehensive Mobility Plan (2011), the Major Thoroughfare Plan (2012), and the Pedestrian and Bicycle Master Plan (2013) a Complete Streets Policy was identified in the 2011 and 2012 plans, with language and goals aligning with the intent of Complete Streets policies in the 2013 plan. However, to date, no such ordinance or policy have passed through Council. The 2011 Comprehensive Mobility Plan presents Complete Streets policies as a way to balance the transportation needs of all residents and visitors, regardless of how they travel. The 2012 Master Thoroughfare Plan goes further, offering specific ordinance language and a process for implementing a policy at the City.

MOBILITY PROJECT PRIORITIZATION POLICY

Through review of the three preceding mobility-related plans mentioned above, the goals of those efforts support similar needs to provide safe and well-connected options for all travel modes. Unfortunately funding allocation for mobility projects has been inconsistent and not always aligned with the goals or projects of the existing master plans. Through the Mobility Master Plan, it is desired to identify ways to prioritize projects for funding that align with the overall vision and goals of the community.

SAFETY AND ACCESS MANAGEMENT POLICY

Through the 2011 Comprehensive Mobility Plan, a recommendation was to update policies to focus on safety and access management with a focus on places with high crash activity.

Transportation Programs

The City's Traffic Management Center (TMC) manages the City's Intelligent Transportation Systems (ITS) and includes infrastructure such as Bluetooth technology to understand travel times; dynamic message signs; traffic signal management; cameras; magnetometers that collect turning movement counts at over 50 intersections; adaptive signal control systems; railroad monitoring system; and an ITS website that shows real-time traffic updates coordinated with WAZE. There are programs and ever-evolving technology that support traffic management for the city including the following programs.

CONNECTED VEHICLES PROGRAM

This intelligent traffic technology program is privately funded by Trafficware in coordination with the City's TMC that expands the City's connected vehicle technology and vehicle-to-infrastructure (V2I) program. This program notifies drivers (currently only certain models of Audi vehicles) of an upcoming signal's timing from red to green that not only provides updates on future delay to the driver, but also informs the City of delays that may occur at certain intersections and extra supply of green light time that could be updated based on traffic conditions.

SAFE LIGHT SUGAR LAND PROGRAM

As of June 2019, in compliance with Texas Governor Greg Abbott's House Bill 1631 that bans the use of red light cameras in Texas, the City of Sugar Land turned off all existing red light cameras. Although prior to House Bill 1631, the program resulted in a 58 percent reduction in crashes at targeted intersections from 2009-2012, there is still a desire to enforce red light violations to assist with safety concerns. In lieu of the active red light cameras, the City requested funding for one full-time police officer in the FY 2020 budget to help with enforcement and reduce safety concerns at key intersections. This program is found under the Police Department's website.

RELATED POLICE DEPARTMENT PROGRAMS

- » Arrive Alive Sugar Land - an educational program to encourage people to not drive distracted, whether that include texting and driving or general distractedness.
- » Share the Road Sugar Land - a program that features educational videos and materials supporting crosswalk etiquette, sidewalk etiquette, school bus etiquette, motorist etiquette, emergency vehicle etiquette, distracted driving, and the 3-Foot Rule supporting vulnerable road users.



Capital Improvement Program

CIP

The City of Sugar Land has a five-year Capital Improvement Program (CIP) that is updated every year with new or continuing capital projects and associated budgets. The first year of the plan is tied to the City's annual budget and the subsequent years are planning-level estimates based off the financial forecast. The City's Engineering Department manages the CIP and oversees project coordination and implementation. The projects identified in the CIP tie together the comprehensive plan, a variety of City master plans, and the City budget.

The annual CIP process has multiple steps including input from multiple departments, governing bodies, and the public.

- » **Step 1:** City departments submit a list of viable projects including budget requests to the Engineering Department for CIP consideration.
- » **Step 2:** The Engineering Department prioritizes all projects by year including cost estimates and coordinates with the Budget Office.
- » **Step 3:** Budget Office looks at projects and determines financial impacts of new projects and their expected operations and maintenance costs over time that will help determine funding allocations and where or when the projects end up in the CIP.
- » **Step 4:** The City seeks input on the list of projects from City residents, the Planning and Zoning Commission, other City departments, and ultimately City Council.

The project prioritization process is balanced with stakeholder and public input before it is presented to City Council to work through at a budget workshop to finalize the next year's CIP.

The map on the following page illustrates the transportation-related CIP projects set forth in the 2020-2024 CIP for the City of Sugar Land.

HOW DO MOBILITY PROJECTS FIT INTO THE CIP?

There are nine project types in the CIP including: airport, drainage, municipal, parks, streets, surface water, traffic, wastewater, and water. Mobility-related capital projects are found in the streets, traffic, or parks (for trails) project types. The funding sources include revenue and general obligation bonds, certificates of obligation, utility system revenues, enterprise funds, money from development corporations, grants, and other sources that may change from year to year.

Currently, mobility-related projects for consideration in the CIP are identified through a variety of ways that include master plans, studies, staff recommendations, City Council direction, consultant estimates, Preliminary Engineering Reports (PER), identified through existing City programs, and may result from some City policies (see below). Mobility-related projects are also balanced with community requests, turning movement counts from the Traffic Operations department, and any incident/crash data from the Police Department. Policies for getting projects to Step 1 in the CIP process will be something that is addressed and updated through the Mobility Master Plan.

For a mobility-related project to be included in the first year of the CIP, the project must be ready to construct with a defined scope, cost estimate, and at least 60 percent design completed. Other projects identified through master plans, studies, staff recommendations, etc. can be included in the CIP, but usually have higher contingency costs, inflation rates, and may be placed further out in years two through five of the CIP.

Planned & Programmed Projects

This map includes Sugar Land specific projects from the City's 2020-2024 CIP and from projects that have been programmed in the Houston-Galveston Area Council's (H-GAC) Transportation Improvement Plan (TIP) (2018-2028). Other planned and programmed projects will include the 2020 Fort Bend County Mobility Bond program. Some of the County's bond projects are also included in the City's CIP list as reflected on the map and following tables.

As seen here, there are multiple ways to fund a mobility-related project. From local general obligation funds, to federal/regional sources (H-GAC), as well as County bond programs. Having a list of projects ready to go that are aligned with local transportation vision and goals is preferred and will be one hopeful outcome of the Mobility Master Plan.

The following pages list out the CIP and Fort Bend County Mobility Bond program projects. By dedicating funding to these projects, this list is one indicator of mobility priorities identified by the City (and region) for the near future.

- | | | | |
|-------------------|----|-------------------|---|
| Freeways/Tollways | ■ | City CIP Projects | ■ |
| Major Roadways | — | Trail | — |
| Rail Lines | ≡≡ | Roadway | — |
| City Limits | □ | Intersection | ● |
| City ETJ | □ | MPO TIP Projects | ■ |
| County Line | □ | | |
| Parks | ■ | | |
| Water | ■ | | |

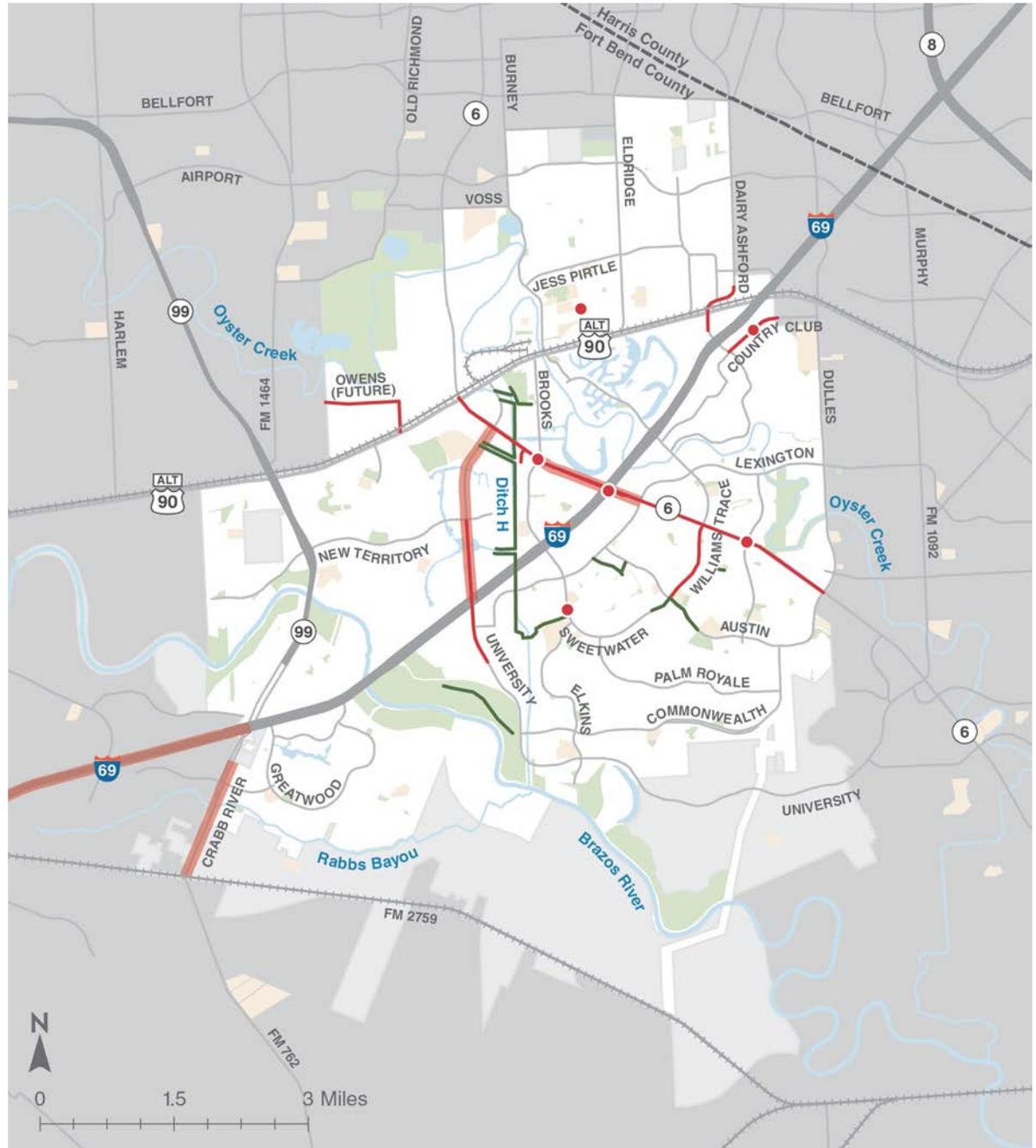


Figure A.33 Sugar Land Capital Improvement Projects

Source: City of Sugar Land, 2020

CAPITAL IMPROVEMENT PROGRAM (CIP) 2020-2024

	PROJECT NUMBER	PROJECT NAME	DESCRIPTION	YEAR COMPLETE	PROJECT TYPE
1	TR1902	SH6/Settlers Way Improvements	Design will address issues through access management and assess adding an additional left turn bay for added capacity. Intersection at Flintwood will be evaluated to determine if improvements are necessary since vehicles will be forced to make u-turns at the intersection.	2019	Roadway
2	ST1404	State Highway 6 Improvements - Brooks Street to Lexington Blvd	Construction and Right-of-way acquisition to facilitate expansion of SH6 to eight lanes from Brooks Street to Lexington Boulevard.	2020	Roadway
3	ST1405	Dairy Ashford Widening Improvements	The PER recommended additional through and turn lanes at Dairy Ashford at US90A. This requires an increase of one through lane in each direction north and south from Parklane Blvd to beyond Julie Rivers Drive. Installation of a directional median along Dairy Ashford at Parklane Blvd to restrict traffic exiting to a right-turn only.	2020	Roadway
4	ST1408	Williams Trace Blvd- PH I (Irrigation Replacement)	Replacement of Williams Trace Boulevard irrigation from Austin Parkway to State Highway 6.	2020	Irrigation
5	TR1702	SH6 North Bound at U.S.59 Triple Left Turn Design and TxDOT Permit	Construction of a triple left turn on the northbound US 59 frontage road at SH 6. The project will include in-pavement lights and geometric improvements for the approach. A TxDOT right-of-way permit will be required.	2020	Roadway
6	ST1703	SH6 Beautification Planning	Planning for landscaping improvements done after completion of the SH6 widening project from US90A to Dulles Avenue.	2020	Roadway
7	DR1801	Covington Woods Drainage Improvements - Sugar Land MS/Sugar Mill Relief Line & 7th Street Recon	Design and construction of a new storm sewer line along the City-owned park adjacent to Sugar Land Middle School and the outfall to Ditch A-22. Project is designed to increase the capacity of the storm sewer system in the area. Also includes the reconstruction of 7th Street from Muirwood to Woodlake Circle; including subgrade and full panel replacement.	2020	Drainage
8	ST2001	Bridge Rehabilitation	Maintenance repairs to the Sweetwater westbound bridge over Alcorn Bayou. Maintenance will include partial depth repair of concrete deck, reconstruct sidewalk, replace existing wing walls and backfill approaches	2020	Roadway
5	TR1903	SH6 NB at US59 Triple Left Turn	Construction of a triple left turn on the northbound US 59 frontage road at SH 6. The project will include in-pavement lights and geometric improvements for the approach. A TxDOT right-of-way permit will be required.	2020	Roadway
9	PK1506	First Colony Trail	This trail would fulfill the intent of creating a connected trail network within the First Colony area by building 10-foot wide trail connections from Lexington Blvd and Austin Parkway to the Woodstream Trail, installing a below-grade crossing on Sweetwater Blvd, and building the pedestrian bridge connecting from Mesquite Trail to Mesquite Park.	2021	Ped Bike

Table A.9 Sugar Land Capital Improvement Projects

Source: City of Sugar Land, 2020

CIP CONTINUED

	PROJECT NUMBER	PROJECT NAME	DESCRIPTION	YEAR COMPLETE	PROJECT TYPE
10	PK1606	Brazos River Park PH II	The final phase of this project includes a focus on the connection between the existing amenities of Brazos River Park and Sugar Land Memorial Park. Due to erosion issues from the Brazos River, City Council has recommended that the Mid-Lake and Boat House not be included in the project at this time.	2021	Ped Bike
11	ST2003	Owens Road - Mobility Bond Project	Design and construction of a 2-lane, boulevard section with curb and gutter, storm sewer. Section will accommodate future widening to 4-lanes. Also improvements to the intersection and traffic signal at US90A, upgrade the railroad crossing and construct and outfall/overflow channel.	2022	Roadway
12	PK1702	Ditch H Trail	This project will provide a north/south connection between the Imperial Connector Trail and First Colony Trail network, with a 10-foot wide trail with pedestrian bridges and trailheads.	2022	Ped Bike
13	ST1704	SH6 @ First Colony Intersection Improvement	Design and construction of geometric and signal timing improvements to provide for concurrent left turn movements from the Brooks Street and First Colony Boulevard approaches.	2022	Roadway
14	STGOB5	Country Club Blvd Improvements from Sugar Creek to Chesterfield (FY21-23 GO Bond Program)	Reconstruction of Country Club Boulevard from Sugar Creek Boulevard to Chesterfield Lane. The project is coordinated with drainage improvements for Montclair Drive.	Construction 2022	Roadway
15	STGOB1	Soldiers Field Ext/ Roundabout at First Colony Blvd & Brooks St Impr (FY21-23 GO Bond Program)	Design and construction of a 2-lane, concrete pavement, storm sewer installation, and utilities from the existing Soldiers Field and First Colony Blvd intersection to State Highway 6. Project also includes a roundabout at the intersection of Soldiers Field Drive and First Colony Blvd.	Construction 2022	Roadway
16	STGOB2	University Blvd Widening- Mobility Bond Project (FY23-23 GO Bond Program)	Widen existing University Blvd one-lane in each direction from New Territory Blvd to Wentworth Blvd. Included in Fort Bend County 2013 and 2017 Mobility Bonds.	Construction 2022	Roadway
17	DRGOB10	Sugar Creek Drainage Improvements - Montclair Dr (FY21-23 GO Bond Program)	Design and construction of new reinforced concrete box culverts extending south on Montclair Dr., and diversion of flow to the East Sugar Creek Ditch. This project scope includes adding new inlets and street reconstruction. The project also includes the reconstruction of Country Club Blvd from Sugar Creek Blvd to Chesterfield Ln.	Construction 2022	Drainage

Table A.9 Sugar Land Capital Improvement Projects

Source: City of Sugar Land, 2020

FORT BEND COUNTY MOBILITY BOND

	PROJECT NUMBER	PROJECT NAME	DESCRIPTION	YEAR COMPLETE	PROJECT TYPE
18	na	New Territory Trails	CenterPoint easement trail	TBD	Ped-Bike
19	See Project #11 in Table A.9.	Owens Road	Corridor	2022	Roadway
20	na	Ransom Road	Corridor	TBD	Roadway
21	na	University Boulevard Corridor	Corridor	TBD	Roadway
22	See Project #12 in Table A.9.	Ditch H Trail	Trail	2022	Ped-Bike
23	na	Fiber Interconnect US 59	Fiber	TBD	Infrastructure
24	na	Fiber US-90A	Fiber	TBD	Infrastructure
25	See Project #9 in Table A.9.	First Colony Trails	Trail	2021	Ped-Bike
26	na	Gannoway Lake Trails	Trail	TBD	Ped-Bike

Table A.10 Fort Bend County Mobility Projects

Source: Fort Bend County, 2020



Safety, Health & Environment

Superior mobility can ensure public safety, strengthen public health, and support environmental responsibility goals to improve quality of life for sugar land residents.

Building on Success

THE FOUNDATION FOR A HIGH QUALITY OF LIFE

Sugar Land has been a national leader in investments focused on enhancing the quality of life of all residents. Decades of success has attracted many new families and new businesses drawn to the City's character.

Mobility decisions have real impacts on people's ability to live healthy and full lives. Strong networks that encourage walking and bicycling have shown health benefits nationwide, improving quality of life and lowering health costs. Unsafe networks that contribute to high crash rates with high fatality rates can literally end a life. The way in which communities choose to plan and design streets can either contribute to or detract from a City's being a great place to live.

In addition, mobility networks contribute to the health of the environment and resiliency of a community. As Sugar Land enters its new stage of mobility planning with this Mobility Master Plan, there is an opportunity to set and achieve goals consistent with the 2025 Comprehensive Plan. This includes integrating and aligning health, environmental, and safety priorities to maintain Sugar Land's high standards. In addition to Superior Mobility, the City's Comprehensive Plan Vision Statement references outstanding recreational opportunities, safety, and environmental responsibility as important goals for the community.

2025 COMPREHENSIVE PLAN VISION

Sugar Land 2025 is a Safe, Beautiful, Inclusive, and Environmentally Responsible community.

Sugar Land 2025 has Destination Activity Centers, Great Neighborhoods, Superior Mobility, Outstanding Cultural, Educational and Recreational Opportunities, and is a Regional Business Center of Excellence. Sugar Land 2025 has Balanced Development and Redevelopment. The Community Takes Pride in Sugar Land.

Crash Analyses

Current convention and best practices state that any loss of life or serious injury on public roadways, sidewalks, bike lanes, or trails is preventable. Roadway design can play a significant role in whether or not crashes happen and how severe they are for persons involved. A city-wide crash data analysis was conducted as an initial step in understanding of safety trends across the City. Crashes within the City of Sugar Land that occurred between 2014 and 2018 were collected from the TxDOT CRIS Database (CRIS stands for Crash Records Information System).

This crash data can only tell part of a roadway's safety story. Not all crashes that occur are recorded. In addition, there are near-misses that occur daily on City streets. A near-miss can be a factor in a person's perception of safety of a roadway, sidewalk, or bikeway. Understanding roadway safety should include the outputs of a crash analysis and a robust collection of the public's personal experiences getting around the City.

VISION ZERO

Vision Zero is a world-wide initiative to eliminate all traffic fatalities and severe injuries by designing mobility networks that are safe, healthy, and equitable. The initiative is being adopted across many jurisdictions and municipalities. Even in places where it is not fully adopted, its philosophies are being incorporated into practice. Vision Zero presents a new vision for safety that starts with the belief that everyone has the right to move safely within their communities.

One of the key tenants of Vision Zero is to acknowledge that sometimes people will make mistakes. Therefore, a mobility network should be designed to be sure those inevitable mistakes do not result in severe injuries or fatalities. The focus of designers and policy makers should be on ways to improve roadway environments and policies to lessen the severity of crashes and reduce all traffic fatalities to Zero.

5-YEAR SUMMARY STATISTICS



All Crashes

- » 9,975 crashes on Sugar Land roadways
- » 900+ crashes on IH-69 and SH-99 main lanes
- » 11 fatalities



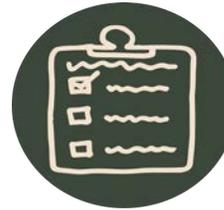
Person Bicycling Crashes

- » 49 people bicycling involved
- » 2 fatalities
- » 6 incapacitating injuries



Person Walking Crashes

- » 35 people walking involved
- » 3 fatalities (*1 on city streets, 2 on IH-69*)
- » 10 incapacitating injuries



Crash Characteristics

- » 47% of all crashes at intersections or intersection related
- » 42% of all crashes are rear-end crashes
- » The top five contributing factors to crashes within Sugar Land are:
 - 1 "Failed to control speed" (36.7%)
 - 2 "Changed lane when unsafe" (9.4%)
 - 3 "Failed to drive in single lane" (6.1%)
 - 4 "Disregard stop and go signal" (5.6%)
 - 5 "Failed to yield right-of-way -turning left" (5.1%)

All Crash Density

Crash densities are a useful assessment of road network safety as they show hotspots with high crash rates. **Figure A.34** shows the density of all assessed crashes except those that occurred on controlled access facilities (the IH-69 and SH-99 main lanes). The map highlights the City's high-crash corridors and intersections, which largely correspond to the places with highest vehicle volumes.

CORRIDORS

- » SH-6
- » US-90A
- » University Blvd
- » Williams Trace Blvd
- » Eldridge Rd
- » Dairy Ashford Rd

INTERSECTIONS

- » IH-69 at SH-6
- » SH-6 at US-90A
- » Crabb River Rd at SH-99
- » IH-69 at US-90A
- » First Colony Blvd at IH-69
- » Williams Trace Blvd at SH-6
- » Voss Rd at SH-6
- » University Blvd at IH-69

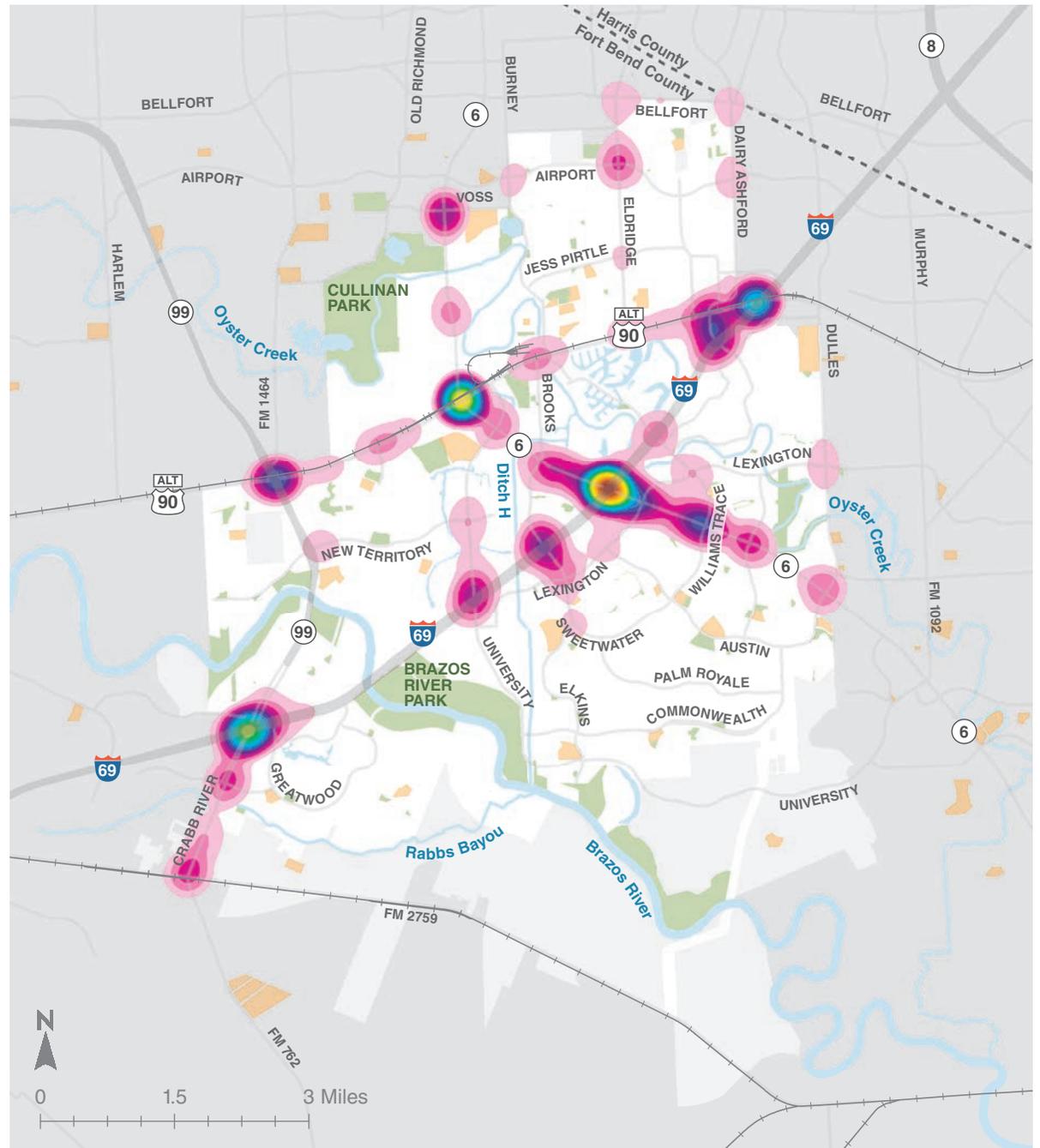
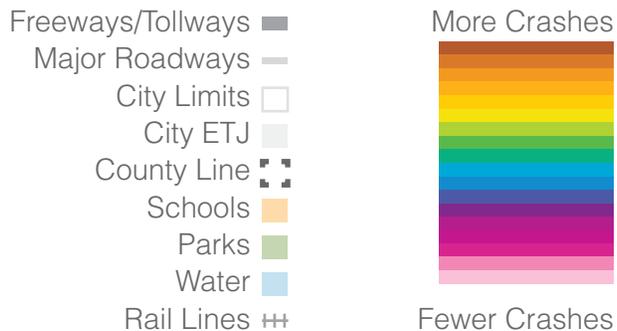


Figure A.34 Crash Density, All Crashes

Source: TxDOT CRIS 2014-2018

Ped/Bike Crash Density

People tend to use different streets when walking or biking versus driving. This results in distinct travel patterns and crash patterns. **Figure A.35** shows the density of all crashes involving someone walking or biking between 2014 and 2018. Crash hotspots for pedestrians and bicyclists include:

CORRIDORS

- » New Territory Blvd
- » Settlers Way Blvd
- » Austin Pkwy
- » Dulles Ave

INTERSECTIONS

- » Dulles Ave near Dulles High, Middle and Elementary Schools
- » SH-99 at IH-69
- » Airport Blvd at Burney Rd
- » SH-6 at Settlers Way Blvd
- » Settlers Way Blvd at Austin Pkwy
- » Commonwealth Blvd at Elkins Rd
- » SH-99 at IH-69
- » Airport Blvd at Burney Rd
- » SH-6 near Voss Rd

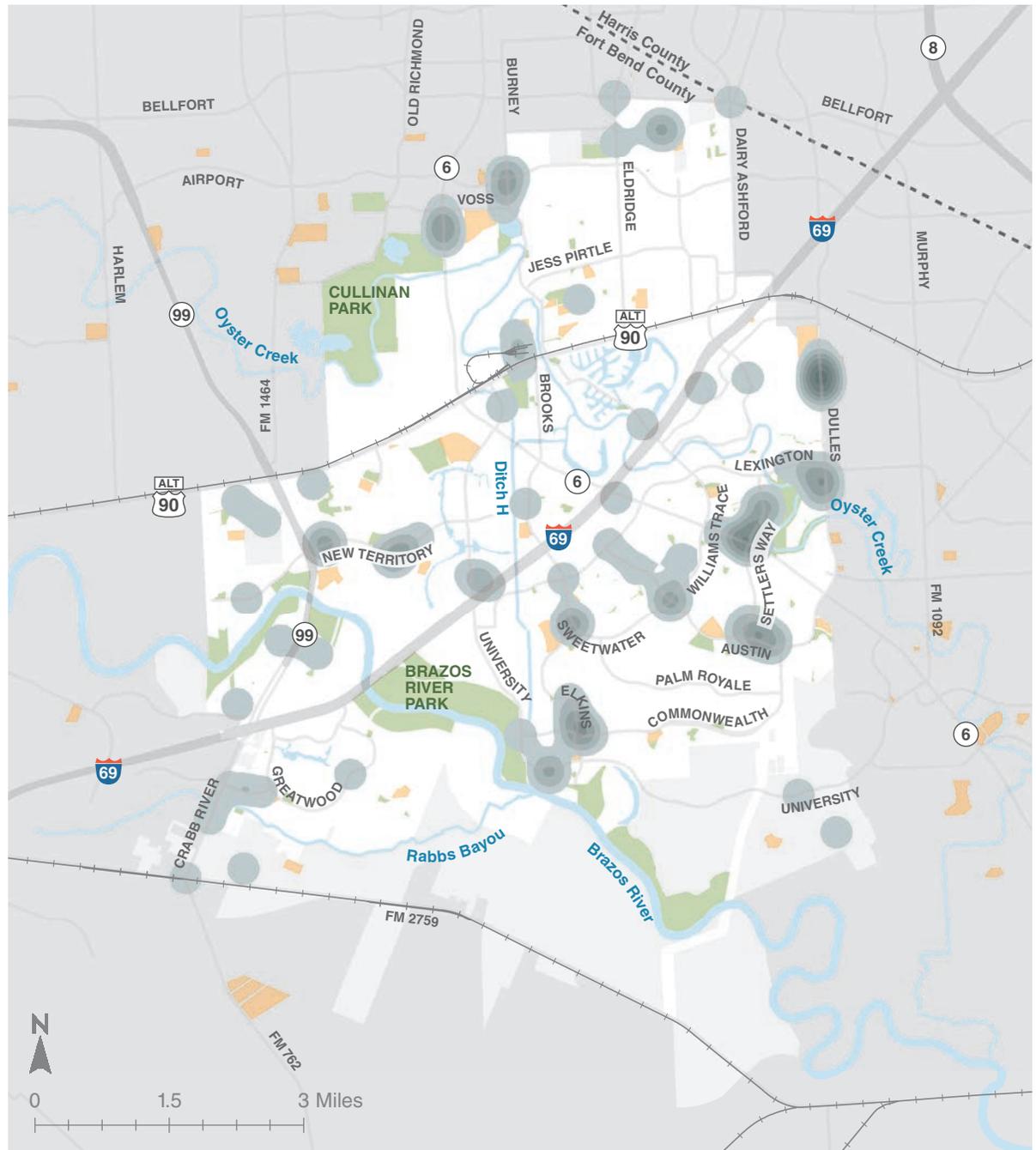
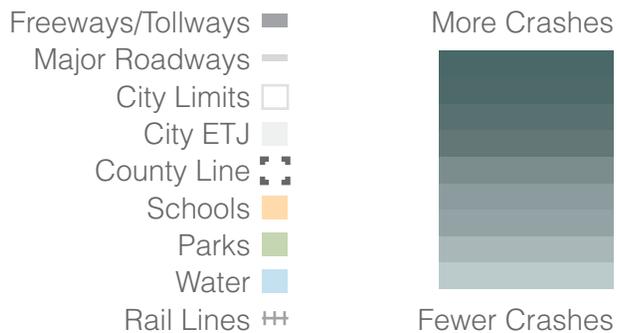


Figure A.35 Crash Density, Ped/Bike Crashes

Source: TxDOT CRIS 2014-2018

Crash Severity

Severe crashes are those that resulted in a fatality or incapacitating injury. **Figure A.36** shows the density of severe crashes in Sugar Land except those on the main lanes of controlled access freeways (IH-69 and SH-99). The map highlights corridors and intersections with hotspots of severe crashes. These closely mirror the All Crash Density map, but are focused on the places with higher speeds.

CORRIDORS

- » SH-6
- » US-90A
- » Crabb River Rd/ SH-99

INTERSECTIONS

- » Williams Trace Blvd at SH-6
- » Dairy Ashford Rd at US-90A
- » IH-69 at US-90A
- » Crabb River Rd at IH-69
- » Voss Rd at Airport Blvd
- » SH-6 at IH-69
- » SH-6 at US-90A

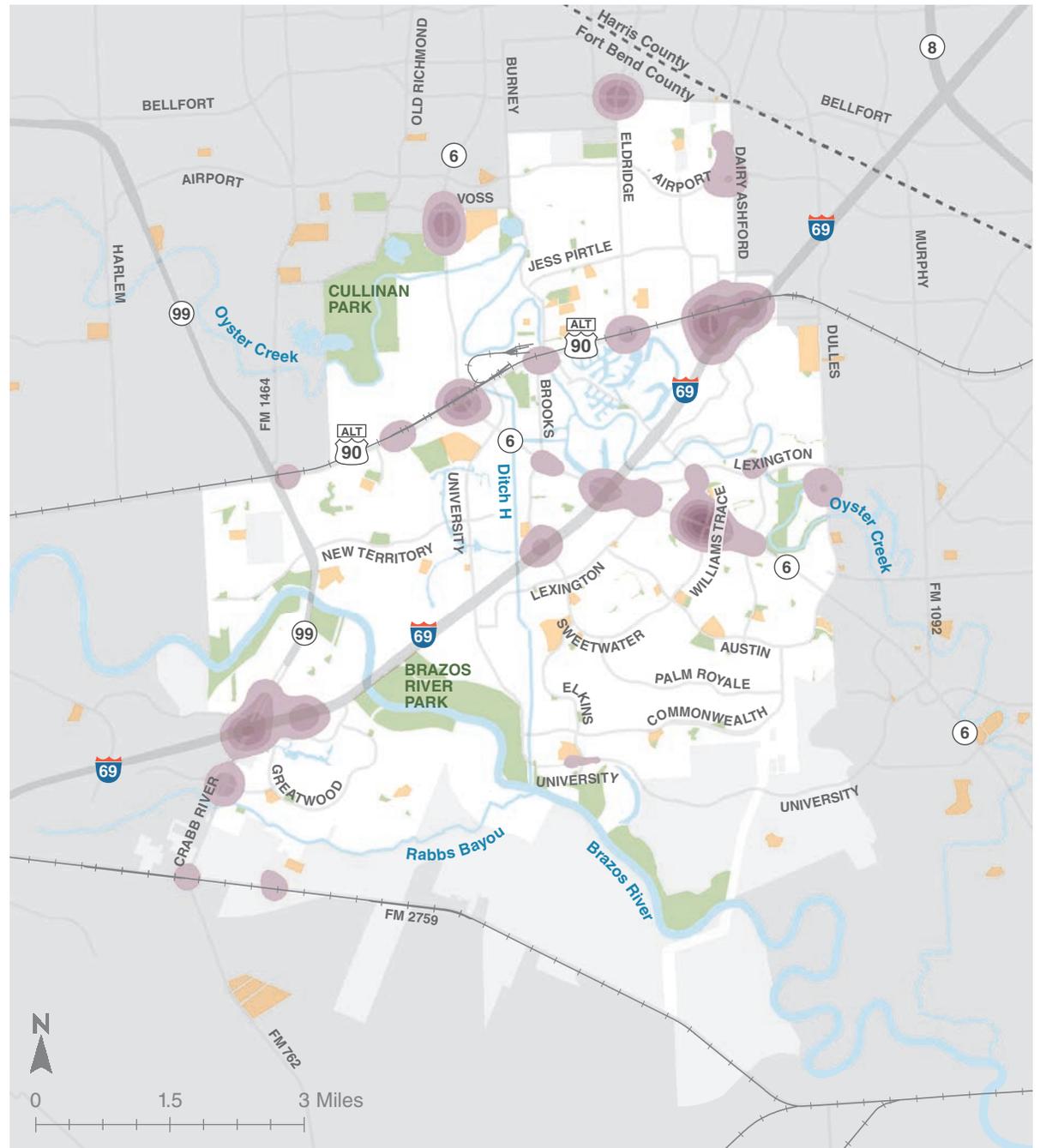
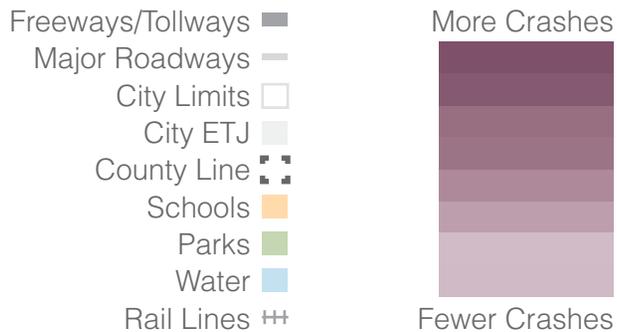


Figure A.36 Crash Density, Severe Crashes

Source: TxDOT CRIS 2014-2018

Corridor Speed Limits

Speed limits should signal the intended design speed for a roadway and its land use context. Speeds have a significant impact on roadway safety, but also the comfort of road users. Whether driving, walking, biking, or rolling in a wheelchair, high-speed roadways are often less enjoyable places to travel.

Figure A.37 shows the speed limits of roadways in and around Sugar Land.

- » Most local streets and minor collector streets have speed limits of 30 miles per hour (mph) (New Territory is the exception with 25 mph).
- » The City's arterials and major collectors have speeds ranging from 35 mph to 45 mph.
- » Highways like US-90A and controlled access freeways like IH-69 have speeds 50 mph and higher.

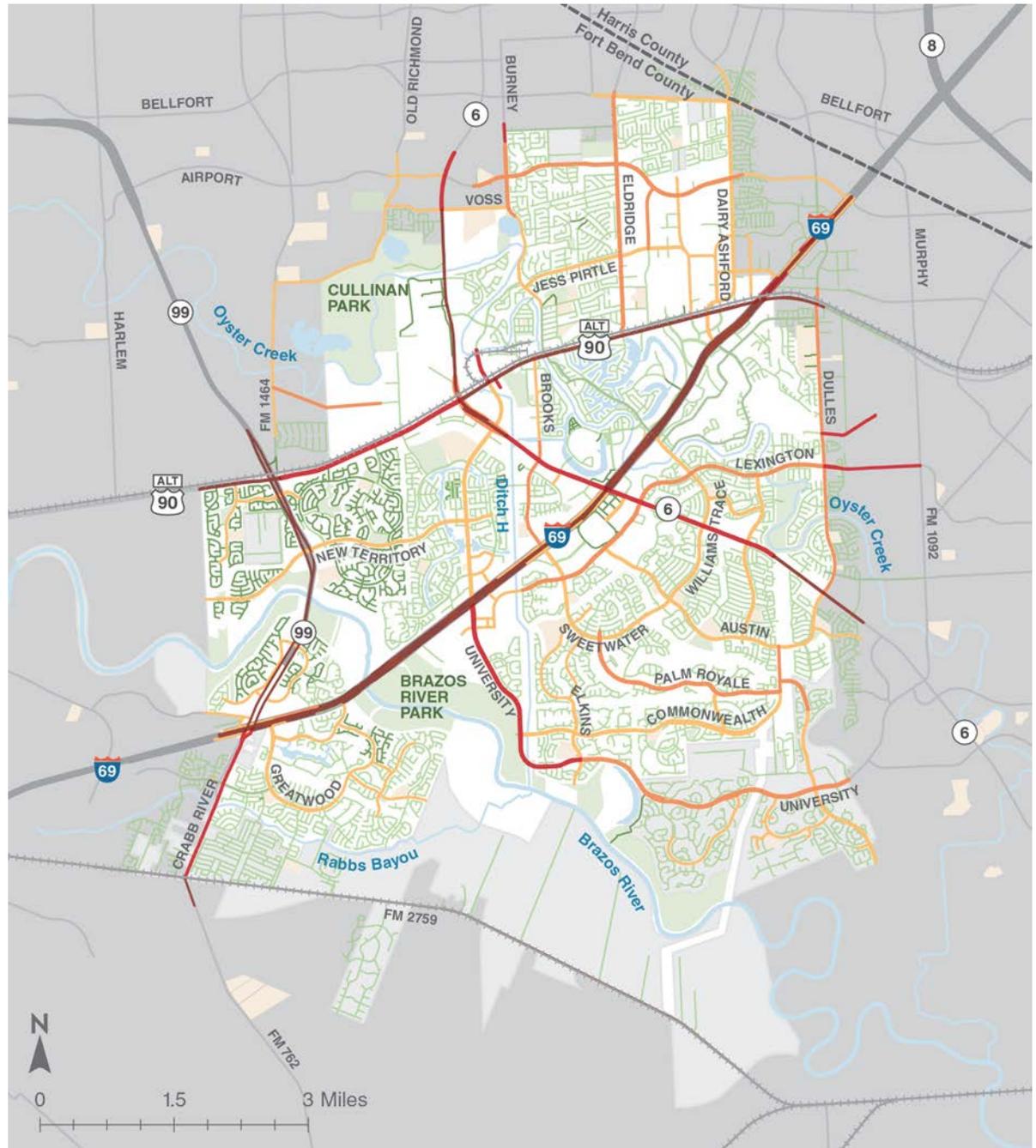
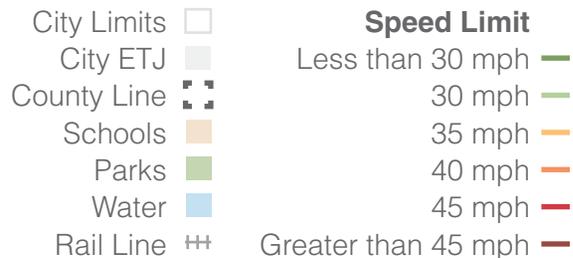


Figure A.37 Speed Limits

Source: City of Sugar Land, 2020

Speed Kills

DANGER OF HIGH SPEEDS

High vehicle speed is a major contributing factor for crashes and high speeds increase the likelihood of fatality or serious injury. In the case of crashes between a driver and a person walking, even small differences in speed have a large impact on the likelihood that the pedestrian will die, as shown in **Figure A.38**. Around 10% of pedestrians will not survive a crash if they are hit at 23 mph (close to New Territory's speed limits). At 32mph, that likelihood increases to 25%. The likelihood of death increases as speeds increase.

High speeds present other crash risks. **Figure A.39** demonstrates how a driver's field of vision decreases as they increase speed, limiting their ability to respond to surroundings. Drivers moving at high speeds also travel farther before they can come to a full stop, increasing the chance that they will crash.

SETTING SPEED LIMITS

In Texas, speed limits have often been determined using the 85th percentile speed. This means that, if speeds are measured for 100 vehicles on a roadway, the future speed limit will be determined by the 16th fastest vehicle (85% of drivers travel at or below this speed). Historically, this has caused speed limits to increase beyond the intended design speed for a roadway.

Methodologies for setting speeds are changing. In July 2020, the National Association of City Transportation Officials (NACTO) released a new framework to set speed limits on city streets that moves away from 85th percentile method.

SPEED & VEHICLE-PEDESTRIAN CRASHES

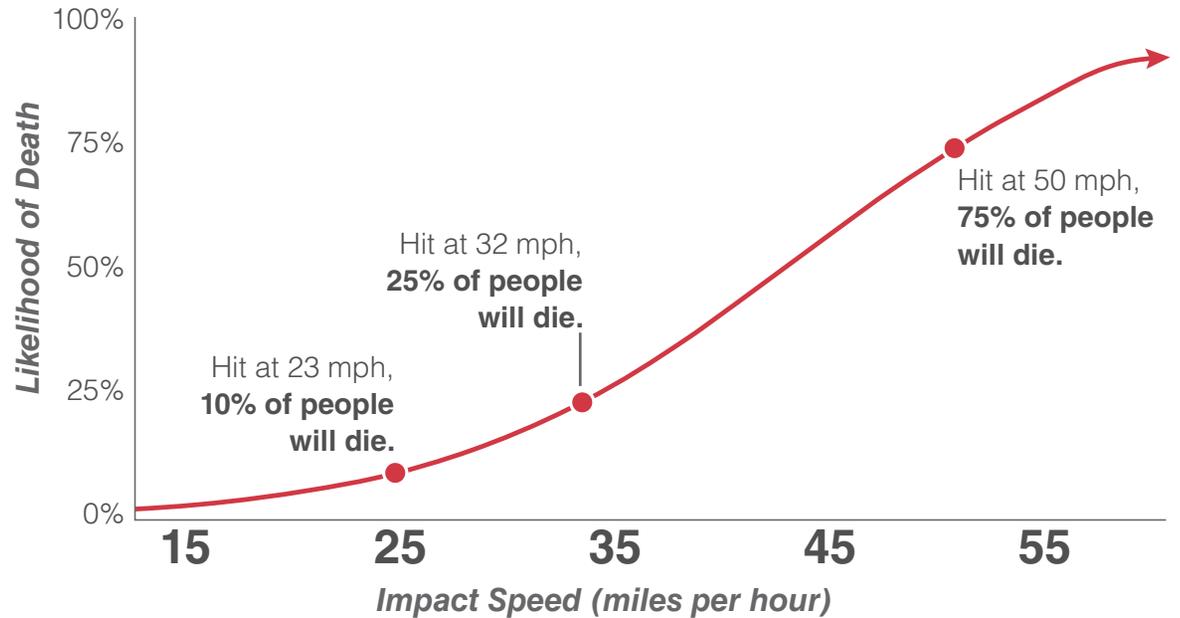


Figure A.38 Speed and Fatality of Pedestrians

Source: NACTO City Limits, 2020

SPEED & DRIVER FIELD OF VISION

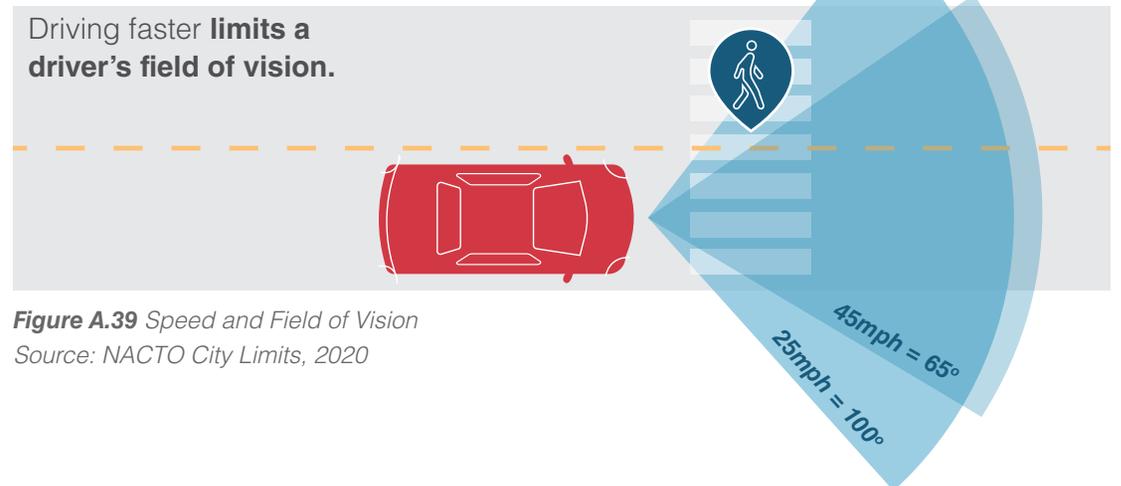


Figure A.39 Speed and Field of Vision

Source: NACTO City Limits, 2020

Environmental Leadership

2025 VISION

The 2012 Comprehensive Plan for the City of Sugar Land included **Goal D: Environmentally Responsible Community**. Goal D included the following 10 objectives:

- 1 City as a leader – model for standards, processes and operations
- 2 Open green spaces throughout the city
- 3 Effective stormwater management and drainage system enhancing quality of surface water and protecting neighborhoods
- 4 Quality wastewater treatment system
- 5 Water conservation
- 6 Reduced energy consumption and increased use of renewable resources
- 7 Convenient, easy, state-of-the-art recycling system with options and incentives
- 8 Developments, redevelopments and buildings incorporating the concepts of environmental sustainability
- 9 Improved air quality
- 10 Reasonable approach and balance with a “return on investments” – economic and/or community benefit

TRANSPORTATION AND ENVIRONMENT

The link between transportation and the environment, specifically air quality (objective 9 for Goal D), is strong. In 2017, transportation was ranked as the single most polluting activity in the United States. Light-duty vehicles like cars and small trucks were found as the primary culprit contributing 59% of emissions.¹ (See **Figure A.40**) Emissions from vehicles including nitrogen oxides and volatile organic compounds (VOC's) react with heat and sunlight producing a type of greenhouse gas called ground level ozone or “smog.”² (See **Figure A.41**)

While ozone itself is naturally occurring and protects humans from radiation, ground-level ozone sits beneath the protective atmospheric shell we need to survive and effects air quality. Air quality, and specifically Ozone, have great impacts on the health of a community. Data on Fort Bend specific Ozone data in presented in the following section on Health and Mobility.

GREENHOUSE GAS EMISSIONS BY TRANSPORTATION MODE IN U.S.

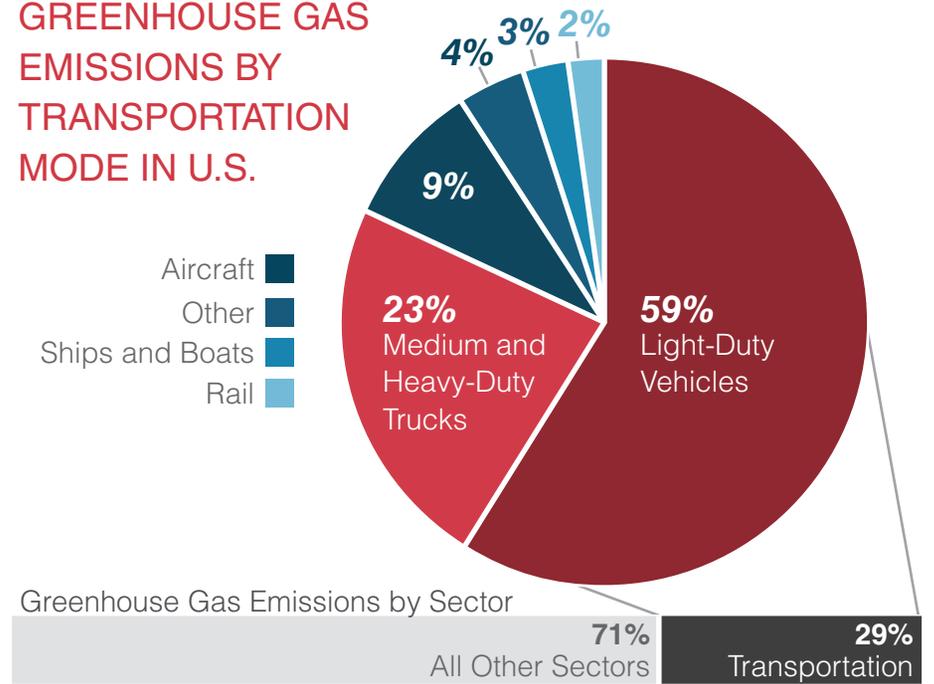


Figure A.40 Greenhouse Gas Emissions in U.S.

Source: U.S. EPA, 2017

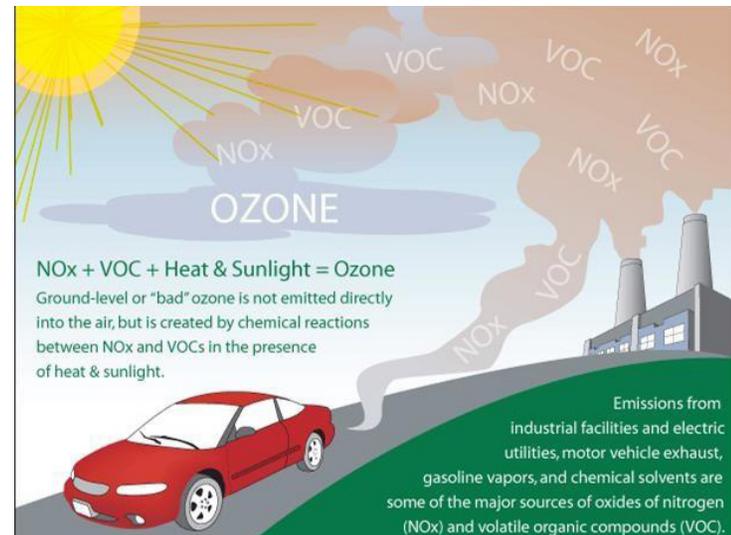


Figure A.41 Ground Level Ozone Basics

Source: U.S. EPA

1. U.S. Environmental Protection Agency, 2018 <https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions>

2. U.S. Environmental Protection Agency . <https://www.epa.gov/report-environment/outdoor-air-quality>

Mobility & Resiliency

Well designed roadways can mitigate flooding by both conveying water along their surface during storm events but as also opportunities for detention by construction robust storm sewer systems within the roadway public right-of-way. It is critical that all mobility projects are conducted with an eye towards mitigating any possible flood impacts as a result of that project.

The U.S. Federal Emergency Management Agency (FEMA) designated Special Flood Hazard Areas (SFHAs) as places within a floodplain, and therefore at a higher risk of flooding during a heavy rain event. Sugar Land's SFHAs are located near the Brazos River, encompassing large parts of the City's ETJ. Other smaller streams within the City are also prone to flooding, but do not cover large areas of neighborhoods.

There is a large network of levees within the City which are constructed and maintained by Levee Improvement Districts (LIDs). LIDs are political subdivisions of the State of Texas responsible for providing flood protection and stormwater management services. There are nine LIDs that operate over the majority of Sugar Land.

- | | | | |
|-------------------|---|----------------------------|---|
| Freeways/Tollways | █ | Parks | █ |
| Major Roadways | — | Schools | █ |
| Local Roadways | — | Water | █ |
| County Line | ▤ | Special Flood Hazard Areas | ▨ |
| City Limit | □ | | |
| City ETJ | ■ | | |

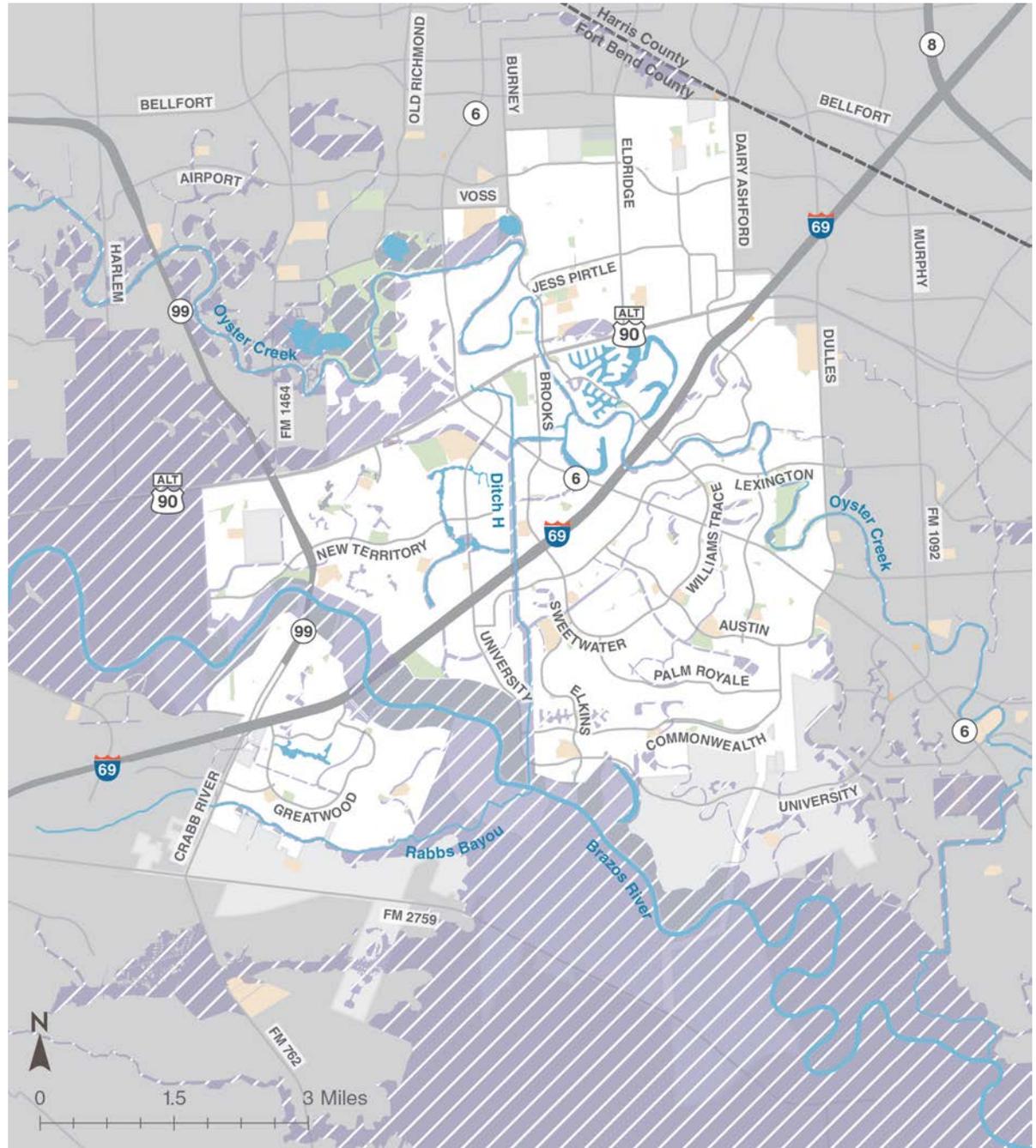


Figure A.42 Special Flood Hazard Areas

Source: FEMA, 2018

Health & Mobility

RELATIONSHIP BETWEEN HEALTH AND MOBILITY

Multiple studies have indicated that transportation behaviors and investments contribute to health issues, but they can also lay the groundwork for a healthy community. Places that give residents viable transportation choices, like walking, biking, and riding transit, tend to be healthier places with less air pollution, more options for physical activity, and fewer traffic-related fatalities or injuries. Mobility options and choices directly and indirectly relate to health outcomes including:

- » Crash related injuries and death (presented on previous pages)
- » Physical inactivity and related chronic illnesses
- » Air quality and related chronic illnesses
- » Access to health goods and services

All of Fort Bend County's serious leading causes of death can be tied to roadway safety, physical activity, or air quality, see **Table A.11**. Offering transportation choices in Sugar Land can improve quality and length of life for residents.



LEADING CAUSES OF DEATH IN 2017	
Fort Bend County	United States
1 Cancer ●●	1 Heart Disease ●
2 Heart Disease ●	2 Cancer ●●
3 Stroke ●●	3 Accidents (unintentional injuries) ●
4 Accidents (unintentional injuries) ●	4 Chronic lower respiratory disease (including COPD) ●
5 COPD ●	5 Stroke ●●
6 Diabetes ●	6 Alzheimer's Disease ●

Can be prevented, in part, by: (●) physical activity (●) air quality (●) safe streets

Table A.11 Leading Causes of Death in Fort Bend County and U.S (Accidents category is inclusive of motor vehicle fatalities)

Source: U.S. CDC Vital Statistics Report volume 68 number 6; Houston Methodist Sugar Land Hospital Community Needs Assessment, 2019

PHYSICAL ACTIVITY AND TRANSPORTATION

Physical activity is a key component to maintaining and building healthy bodies, minds, and communities. Being physically active benefits men and women from all racial and ethnic groups, the elderly, children, and women who are pregnant. Health experts estimate people who get at least 150 minutes of physical activity a week have a 33 percent lower risk of death overall. Additional benefits of physical activity include:¹

- » Improved sleep
- » Improved brain function and lower risk of dementia
- » Reduced feelings of anxiety and depression
- » A healthy weight
- » Reduced likelihood of chronic illnesses including stroke, heart disease, and diabetes

The availability of active transportation facilities like sidewalks and bikeways can offer options to increase physical activity to citizens. With safe and convenient bike lanes, a person may choose to ride a bike to their destination rather than drive a car, increasing their physical activity and increasing the likelihood positive health benefits are captured. According to the Centers for Disease Control and Prevention, residents of neighborhoods with accessible sidewalks, pedestrian crossings, and protected bike lanes, tended to be more engaged in physical activity.²



Any physical activity is better than none, how much time we spend sitting and in our cars can take valuable time out of our daily lives and even increase our risk for illness. A cross-sectional study of twelve Texas counties from the American Journal of Preventative Medicine found that as commuting distance in a car (to work) increased, so did the likelihood of obesity and high blood pressure which increase the risk of developing heart disease, diabetes, and stroke. Commuting distances over 15 miles were also found to be associated with a lower likelihood of meeting physical activity recommendations furthering health concerns for primarily sedentary forms of transportation.³

In 2017, 71% of Sugar Land residents traveled 10 miles or more to reach work everyday, with 22% traveling 25 miles or more (**Table A.12**). Sugar Land commutes are not only far, but they take longer than the average Texan, as shown in **Figure A.12** on page A-20. Nearly 28% of the City’s residents take 45 minutes or more to get to work. Only 17% of residents in the State have the same long commutes.

Additionally, about one quarter of Sugar Land residents reported having no leisure-time physical activity, and 23.7% of Sugar Land adults were obese. (**Table A.13**)

COMMUTE DISTANCE	SHARE
Total All Jobs	100%
Less than 10 miles	29%
10 to 24 miles	49%
25 to 50 miles	10%
Greater than 50 miles	12%

Table A.12 Commute Distance for Sugar Land Residents
Source: US Census Longitudinal Employer-Household Dynamics, 2017

	SUGAR LAND	UNITED STATES
No Leisure-Time Physical Activity	24.5%	27%
Obesity	24%	30%
Diagnosed Diabetes	10.5%	11%
Stroke	2%	3%
Heart Disease	4.5%	6.5%
High Blood Pressure	31%	32.5%

Table A.13 Health Outcomes in Sugar Land and U.S.
Source: Sugar Land Economic Development, 2020

AIR QUALITY AND CHRONIC ILLNESS

As presented in **Figure A.40**, light-duty vehicles like cars and small trucks are the primary contributor to emissions⁴ and vehicles emission are the cause of ground level ozone (Figure A.X).⁵ Ground-level ozone exacerbates symptoms of COPD and asthma. In some cases, ozone can even trigger heart attacks and strokes.^{6,7} In 2014, Fort Bend County residents were exposed to 4 days of unhealthy levels of ozone.⁸

Course and Fine particulate matter (PM 10 & PM 2.5) released into the atmosphere by motor vehicles also presents a health concern. PM 2.5 is smaller than the eye can see and can enter air pathways as we breath. This particulate matter may lead to breathing problems, make asthma symptoms or some heart conditions worse, and lead to a low birth rate. The national standard for PM 2.5 levels is 12 micrograms per cubic meter. When PM 2.5 levels are about 12, air quality is more likely to affect your health. In 2017, the annual ambient concentration of PM 2.5 for Fort Bend County was 11.7 micrograms per cubic meter.⁸

Particulate matter has been extensively studied in its relationship to premature death. According to the National Center for Environmental Health, reducing PM 2.5 levels in the atmosphere could have saved between 8 and 42 lives in 2014 in Fort Bend County alone.

DEATHS AVOIDED BY REDUCING PM 2.5 CONCENTRATION*	
Percent reduction of particulate matter	Deaths Avoided
5% Reduction	8
10% Reduction	17
15% Reduction	25
20% Reduction	34
25% Reduction	42

Table A.14 Deaths Avoided by Improved Air Quality
Source: National Center for Environmental Health, 2014

While particulate matter and nitrogen oxides associated with ozone can have adverse impacts on all people, children are particularly at risk. Childhood asthma is the most prominent chronic disease seen in children in the United States. In 2016, 8.3% of children in the United States had asthma. Of that population more than half (53.7%) suffered from asthma attacks.⁹

Childhood asthma is not only exacerbated by poor air quality, but studies are mounting to suggest transportation related air pollution (TRAP) may be a cause of childhood asthma.¹⁰

ACCESS TO HEALTH GOODS AND SERVICES

Lack of transportation access to healthy foods and healthcare is a major barrier to good health, and can prevent families from making scheduled doctor appointments, can delay care, or cause missed or delayed medication use.¹

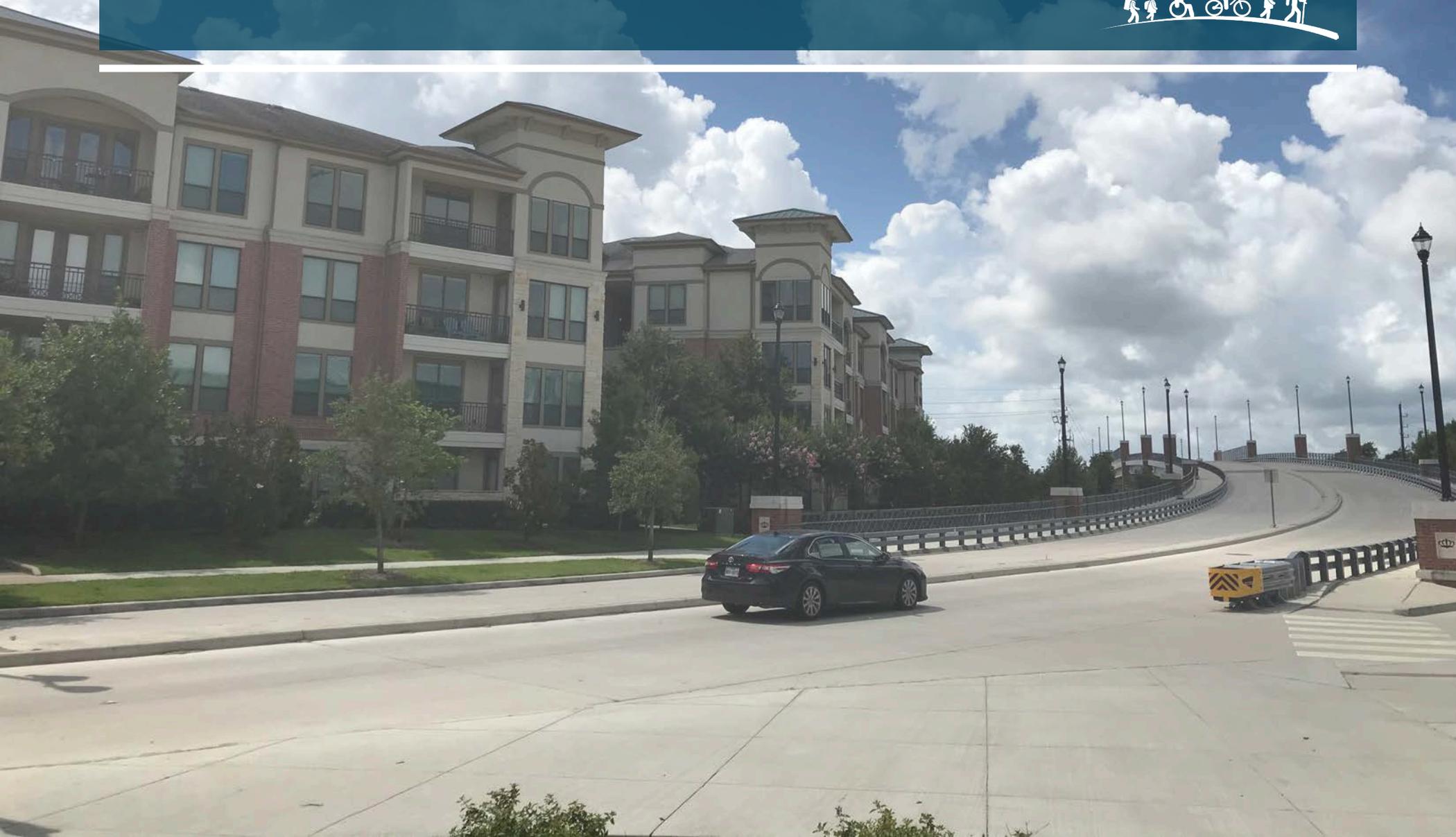
Three percent of Sugar Land's residents do not own a car and may rely on transit or walking to remain independent and access daily needs like food, medicine, and recreation. Safe and direct ways to get to local destinations benefit vulnerable populations and improve quality of life for everyone.

Health Text Sources

1. U.S. Department of Health and Human Services, https://health.gov/sites/default/files/2019-09/Physical_Activity_Guidelines_2nd_edition.pdf#page=31t
2. U.S. Center for Disease Control and Prevention, <https://www.cdc.gov/nccdphp/dnpao/features/walk-friendly-communities/index.html>
3. American Journal of Preventative Medicine, <https://doi.org/10.1016/j.amepre.2012.02.020>
4. U.S. Environmental Protection Agency, 2018 <https://www.epa.gov/greenvehicles/fast-facts-transportation-greenhouse-gas-emissions>
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6. U.S. Environmental Protection Agency- <https://www.epa.gov/ground-level-ozone-pollution/health-effects-ozone-pollution>
7. U.S. Environmental Protection Agency- <https://www.epa.gov/sites/production/files/2016-01/documents/heartflyer.pdf>
8. National Environmental Public Health Tracking Network- <https://ephtracking.cdc.gov/InfoByLocation/>
9. American Academy of Asthma, Allergy, and Immunology, <https://www.aaaai.org/about-aaaai/newsroom/asthma-statistics#:~:text=United%20States&text=In%202016%2C%20>
10. Environment International, <https://doi.org/10.1016/j.envint.2016.11.012>

Plan Review

Appendix B



MEMO

TO: Monique Johnson, AICP, City of Sugar Land
CC: Ruth Lohmer, AICP, City of Sugar Land
Krystal Lastrape, City of Sugar Land
FROM: Eleni Pappas, PE, Traffic Engineers, Inc. (TEI)
DATE: November 24, 2020
RE: Plan Review - Mobility Master Plan

SUMMARY

This memorandum is a summary of an extensive Plan Review conducted by the TEI project team as part of the baseline conditions assessment for the Mobility Master Plan. The Mobility Master Plan will replace three of Sugar Land's mobility planning documents: the 2011 Comprehensive Mobility Plan, the 2012 Master Thoroughfare Plan, and the 2013 Pedestrian and Bicycle Master Plan. This Plan Review includes an assessment of these three plans to identify where goals and recommendations align, as well as gaps or areas of misalignment. The review also addresses other Plans developed within the City, County, and other regional entities over the past decade. In total, ten plans were reviewed for this memo, and are summarized in the table on the following page.

In general, the ten plans, including nearly 540 individual recommendations for Sugar Land, have goals and projects that are well-aligned. The plans reflect a consistent set of priorities among residents, businesses, and City staff over the course of the last decade. Plans largely agree that Sugar Land needs effective planning for all modes of transportation that supports current and projected growth trends within the City. Mobility recommendations are typically concentrated around key activity centers and focused on building connections between these centers and minimizing the impact of existing barriers (natural and man-made). All plans include recommendations for more local and regional transit connectivity and better infrastructure for people walking and biking.

Though the plans include some minor technical differences for specific projects, the larger disconnect is between the plans' recommendations and actual implementation of these recommendations. Though the plans largely agree on vision and goals that recognize the need to provide safe and well-connected options for all travel modes, funding has not been as balanced. Implemented and funded projects from local, regional, and state sources indicate that projects to alleviate vehicle congestion through road widening have received more priority than projects to accomplish other goals. There are multiple factors for why this is the case, one of which is roadway widening projects often "score better" when competing for funding at both local and state levels.

The Mobility Master Plan can help the City better grapple with this imbalance between recommendations and implemented projects. This integrated plan will not only incorporate all modes, but will also operate under three City departments, providing an unparalleled level of cooperation in Plan development. In addition, a performance-based implementation framework is to be developed for this Plan to provide the City with a clear, transparent process for project identification and implementation across all modes that aligns with the vision and goals of the City.

KEY PLANS

Plan	Vision and Summary of Objective
Comprehensive Mobility Plan 2011 City of Sugar Land	<p>Stated Vision: Superior Mobility across all modes of transportation for the City of Sugar Land.</p> <p>The plan names a set of eight goals, each with its own strategies, initiatives, and metrics to help Sugar Land realize the Superior Mobility vision set forth in its Vision 2025 and Guiding Principles, which were later adopted in the 2012 Comprehensive Plan. Recommendations include capital projects, as well as policies and programs for the City to pursue to support all types of roadway users.</p>
Comprehensive Plan 2012 City of Sugar Land	<p>Stated Vision: Sugar Land 2025 is a safe, beautiful, inclusive, and environmentally responsible community. Sugar Land 2025 has destination activity centers, great neighborhoods, superior mobility, outstanding cultural, educational and recreational opportunities, and is a regional business center of excellence. Sugar Land 2025 has balanced development and redevelopment. The community takes pride in Sugar Land.</p> <p>The Comprehensive Plan sets forth a vision for all aspects of the City's future growth, and offers policy guidance to meet the vision. The City's eight master plans, including the Mobility Master Plan in development, support the Comprehensive Plan. The Comprehensive Plan is based on the "Vision 2025 and Guiding Principles" developed in 2009.</p>
Master Thoroughfare Plan 2012 City of Sugar Land	<p>Stated Vision: Updating the current Major Roadway Plan and creating a Master Thoroughfare Plan for the City Limits and extra-territorial jurisdiction.</p> <p>The Master Thoroughfare Plan analyzes Sugar Land's roadway network and assigns one of six functional classifications to its major streets based on the ownership of the roadway, its design, and vehicle volume. The Plan assigns a typical cross section for major roadways and includes recommendations and proposed ordinance language for a Complete Streets policy.</p>
Fort Bend Subregional Plan 2012 Fort Bend County, H-GAC	<p>Stated Vision: Strengthen and grow Fort Bend County as the premier location in Texas to live, connect, prosper, learn, and enjoy an excellent quality of life while preserving the distinctive character, history and resources of the region.</p> <p>This Plan outlines recommendations regarding transportation, land use, and economic development in central/eastern Fort Bend County. The recommendations are intended to guide decisions for County and City officials as the region continues to grow.</p>
Pedestrian & Bicycle Master Plan 2013 City of Sugar Land	<p>Stated Vision: Connections to all neighborhoods via readily accessible, safe and attractive facilities that are efficient, cost effective and focused on providing facilities that are frequently used.</p> <p>The plan seeks to impact the environment for walking and bicycling by creating a citywide system of interconnected on- and off-street pedestrian and bicycle facilities. The plan encourages collaboration among departments and agencies across the City to leverage funding and assist with implementation opportunities.</p>
Fort Bend County Major Thoroughfare Plan 2016 Fort Bend County	<p>No Stated Vision</p> <p>This Plan develops a recommended roadway network for Fort Bend County and assigns a hierarchical classification to each existing and proposed street. Recommendations include design guidance for each classification and changes to the County's guidelines. The County defers to City's classifications and regulations for areas within a City's Limits or ETJ.</p>

Plan	Vision and Summary of Objective
Land Use Plan 2018 City of Sugar Land	<p>Stated Vision: Sugar Land will develop and redevelop to remain a desirable place to live and do business. The City will change in response to long-term shifts in market demands and demographic trends, managing that change to preserve the City's appeal. It will balance different land uses, preserve the character of its neighborhoods, and create new walkable mixed-use Regional and Neighborhood Activity Centers with a variety of offices, housing, retail, entertainment, and civic institutions.</p> <p>This Plan guides the City's policy and future decisions relating to land use and development, and includes a Future Land Use Map for the entire City. The Plan offers recommendations that recognize the relationship between transportation and land use.</p>
Regional Transportation Plan 2019 H-GAC	<p>Stated Vision: In the year 2045, our region will have an integrated multimodal transportation system, achieved through coordinated public and private investments that support a desirable quality of life, enhanced economic vitality and increased safety, access, and mobility.</p> <p>The Regional Transportation Plan (RTP) is a federal requirement for all metropolitan planning organizations (MPOs), like H-GAC. The RTP lays out a strategic plan for the region's transportation network 25 years into the future, lists projects to be constructed within those 25 years, and identifies performance measures to gauge progress.</p>
METRONext Moving Forward Plan 2019 METRO	<p>Stated Goals: To serve more people, and more places; faster, more reliable, and more often; better access and customer experience.</p> <p>The METRONext Moving Forward Plan shows proposed service expansions and enhancements for METRO's public transit services, including METRORail, bus rapid transit, local bus service, and the regional express network. The \$3.5 billion Plan was approved by voters to proceed in November 2019.</p>
Unified Transportation Plan 2020 TxDOT	<p>No Stated Vision</p> <p>The Unified Transportation Plan (UTP) details anticipated transportation construction projects. The UTP authorizes funding for all of TxDOT's funding categories, and lists each roadway project that will be developed and likely let within a ten-year period.</p>

PLAN PARALLELS

Major goals and broad recommendations are generally well-aligned across the key plans reviewed, particularly local plans conducted by the City of Sugar Land and Fort Bend County. Despite spanning a decade, the similarities between plans demonstrate a set of consistent priorities for both residents and decision makers in the City.

Activity Centers - The 2012 Comprehensive Plan, 2012 Fort Bend Subregional Plan, and 2018 Land Use Plan all recommend building and improving activity centers as key nodes of economic and social life. The plans call for activity centers with safe, well-designed streetscapes that are well-connected to surrounding communities, other activity centers, and the region as a whole. The Comprehensive Plan describes general characteristics for "Destination Activity Centers," and the Fort Bend Subregional Plan and Land Use Plan take the concept further, naming specific centers in the County and City. All three plans recommend better connections for people walking and biking in and around activity centers, as well as strong transit connections between activity centers and to other regional destinations.

Local and Regional Transit - Nearly every existing plan agrees that Sugar Land needs new and improved local and regional transit service. The Master Thoroughfare Plan, Comprehensive Plan, Land Use Plan, Comprehensive Mobility Plan, and Fort Bend Subregional Plan all propose investment in local transit infrastructure, typically starting with circulators between major activity centers. Most plans also encourage enhanced commuter service to Houston's employment centers and other parts of Fort Bend County, including non-local plans like

the Regional Transportation Plan and the METRONext Moving Forward Plan. Regional transit recommendations differ regarding phasing, location, and transit service types – rail, bus rapid transit, or enhanced commuter bus service – but they agree directionally that better transit connections to regional destinations are a benefit for Sugar Land. For regional commuter service, both the US 90A and IH 69 corridors have been recommended, with some Plans putting a preference on one service over the other.

Plans recognize the existing services provided by Fort Bend County Transit, and offer recommendations to support and expand services, often in partnership with METRO. These transit recommendation parallels extend beyond local plans. The METRONext Moving Forward Plan includes a potential future extension commuter rail service to Sugar Land, as does the Regional Transportation Plan. In all cases, the cost of new rail infrastructure is seen as the major barrier to implementation.

Investments for People Walking and Biking - Similar to transit, most plans propose additional investments in the City's walking and biking infrastructure. In addition to general recommendations calling for investments, particularly around activity centers, the majority of these recommendations fall into three main categories: intersection improvements, infrastructure across barriers like railroad crossings and freeways, and new trail investments. These recommendations also include funding trails as part of larger greenspace investments, like the Brazos River Park.

Complete Streets Policies - Most of the transit, sidewalk, and bikeway recommendations point to specific investments, but the City's two existing transportation plans also offer a policy recommendation to codify street design guidelines that are friendly to walking, biking, and transit. The 2011 Comprehensive Mobility Plan presents Complete Streets policies as a way to balance the transportation needs of all residents and visitors, regardless of how they travel. The 2012 Master Thoroughfare Plan goes further, offering specific ordinance language and a process for implementing a policy at the City. Although only mentioned in two plans, the goals of other local plans align with the intent of Complete Streets policies.

Connectivity across Major Barriers - Most plans recognize the safety and connectivity challenges posed by major barriers in Sugar Land. In particular, the City is crossed by four major freeways and highways (IH 69, US 90A, SH 6, and SH 99), the Union Pacific Railroad Glidden line, and the Brazos River. For the freeways and railroads, recommendations mostly include costly grade separations. For the Brazos River, recommendations include new bridges over the river to connect to the City's ETJ on the south side. Most plans provide recommendations for new and/or improved connections over these barriers.

PLAN DIFFERENCES

On the whole, the visions and goals of the reviewed plans are well-aligned, as evidenced by the long list of Plan Parallels. Although some minor technical differences exist at the recommendation level, differing plans tend to agree about the general goal of specific recommendations. Key differences point to a need for an overarching set of community goals from the Mobility Master Plan, and a plan for aligning those goals to funding and implementation.

Bikeway Network Recommendations - Comparing the list of bikeway, sidewalk, and trail recommendations in the Pedestrian & Bicycle Master Plan and the Master Thoroughfare Plan reveals some differences in scope and facility type. This is likely due to the Master Thoroughfare Plan's reliance on the previous Hike and Bike Master Plan from 2007. For example, the Pedestrian & Bicycle Master Plan recommends a dedicated bicycle lane along Homeward Way, while the Master Thoroughfare Plan recommends a "hike and bike" trail. The recommended network of the Pedestrian & Bicycle Master Plan is also more comprehensive than previous plans, proposing improvements to streets like Settlers Way Boulevard, Stadium Drive, and others. These discrepancies do not indicate a major difference in the general goals of the plans, but instead highlight the importance of the Mobility Master Plan effort. With one, clear set of recommendations, City staff will have more defined direction for implementation and can offer clarity for residents.

Aligning Funding with Recommendations - Though the plans largely agree on vision and goals that recognize the need to provide safe and well-connected options for all travel modes, funding has not been as balanced. Implemented and funded projects from local, regional, and state sources indicate that projects to alleviate vehicle congestion through road widening have received more priority than projects to accomplish other goals.

This is evidenced by the City's 2019 fiscal year Master Plan Annual Report Summary Document. It shows that 75% of projects from the 2012 Master Thoroughfare Plan have been completed, compared to 23% of projects from the 2013 Pedestrian & Bicycle Master Plan, which tend to be less expensive. Similarly, while 66% of projects in the 2011 Comprehensive Mobility Plan have been completed, none of the major recommendations related to transit service expansion have been implemented. This is particularly true when it comes to transit projects. This does not mean that the City has neglected recommendations pertaining to bikeways, sidewalks, and transit. On the contrary, the Master Plan Annual Report details recent victories for trail expansions like the Ditch H Trail, and important planning projects related to Safe Routes to School.

Several factors contribute to the imbalance between goals and implementation. Although major freeways like IH 69, US 90A, SH 6, and SH 99 have a significant impact on mobility in Sugar Land, they are owned by other entities. Local projects for walking and biking connections across freeways and railroads, as well as transit projects that need freeway or railroad right-of-way require the support of other entities like the Texas Department of Transportation (TxDOT) or Union Pacific. Local projects seeking funding at the regional and state level face similar challenges, and must fit into the goals set forth by the Houston-Galveston Area Council (H-GAC) and TxDOT. Currently, regional funding supports the operations of Fort Bend County Transit and their service expansion to Downtown Houston. However projects for walking, biking, and transit are not funded at the same rate as roadway widening projects, and are not competitive for most funds based on the existing scoring methods.

Many communities face similar challenges. The Mobility Master Plan process can help the City better grapple with this funding context and the trade offs inherent in roadway design. Developing a Performance-based Framework to assess projects across all modes and develop a methodology that will allow for project identification and implementation that is more equitable is part of this planning endeavor. A focus will be funding and finding creative and effective funding mechanisms to ensure the plan developed during this process is implemented.

ENGAGEMENT OVERVIEW

Engagement within each plan varied based on the goals and objectives of the organizing entity. Plans conducted by and for the City had robust engagement that reached a variety of stakeholders. For this Plan Review, an assessment of engagement for City plans was conducted. Our focus was on identifying areas of improvement that can be incorporated into the Mobility Master Plan process. Below are four key areas for improvement that will be incorporated into the engagement strategies for the Mobility Master Plan.

Role of the Public - Previous plans typically rely on the input of the public to develop and affirm the plan vision, goals, and recommendations. Often, this means the public serves as a source of data and as a sounding board for plan development. Engaging the public also provides an opportunity to turn the public from a sounding board into ambassadors and advocates for the plan. Giving the public more agency within the planning process, increasing transparency, and continuing communication after plan completion can enhance the role of the general public which can then be capitalized on when plan recommendations move to implementation phases.

Standard of Equity - A standard of equity actively identifies underrepresented groups and intentionally fills gaps in stakeholder representation. Not all plans involved the full range of Sugar Land residents and businesses during their engagement. Most plans relied on the input from groups like City Council, the Planning & Zoning Commission, large businesses, and resident task forces. Some of the underrepresented populations included young residents (specifically those under 18 years of age), women, small businesses, and people who work in Sugar Land, but live elsewhere.

Timing and location will be an important consideration for the Mobility Master Plan to minimize the exclusion of previously under-represented groups. Response rates from previous plans indicate that there is higher engagement when meetings are held at neighborhood-based establishments rather than City Hall. Methods of advertising can also minimize the exclusion of under-represented groups. Advertising in most plans was primarily web-based (website, email blasts, newsletter). However, the Pedestrian & Bicycle Master Plan used other means of communicating include municipal TV, newspaper, and water-bill attachments which yielded almost 400 survey responses and bolster a standard of equity.

Transparent Public Process - With the exception of the Pedestrian & Bicycle Master Plan, past plans did not directly show the impact of community feedback on recommendations development. Document of engagement and the resulting outputs from engagement endeavors was often lacking in final plans. In addition, there appears to be a lack of transparency in how engagement informed plan development and the formation of recommendations. The Pedestrian & Bicycle Master Plan used feedback to bolster evidence of community support for plan recommendations by providing detailed documentation of events, the outcomes of those events, and how engagement directly effected outcomes.

Use of Technology - Given the nature of large public gatherings during the Covid-19 Pandemic, it will be important to adjust public engagement strategies to allow for physical distancing. All of the City of Sugar Land plans except the 2012 Master Thoroughfare Plan included an online component. The Comprehensive Mobility Plan and Pedestrian & Bicycle Master Plan used online surveys. The Pedestrian & Bicycle Master Plan and Land Use Plan both incorporated online town halls as well.

RECOMMENDATION SUMMARY

As mentioned previously, recommendations are generally well-aligned across plans. Guiding principles of connectivity, design best practices, and a focus on Activity Centers offer a foundation for specific proposals. The table below offers more detail to recommendations by mode, including projects, programs, plans, and policies. An electronic file will be supplied to the City that summarizes all 538 single recommendations reviewed as part of this Plan Review.

In the table, plan names are abbreviated as follows: Comprehensive Plan (CP), Comprehensive Mobility Plan, (CMP), Master Thoroughfare Plan (MTP), Fort Bend Subregional Plan (SRP), Pedestrian & Bicycle Master Plan (PB), Fort Bend County Major Thoroughfare Plan (FBCMTP), Land Use Plan (LUP), Regional Transportation Plan (RTP), METRONext Moving Forward Plan (MN), and Unified Transportation Plan (UTP).

Walking, Biking, and Rolling

Although people walking, biking, and rolling have different infrastructure needs, a large portion of recommended projects, programs, and policies pertain to all three. The PB and MTP outline a full citywide network of sidewalks, trails, and bikeways, with the MTP pulling from the 2007 Hike & Bike Master Plan. Other plans (CMP, SRP) also offer recommendations for infrastructure on specific streets or other places like utility easements, but do not cover the full roadway network.

Projects

- » **Activity Center Connectivity:** Broad recommendations across multiple plans (CMP, LUP, PB, CP) include sidewalk and bikeway connectivity within Activity Centers, between Activity Centers and surrounding neighborhoods, and to other Activity Centers.
- » **Barriers:** Multiple plans also recommend improved or new crossings for people walking, biking, and rolling across major freeways like IH 69, SH 6, SH 99, and US 90A (CMP, SRP, PB). These recommendations range from signal improvements to grade separated crossings. The PB also recommends three pedestrian and bicycle bridges over the Brazos River.
- » **Trails and Shared-Use Paths:** The plans rely heavily on investments in trails and shared-use paths designed with enough width to serve people walking, biking, and rolling. Many of these proposed facilities require using right-of-way on streets like University Blvd and part of the recommended network includes trails in parks and greenways such as the Heritage Way along the Brazos River (SRP), Rabbs Bayou (SRP, PB), and the Ditch H Trail running north-south through the City (SRP, CMP, PB, MTP).
- » **Bikeways:** Multiple plans propose new bikeway investments, including along Brooks St, Sweetwater Blvd, and others (CMP, PB, SRP, and MTP). The range of bikeway facility types depends on the plan, with recommendations from shared on-street facilities to protected bikeways. The MTP specifically identifies six streets where volumes merit replacing one vehicle lane to create a protected bikeway.
- » **Sidewalks:** The PB and MTP include specific recommendations for sidewalks. Given that the City has a standard to include a sidewalk on nearly all streets, the recommendations essentially fill the gaps in the City's current sidewalk network.

Programs, Plans, and Policies

- » Programs: A couple of plans recommend implementing programs that encourage non-vehicle travel modes, such as Bike to Work Day or incentives to employees for carpooling, taking transit, or riding a bike to work. The PB also recommends that the City pursue Bicycle Friendly Community status from the League of American Bicyclists. The LUP recommends finding ways for the City to incentivize developers to implement “oversized” pedestrian and bicycle amenities during development projects. The PB and CMP recommend developing community education for people to understand safe biking behaviors and how to use new bicycle facilities.
- » Plans: Multiple plans recommend partnerships with the school districts to conduct Safe Routes to School plans, then using the recommendations to implement additional safe infrastructure (CMP). The CMP also recommends conducting plans to specifically address major freeway barriers for people walking, biking, and rolling.
- » Policies: The CMP and MTP specifically call for Complete Streets policies to establish design standards that include infrastructure for people walking, biking, and rolling as a default. Similarly, the CMP also recommends including a multimodal component for development standards. Both the CMP and LUP recommend multimodal traffic impact analyses. The PB plan proposes requiring new developments to incorporate elements of the PB plan as a standard. As a policy, transit vehicles should be able to carry bicycles, and transit hubs (including current Park & Ride facilities and any future transit stations) should be well connected to the City’s sidewalks and bikeways, and should have sufficient bicycle parking. The CMP recommends establishing a standing bicycle advisory committee at the City. The Land Use Plan recommends establishing a street design that emphasizes the safety and comfort of pedestrians that can be used specifically for Activity Centers. The CMP recommends establishing a level of service standard for all travel modes. The PB recommends a series of new policies, including a safe passing rule, child helmet requirements, and no driving in bike lanes.

Transit

Projects

- » Local Transit: The CMP and SRP include the most detailed transit-related recommendations, and suggest that Sugar Land should develop a local transit network over time. Beginning with a Town Center circulator that operates during specific times or for specific events, the City can then expand to other Activity Centers to build out a local transit system over time.
- » Phased Regional Transit: Like local transit, the plans generally agree that regional transit should be developed in phases, starting with enhancements to the current transit services from Fort Bend County Transit (CMP, SRP). Proposals for the existing system include coordination with Fort Bend County Transit, METRO, and TxDOT to create two-way HOV lanes along IH 69. From there, the CMP recommends adding new Fort Bend County Transit service between the County and Downtown Houston. Over time, this can evolve into a bus rapid transit service, then ultimately commuter rail. The City and County can also work with other partners to implement regional transit routes along US 90A and SH 6 to destinations in Fort Bend and Harris counties (SRP).
- » New Park & Ride Facilities: The SRP and CMP both recommend new Park & Ride facilities in the near term, and direct access between IH 69 and the Town Center Park & Ride.
- » System Connectivity: As a rule, current and future transit facilities should be well-connected to the City’s sidewalk and bikeway network, should have sufficient bicycle parking, and should be sited in areas with a high concentration of existing pedestrian activity (MTP). All transit vehicles should be able to accommodate bicycles as well (MTP, PB). The CMP also recommends implementing shared parking near transit hubs to reduce overall capital costs and limiting the amount of space needed for parking across the City. The LUP echoes this by recommending that activity centers incorporate transit and park & rides.

Programs, Plans, and Policies

- » Programs: The CMP recommends marketing programs for Fort Bend County Transit and any future transit services to encourage more people to choose transit for commutes or other trips.
- » Plans: The CMP recommends a series of plans, including transit-oriented development studies, commuter rail feasibility studies, and plans to determine where to best site new transit hubs. The SRP recommends planning for future transit service by identifying where to purchase land for transit stations.
- » Policies: The CMP and MTP specifically call for Complete Streets policies to establish design standards that include transit infrastructure as a default. Similarly, the CMP also recommends including a multimodal component for development standards and traffic impact analyses. As a policy, transit vehicles should be able to carry bicycles, and transit hubs (including current Park & Ride facilities and any future transit stations) should be well connected to the City's sidewalks and bikeways, and should have sufficient bicycle parking.

Congestion and Vehicle Mobility

Projects

- » Road Widening: The RTP and UTP include several projects for widening roadways in Sugar Land, including New Territory Blvd, Scenic Rivers Dr, and others. Those plans also include projects for new tollway construction and ramp connectors for SH 99. Conversely, the MTP identifies six roadways where lower volumes merit removing a vehicle lane to create a safer bikeway.
- » Intelligent Transportation Systems (ITS): The CMP and the SRP recommend expanding ITS in the City, particularly at signals. The CMP recommends using these and other technologies to provide real-time travel data to travelers in Sugar Land. Multiple plans, including the SRP and CMP recommend establishing a local transportation management center that can coordinate with TranStar.
- » Network Connectivity: The CMP proposes advocating at the regional level for the realignment of IH 69 south of the City to remove the highway as a barrier. The same plan also proposes identifying new collector streets that could be built to increase the City's overall network connectivity.

Programs, Plans, and Policies

- » Programs: The CMP recommends reviewing and expanding the City's access management and safety policies to include places with high crash activity. The CMP also proposes the development of a branded wayfinding and signage program for drivers.
- » Plans: Conduct a plan for development south of the Brazos River (CMP).
- » Policy: Develop a level of service standard for all modes of travel, not just vehicles (LUP).

Parking

Projects

- » Shared Parking: The CMP recommends constructing shared parking at transit hubs and in Activity Centers to reduce the amount of space needed for parking throughout the City.

Plans and Policies

- » Parking Policy Options: The CMP proposes conducting a full evaluation of the City's parking policies, including its parking requirements for developments, the creation of parking districts, and the potential for market-driven pricing for parking in certain areas. The LUP recommends evaluating parking standards for activity centers.

Freight

Projects

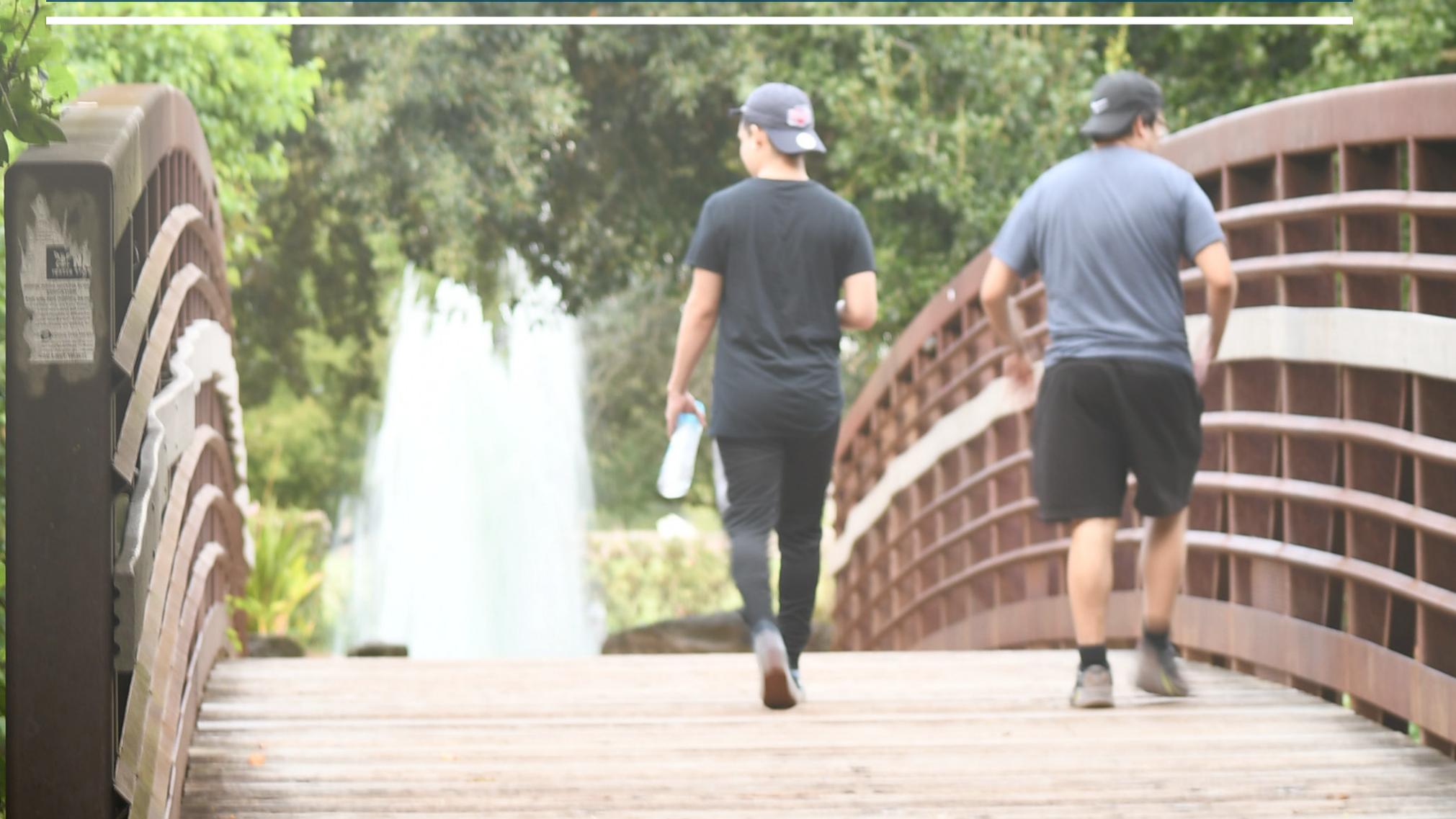
- » Relocation: The CMP and SRP propose relocating the Imperial Sugar rail spur to another area, potentially west of the airport.
- » Grade Separations: Multiple plans (CMP, PB, MTP, SRP) recommend grade separations along the existing rail lines in the City.

Programs, Plans, and Policies

- » Plans: The SRP recommends a feasibility study for a rail bypass in southern Fort Bend County to relieve some of the congestion on the Union Pacific Railroad Glidden line. The CMP also recommends conducting a commuter rail feasibility study for the US 90A corridor. On the land use side, the CMP proposes evaluating the need for a new business park with rail access north of FM 2759.

Case for Action

Appendix C



The Case for Action

The City of Sugar Land’s Mobility Master Plan (the Plan) is the result of a multi-year effort to develop a new integrated mobility plan to achieve the City’s Comprehensive Plan Vision of **Superior Mobility** for the City, its residents, businesses, and visitors. The information below provides an understanding of the structure of this Plan, why it is needed, and how it is developed.

A Plan for Superior Mobility

A LEADER IN TRANSPORTATION

For decades, the City of Sugar Land has been a national leader in quality of life, regularly appearing at the top of the rankings on lists of the best places to live such as Fortune’s Top 25 Places to Live for Families in 2022. The City’s mobility investments have played a key role in Sugar Land’s excellence – from the latest technology for congestion management to world-class trails and a walkable Town Square. The people who live, work, and visit Sugar Land notice and appreciate these great transportation investments.

BUILDING FROM PRIOR SUCCESSES

Sugar Land has a strong track record of conducting and implementing citywide master plans. Like those previous plans, this Mobility Master Plan will also sit under the larger umbrella of the Sugar Land Comprehensive Plan from 2012. The Comprehensive Plan establishes a vision to achieve Superior Mobility by 2025. The City has already worked diligently toward that vision with strategies like new trails and mobility technology for congestion management. This Plan builds from those successes to take the next step toward Superior Mobility.

- **Define** a vision for mobility that aligns with the City’s transition from a phase of significant growth to build-out within a rapidly growing region,
- **Create** safe, well-connected multi-modal networks for all people,
- **Prioritize** safety, health, and sustainability to enhance quality of life,
- **Capitalize** on advancements in technology, and
- **Adapt** to changing mobility trends in a post-pandemic future.

Case for Action

Define

a vision for mobility that aligns with the **City's transition** from a phase of significant growth to build-out within a **rapidly growing region**.

FROM SMALL TOWN TO REGIONAL HUB

Sugar Land has grown from a small rural town to a hub of regional importance in a matter of decades. The City is home to over 110,000 residents, dozens of corporate headquarters, and a AAA baseball team. Sugar Land workers and businesses are integral to regional success. Nearly 90% of employees at Sugar Land businesses live outside of the city limits, including 38% that commute in from other places in Fort Bend County. Most of Sugar

The City's Regional Context

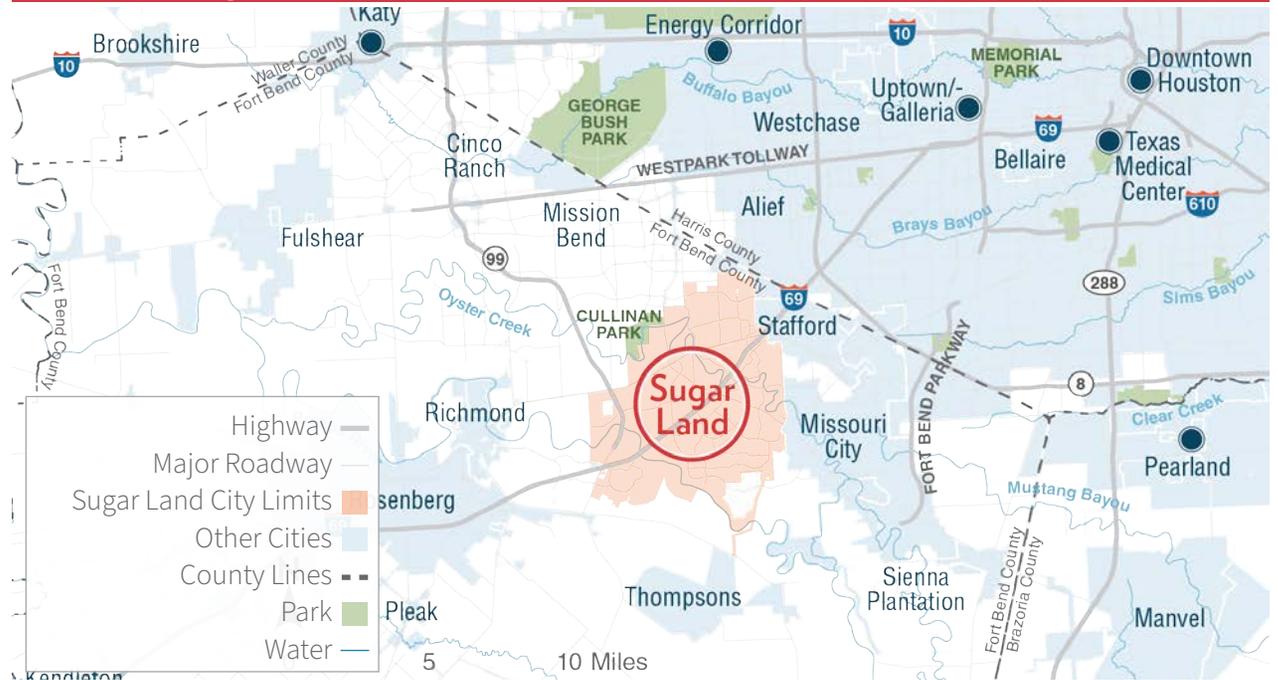


Figure C.1 Sugar Land's Regional Context

Source: H-GAC, 2020

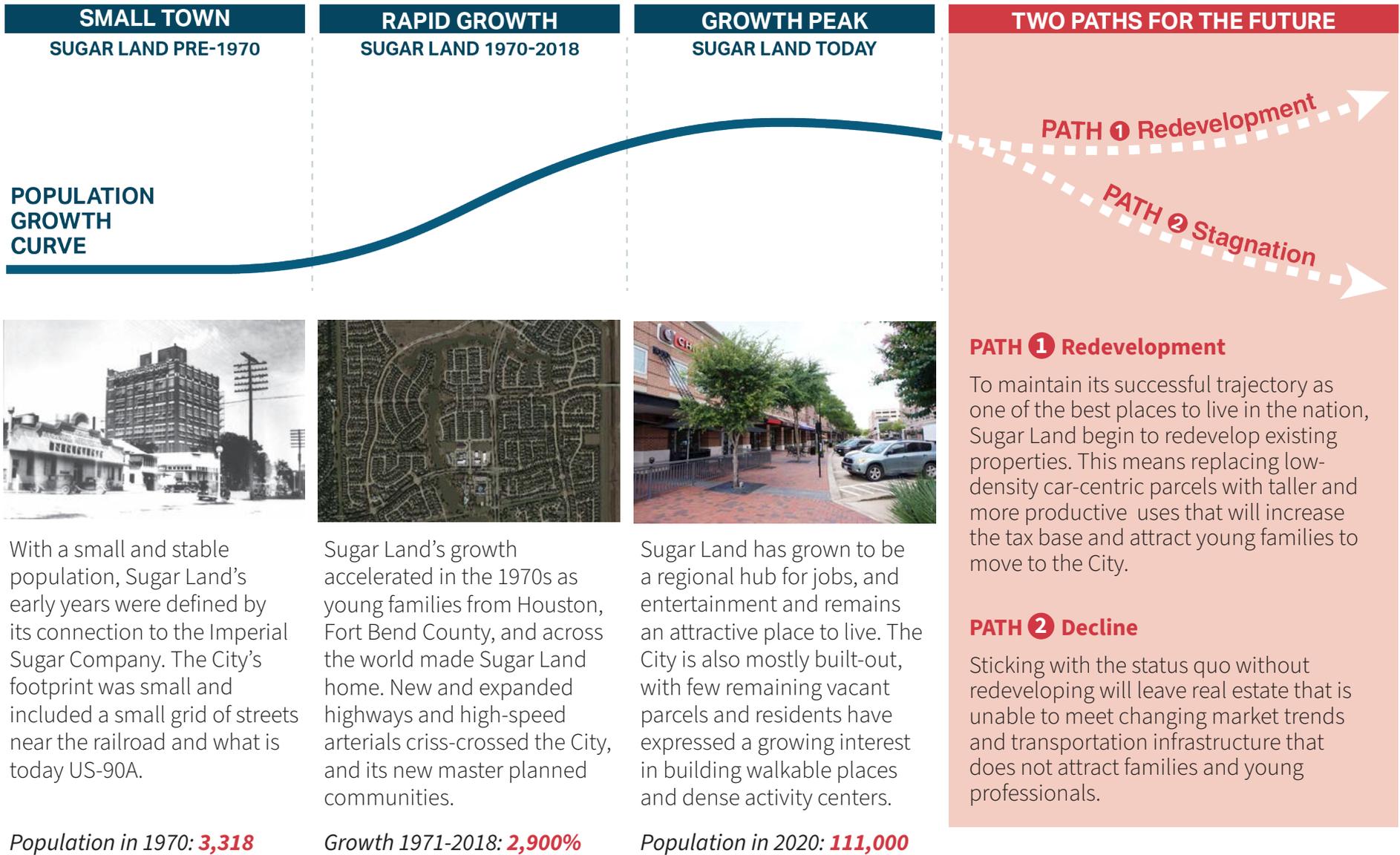
Land is also built-out, with little open space remaining for new developments. These are all indicators of Sugar Land's success, and signals that the City has reached a new phase in its life cycle.

In this new phase, Sugar Land must shift strategies and tactics to create a future with **Superior Mobility**. Yesterday's approaches were built for rapid growth, but a new Mobility Master Plan must break with the status quo.

Sugar Land's new path should embrace redevelopment of the transportation

infrastructure to meet the changing needs of residents. It should recognize the critical link between transportation and land use by investing in the walkable and dense development of activity centers as described in the 2018 *Land Use Plan*. The new mobility path should also think creatively about funding to maximize regional partnerships and give the City flexibility. Committing to this bold new path will keep Sugar Land on an upward trajectory.

Sugar Land's Life Cycle



With a small and stable population, Sugar Land's early years were defined by its connection to the Imperial Sugar Company. The City's footprint was small and included a small grid of streets near the railroad and what is today US-90A.

Population in 1970: **3,318**



Sugar Land's growth accelerated in the 1970s as young families from Houston, Fort Bend County, and across the world made Sugar Land home. New and expanded highways and high-speed arterials criss-crossed the City, and its new master planned communities.

Growth 1971-2018: **2,900%**



Sugar Land has grown to be a regional hub for jobs, and entertainment and remains an attractive place to live. The City is also mostly built-out, with few remaining vacant parcels and residents have expressed a growing interest in building walkable places and dense activity centers.

Population in 2020: **111,000**

Case for Action

Create safe, well-connected multi-modal networks for all people.

FROM MOVING CARS TO MOVING PEOPLE

Previous mobility investments have been successful in building a robust roadway network. However, like many places across the country, the City's transportation network was historically built to facilitate faster and easier movement of cars.

As envisioned in the 2012 Comprehensive Plan, the City has been working to shift its focus from moving cars to moving people, regardless of their mode of travel. Still, Sugar Land's sidewalk, bikeway, and transit networks remain isolated

in clusters, see **Figure C.2**, and major barriers inhibit safe and convenient mobility.

In the first Mobility Survey for this Plan, participants named **“a better network of safe, comfortable bikeways & trails”** as one of their top three short-term investment priorities. This Plan offers an opportunity for the City to re-focus mobility priorities away from car-only investments and toward a safe and well-connected transportation network that serves everyone.

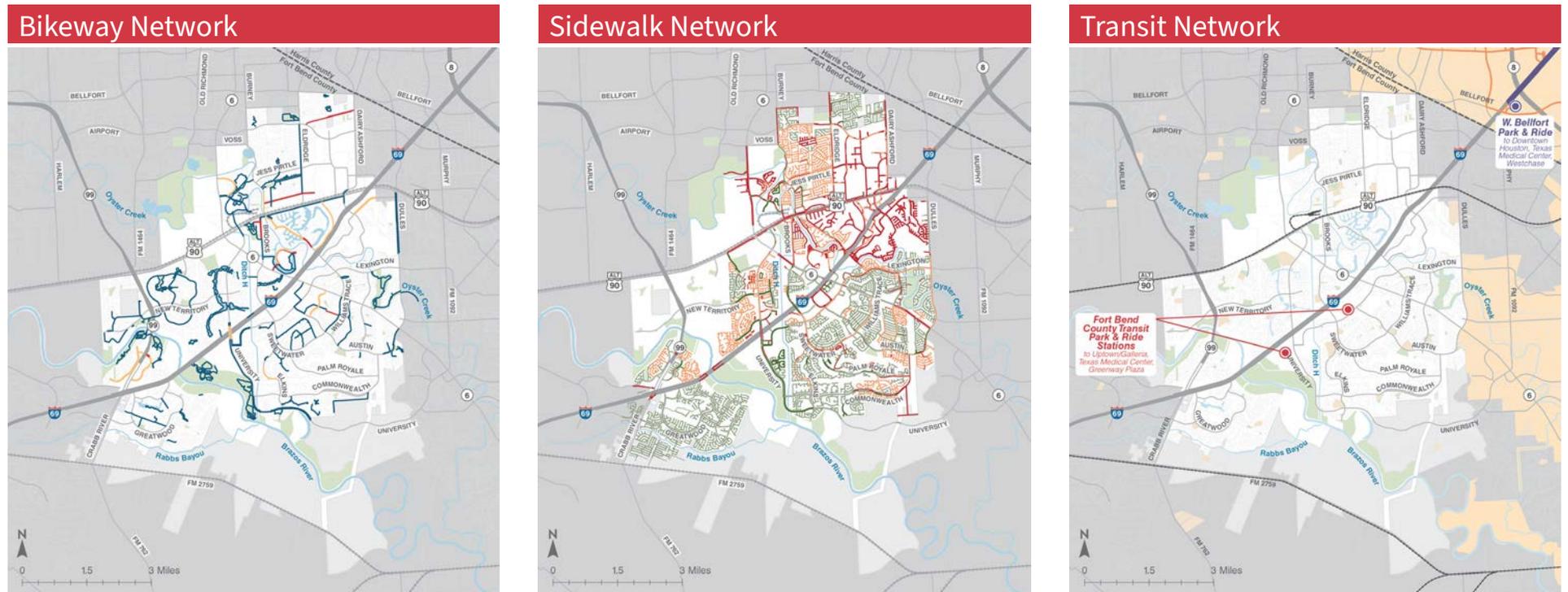


Figure C.2 Sugar Land's Bikeway, Sidewalk, and Transit Networks

Source: City of Sugar Land, 2020; Fort Bend County Transit, 2020

Major Mobility Barriers

Several types of barriers criss-cross the City and make connectivity difficult for everyone from drivers to people in a wheelchair. These barriers can be wide and have a limited number of crossing points.

WATER BODIES

Natural and man-made water bodies like the Brazos River, Oyster Creek, and Ditch H run through the City with few opportunities to cross. The Brazos River only has two crossings in the City and seven in the whole County.

HIGHWAYS & FREEWAYS

Highways and freeways like IH-69, US-90A, and SH-6 cross through the City, often with limited access points. These roads are high-speed and wide, presenting major barriers to local trips.

RAIL LINES

Two major rail lines run through the City and ETJ along US-90A and FM 2759. US-90A sees an average of 40 trains per day with an additional 16 trains per day along FM 2759, creating major barriers to non-rail traffic.

MAJOR STREETS & INTERSECTIONS

Ten arterials and 67 major collectors serve as important connections in the City's roadway network. However, high vehicle speeds and volumes, and large intersections create barriers for people who are walking, wheeling, or biking.

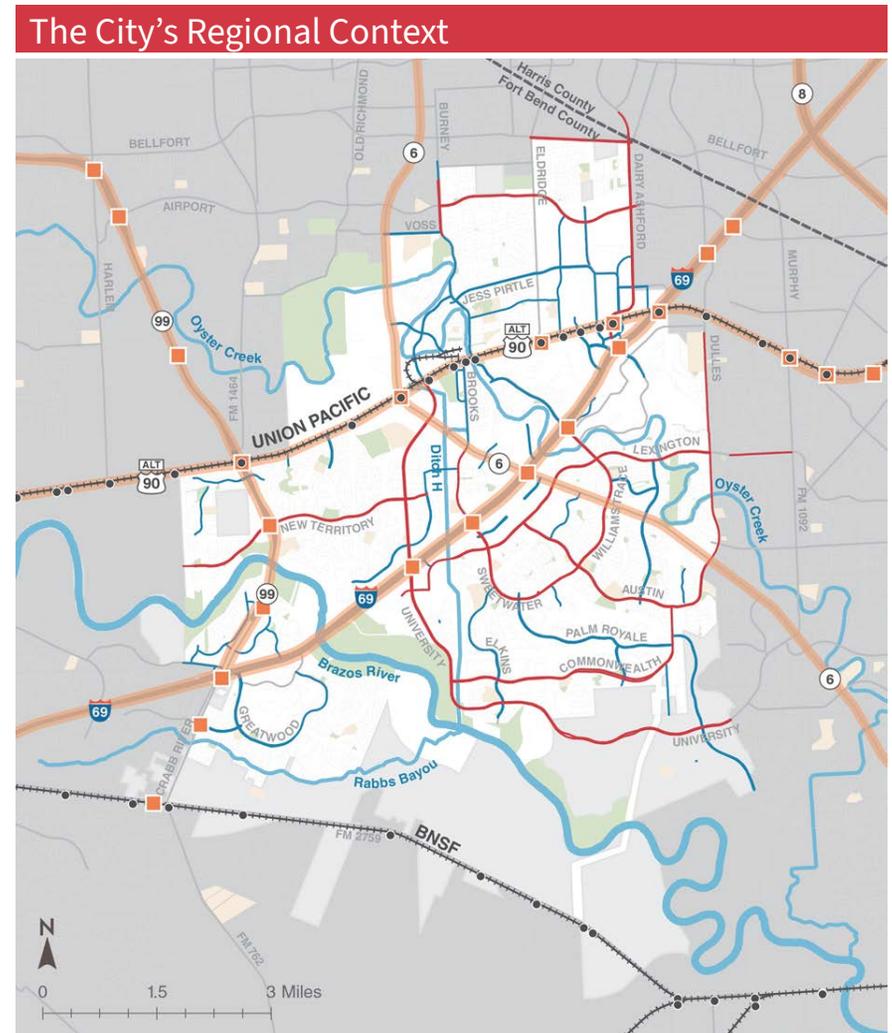


Figure C.3 Mobility Barriers in Sugar Land

Source: City of Sugar Land, 2020

Case for Action

Prioritize safety, health, and sustainability to enhance quality of life.

PLANNING HOLISTICALLY

Cities at the forefront of transportation planning are integrating safety, environmental sustainability, and public health into their mobility goals. These concepts are interrelated and success in one can help accomplish success in the others.

For example, people are more likely to engage in healthy activities like biking when they feel safe crossing the street. Naming traffic safety a public health priority can lead to practices that reduce traffic fatalities and incapacitating injuries. Likewise, preservation of natural green space can improve air quality, reduce flooding, and encourage healthy outdoor activities in those green spaces.

The Vision 2025 statement from Sugar Land’s Comprehensive Plan specifically incorporates these concepts and states that:

“Sugar Land 2025 is a **safe**, beautiful, inclusive, and **environmentally responsible community.**” The initial Mobility Survey conducted for this plan supports that statement. Three out of the top four ranked outcomes for the Plan related to safety, health, and environmental stewardship.

The Mobility Master Plan can follow through on that vision by holistically planning for mobility. The City faces safety challenges, particularly along its highways and freeways, which can be addressed with safety-focused design. Sugar Land already benefits from a wealth of natural amenities like Cullinan Park and great places for healthy outdoor activities like Brazos River Park. Access to those green space assets can be improved with thoughtful infrastructure. Finally, public health concerns like air quality and flooding can be tackled with resilient roadway designs and land use.



Safety as a Public Health Priority

SAFETY AT THE FOREFRONT

When asked about the most critical outcomes for the Mobility Plan in the 2020 survey, Sugar Land residents and workers listed **“Improving safety for all road users”** at the top of the list. Sugar Land’s crash statistics demonstrate safety challenges at major intersections throughout the City, especially along US-90A, SH-6, and IH-69. Thinking about these crash hot spots through the lens of public health will help identify systematic improvements to Sugar Land’s streets that can save lives and make it more enjoyable for people to cross the street to get to destinations throughout the City. Even in parts of Sugar Land with low crash rates, perceived safety risks from high speeds or lack of safe crossings can prevent people from choosing healthy activities like walking or biking.

Addressing safety through a public health lens also helps achieve other goals, like building full networks of safe sidewalks and bikeways with better connectivity across barriers. When the City is better connected, residents, workers, and visitors will have easier access to outdoor activities that improve the health and quality of life for everyone.

Crash Data 2015-2019

9,975 crashes on Sugar Land roadways

47% of crashes are intersection-related

37% of crashes due to failure to control speed

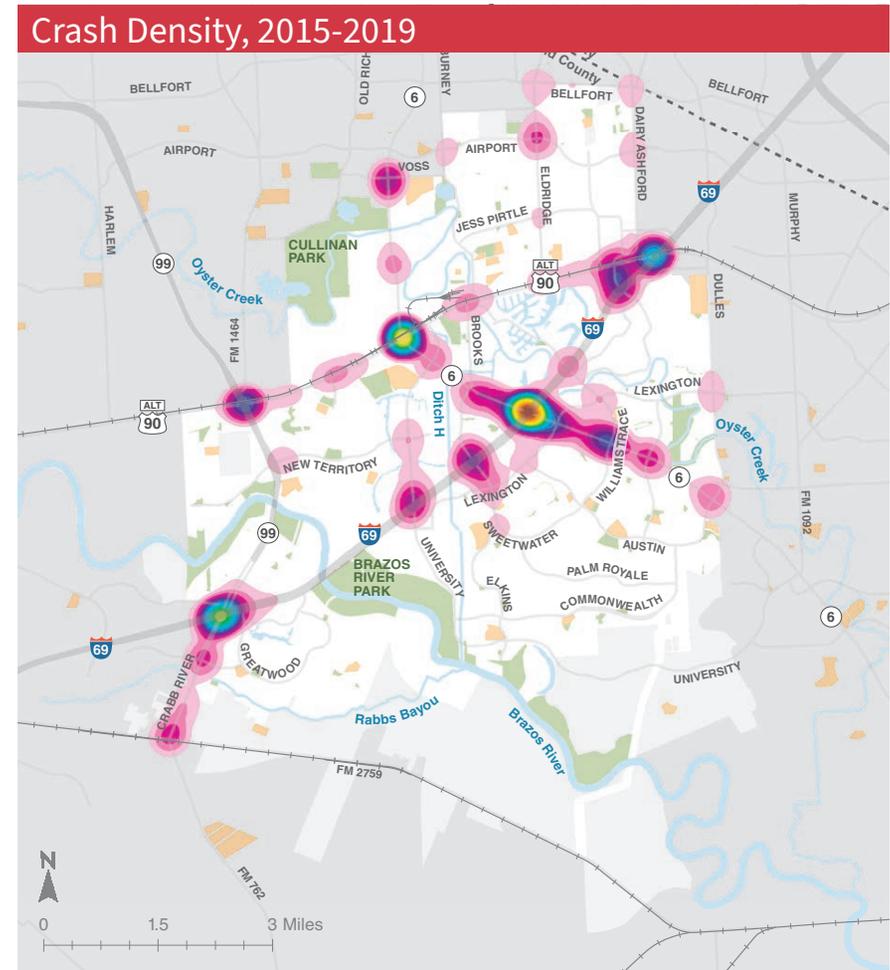
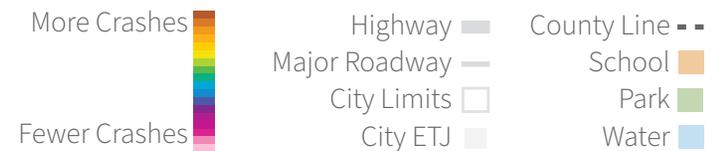


Figure C.4 Crash Density, All Crashes

Source: TxDOT, 2015-2019



Case for Action

Capitalize on advancements in technology.

AHEAD OF THE TECHNOLOGY CURVE

Sugar Land is a leader in mobility technology with an impressive list of existing tools to help solve the City's most difficult transportation challenges. These mobility technologies include a wide variety of tools from Intelligent Transportation Systems (ITS), that improve roadway operations through technology, to advancements in material sciences to make roadway pavement more durable.

Mobility technologies are also evolving rapidly with added features and improved performance. New advancements like “smart-city” infrastructure and automated vehicles have the potential to reshape the nature of transportation for places like Sugar Land.

On the 2020 Mobility Survey for this Plan, residents and workers ranked **“traffic**

signal timing & coordination” and **“street maintenance”** as the top two short-term investment priorities. Both of these can be addressed in part through wise technology implementation.

READY FOR MORE INNOVATION

As an early-adopter on the cutting edge of these technologies, Sugar Land is well-positioned to leverage its existing transportation assets to embrace new opportunities and face challenges using the lens of technology. Prior investments, staff expertise, and community support for innovation make the City an ideal candidate for pilot projects and partnership with public and private enterprises testing new concepts. The Mobility Master Plan provides an opportunity to define a set of goals for ITS will give the City flexibility to capitalize on these advancements into the future.

Sugar Land's Existing Technologies

- » Traffic Management Center (TMC) with Operations
- » Fiber & Wireless Communication Network
- » Advanced Traffic Management System Software (ATMS)
- » Adaptive Signal System
- » Advanced Transportation Controllers (ATC)
- » Vehicle Detection with High-Accuracy Counts
- » Bluetooth Travel Time Readers
- » Point & Tilt Zoom Cameras
- » Dynamic Messaging Signs (DMS)
- » ITS Website that is Waze Integrated (its.sugarlandtx.gov)
- » Rail Monitoring System
- » Rail Preemption System (RPS)
- » Connected Vehicle Module (Audi)
- » Connected School Beacons
- » Emergency GPS System

Problem Solving with Technology

A REGIONAL LEADER IN MOBILITY

Sugar Land can also use its technology investments to play a leadership role in Fort Bend County and the region. The City is already exploring ways to expand its ITS along US-90A to reduce congestion and crashes along the freight rail line. Improving the flow and safety in surrounding communities will benefit Sugar Land residents as well.

NAVIGATING TRADE OFFS WITH TECH

Technology offers creative solutions for managing difficult trade offs in transportation. Sugar Land can deploy existing technologies when facing these trade offs, like constrained right-of-way. Many of the City's roadways, like SH-6 in **Figure C.5**, are constrained, meaning they can no longer be widened to increase their vehicle capacity unless the City takes on the costly task of purchasing right-of-way through eminent domain.

On SH-6, the City has worked diligently to install real time adaptive signal timing monitored at the City's Traffic Management Center (TMC) along the entire corridor. Adaptive signal timings allow for signals along the corridor to respond in real time to travel demands and move vehicles more efficiently along the corridor. This ITS technology has increased capacity along SH-6 without the need to expand ROW. Technology can be a more cost effective solution when utilized in the right manner.

Multiple Benefits of Intelligent Transportation Systemes

- » Reduce Maintenance Costs
- » Maximize Right-of-Way
- » Reduce Crashes
- » Reduce Congestion
- » Faster Emergency Response
- » Improve Data Collection

Constrained Right-of-Way on SH-6



Figure C.5 Depiction of Constrained ROW along SH-6

Source: Team Analysis 2020

Case for Action

Adapt to changing mobility trends in a post-pandemic future.

PANDEMIC IMPACTS

The COVID-19 pandemic upended the daily travel behaviors of people across the world. Within a matter of days in March 2020, Sugar Land residents and businesses stayed home to help prevent the spread of the disease and avoid exposure. As a result, roads were empty during rush hour, school buses stopped running, and many people embraced new outdoor activities.

Even as the health risks of the pandemic fade, it will still have lasting impacts on transportation and mobility. Sugar Land can use the Mobility Master Plan as an opportunity to get ahead of these changes and adapt to changing mobility trends.

EMBRACING HEALTHY ACTIVITIES

In addition to changing commute patterns, more people spent time outdoors to participate in healthy activities like walking, jogging, and riding a bike. In fact, 67% of Mobility Survey respondents reported walking or biking more during the pandemic than before.

Sugar Land's large parks and boulevards provided an escape for people stuck at home quarantining.

SPORTS: Area athletes net honors Page A9

SUGAR LAND SUN

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Wednesday, April 8, 2020

AN EDITION OF HOUSTON'S CHRONICLE



Where to get help during virus outbreak

Here is a list of groups helping the community during the coronavirus outbreak. If you know of other organizations assisting, please contact news@sugarlandnews.com.

Katy Christian Ministries
A social service non-profit serving the Katy area. Provides food, clothing, financial assistance, a food pantry, a Crisis Center that houses a domestic violence center, and the annual annual center, mobile store and shelter services.
Phone: 281-955-5288
Website: <http://kcm.org>

Fort Bend Seniors Meals on Wheels
Meals on wheels remains independent by enhancing the quality of life through services and resources.
Phone: 281-633-2249
Website: <http://www.fortbendmeals.org>

Hope For Three
Hope For Three is a 501(c)(3) non-profit and action advocacy group providing resources and support to families living with autism spectrum disorder.
Phone: 281-241-6143
Website: www.hopeforthree.org

Houston Food Bank
Meals with regional partners to distribute food and supplies to those in need.
Phone: 281-232-1300
Website: www.houstonfoodbank.org

Heartlands Ministries for Greater Houston
Heartlands Ministries for Greater Houston offers services to all.

Testing site inundated



Medical workers administer COVID-19 tests at a drive-thru testing site outside Sugar Land's Smart Financial Center on Friday. While hundreds of cars lined up, hundreds more were turned away. Katie Wu / Staff

Long lines at Smart Financial Centre drive-thru; hundreds turned away

By Kristi Nix
A free drive-through COVID-19 testing site that has been shut down.

Missouri City city councilman with COVID-19 hospitalized

By Kristi Nix
Free tests to as many people as possible; Syed Mubinkhan, CEO of United Memorial Medical Center, said in a telephone interview April 7.



COVID-19 Impacts by the Numbers



67% of Mobility Survey participants walked or biked more during the pandemic.



Vehicle counts from February to April 2020 fell around **50%** on SH-6, IH-69, and US-90A.



Around **90%** of Mobility Survey participants worked from home at some point during the pandemic, up from **13%**.



Rides on Fort Bend County Transit from April to October 2020 dropped **50%** from the same period in 2019.*

**This includes both commuter Park & Ride and Demand Response services.*

CHANGING COMMUTE BEHAVIOR

The statewide lock down orders in Texas began in early April 2020. As businesses and schools closed, Sugar Land residents began working and studying at home.

Even when some restrictions lifted over the summer and fall of 2020, many people continued to stay at home. This major shift was captured in the Mobility Survey in which 90% of participants responded that they worked from home at some point during the pandemic.

The City's real-time traffic counts reflected this shift in commute behaviors, documenting a sudden drop in vehicle counts, see **Figure C.7**. Between February and April 2020, vehicle counts dropped to around half of normal levels on the City's highways and freeways – SH-6, IH-69, and US-90A. Major streets like Sweetwater Blvd, Eldridge Rd, and Town Center Blvd saw even larger drops.

Roadway	% Change in Volumes	
	Start of COVID Feb-Apr 2020	Over the Year Nov '19-Nov '20
SH-6	- 48%	- 6%
IH-69	- 55%	- 9%
US-90A	- 54%	- 11%
University Blvd	- 54%	- 10%
Sweetwater Blvd	- 63%	- 16%
Eldridge Rd	- 59%	- 37%
Dulles Ave	- 52%	- 16%
First Colony Blvd	- 54%	- 15%
Town Ctr Blvd	- 57%	- 6%

Figure C.7 Traffic Volumes Changes

Note: Texas Statewide lock down orders began 4/2/20.

By November, more people were using the roads, but the City's major corridors were still recording lower vehicle counts than the previous year.

Fort Bend County Transit also reported a similar drop in ridership after the pandemic started. Between April and October 2020, the transit agency was documenting about half of the riders as the year before.

ADAPTING FOR THE FUTURE

Although the long term impacts of the pandemic are still unknown, the City can use this Mobility Master Plan to prepare for potential outcomes.

Based on available data and feedback from residents and businesses in the Mobility Survey, we can predict:

- » Some businesses will embrace flexibility in the workplace and allow employees to continue to work from home, at least

partially. This would have a sustained impact on traffic volumes, especially during rush hour.

- » When motivated to get outside, residents enjoy walking and biking. Residents, workers, and visitors will use sidewalks and bikeways if they are safe, connected, and well-maintained.
- » Some households may continue to order food for delivery instead of traveling to a restaurant. This has potential impacts for parking requirements and automated vehicle technologies.

These impacts present new challenges and unique opportunities that require innovative thinking to embrace the new normal. In all cases, Sugar Land has the resources and capacity to adapt to this uncertain future.



Figure C.8 SH-6 and Eldridge Traffic Counts

Source: PowerBI, 2021

Mobility Task Force Summary

Appendix D



Mobility Task Force (MTF) Composition

Prior to commencement of the Mobility Master Plan in 2019, City of Sugar Land staff solicited community participation to institute the Mobility Task Force (MTF) to serve as community advocates for the Mobility Master Plan through the duration of plan development. Through Resolution 19-17, City Council appointed 23 Task Force members representing diverse mobility interests and established the roles and responsibilities of the MTF. The list below are the 23 members appointed by City Council, noting a few members* who had to step down due to other commitments.

MTF Member Name	Mobility Interests Represented
HoJin Lim - MTF Chair	Motorist, Transit, Parents of School Children
Carla Mondt - MTF Vice Chair	Parents of School Children, Transit, People with Disabilities, Motorist
Orlando Alvarado	Cyclist, People with Disabilities
Ravi Arora	Motorist, Transit, Seniors
Frank Barboza	Cyclist, Transit
Lakesha Bridges	Parents of School Children, Motorist
Judy Dae	Motorist, Cyclist
Johanna Dishongh	Cyclist, Walker, Runner
Timothy Hart	Motorist, Parents of School Children, Transit
Nasir Hussain	Parents of School Children, Motorist, Transit
Sanjay Jain	Local Businesses, Parents of School Children, People with Disabilities
David James	Walker, Economic Development, Equity/inclusion, Technology, People with Disabilities
Jim Kij	Motorist, Transit, Cyclist
James Lockwood	Motorist, Transit, Seniors, Other
Tara Mascarenhas	Parents of School Children, Walker, Runner, Cyclist, Transit
Kim Niese	Motorist, Transit
Meena Outlaw	People with Disabilities, Transit, Motorist
Gustavo Rodriguez	Parents of School Children, Transit, Major Employers
Kim Stephenson	Parents of School Children, Transit, Walker, Runner
Chioma Anowey*	Transit, Cyclist, Motorist
Zeylord Bautista*	Parents of School Children, Seniors, Walker, Transit, Motorist
Melanie Manville*	Walker, Runner, Cyclist
Barron Tompkins*	Walker, Runner, Transit, People with Disabilities, Major Employers

MTF Meetings and Topics

The MTF met regularly throughout the planning process and began meeting as a group in May 2020. Due to the 2020 Covid-19 Pandemic, the majority of the MTF meetings were held virtually until restrictions were lifted. The table below presents all the MTF meetings at a high level. The meeting numbers correlate with each phase of the four-phase planning process. Meeting regularly with the MTF was essential for the planning team to present and discuss progress and gather input routinely to shape the Plan. Most meetings allowed for an interactive activity or break-out group to allow MTF members time to get to know one another, ask questions in a small group, and provide focused input. Oftentimes, the project team would ask the MTF to review things or have other “homework” activities to consider on the months where the MTF did not convene.

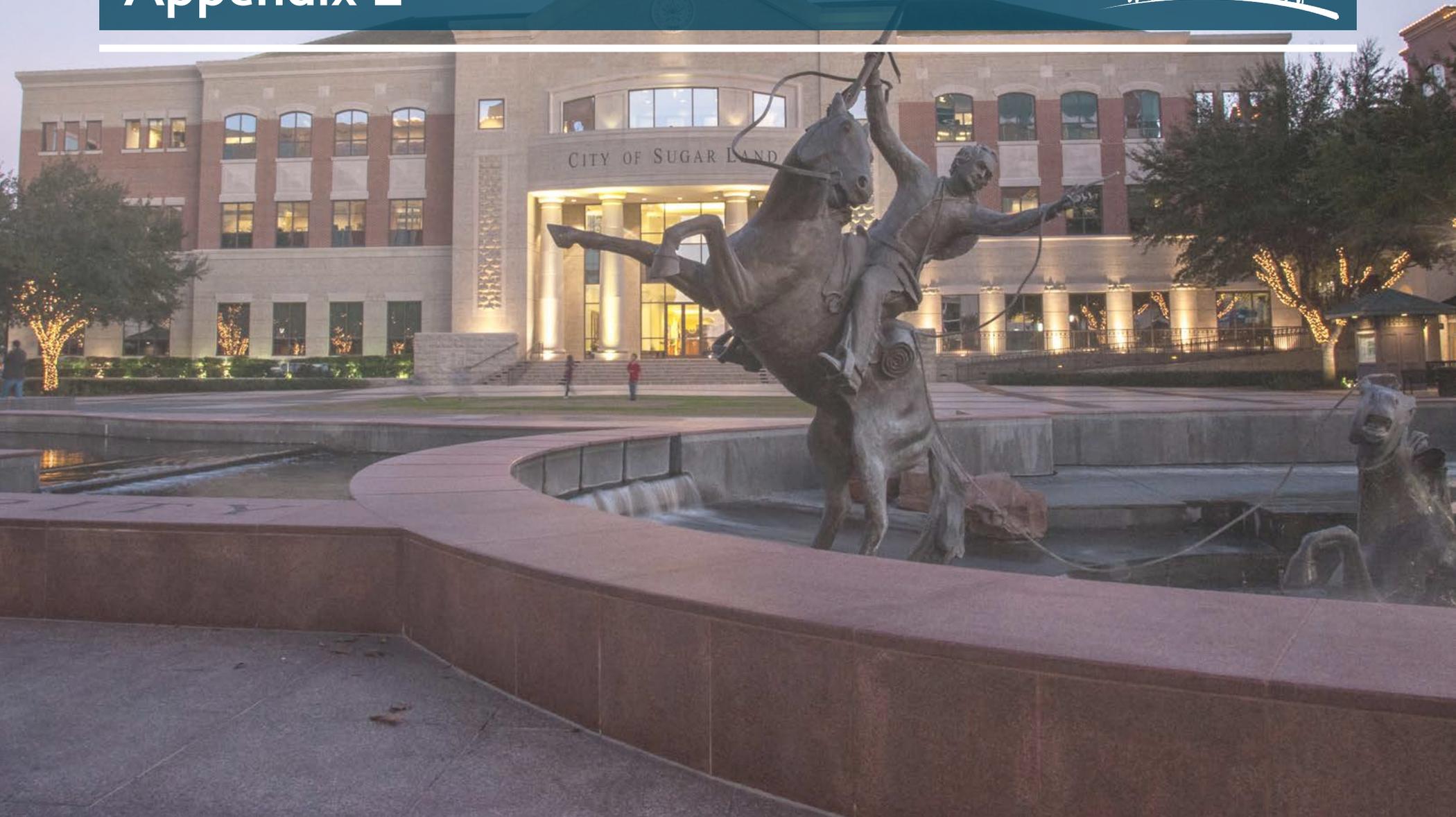
MTF Meeting	Date	Meeting Topic	Brief Overview	Virtual, Hybrid, or In-Person
1.1	May 13, 2020	MTF Orientation	The first official MTF meeting where City staff and the project team introduced the Mobility Master Plan process, schedule, and oriented the MTF on their role and future involvement. The group did an activity to discuss MTF members’ favorite streets and allowed for them to explain why including physical elements.	Virtual
1.2	June 10, 2020	Plan Review & Intro to Previous Planning	The project team presented a high-level overview of existing plans and studies that may impact the Mobility Master Plan effort. The project team presented a preliminary Fact Book that details out existing conditions that will inform for this effort.	Virtual
1.3	August 12, 2020	State of Sugar Land Mobility	The project team presented baseline conditions through the State of Mobility document and asked the MTF for feedback and general understanding of where mobility is today. The team presented the MTF with self-guided tours of the City individuals may take on their own time either by walking, biking, or driving.	Virtual
1.4	September 9, 2020	Debrief City Tours and Building Great Streets	The MTF and project team discussed the tours some of the MTF members were able to take to explore the City. The project team introduced the concept of building great streets and had groups virtually break out and use Streetmix to design corridors and discuss trade offs.	Virtual
1.5	October 12, 2020	Case for Action Progress & Community Engagement Strategies	The project team presented a recap of work done so far including a summary of quotes from MTF members stating what their hopeful goals are for the City’s mobility. The team presented the Case for Action statements and had the MTF break into small groups to discuss if the statements support the path forward for the Mobility Master Plan.	Virtual

MTF Meeting	Date	Meeting Topic	Brief Overview	Virtual, Hybrid, or In-Person
2.1	December 9, 2020	Introduction to Vision & Goals Setting	The project team gave a presentation of core values and began to introduce the concept of mobility scenarios to conceptualize how mobility elements and concepts could support ideal outcomes for the City. The team also presented progress so far on the survey from Round 1 of community engagement and shared the interactive map tool.	Virtual
2.2	February 10, 2021	Goals Development	The project team presented a recap of the first round of community engagement to the MTF. The team presented draft goals statements that support the Core Values with examples for supporting strategies and metrics. The project team and MTF members discussed each goal in depth. The group made it through about half the goals and scheduled a part 2 to finish going through the goals list.	Virtual
2.2 part 2	March 10, 2021	Goals Development Part 2	The project team and MTF continued discussing the goals. The MTF was encouraged to go online and put inputs in the interactive mapping tool.	Virtual
2.3	April 14, 2021	Draft Goals Summary and Community Engagement Next Steps	Incorporating feedback from the MTF discussions from the prior two MTF meetings about goals, the project team presented revised goals to align with input received. The team introduced how the goals would be presented to the general public during the next phase of community engagement.	Virtual
3.1	August 11, 2021	Multimodal Mobility Network	The project team introduced the concept of a Multimodal Mobility Network by discussing Complete Streets concepts and how to apply them to the City's network. Small virtual breakout groups were formed to do one exercise to support understanding of Complete Streets elements and another exercise to apply those concepts to a couple multimodal corridors in the City.	Virtual
3.2	October 13, 2021	Strategies Development and Introduction to the Transformative Network	The project team discussed strategies and introduced the concept of the Transformative Mobility Network. City staff presented a variety of City projects currently underway related to mobility.	Hybrid

MTF Meeting	Date	Meeting Topic	Brief Overview	Virtual, Hybrid, or In-Person
3.3	February 9, 2022	Transformative Mobility Network (TMN)	The project team presented the Transformative Mobility Network in detail and provided information on how the TMN supports the Plan's Vision and Core Values. The MTF was divided into a few groups and did a mobility-related Mad Lib game to present a project concept, how it supports the vision and goals, what metrics could be used to measure success, and how the project would be funded.	Virtual
3.4	April 13, 2022	Strategies & Action Items	The project team gave a brief recap of the TMN and had MTF members present the Mad Libs sheets from the prior meeting. The team then presented the Draft Strategies with action items that align with the Plan's Core Values.	Hybrid
3.5	June 8, 2022	Summer 2022 Engagement Overview	The project team presented the Summer 2022 engagement opportunities and discussed how MTF members could be involved. All online materials as well as printed postcards with in-person event dates were available for MTF members to share with other residents.	Virtual
4.1	December 14, 2022	Metrics & Implementation Strategies	The project team presented the Six Mobility Metrics and discussed how they will be used to measure progress over time and assist with corridor prioritization and implementation. An interactive group exercise allowed MTF members the opportunity to think through a few real-world project examples using a selection of metrics data.	Hybrid
4.2	February 8, 2023	Plan Presentation & Review	At this meeting, the MTF reviewed the final Plan document along with robust discussion. The MTF voted unanimously to recommend the Plan be adopted by City Council.	Hybrid

Local & Regional Partners

Appendix E



Local and Regional Partners

At the start of the Mobility Master Plan effort, key stakeholders were identified to participate throughout the planning process to inform, collaborate with, and consult on local and regional mobility topics as it relates to mobility in Sugar Land. The local and regional entities consisted of adjacent cities, county representatives, regional transportation planning and implementation agencies, school districts, and CenterPoint (the area’s power provider with land/easements throughout the region). There were a few larger meetings where entities met with City of Sugar Land staff and the consultant team in addition to a few individual meetings with entities if attendance was infeasible at one of the larger meetings. The purpose of meeting with local and regional partners during the Mobility Master Plan effort was to allow for opportunities to share information and to facilitate opportunities for collaboration and/or partnerships supporting Superior Mobility in Sugar Land and the region. The table below lists the entities engaged as local or regional partners. A few participants listed may no longer be with the entity they represented during the planning process but are included as a record for those engaged.

Local & Regional Partner Entities	Representative
CenterPoint Energy	Nora Luna
City of Houston	David Fields, Lauren Grove, Peter Eccles, Sharon Moses-Burnside, Brian Smith II, Melissa Beeler
City of Meadows Place	Nick Haby
City of Missouri City	Ameena Padiath, Cliff Brouhard
City of Richmond	Jose Abraham
City of Rosenberg	Ian Knox
City of Stafford	Tatyana Luttschlager
Fort Bend County Transit	Perri D’Armond, Don Smithers
Fort Bend Independent School District (FBISD)	Oscar Perez, Demetrius Martin, Damian Viltz, David Rider
Houston-Galveston Area Council (H-GAC)	Allie Isbell, Kat Vo
Lamar C.I.S.D. (school district)	Mike Jones
TxDOT	Catherine McCreight, Andrew Mao
Union Pacific Railroad	Erik Lewis, Richard Zientek, Tyson Moeller

Local and Regional Partners Meetings and Topics

There were three official large-group format meetings for the local and regional partners, with opportunities for one-on-one meetings with entities that either could not attend the larger meeting or those that needed a closer focus on a topic or strategy presented as a part of the plan. The table below lists the meeting dates and topics covered at the larger meetings. The local and regional partners were asked to keep engaged during the planning process through any MTF meetings, public engagement opportunities, and any one-on-one collaboration needed throughout the planning process. Most of the one-on-one meetings were held virtually.

Meeting Date	Meeting Topic	Brief Overview	Virtual, Hybrid, or In-Person
August 7, 2020	Meeting 1: Mobility Master Plan Introductions and Role of the Local & Regional Partners	The first meeting convened mostly agency staff from H-GAC, TxDOT, CenterPoint, Fort Bend County Transit, Fort Bend County, and two ISDs including FBISD and LCISD. This meeting introduced the importance of the Mobility Master Plan, the hopeful role of all local and regional partners, and discussed previous planning and collaboration and how collaboration will occur moving forward with the new Plan. There were opportunities for all entities to share current or upcoming efforts that could be relevant to the Mobility Master Plan.	Virtual
November 10, 2020	Meeting 2: Task 1 Overview from Mobility Master Plan with Group Discussion	The second meeting was three months after the first meeting and had a focus with the adjacent jurisdictions including: Cities of Houston, Meadows Place, Missouri City, Richmond, Rosenberg, and Stafford. Similar introductions about the plan and process were made with an open invitation to participate throughout the planning effort and to provide information and partnership opportunities for mobility-related projects supporting regional mobility.	Virtual
March 10, 2022	Meeting 3: Plan Update and Introduction to Plan Strategies with Action Items	The third meeting included local and regional agency and jurisdictions with a more robust Plan update. At this point in the planning process, draft Strategies and Action Items were presented for input from the partners. Specific strategies were targeted to some participants if relevant. For example, the transit-related strategies were shared more in depth with Fort Bend County Transit for their input and collaboration.	In-Person

Round 1 Community Engagement Summary



Appendix F

A grid of 12 video conference thumbnails. The top row shows four thumbnails: the first is partially obscured by the title, the second shows Eleni Papp..., the third shows Monique Johns..., and the fourth shows Carla Mon... with the accessibility icon. The second row shows four thumbnails: the first shows lasir Hussa..., the second shows BRBZtrad..., the third shows Lisa Kocich-Mey..., and the fourth shows Krystal Lastr... The third row shows four thumbnails: the first shows oust..., the second shows Jim Lockwo... with a background of fighter jets, the third shows Geoff Carlet..., and the fourth shows tara... Each thumbnail includes a name label at the bottom and a red microphone icon indicating muted audio.

Community Survey

About the Survey

A public survey was used as a part of engagement efforts to identify the needs, barriers, and priorities of the community. The survey was conducted in the fall of 2020 during the COVID-19 pandemic. As such, all engagement efforts used online methods. The City of Sugar Land promoted the survey using a variety of tools and resources in order to engage a broad spectrum of the community and have robust feedback. The various survey promotions garnered 1,368 total responses and are identified below.

- » Yard signs at seven city parks, City Hall, and the University of Houston at Sugar Land
- » Yard signs at some Mobility Task Force members' houses
- » Multiple social media posts on Facebook, Twitter, Instagram, Nextdoor, and TikTok
- » Marquee sign graphics at Smart Financial Center, Constellation Field, and Town Square Kiosks
- » E-news (monthly email newsletter to residents who opt-in)
- » Posted on the City's intranet
- » Distribution to Homeowners Associations (HOAs) and local businesses for further dissemination
- » Multiple posts on the *Sugar Scoop* City blog
- » Messages within utility bills mailed by the City
- » Presented to Mayor's Youth Advisory Council
- » Mentioned at workshops with Planning & Zoning Commission and City Council
- » Message sent to Sugar Land 101 Alumni
- » Asked regional stakeholders to help spread the word

Mobility Master Plan

The survey was designed to work in conjunction with data analysis to inform the City and project team prior to developing recommendations. The summary presented here provides insights to the survey responses in the context of the larger Mobility Master Plan, and specifically the Case for Action, which identifies why the Plan is important to the City and critical components that will lead to success and creating a new future for mobility in Sugar Land. This document is intended to be a high-level overview and snapshot. The detailed survey results will be an ongoing resource for Plan development. This summary is presented in the following sections to facilitate easy understanding of the information:

- » Who took the survey
- » Community's vision
- » How people get around
- » Priorities for mobility
- » Technology and future trends



Photos of survey advertisement signs placed at City Hall (left) and Memorial Park (right)

Who Took the Survey

The information presented here highlights information about the community members who responded to the survey. Overall, the survey received input from a wide section of the community. Demographic information was asked to better understand if the survey reached the community as a whole and if there were variations in responses from various demographic groups. The figures in this section highlight some of the key information about survey respondents.

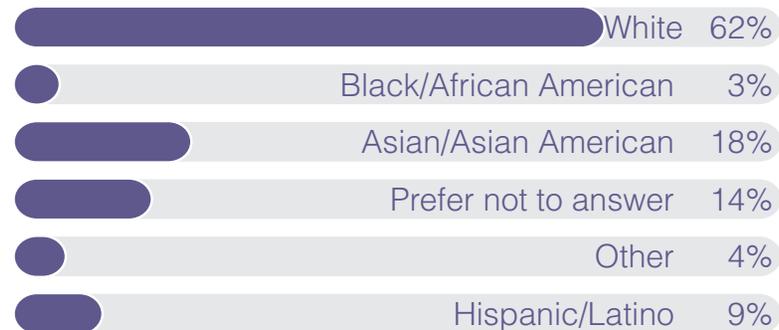
As shown in **Figure 1**, while the majority of respondents live in Sugar Land, many perspectives from people who visit, work, or go to school in the city were represented. This diversity in relationships to the city ensure that the variety of trips and mobility needs made both daily and infrequently are represented and can be factored into this plan. Additionally, people who have lived in Sugar Land for various time periods provided input and perspectives with both history and fresh eyes (**Figure 2**).

While a majority of respondents were white, perspectives from various races and ethnicities were provided (**Figure 3**). Typically different cultures and races have differing experiences and views with transportation. This can impact what is seen as barriers or desired needs and priorities.

Figure 1 Respondents' relationship to Sugar Land

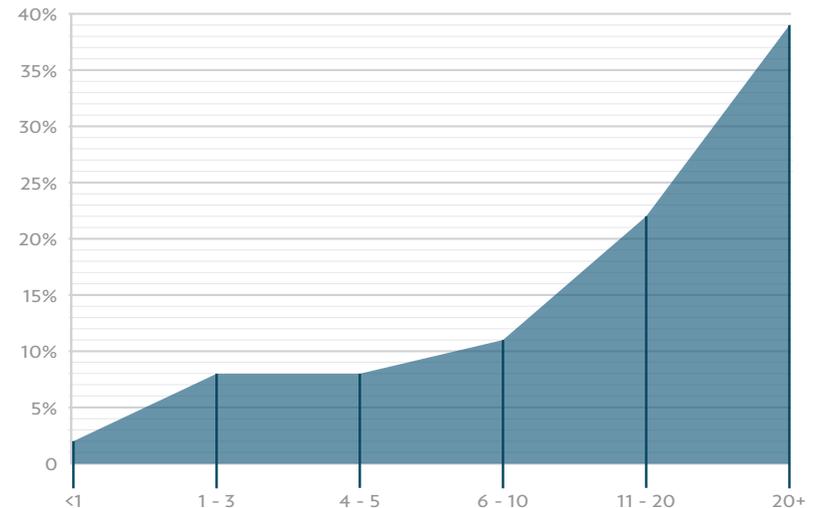


Figure 3 Race/ethnicity of survey respondents



Less than 1% identified as American Indian or Alaska Native.
 Respondents could select all applicable options.

Figure 2 Length of residency in Sugar Land



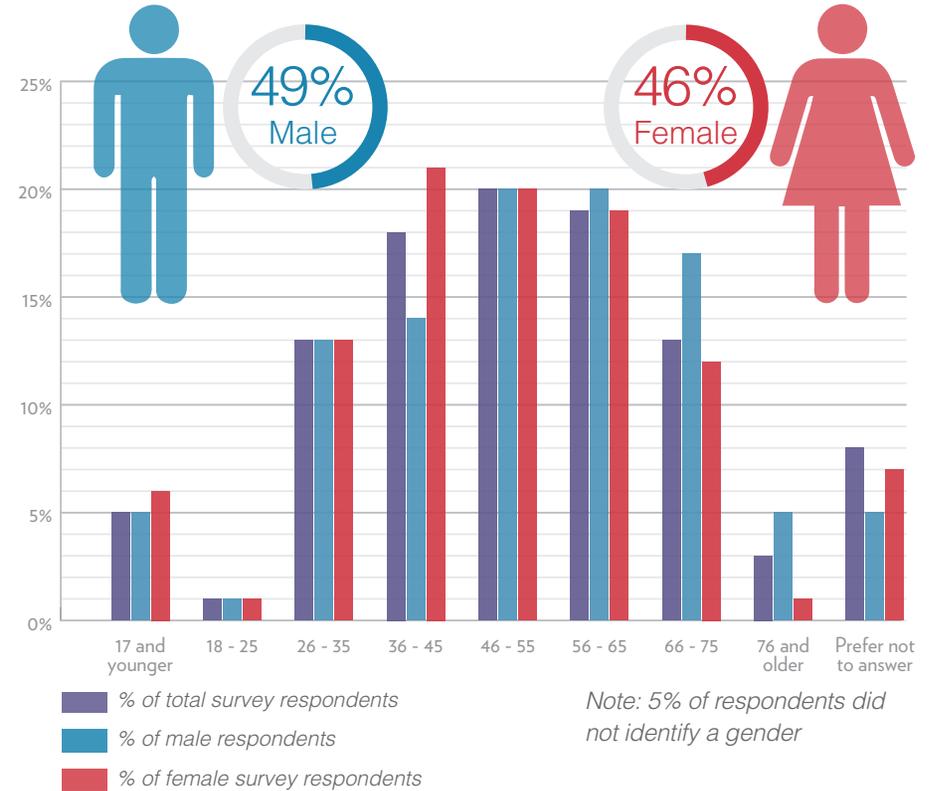
Note: 10% of respondents were not residents or chose not to respond to this question

Figure 4 details the breakdown of gender and ages of survey participants. People of all different ages have variations in their needs and abilities for daily travel. Additionally, gender can have very real consequences on perceptions and mobility needs. Overall, the split between female and male was very close. The age ranges were not all evenly represented, but generally there was a wide distribution ensuring that perspectives of the community ranging from youth to seniors was provided. The chart shows the overall percentage of female and male respondents, as well as the percentage of each gender by age group.

Household income can play an important role in understanding people's transportation choices. **Figure 5** shows that survey participants have a wide range of income levels. However, 57% have household incomes over \$100,000 per year. This indicates that choice is an important component of transportation mode use. Components like comfort, ease of use, and reliability are typically associated with people who choose certain mobility options over others.

Beyond these basic demographics, the survey respondents also skewed towards highly educated and less than half of participants' households have children in the home. These factors may also be associated with choice characteristics for mobility options.

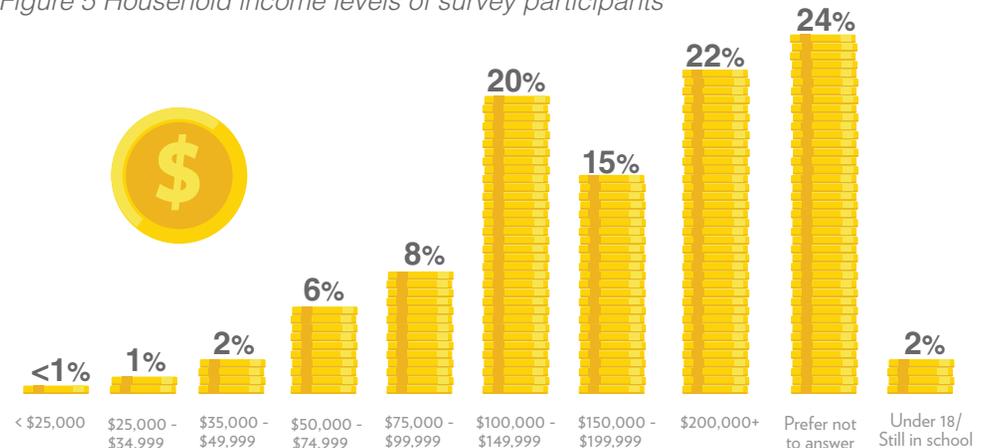
Figure 4 Age and gender of survey participants



43% of households have one or more children in the home (age 18 or under)

80% of participants have a Bachelor's degree or higher

Figure 5 Household income levels of survey participants



Community's Vision

The Case for Action states that the Mobility Master Plan must “Define a vision for mobility that aligns with the City’s transition from a phase of significant growth to build-out within a rapidly growing region.” To define this vision, community needs and desires must be taken into account. The community survey asked many questions that can help identify themes that are useful in defining this vision from the community’s perspective. The information presented here highlights how the community thinks about mobility, why they use various modes for their trips, and desired outcomes of this plan.

WHAT ARE THE DESIRED OUTCOMES?

The community’s desired outcomes for this plan generally provide a nexus to the goals of this plan and a basis to evaluate priorities and needs. The survey provided eleven potential outcomes for people to evaluate how important each are to the plan. The top five desired outcomes are highlighted in **Figure 6**. The outcomes can be considered complementary in many ways and include safety, multiple modes, efficiency, health, and environment. Beyond these top five, additional outcomes that were in the next tier of importance and coordinate with the top five include providing affordable transportation options, increase choices for how to move around Sugar Land, and improve connections to the greater Houston region.

Attitudes on mobility

- **94%** of people feel safe driving a vehicle in Sugar Land
- **59%** of people do not believe that Sugar Land’s transportation system effectively balances the needs for automobile travel with the needs of people walking, biking, and using transit
- **70%** of people would like to reduce their personal level of energy consumption and carbon footprint
- **54% of people do not believe that seniors, children, teenagers, and people without drivers licenses are served well by Sugar Land’s transportation system (48% do not believe the same for people with physical disabilities)**

Figure 6 Top 5 community outcomes



The percentage of respondents that identified the outcomes above as critical or very important are shown. The other outcomes in order of importance are as follows: increasing choices for how to move around the city (61%), providing affordable transportation options (61%), improving connections to the greater Houston region (56%), reducing emissions/carbon footprint (50%), more and better access to highways (42%), and expanded parking availability at major destinations (41%).

WHAT IS SUPERIOR MOBILITY?

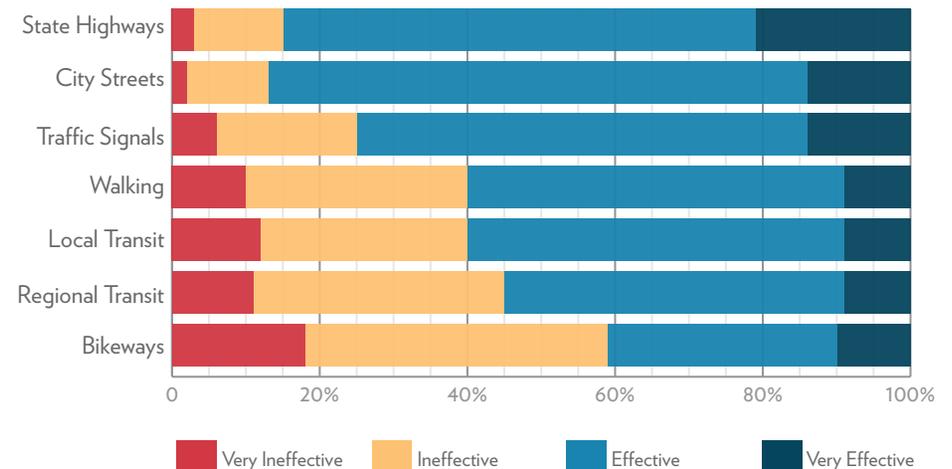
The survey asked participants to define what “superior mobility” means to them. Responses ranged from maintaining the status quo in Sugar Land to transitioning to multimodal options that are safe for everyone, and even correlating land use with mobility options so that daily destinations are all within a 20-minute walk or bike ride for neighborhoods throughout Sugar Land. While responses to define superior mobility varied widely in specifics, a recurring theme was that of providing options that are accessible, safe, and inexpensive. Reducing congestion and improving traffic flow were other themes prominent in responses.

While respondents’ definition of superior mobility had a prominence of multimodal themes, when asked to identify how effective current network types are at providing superior mobility, responses differed significantly and lead to greater understanding as to why people do not walk and bike as much as desired (based on survey information). While every network type, except for bikeways, was identified as at least 50% effective/very effective at providing superior mobility, city streets, state highways, and traffic signals were the most prominent (**Figure 7**). As this is where the most investments have historically been made, the correlation between efficacy can be better understood.

WHAT INFLUENCES TRAVEL DECISIONS?

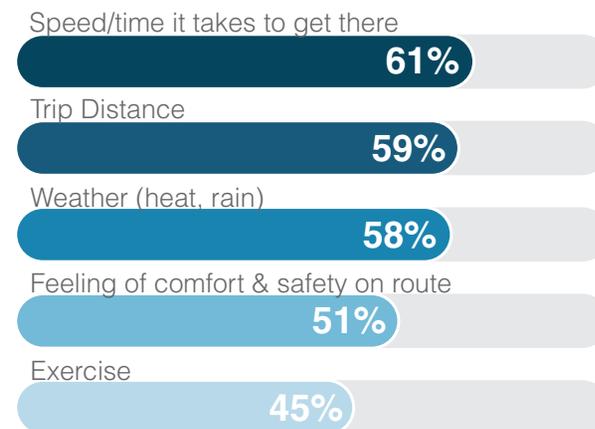
Beyond the existence of a network, there are many factors that influence people’s decisions on how they travel to daily destinations. **Figure 8** shows the variety of factors that people think about when making decisions about whether to drive, walk, bike, etc. Many of these factors can be impacted by this Plan. Some, such as speed/time and trip distance relate to the availability of facilities and development patterns. The most prominent factors influencing people’s decisions to drive, ride a bike, etc., include the feeling of comfort and safety and the condition of facilities. These will be important to consider in developing recommendations if the community desires to increase the number of people who can walk, bike, wheel, etc., to destinations throughout Sugar Land.

Figure 7 Existing network efficiency by type



The figure here shows what percentage of respondents stated how effective the various network types are at providing superior mobility in Sugar Land. Networks with the most investment over time see the greatest levels of effectiveness.

Figure 8 Top 5 influencers for how trips are made



How people make decisions on which way they will travel provides insight to what types of projects and improvements to the network may be most needed or used in the community. Beyond these top five factors, the condition of streets/trails/sidewalks, parking availability at destinations, and access to a vehicle were identified by 39%, 30%, and 24% respectively.

How People Get Around

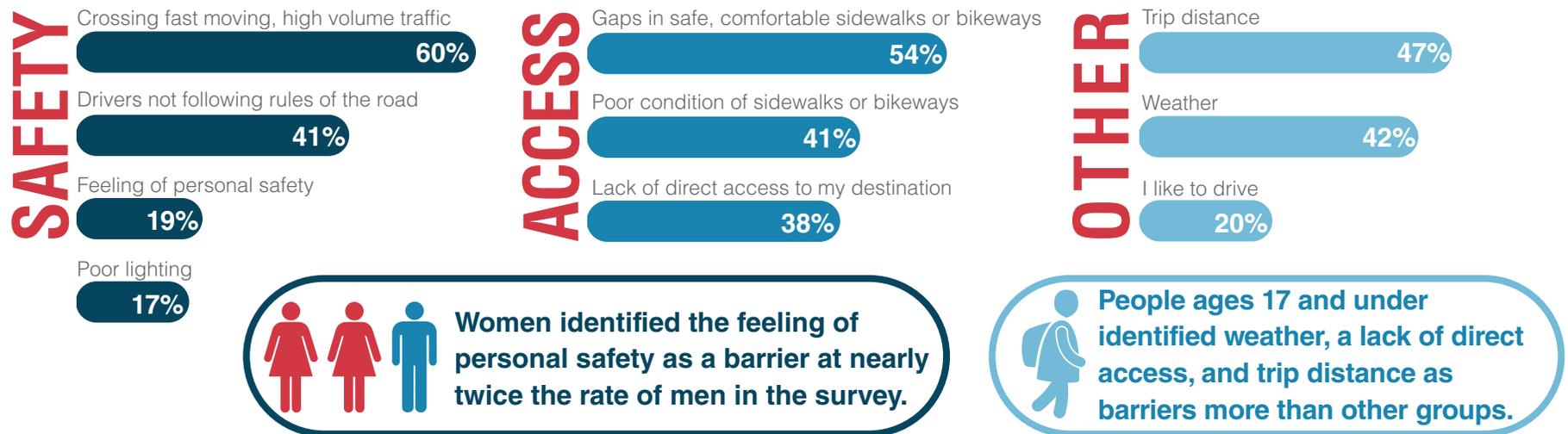
The Case for Action states that the Mobility Master Plan must “Create safe, well-connected multi-modal networks for all people.” This translates into safe places where people of any age and all abilities can feel comfortable walking, biking, and wheeling to daily destinations for a variety of trip purposes. The community survey asked questions that can help identify how people currently travel and the barriers they face for walking and biking. The information presented here highlights this with information that supports the needs from the community’s perspective.

WHAT ARE THE BARRIERS?

The community has identified more safe, multimodal options that are also affordable transportation choices as desired outcomes. This translates to more abilities to walk and bike for a variety of trip purposes. In order to do that, it’s important to understand the barriers that the community experiences as to why they do not use those transportation options more. **Figure 9** shows the percentage of respondents that identified each type of barrier as impacting their desire or ability to walk or bike.

Responses have been divided into three categories: safety, access, and other. Safety is a big factor with fast-moving, high-volume roadway crossings topping the list. For access, gaps in the sidewalk and bikeway network are impacting people’s abilities to comfortably walk or bike. The other primary barrier is trip distance. Trip distance can be improved by “shortcuts” for multimodal access to destinations in the short-term as well as adjusting future development patterns to have more daily destinations within a walkable or bikeable distance from neighborhoods and activity centers. It is worth noting that some people do enjoy driving, which underscores the need to ensure options for all modes, not only driving or biking or walking, etc. Effective transportation networks provide comprehensive options for the variety of mobility needs.

Figure 9 Barriers to Walking & Biking

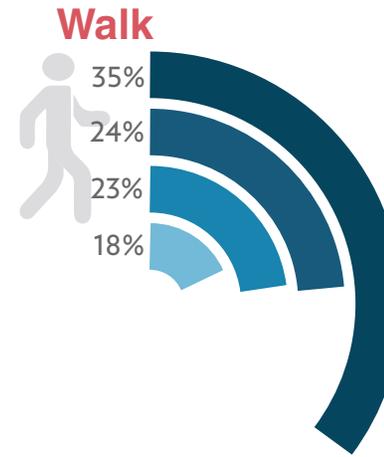


HOW DO PEOPLE CURRENTLY TRAVEL?

The survey information provides a more complete picture of the various ways people take trips for a variety of reasons, beyond just commuting to work. **Figure 10** shows how often people use various travel options. Options included Frequently (3 to 4 times a week), Sometimes (1 to 2 times a week), Rarely (1 to 2 times a month), and Never. Overall, nearly 59% of people walk and 36% of people bike at least one time per week. Fewer people use a wheelchair or stroller, but over 10% do at least once per week as well. Over 96% of people drive regularly and overwhelmingly indicated it is easier to get around Sugar Land with a vehicle than without one.

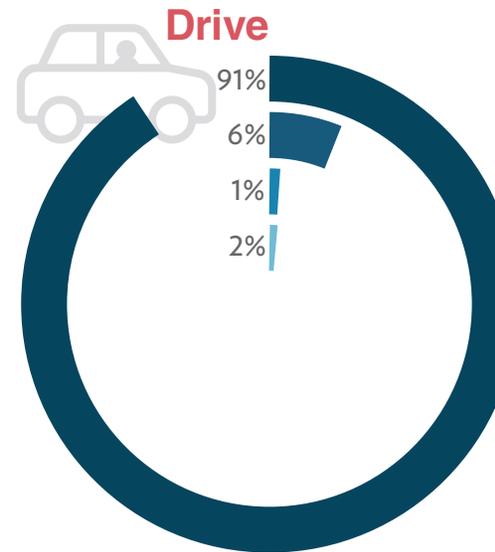
In order to better understand who is currently using which modes, a cross-tab analysis was performed against demographic data such as residents, visitors, and students, participants ages, and even gender. The following information highlights where data was of particular significance between various groups relating to the use of each mode.

Figure 10 Frequency of mode use and cross-tab analysis insights by mode



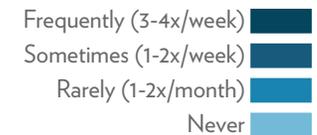
Survey Data Insights

- » Residents walk at a rate higher than any other group
- » Workers walk at the second highest rate, indicating sidewalks are important near businesses and neighborhoods



Survey Data Insights

- » Driving is prevalent among all ages. Workers and business owners drive frequently at a slightly higher rate than residents and students.



It is easy to get around Sugar Land with a car:

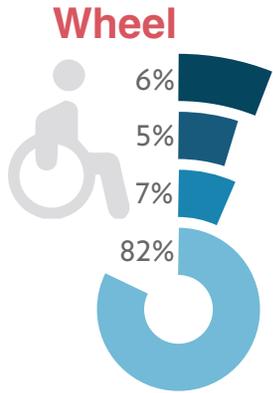
85%

It is easy to get around Sugar Land without a car:

27%

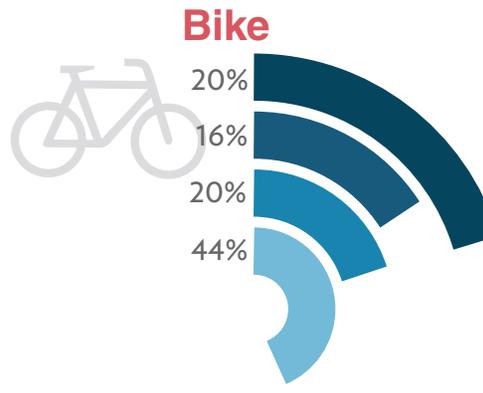
How people currently get around reflects how easy or difficult it is for people to use various modes. Survey participants indicate that driving is most prominent, likely because it is easier with direct access to destinations and fewer barriers.

Figure 10 Frequency of mode use continued



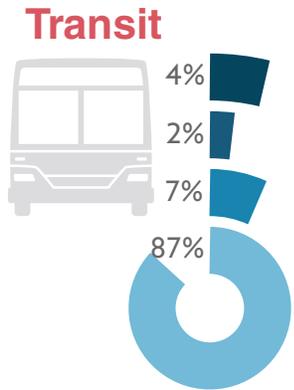
Survey Data Insights

» 21% of people who wheel (wheelchair/stroller/etc.) frequently are between age 26-35, significantly more than any other age group



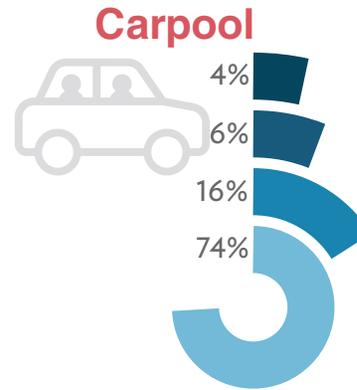
Survey Data Insights

» Visitors bike more frequently than residents
 » Men bike at nearly double the rate of women



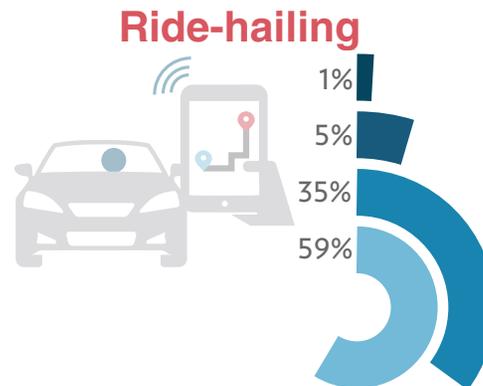
Survey Data Insights

» People age 26-35 use transit at a higher rate than other age groups with nearly 7% riding frequently



Survey Data Insights

» People age 25 and under are most likely to carpool at least once per week.



Survey Data Insights

» Approximately 10% of visitors use ride-hailing at least once per week, compared to 8% of business owners and 6% of residents

Frequently (3-4x/week)
 Sometimes (1-2x/week)
 Rarely (1-2x/month)
 Never

Priorities for Mobility

In addition to inquiring about how people get around today, the survey asked information that identifies community priorities. The Case for Action includes “Prioritize safety, health, and sustainability to enhance quality of life” as a goal of the plan. Mobility options fit into each of those components and are important to understand from a community perspective. The information provided here focuses on information provided by the community regarding priorities for the transportation network.

WHAT IS MOST IMPORTANT TO THE COMMUNITY?

The community in Sugar Land has a wide variety of priorities. Participants were asked to rate each of the statements in **Figure 11** on a scale from 1 to 9 with 1 being the highest priority. The statements are shown from the community’s highest priority to lowest. While there was a lot of variation in priorities, overall, the focus is on traffic signals and street maintenance followed by a better bikeway network, safety improvements and traffic calming, and a better network of sidewalks. Transit for both regional and local services were lower on the list, but rated above freight planning and widening roadways. Overall these priorities are consistent with many other needs and opinions from the community and are generally consistent with the Case for Action.

The City had previously heard from the community that traffic congestion was an important issue so this survey asked community members what “improving traffic congestion” means to them. The responses spanned a wide range of possibilities from reducing the number of vehicles on the roadways to adding lanes and capacity for vehicles. However, the most popular opinions can be grouped into two areas: improving traffic flow at intersections and increasing multimodal options for people.

Improving traffic flow at intersections received the majority of responses overall and included ideas like improving signal timing, increasing the number of turn lanes, traffic circles instead of stop signs, having more route options, and focusing on the SH 6 corridor. Safety for all types of travel and mobility options that can allow people to get to destinations without a vehicle comprised a significant number of results as well.

Many of these comments also noted that options and reduced congestion would improve quality of life in Sugar Land. The feedback shows that while the community has a lot of differing ideas on what reducing congestion means and the priorities for the City’s future mobility, they are open to using a variety of methods to help reduce congestion. It is important to note that people who took the survey recognize that widening roads is rated as the lowest priority and will be the least effective to achieve the outcomes of this plan.

More than 65% of people stated:

- They would walk more often if sidewalks were wide, shaded and intersections were comfortable to cross
- That Sugar Land would benefit from more frequent and direct commute services from Houston and other surrounding areas to jobs in Sugar Land
- They would bicycle more often if there was a network of safe bikeways and trails

What are survey participants willing to pay for?

- **Improved traffic signal systems & technology (58%)**
- **Better city-wide sidewalks (56%)**
- **Better city-wide trail network (56%)**
- **Expanded street maintenance programs (51%)**
- **Better city-wide on-street bikeway network (49%)**
- **Improved transit within Sugar Land (45%)**
- **Add capacity and widen city streets (38%)**

(Percentages represent amount of people that agreed or strongly agreed)

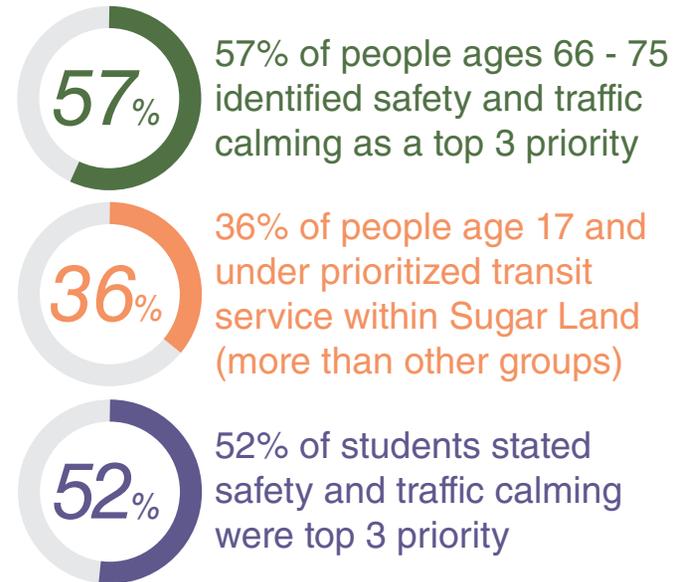


Figure 11 Community Priority Ranking



The priorities here highlight that while people in Sugar Land largely drive, they want other investments to make the current mobility options better and address multimodal gaps.

The information below shows some of the differences between participants' priorities. It helps understand some of the potential reasons for various priorities and that the overall rankings of priorities do not tell the entire story of mobility needs within Sugar Land. Specifically, those who are less likely to drive (seniors and students) focused on safety and traffic calming as priorities more than other groups.



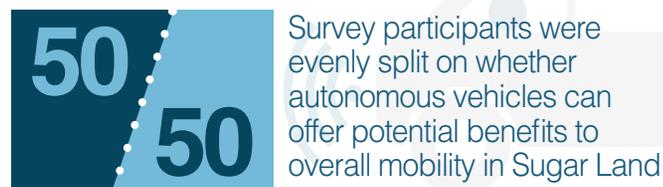
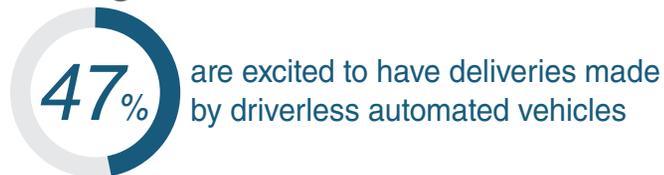
Women...
 Identified a better network of sidewalks and accessible curbs as a higher priority than men
 Prioritized transit in service within Sugar Land more than men

Visitors, residents, and workers
 all identified more bikeways and trails as a top priority

Technology & Future Trends

Mobility needs for today are important, but looking towards the future is essential to ensure that resources are best used and leveraged. The Case for Action states that his plan must “Capitalize on advancements in technology” and “Adapt to changing mobility trends in a post pandemic future.” These two components are linked together as technology advancements have enabled remote working and will continue to shape mobility options beyond the COVID-19 pandemic.

Feelings about autonomous vehicles

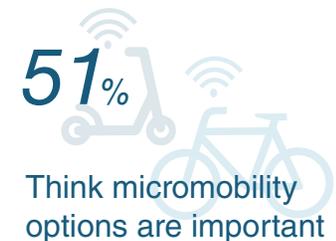
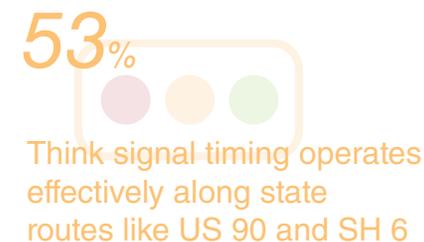
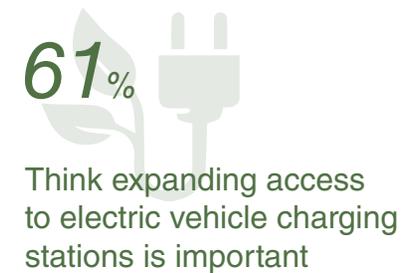


WHAT TECHNOLOGY ADVANCEMENTS ARE IMPORTANT?

Technology is rapidly changing, requiring cities like Sugar Land to think about how things like autonomous vehicles, intelligent infrastructure, and micromobility can and should be incorporated into transportation choices. Most of the technology questions asked in this survey focused on gauging participants attitudes towards autonomous vehicles, electric vehicles, and micromobility options.

Overall, survey participants were split on whether or not autonomous vehicles will be beneficial and a majority of people are not excited about the use of autonomous vehicles and their potential safety benefits. On the other end of the spectrum, more than 60% of respondents indicated that ride-hailing services (Lyft, Uber) are beneficial to mobility in Sugar Land and that expanding access to electric charging stations is important. As ride-hailing and electric vehicles are commonplace and people have more experience with them it tracks that they were seen as more favorable and beneficial. Just over a majority of participants identified traffic signals as effective. This correlates with the significant input regarding prioritized traffic signal timing and coordination.

Opinions on technology and mobility



HOW HAS THE PANDEMIC CHANGED MOBILITY?

The COVID-19 pandemic has reshaped how people think about mobility options and how businesses think about their workforce location. The pandemic has caused significant impacts on transportation trends and will continue to do so in the future. The survey asked several questions to participants regarding various technology uses in transportation and changing trends from COVID-19. The information here shows the impacts seen today as well as what survey participants think the long-term impacts on various mobility options will be. Sugar Land workers have seen major

impacts on how they travel to work with 90% reporting working from home, an increase of 77%. Personal vehicle and transit use have both decreased, while walking and biking have increased. People overall think that working from home, using delivery services, and walking and biking will continue in the future at rates higher than experienced before COVID-19. Most other transportation modes and issues were overall identified as people thinking they will return to pre-covid levels. However, 39% of people think that transit usage will decrease from pre-pandemic levels in the long-term.

COVID-19 mobility impacts and trends



Commute Mode Share Change

	PRE-COVID	CURRENT	Change
Work from home	13%	90%	▲
Personal vehicle	87%	36%	▼
Transit	14%	3%	▼
Bike	5%	6%	▲
Walk	1%	3%	▲

Participants were asked to identify all of the ways they commuted before the COVID-19 pandemic and during so percentages do not necessarily add up to 100.

↑ Use will stay higher than pre-pandemic levels

- work from home
- delivery service demand
- walking and bike usage

It is difficult to identify the full long-term impacts on travel from COVID-19, but it is anticipated that there will be many that need to be planned for. The opinions of post-pandemic mobility trends shown here were identified by a majority of survey participants.

↔ Use will return to pre-pandemic levels

- transit
- traffic congestion
- parking demand
- autonomous vehicle demand
- ride-hailing

Mobility Plan Goals Survey

About the Survey

A public survey was used as a part of engagement efforts to obtain input on the Mobility Master Plan goals. The goals were developed in partnership with the Mobility Task Force with input from the State of Mobility and previously conducted Community Survey. The survey was available electronically from April 25 through June 1 and promoted through multiple means, including:

- » City of Sugar Land social media pages
- » Facebook Live Mobility Forum (May 24, 2021) and video recording
- » Nextdoor
- » Project website

This summary presents insights on how the community responded to and agrees with these goals. Community members were asked to assess if these goals would align with and meet the City's stated desire for Superior Mobility.



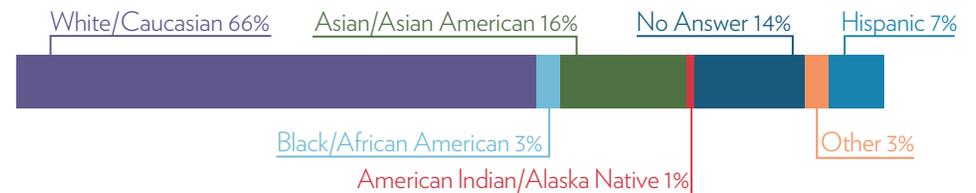
Facebook post for the Goals Survey
Mobility Master Plan

Who Took the Survey

The data presented here highlights information about the community members who responded to the survey. Overall, there were 408 responses from the community. The survey collected demographic information to better understand if the survey reached the community as a whole and if there were variations in responses from distinct demographic groups. The figures in this section highlight some of the key information about survey respondents, such as race, gender, age, and relationship to Sugar Land.

It is known that people from different racial backgrounds may experience the built environment differently and may have different cultural preferences for mobility. Racial data was collected to compare respondents to the City's overall composition. This data is presented in Figure 1. Generally, the percentage of respondents in each group were similar to the percentage of respondents from the first community survey.

Figure 1 Race/Ethnicity of Survey Respondents



Survey respondents were allowed to select all choices that apply, therefore the total percentage when added together may be greater than 100%.

As shown in **Figure 2**, while the majority of respondents live in Sugar Land, perspectives from people who visit, work, or go to school in the city were also represented. Capturing the diverse experiences of these groups will ensure that distinct mobility needs are considered in this plan. Respondents could select as many categories as applicable so the results do not add to 100%.

Figure 3 details the gender breakdown of survey participants with a near equal split between female and male. Approximately 4% chose not to identify a gender. **Figure 4** further breaks down gender and adds age to understand how responses were distributed between various age groups.

People of all different ages have variations in their needs and abilities for daily travel. Additionally, gender can have very real consequences on perceptions and mobility needs. The age ranges were not all evenly represented, but generally there was a wide distribution ensuring that perspectives of the community ranging from youth to seniors was provided. The chart shows the overall percentage of respondents (purple) in each age group, as well as the percentage of female (red) and male (blue) respondents by age group.

Figure 3 Respondents' Gender

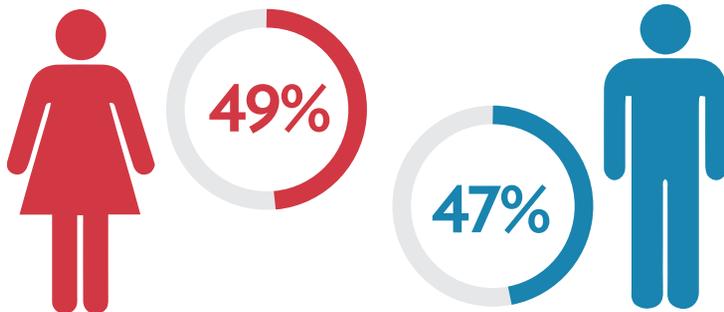
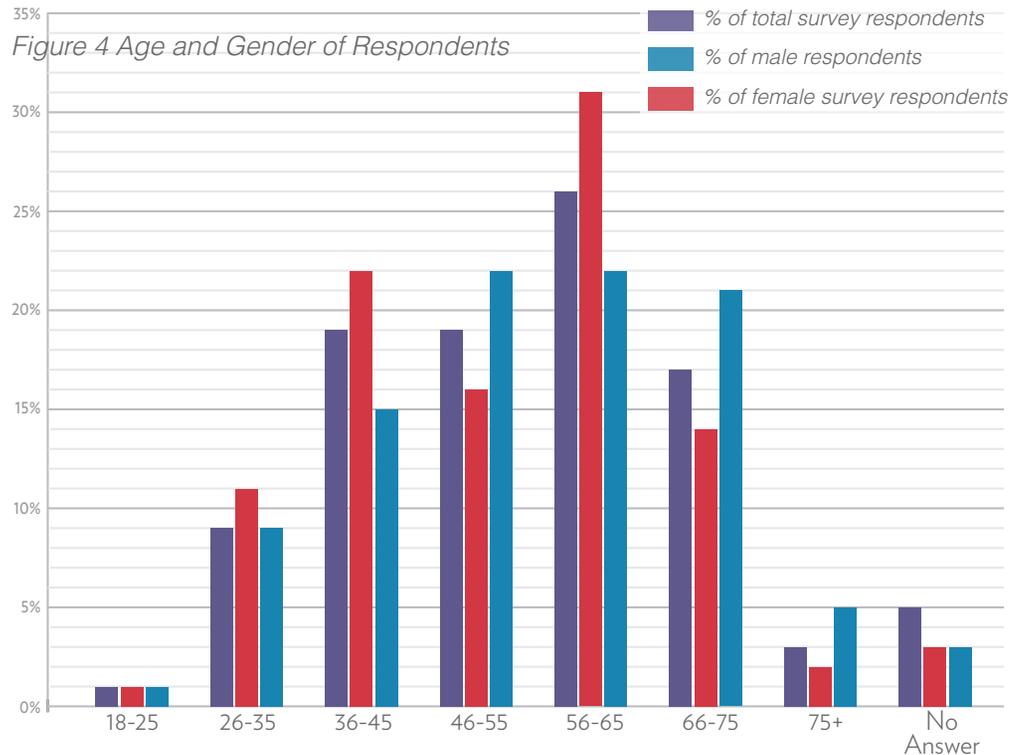


Figure 2 Respondents' relationship to Sugar Land



Community Input on Goals

Community feedback on the vision and goals of the Mobility Master Plan provides information that will feed into strategies and recommendations to be developed for the City of Sugar Land. This survey was developed to better understand the community's perspectives on how well the goals reflect the needs and desires of the community and indicate level of support for broad concepts and priorities moving forward.

The survey presented respondents with core values to guide the Mobility Master Plan and supporting goal statements (**Figure 5**). The survey presented data and previous community feedback that supported the development of each goal statement. Respondents were asked to identify their level of agreement with each individual goal statement (**Figure 6**).

Overall, a majority of respondents agreed or strongly agreed that each goal statement was important to achieving Superior Mobility. The goal of Safe & Connected received the largest overall amount of agreement (91%) with the goal. The next most popular goal was Healthy & Active, receiving 86% overall agreement. The third most agreed-upon goal was Inclusive & Accessible with 84% agreement. This indicates that projects relating to safety, expanding connections, removing barriers, increasing reliability, and providing options for people using all modes are seen as having the greatest ability to achieve Superior Mobility in Sugar Land.

The other two goal statements for the core values Innovative Regional Leader and Proactive & Resilient received a majority of support, but also had higher levels of disagreement from the community. Approximately 75% of the community agree that being an Innovative Regional Leader will be important for achieving Superior Mobility, leaving 25% in disagreement. This goal reflects components, such as technology and coordination that may be more difficult to clearly identify how it can relate to Superior Mobility.

The last goal for Proactive & Resilient received 80% agreement and 20% disagreement. This goal is focused on being resilient to prepare for and withstand changes in demand and needs over time. As these

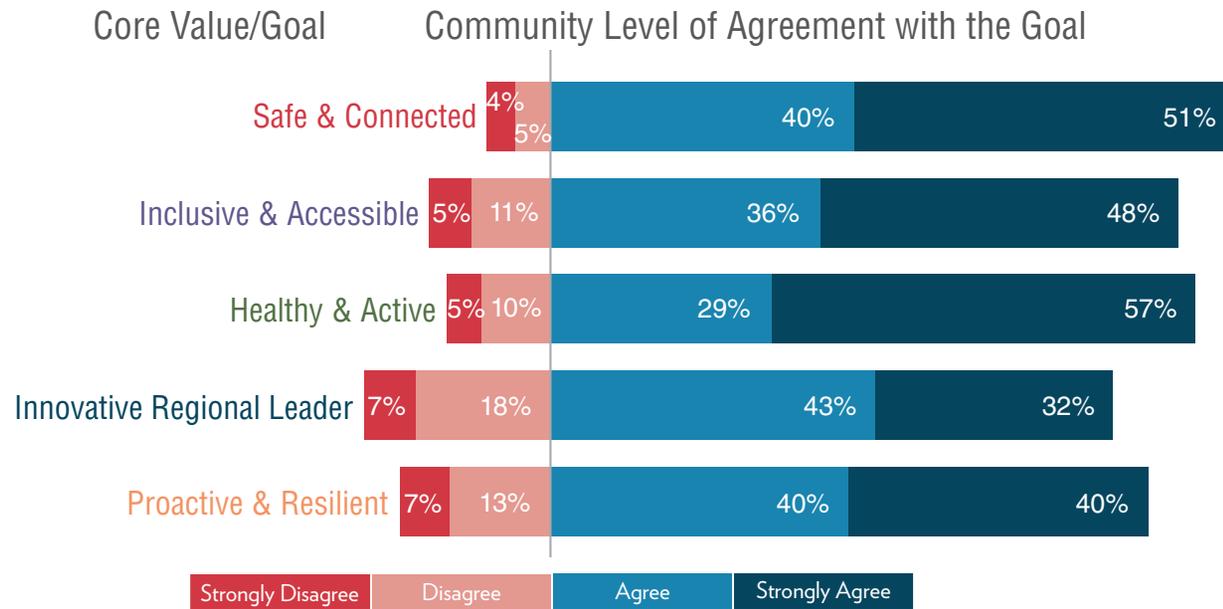
changes can be broad and across multiple sectors that many may not associate with transportation, this could be reason for the level of disagreement. Additionally, these last two core values have elements related to city operations built into them. Many times these actions are unknown or less visible to the general public and may indicate why they are not seen as important for achieving Superior Mobility. Because these actions are less visible, the lack of emphasis by survey respondents may indicate the City is currently being proactive and providing innovative solutions to address mobility concerns.

Figure 5 Mobility Master Plan Vision of Superior Mobility & Goal Statements



Figure 6 Level of Community Agreement for each Goal in response to:

“This goal is an important aspect of advancing the City of Sugar Land’s vision of superior mobility.”



While it is important to consider each goal independently, they were crafted to be used collectively to address the many needs and facets of mobility. **Figure 7** visualizes how much the respondents agree or disagree on whether the goals together effectively summarize the outcomes the City should focus on over the next 10 years. Overall 86% are in agreement and 14% disagree. This indicates that while some individual goals have more or less agreement, there is a high level of agreement that this set of goals will be able to achieve desired mobility improvements and outcomes in the future. This is logical as many types of mobility improvements are related to the transportation network in multiple ways and impact a variety of people and ways that they can get around the city.

Figure 7 Level of Community Agreement in response to:

“Taken together, the Mobility Plan Goals effectively summarize the outcomes the City should focus on to advance the Vision for Superior Mobility over the next 10 years.”

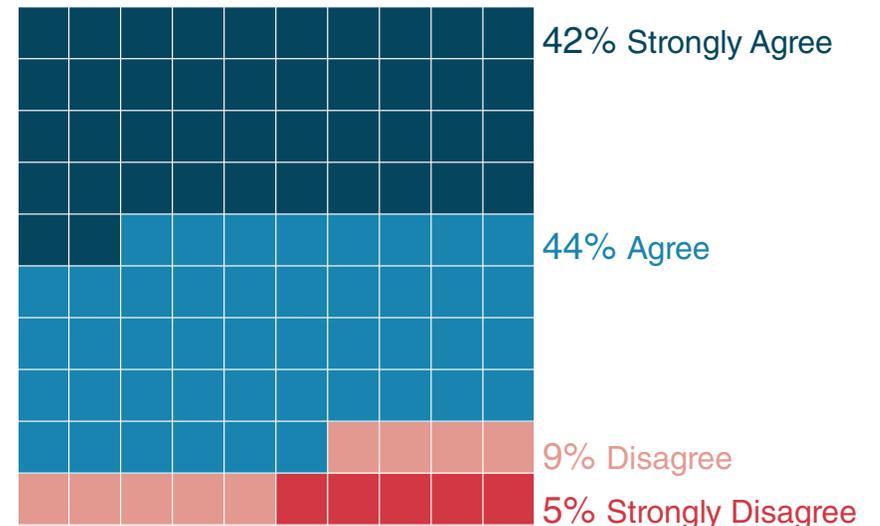
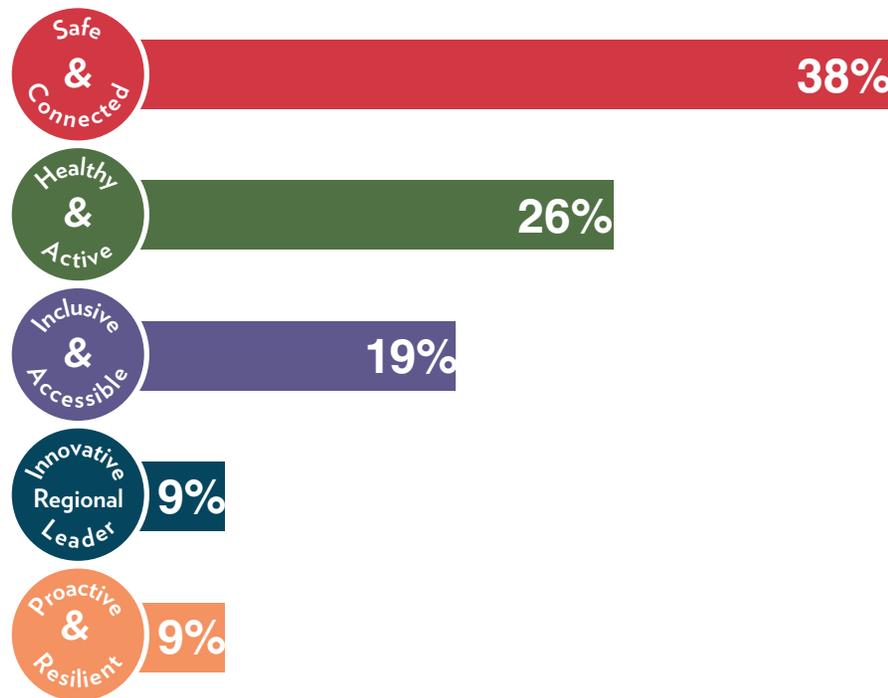


Figure 8 Categories of Priority Action Ideas



Figure 9 Goals Supported by Priority Actions



To better relate these goals to potential projects and understand what the community is most interested in, survey respondents were asked to identify one action they would like to see Sugar Land prioritize to achieve the Mobility Master Plan goals. This question received over 250 responses, which were categorized and tallied. **Figure 8** highlights the categories/types of projects identified and key phrases seen multiple times. In the figure, the larger the category text, the more projects there were within that category. Approximately **50%** of the actions related to expanding sidewalks and bikeways/trails and **14%** were related to improving multimodal crossings and connectivity between neighborhoods and activity centers. Nearly **12%** of actions were centered on improving transit service either locally or regionally, **10%** focused on improving traffic flow and signal timing, **6%** focused on general safety improvements, and **3%** focused on maintenance of existing infrastructure.

Respondents then identified which goal they believed their action item most supported (**Figure 9**). Safe & Connected had the most identified actions, followed by Healthy & Active. The actions paired with supported goals tracks with the information provided for agreement with the individual goals and provides an understanding of the types of projects people are most excited about seeing. As mentioned, Innovative Regional Leader and Proactive and Resilient are values that encompass more than just projects getting built. They are the less visible components of mobility that complement potential projects identified by respondents. All goals are intended to work together to support projects, policies, and programs to achieve Superior Mobility.



Round 3 Community Engagement Summary

Appendix H



Summer 2022 Engagement

Engagement Overview

The Summer 2022 Public Engagement effort was the third public engagement opportunity supporting the creation of Sugar Land's Mobility Master Plan. The purpose of this third outreach opportunity was to seek input and approval of 17 Strategies and to educate and seek concurrence on the Transformative Mobility Network supporting the City's Vision for Superior Mobility. For the first time in the multi-year process of this plan, engagement was held both in-person and online due to the Covid-19 pandemic's impact on the first two public engagement opportunities.

The hybrid public engagement effort brought together Mobility Task Force (MTF) members, City staff, the consultant team staff, and the general public. Both the in-person events and the online survey were advertised through social media, word of mouth, Sugar Land emails, and with flier postcards that were passed out to local residents and businesses. There was a "Story Map" online that reintroduced the effort by summarizing what had been done in the last couple of years and an introduction to what the current engagement effort entailed. Links to the online survey, as well as information about in-person events, were also provided on the City's website.



Mobility Master Plan

Mobility Master Plan Story Map

We are making progress on the Sugar Land Mobility Master Plan! Take a few minutes to see what we have been up to and where we are going. For more information click below.

Figure E-1. The graphic above advertised the Story Map - the interactive presentation that provided an update on where things stood in the planning process and how to engage in Summer 2022 - in-person or online.

Figure E-2. MTF member discussing mobility improvements with the public at the City's DJ and Food Truck series Friday even (left).



2022 In-Person Engagement Events:

Friday, June 10, 2022 6:00 to 8:00 PM	Food Truck Friday: DJ Series	Sugar Land Memorial Park 15300 University Blvd. Sugar Land, TX 77479
Saturday, June 11, 2022 6:05 PM	Sugar Land Space Cowboys Baseball vs. Las Vegas	Constellation Field 1 Stadium Dr. Sugar Land, TX, 77498
Friday, June 17, 2022 6:00 PM to 8:00 PM	Food Truck Friday: DJ Series	Sugar Land Memorial Park 15300 University Blvd Sugar Land, TX 77479
Saturday, June 25, 2022 9:00 AM to 1:00 PM	Farmer's Market at Imperial	Imperial Park Recreation Center 234 Matlage Way Sugar Land, TX 77478
Saturday, June 25, 2022 6:05 PM	Sugar Land Space Cowboys Baseball vs. Tacoma	Constellation Field 1 Stadium Dr. Sugar Land, TX 77498

Figure E-3. Public engagement events calendar postcard.

In-Person Events

There were five in-person engagement opportunities for people to interact with representatives of the Mobility Master Plan. The events spanned across three weekends on either a Friday or Saturday and were coordinated with existing events taking place around the City. At each event, there was at least one representative from City staff, one or more MTF member(s), and one or more consultant team member(s) setting up and facilitating the engagement booth and interacting with the public. The front and back of the postcard to the left in **Figure E-3** displays the five event dates, activities, and locations of the in-person engagement opportunities. Approximately 4,000 postcards were shared around town with various businesses, City departments, and local neighborhood groups. The QR code on the postcard led people to the Mobility Master Plan website where people could see the story map, take the online survey, and read more about the planning effort in general.

Two events were coordinated with the City's Food Truck Friday: DJ Series at Sugar Land Memorial Park. Another event took place at the Farmer's Market at Imperial Park, while two more events were hosted at the Sugar Land Space Cowboys baseball games at Constellation Field. City staff, MTF members, and consultants warmly invited people attending these events to stop by the booth to learn more about the Mobility Master Plan. The booth had a variety of hand-outs about the plan, informative poster boards about the Transformative Mobility Network and the Core Values, a sticky-note board to place any comments, and transportation-related childrens' toys (giveaways) to keep the atmosphere light and inviting for family-friendly participation.

The number of people who stopped by at the in-person events was not formally recorded, but the foot traffic and engagement with people included hundreds of people over the five separate events. At most of the events, some City of Sugar Land council members stopped by to engage with the team representatives, the public, and the interactive materials at the booth.

In-Person Events (continued)

As an added bonus encouraging in-person participation, the engagement booth had a sign-in sheet for participants to enter into a drawing for a pair of free Sugar Land Space Cowboys tickets at a date in July 2022. This was a great incentive to interact with Sugar Land residents at these events. There were also opportunities to win a pair of free Space Cowboys tickets by participating in the online survey as well. Drawings for multiple sets of tickets took place each week after the in-person engagement opportunities.

There were two interactive boards for the in-person participants to read and react to, including one presenting the Transformative Mobility Network where you could place pins on the map where you want to see improved mobility. The other interactive map presented the five Core Values asking participants to write on a sticky note a mobility-related project or program they would be most excited about to come out of this planning effort. The word cloud to the right highlights some of the comments people made.



Figure E-4. In-person board seeking ideas supporting the Plan's Five Core Values



Figure E-5. DJ Food Truck Friday event with City Staff and MTF members chatting with the public.
Mobility Master Plan



Figure E-6. Space Cowboys game with Orion the mascot participating at the booth.

For gender representation, 40.3% of participants indicated that they identified as female, while 49.7% identified as male. The most recent ACS 5-year estimate shows that in Sugar Land, 51% of people identify as female while 49% identify as male. Regarding the age of participants, only 10% of respondents chose not to identify their age and a majority of those participating range in their fifties to sixties. Those aged 56-65 were the highest proportion of participants at 21.4%. The 2020 ACS 5-year estimates indicate that the same age group represents 14.7% of Sugar Land's population.

Participants were also asked to identify their race, where they could select all categories that applied. Approximately 17% of participants chose to skip this question while 62.3% of respondents identified

themselves as white (even though they make up 47.8% of the Sugar Land population according to the 2020 Census). The recent Census also indicates that Asian residents make up 38.2% of Sugar Land's population, though only 14.5% of survey respondents identified as Asian. Those respondents who identify as Hispanic responded at 6.9% compared to 2020 Sugar Land Census percentage of 12.3%, and Black/African American respondents made up 2% of responses compared to the 2020 Census of 7%.

It was also helpful to understand the geographic makeup of survey respondents: 68.9% of respondents live in the 77479 ZIP code, which encompasses most of Sugar Land's city limits. This was followed by 77478 (15.9%) and 77498 (9.3%).

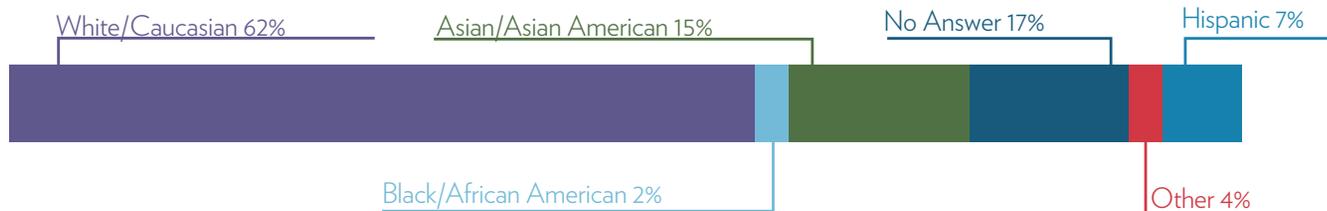


Figure E-9. Race and ethnicity of survey respondents* (*could select all choices that apply, making percentages over 100%)

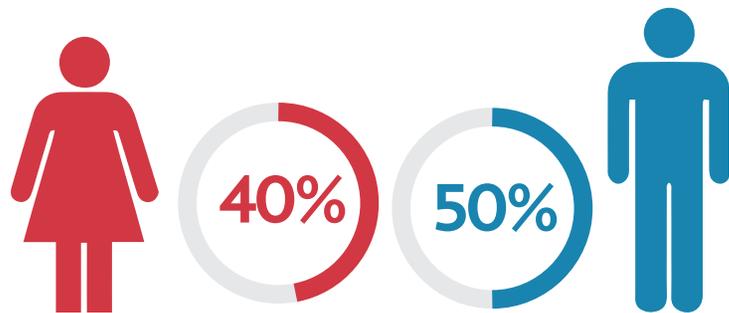


Figure E-10. Respondents' gender; 10% stated "prefer not to answer"

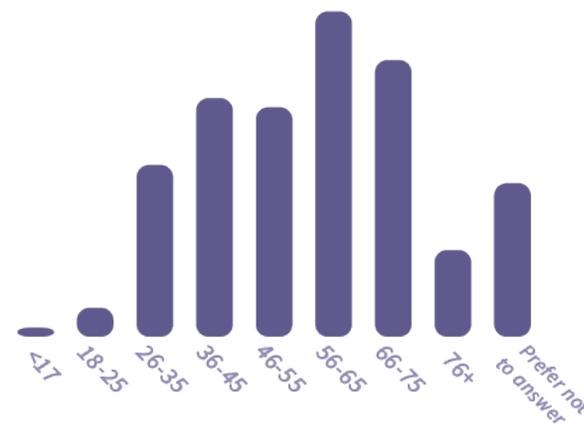


Figure E-11. Age of survey respondents

17 STRATEGIES

The first question of the survey presented respondents with the 17 draft Strategies supporting the City’s vision for Superior Mobility, and asked if the 17 Strategies addressed all potential aspects of mobility for the City. Responses were open-ended, allowing for participants to describe their feelings more clearly. To summarize the results, the responses were analyzed and sorted into “Yes” or “No”. Of 97 respondents that provided an answer, 57.7% agreed that “yes”, the 17 Strategies covered all potential aspects of mobility.



17 Strategies

To guide City actions to create new projects and programs, update existing policies, and make operational changes that support the Core Values

Centralize and streamline transportation decision-making.	Update standards and ordinances to align with the Mobility Master Plan.
Implement the Transformative Mobility Network (TMN).	Develop a safe streets initiative with dedicated implementation funding to proactively and systematically address community safety concerns around mobility.
Continue to invest in innovation and technology that leverages and enhances existing assets.	Coordinate vision for Superior Mobility into existing City asset management program.
Formalize a comprehensive active infrastructure program to address outdated and/or aging infrastructure, create new network connections, and improve experiences for people walking and biking.	Initiate Small Area Mobility Plan & Corridor Studies Program.
Develop a citywide mobility education and outreach program that informs people about travel choice, safety, health, and air quality.	Provide Sugar Land residents consistent, centralized, and transparent mobility-related information and resources from the City.
Integrate health into transportation projects, programs, and policies.	Invest in transit to support economic development and regional connectivity to, from, and within Sugar Land.
Collaborate with surrounding cities, Fort Bend County, TxDOT, school districts, and other regional entities to create meaningful transportation partners and leverage resources.	Proactively engage in transportation planning and policy at the regional, state, and national levels.
Incorporate resiliency into the City’s mobility-related decision-making and standards.	Institutionalize frequent coordination between the Emergency Management and the Transportation & Mobility Innovation Program.
Refine funding process to incorporate Mobility Master Plan that leverages local dollars with grants, partnerships, and other innovative financing solutions supporting Superior Mobility in Sugar Land.	

Because of its open-ended nature, respondents self-described their mobility priorities beyond the scope of the question in their own words. One of the 17 Strategies mentions transit: “Invest in transit to support economic development and regional connectivity to, from, and within Sugar Land”. Around 34% of those who answered this first question directly mention public transit in their responses. Of these public transit mentions, 54.5% were in support of expanded public transit as part of any mobility planning in the City.

One question in the survey asked if this is the first time hearing about or responding to public engagement outreach for the Mobility Master Plan. There were twenty first-time participants at this stage in the process. Seventeen of those twenty first-time participants mentioned public transit. From those 17, 70.6% mentioned public transit affirmatively in their responses.

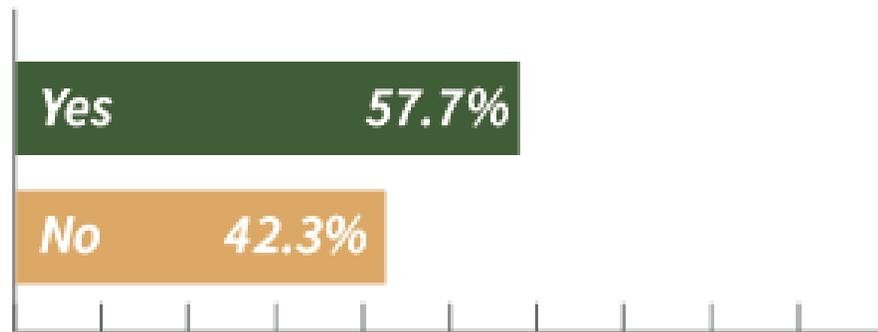


Figure E-12. When you read the 17 Strategies, do you feel they address all potential aspects of mobility for the City?

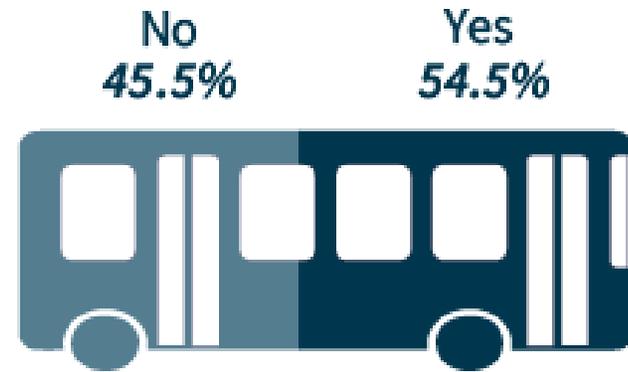


Figure E-13. Proportion of positive and negative mentions from any respondents that mentioned public transit.



Figure E-14. MTF and staff members engaging with the public at the Farmers Market at Imperial.

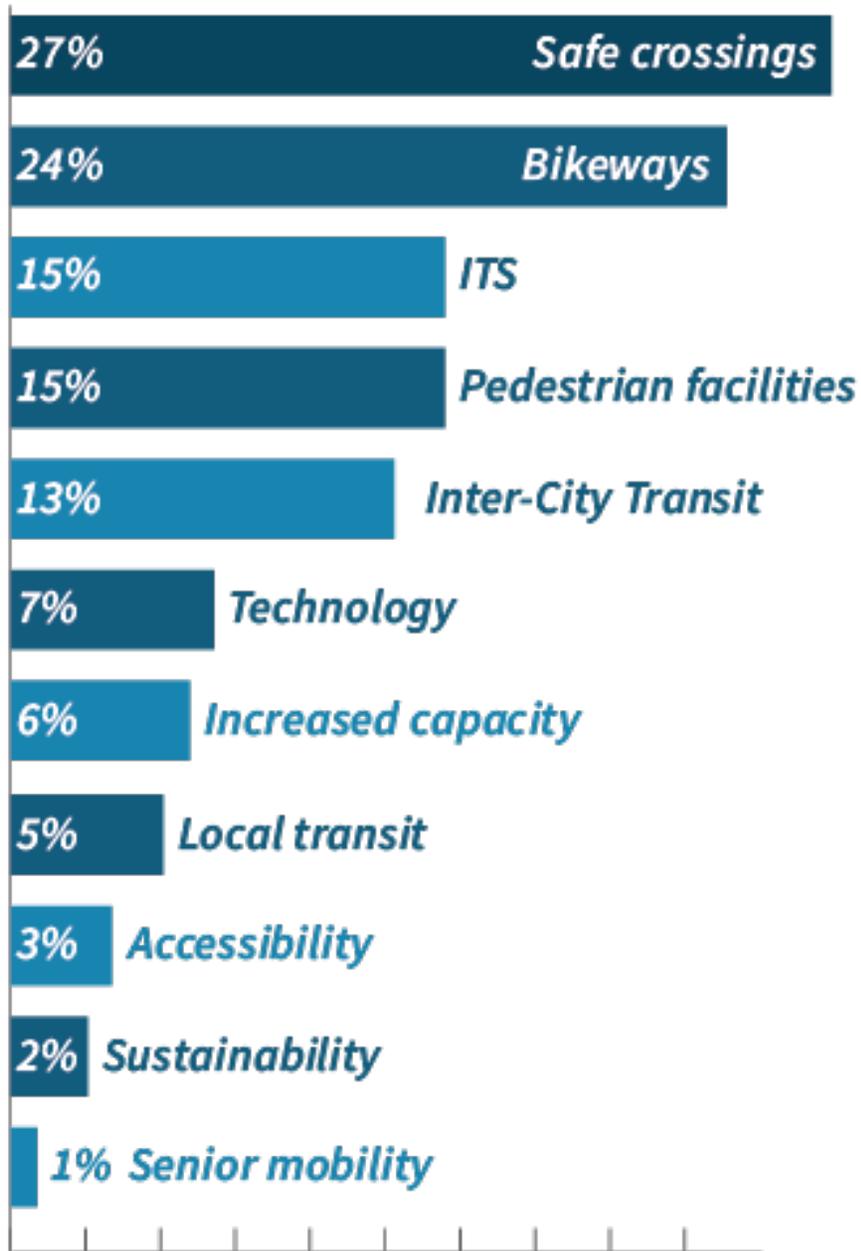


Figure E-15. What program, policy, project or planning/coordination do you think could make the greatest impact on improving mobility for Sugar Land?

Next, participants were asked which program, policy, project, or planning/coordination could make the greatest impact on improving mobility for Sugar Land. A few examples were given, such as suggesting a safe crossing over the Brazos River. Nearly 120 participants responded to this question with at least one type of intervention. Each answer was categorized into eleven different types of interventions and sorted by how often each was mentioned. Safe Crossings were the most mentioned, with 27.4% of respondents citing the need for safer ways to cross wide roadways and natural barriers. Bikeways followed at 23.9%, indicating a perceived impactful need for safe bike trails and routes. These were followed by ITS improvements (14.5%), Improved Pedestrian Facilities (14.5%), and Regional/Inter-City Transit (12.8%).

In conclusion, the overall responses to the first section of the survey regarding the 17 Strategies were generally perceived as favorable. Many recognize the role of public transit should be considered in the future. Most participants recognized that creating safe crossings would make the greatest impact on improving local mobility as would improving facilities for people who bike and walk. Additionally, improvements to intelligent traffic management would also greatly improve mobility in Sugar Land.



Figure E-16. Young event participant at the Farmers Market at Imperial.

TRANSFORMATIVE MOBILITY NETWORK (TMN)

The second section of the survey presented respondents with a map of the proposed Transformative Mobility Network. This gave participants an opportunity to take note of all the roadways and off-street trails that were proposed for major investment. After looking at the TMN, respondents were asked if they agreed that the proposed network supported the Core Values and Strategies for Superior Mobility with a simple “Yes” or “No”. They were also given an opportunity to describe why they selected either answer.

Over half of respondents said “Yes”, indicating that the TMN supports the Core Values and Strategies for Superior Mobility (57.2%). Of those that provided a comment response to why they chose “Yes”, respondents generally mentioned that the TMN had good coverage of roads and trails (48.3%). Others agreed because the network met their minimum expectations (22.4%) or because it met their personal priorities (22.4%). All but four people who responded “No” gave an answer to their disapproval. Around 40.6% of those respondents said “No” because the TMN was not doing enough. These participants mentioned that there were not enough trails, not enough guarantees of safe crossings, and not enough non-vehicular access to destinations in the TMN, among other reasons. The next largest group of responses to “No” felt that the TMN was missing their priorities (23.4%). Only a handful gave reasons that indicate an overall rejection of planning, such as funding concerns (4.7%), implementation doubts (4.7%), and general disapproval (3.1%).

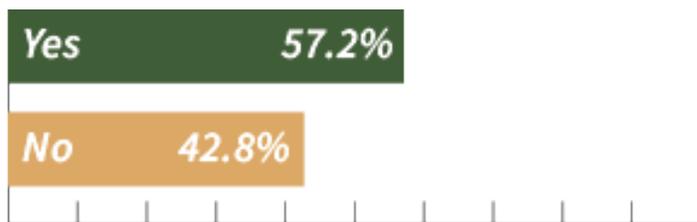


Figure E-17. Looking at the TMN, do you think this network of streets supports the City’s Core Values, strategies, and Vision for Superior Mobility?

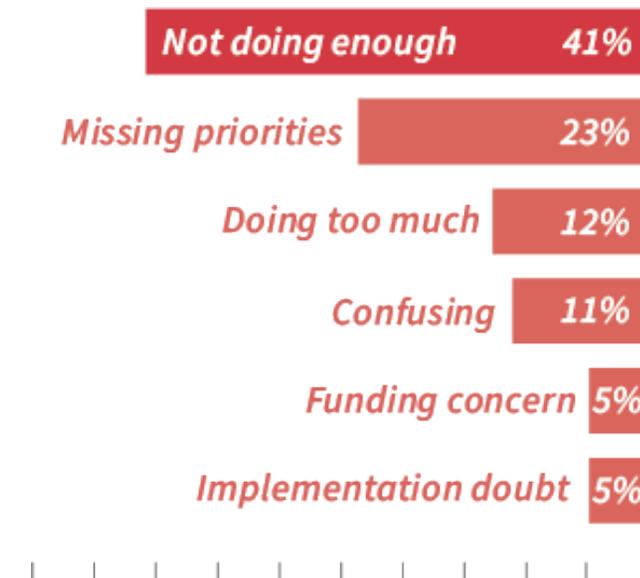
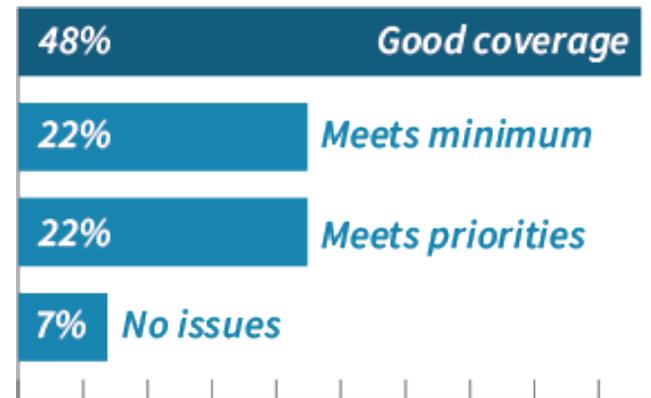


Figure E-18. Reasons given by respondents who do support (blue) or do not support (red) the TMN.

“This covers the majority of areas and businesses that I frequent on a weekly basis.”

-Survey respondent

With over 40% of responses stating there was something missing with the TMN, numerous respondents mentioned their interest in seeing either more or less from the Plan. Around 88% of respondents gave a reason explaining why or what they wanted more out of the TMN and around 12% of respondents stated they actively want less from the plan (or no planning at all).

While support for the TMN appears split between “Yes” and “No”, there is a large wave of support for the planning initiative as a whole. Many of the “No” responses state that they want more from the TMN. This may be an indicator that people want to see specific proposed projects and improvements. This is a positive sign for the Mobility Master Plan—Sugar Land’s community are eager for improvements in transportation planning. These responses speak to the desire for actual projects and recommendations that will come further down the road.

CORRIDOR PRIORITIES

Respondents were asked what their personal priorities or interests may be for the Transformative Mobility Network as presented. Participants were asked what corridor should be prioritized that would have the greatest impact on the City. Naturally, many respondents gave more than one answer as they use multiple corridors in the City’s expansive network. A total of 106 respondents gave at least one answer to this question.

The most mentioned corridor was **State Highway 6** at 37.7% of respondents. The second most-mentioned corridor was not an actual street, but rather mention of the **trails** at 28.3%. Respondents in this category suggested that bike and walking trails should be considered priority corridors. The highest non-TxDOT corridor mentioned was **University Blvd** (15.9%), followed by **Sweetwater Blvd** (7.55%), and **Austin Pkwy** (3.77%). Interestingly, 6.6% mentioned that the **Brazos River** should be considered a priority corridor. The Brazos River was highlighted by community members who walk, bike, and drive indicating the desire for more safe crossings is held by users of all modes of transportation.

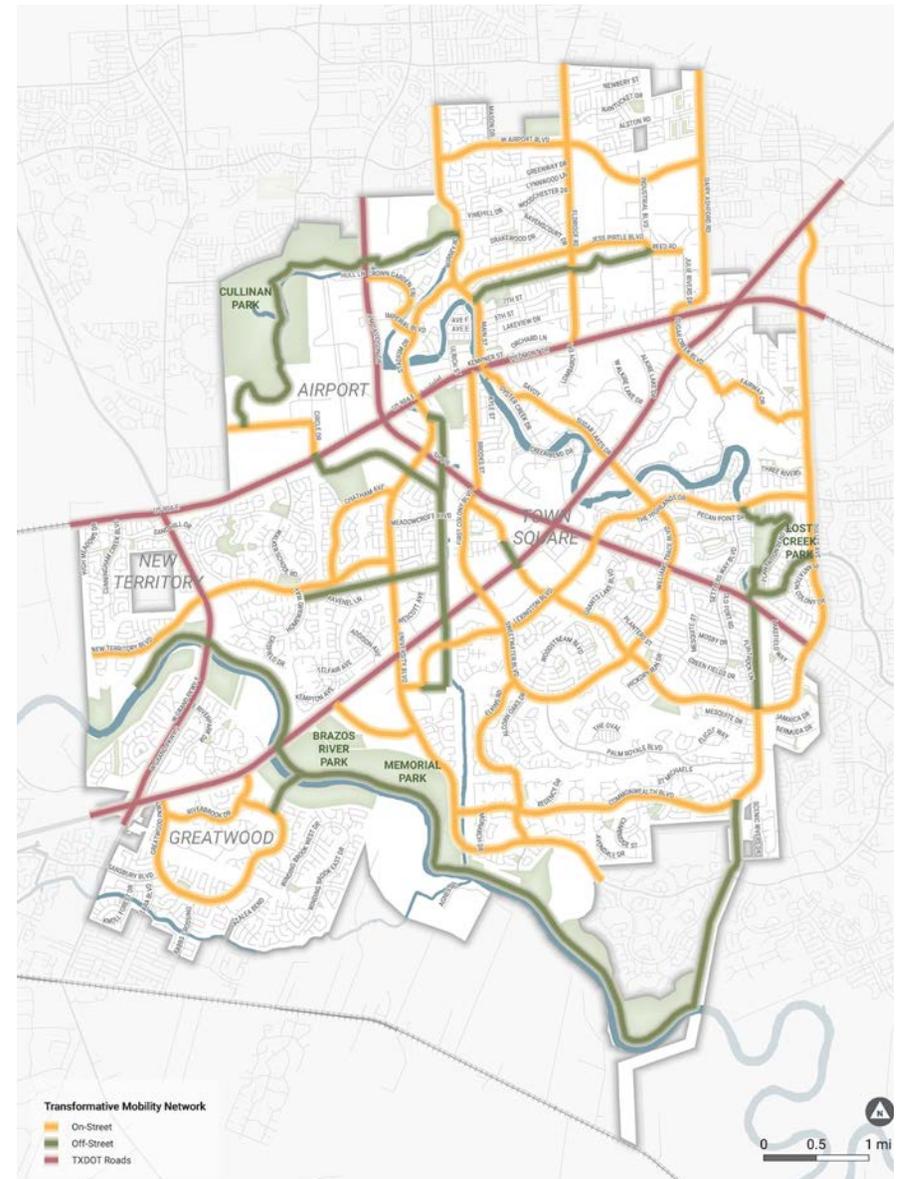


Figure E-19. This is the Transformative Mobility Network Map. If the City focuses on this TMN over time, what corridor (street) do you think the City should prioritize that will have the most impact (or benefit) on the City?

HOPES FOR MOBILITY

Finally, respondents were asked to describe the mobility intervention that they felt would most benefit themselves and their families. Respondents were given examples, such as improvements on a specific corridor or a new sidewalk. All responses were categorized into nine intervention types. Each response was also analyzed for its sentiment, either positive or negative. Of the 114 responses, 79.8% had a positive sentiment. This is encouraging as it shows strong enthusiasm for impactful mobility projects.

Nearly one-third of respondents were most excited about trails. Accessibility followed behind with 22.4% of respondents. This indicates that participants are most excited about the ability to reach any destination via any mode of transportation they choose. These answers represent the majority of responses. Those focused on vehicular mobility only represented 9.3% of the answers (Congestion Relief and Additional Roadway Capacity/ITS). Around 10% of respondents preferred “No New Interventions”, citing a desire for the City to focus on traditional, vehicle-prioritized transportation projects. Around 7.5% are most excited about the idea of driving less than they currently do.

“Have the off-street trails connect with each other to form a continuous circuit without street interruptions.”

-Survey respondent

“Highway 6. It is the main commercial hub for our city and yet you can only access anything safely from it using a car.”

-Survey respondent

“We would love to see more safe access to areas without needing a car to get from one place to another.”

-Survey respondent

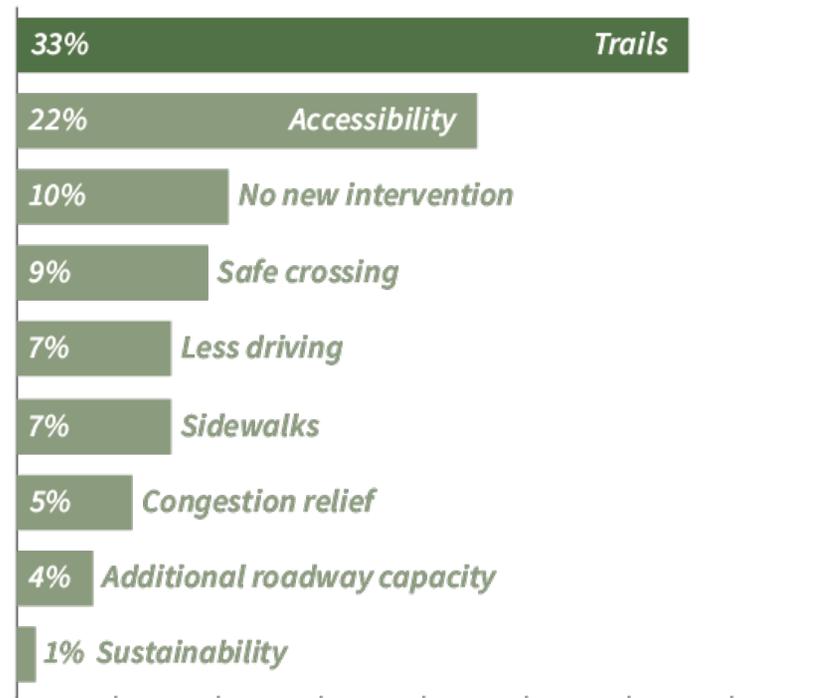


Figure E-20. What are you personally most excited about for how this could benefit you and your family?

“As a senior adult now, I personally benefit from safe wide sidewalks that accommodate pedestrian and bike traffic and would appreciate being able to leave my car at home.”

-Survey respondent

CONCLUSION

The public engagement efforts at this stage in the planning process are encouraging. Between face-to-face candid conversations to thoughtful explanations of their hopes and concerns, it is clear that the people of Sugar Land are deeply interested in their transportation networks around them. Even many who may not fully agree with aspects of the plans as they are proposed are ambitious in their ideas for this effort. The City has captured its public at an excellent opportunity to expand the scope of traditional transportation planning to achieve Superior Mobility. In its 17 Strategies and its Transformative Mobility Network, the City demonstrates that forward-thinking transportation projects are favorable to communities like Sugar Land. It is imperative that this momentum is used to adequately address the proposals that are perceived as most impactful by all stakeholders, including the participants of this public engagement effort.

As the Mobility Master Plan reaches a well-defined point, it will present a narrower set of action items that can directly address the core values developed at the start of this planning effort.



Figure E-21. City Council members and MTF member at the Farmers Market at Imperial.



Figure E-22. Event participants and MTF member at the Sugar Land Space Cowboys game.

Action Items & Data Inputs

Appendix I



Strategy **A** Centralize and streamline transportation decision-making.

Action Item	Existing Data	Data Needed	100-Day Action
A.1 Continue to engage the Mobility Task Force through the 100-Day Action Plan to help advance the critical first set of Action Items of this Mobility Master Plan.	N/A	N/A	
A.2 Expand the Transportation & Mobility Innovation Program to support the implementation of the Mobility Master Plan and to continue to expand coordination with other agencies and departments across the City.	N/A	N/A	
A.3 Develop and implement a citywide transportation model. Use the model to inform mobility decisions and project identification, and to refine City's traffic impact analysis (TIA) process to align City objectives with new development and redevelopment.	>Traffic Management Center data	>Future data needs to be defined during the development of the transportation model including any associated policies/processes	
A.4 Initiate regular cross-departmental mobility strategy meetings to formalize the use of the Implementation Framework as outlined in Chapter 6.	> Projects completed per year; > Project status; > Length of time from project conception to construction	N/A	
A.5 Coordinate all mobility projects, programs, and policies with the Placemaking Program and 2018 Land Use Plan to ensure alignment. Build upon the 2018 Land Use Plan recommendations to support mixed-use developments that allow for many activities in one place and increase mode choices.	>Land use map >Maps that show existing and proposed mobility projects	>Locations where new developments or redevelopments could be coordinated with multimodal projects.	
A.6 Ensure that the Development Code aligns with the Mobility Master Plan Core Values, Transformative Mobility Network, and Implementation Framework using the 2018 Land Use Plan and associated regulations.	> Number of developments with mobility improvements included	N/A	
A.7 Enhance mobility data collection and reporting across all departments to support future plans, funding applications, and community engagement.	>Routine traffic counts >Routine bike counts	>New count locations >Identify new data collection to aid in understanding project benefits	
A.8 Continue to include mobility focused questions on the biannual Citizen Satisfaction Survey. If possible, include additional questions to better understand the long term impacts of the COVID pandemic on travel behaviors to pivot mobility decision making as needed, or develop a separate survey initiative to inform the Comprehensive Plan and future City efforts.	> Citizen Satisfaction Survey results > Commute mode shifts (Census)	> Consider expanding mobility questions on Satisfaction Survey	
A.9 Partner with Economic Development and Sugar Land employers to initiate a biennial commute survey to better understand where employees live and how they get to work. The survey can also assist with better understanding the long-term impact of the COVID pandemic on travel behaviors and the needs of employers within Sugar Land.	N/A	> Survey results (future)	
A.10 Complete the necessary data collection and analysis to fully measure and report on all citywide Six Mobility Metrics as presented in Chapter 5.	> Existing PEQI and BEQI data	> Completed PEQI and BEQI data > VEQI Data	

Strategy **B** Update standards and ordinances to align with the Mobility Master Plan.

Action Item	Existing Data	Data Needed	100-Day Action
B.1 Apply the Implementation Framework to all mobility decision making.	N/A	> Roadway GIS shapefile to align with Ordinance	
B.2 Perform a comprehensive review of the City’s Design Standards and update in alignment with the Mobility Plan, Implementation Framework, and national best practices for roadway design such as National Association of City Transportation Officials (NACTO) and American Association of State Highway and Transportation Officials (AASHTO). Update sections that include, at a minimum, anything related to vehicular speeds and roadway, sidewalk, bikeway, and intersection design.	N/A	N/A	
B.3 Incorporate the existing Major Thoroughfare Network (formally part of the Master Thoroughfare Plan) into the Implementation Framework. Formalize name of network and corresponding GIS data set as the <i>Major Thoroughfare Network</i> and update any reference in City codes or standards. Utilize network as a tool to define corridor functional classification, existing and proposed right-of-way, and locations for new roadways. Network should be reviewed yearly with regular network updates adopted by City Council.	N/A	> Update existing GIS shapefiles	
B.4 Change City Development Code and Design Standards to require sidewalks all new development and redevelopment and remove existing sidewalk exemptions. If an existing sidewalk is below City standards, it should be upgraded to meet minimum standards.	> Sidewalk coverage map > Sidewalk quality/PEQI data	> Update existing sidewalk GIS data	
B.5 Update design standards to require consideration of low-impact development (LID) strategies for all mobility projects.	N/A	N/A	
B.6 Update the design standards to ensure that new bike facilities do not end abruptly and are designed to connect logically and safely to the broader street network.	> Bikeway coverage map, including facilities	N/A	
B.7 Develop a City parking management strategy to align parking supply and management with parking demand, particularly during peak hours.	> Metered and/or structured parking data	> Parking utilization by day/time	
B.8 Continue coordinating with CenterPoint to build trails through easements.	> Bikeway coverage map, including facilities and identification of easements.	> Master agreement with CenterPoint	
B.9 Develop a strategy in partnership with Cullinan Park Conservancy to create access for bicyclists in or around the park.	> Bikeway coverage map, including facilities	> Updated covenant or restrictions	
B.10 Create a set of curb management strategies to track, measure, and plan for curb uses like parking, deliveries, ride sharing, and school zone queuing.	> Metered/structured parking data > School zone queuing data	> Data on existing curb utilization	

Strategy **C** Implement the **Transformative Mobility Network**.

Action Item	Existing Data	Data Needed	100-Day Action
C.1 Initiate the Implementation Framework steps to identify the first series of projects from the Transformative Mobility Network; establish a timeline and phased approach for implementation. The first series could include 3 on-street and 3 off-street projects and should be inclusive of both repurposing and new construction.	> Transformative Mobility Network map > CIP List	> Create a map tool for internal planning and programming over time	
C.2 Draft language for a mobility bond to implement the Transformative Mobility Network. Develop a process and timeline for the City to pursue a mobility bond that balances City needs with community expectations.	> Mobility budget > Anticipated costs for mobility projects	N/A	
C.3 Begin feasibility analysis for new crossing(s) of the Brazos River to close the mobility gap for all modes. A key focus of the analysis will be additional pedestrian connections. Note: This Action Item will be a specific standalone project and include a preliminary assessment of where to locate the crossing. Plans will include detailed feasibility analysis, cost assessments, alternatives assessment, and evaluation of tradeoffs.	> Traffic volume trends on current Brazos River crossings and other alternate routes (Power BI)	N/A	

Strategy **D** Develop a **safe streets program** with dedicated implementation funding to proactively and systematically address community safety concerns around mobility.

Action Item	Existing Data	Data Needed	100-Day Action
D.1 Expand the current Traffic Evaluation & Safety Improvements Program to establish a comprehensive citywide Safe Streets Program process. Introduce specialized local studies along with a citywide safety assessment. Enhance initiatives to ensure that recommendations and actions are prioritized and implemented in a timely fashion.	<ul style="list-style-type: none"> > TxDOT CRIS data > Any additional crash records (ex: Sugar Land Police Department) 	<ul style="list-style-type: none"> > City specific comprehensive tool (GIS based) to collect and summarize all report crashes within the City and ETJ 	
D.2 Work with Sugar Land Police Department to enhance existing crash data collection system and create analytic systems to quickly identify problems and possible root causes for further investigation.	<ul style="list-style-type: none"> > TxDOT CRIS data > Any additional crash records (ex: Sugar Land Police Department) > Any additional crash records (ex: Sugar Land Police Department) 	<ul style="list-style-type: none"> > Improved data process aligned with Police Department 	
D.3 Analyze and establish a high-crash network across Sugar Land and identify streets to prioritize safety improvements. Identify strategies to reduce crashes on the high-crash network. Note: This network should be a tool for the City and partners to ensure that new mobility projects, programs, or policies align with objectives of the Safe Streets Program.	<ul style="list-style-type: none"> > TxDOT CRIS data > Any additional crash records (ex: Sugar Land Police Department) 	<ul style="list-style-type: none"> > City high-crash network in GIS shapefile > Database of common crash typologies 	
D.4 Explore methods for collecting and analyzing data on the location and circumstances of “near-miss crashes” or “close-calls” to help inform other crash data. Potential methods include (1) using AI technology based software(s) with currently installed cameras at intersections throughout the City to collect data and track trends and/or (2) start collecting self-reported data on near-misses. For the AI based software solution, implementation can be through a pilot program, partnership, or the City use it as a service.	N/A	<ul style="list-style-type: none"> > AI based softwares that monitors videos of intersection and runs algorithms that track trends and provide insight and guidance. One company with this software that has a track record of success working with cities is Transoft. > Community feedback about location of near misses. Frisco, Texas has this program 	
D.5 Establish a yearly funding allocation to address safety enhancements on the high-crash network.	<ul style="list-style-type: none"> > Mobility budget 	N/A	

Strategy **D** Continued

Action Item	Existing Data	Data Needed	100-Day Action
D.6 Develop a Neighborhood Streets Program to make improvements that encourage safe speeds on streets outside of the Transformative Mobility Network.	> Vehicle speed and volume data (incl. Power BI)	N/A	
D.7 Coordinate with TxDOT to improve their on-system roadways and crossings in a way that prioritizes safety for all roadway users.	> TxDOT CRIS data > Any additional crash records (ex: Sugar Land Police Department) > Vehicle speed and volume data	N/A	
D.8 Create a City-led Safe Streets Education Program with rotating topics/themes (e.g., safe biking, safe speeds, distracted driving, etc.) to disseminate information to residents and visitors about mobility safety. Coordinate this effort with travel demand management (TDM) programming.	N/A	> Survey data about program to address efficacy and desires of community	

Strategy **E** Continue to invest in **innovation and technology** to leverage existing assets and position the City as an attractive place for research and development.

Action Item	Existing Data	Data Needed	100-Day Action
E.1 Continue to invest in intelligent traffic control technologies (adaptive AI, predictive systems, other future technologies) to improve traffic flow while maximizing capacity of existing infrastructure and capitalizing on the City's state-of-the-art ITS system. Invest in systems that automate traffic insights and analytics to help with preemptive responses to traffic system failures and planning improvements within the roadway system.	<ul style="list-style-type: none"> > Vehicle speed and volume data (incl. Power BI) > Real time traffic volume collection by approach > Real time speed data collection 	<ul style="list-style-type: none"> > Data aligned with advanced ITS technologies to take advantage of the technology and to measure effectiveness 	
E.2 Create a roadway count program to regularly gather data (vehicle volumes and speeds) on streets not already covered by the ITS network.	<ul style="list-style-type: none"> > Vehicle speed and volume data (incl. Power BI) 	N/A	
E.3 Upgrade the City's existing ITS data collection systems to also detect people walking, biking, and rolling.	<ul style="list-style-type: none"> > Any existing ped/bike counts 	<ul style="list-style-type: none"> > Real time walking, biking, and rolling data collection 	
E.4 Implement and regularly update the City's ITS Master Plan to support the Core Values of the Mobility Master Plan.	N/A	N/A	
E.5 Partner with H-GAC to establish an active transportation counter program to gather data on sidewalk, trail, and bikeway network usage to support planning and funding applications.	<ul style="list-style-type: none"> > Any existing ped/bike counts 	<ul style="list-style-type: none"> > Detailed ped/bike data at each collection point 	
E.6 Ensure that the City's ITS infrastructure can reliably communicate with automated and connected vehicles.	N/A	<ul style="list-style-type: none"> >Data to link to developed metrics for automated and connected vehicles 	
E.7 Continue to invest in technologies that share real-time traffic conditions with motorists to help save time, fuel, and reduce frustration caused by congestion.	<ul style="list-style-type: none"> > Existing real-time traffic conditions (e.g. Houston Transtar) > MySugarLand app 	<ul style="list-style-type: none"> > Data on utilization and utility of MySugarLand app 	
E.8 Investigate opportunities for the City to plan for urban air mobility, including policies for safe operations of automated aircraft, construction of landing and delivery infrastructure, and other pertinent policies, regulations, and projects.	N/A	N/A	
E.9 Be an attractive place for research and testing of new technologies and mobility types through partnerships, pilots, and other programs.	N/A	<ul style="list-style-type: none"> > Number and type of pilot programs conducted >Amount of external dollars (grants, etc.) invested in mobility related research and development in Sugar Land 	

Strategy **F** Expand the **asset management program** to analyze the life cycle of transportation infrastructure.

Action Item	Existing Data	Data Needed	100-Day Action
F.1 Establish a Bridge and Roadway Maintenance Program that sets standards, designated funding, and a regular schedule for rehabilitating and improving the City’s network of existing roadways and bridges. Outputs of this model will be incorporated into the Mobility Master Plan metrics (i.e., Network Condition) to be used as part of the Implementation Framework outlined in Chapter 6.	<ul style="list-style-type: none"> > Bridge condition > Pavement quality (index?) 	N/A	
F.2 Establish a Sidewalk, Trail, and Bikeway Maintenance Model similar to the City’s existing roadway condition model that sets standards, designated funding, and a regular schedule for rehabilitating and improving the City’s network of existing sidewalks, bikeways, and trails. Coordinate with Sidewalk construction/rebuild prioritization methodology. Outputs of these models will be incorporated into the Mobility Master Plan metrics (i.e., Network Condition) to be used as part of the Implementation Framework outlined in Chapter 6.	<ul style="list-style-type: none"> > H-GAC sidewalk data > City sidewalk map/data > City bikeway map/data > BEQI/PEQI 	> Updated model incorporated into overall asset management data systems	
F.3 Establish an ITS Maintenance Model similar to the City’s existing roadway condition model that sets standards, designated funding, and a regular schedule for repairing and updating the City’s network of ITS technologies. Outputs of this model will be incorporated into the Mobility Master Plan metrics (i.e., Network Condition) to be used as part of the Implementation Framework outlined in Chapter 6.	<ul style="list-style-type: none"> > Existing ITS condition data 	> Updated model incorporated into overall asset management data systems	
F.4 Incorporate staff level-of-effort into the City’s existing maintenance model to capture the true cost of maintaining existing infrastructure and inform staff when it is more cost effective to invest in new infrastructure instead of continued maintenance.	<ul style="list-style-type: none"> > FTEs spent on mobility maintenance/repair/other similar tasks 	> Updated model incorporated into overall asset management data systems	
F.5 Develop a system and schedule for communicating pertinent information from the asset management system to the public. This data should be coordinated with the recommended Mobility Dashboard. Note: Information can include when roadways are scheduled for construction, maintenance, or rehabilitation and can allow for input from residents.	<ul style="list-style-type: none"> > Project list with status 	> Data aligned with understanding usage and utility of the dashboard	

Strategy **G** Formalize a comprehensive **active transportation infrastructure program** to address aging infrastructure, create new network connections, and improve experiences for people walking and biking.

Action Item	Existing Data	Data Needed	100-Day Action
G.1 Continue to incorporate active transportation improvements in all roadway construction and maintenance projects throughout the City.	<ul style="list-style-type: none"> > Project list with types of improvements. > Sidewalk map/data > Bikeway map/data 	N/A	
G.2 Expand on the sidewalk prioritization methodology to better target the City's existing sidewalk program. The methodology should place a high priority on sidewalks in poor repair, critical gaps in sidewalk network, areas near schools and parks, areas with higher number of people walking, and other key metrics. This should be coordinated with asset management program for sidewalk, trails, and bikeways.	<ul style="list-style-type: none"> > Sidewalk coverage map > Sidewalk quality/PEQI data > Existing ped/bike counts 	> Prioritization methodology	
G.3 Create a Safe Routes to School Study and Program to identify recommendations for capital projects and to encourage safe access to schools for students walking and biking. Partner with school districts (FBISD, LCISD and private schools) on this effort.	<ul style="list-style-type: none"> > Existing ped/bike counts > School queueing data > Student commute data 	> Before and after student commute data by school	
G.4 Conduct an ADA Transition Plan and develop an ADA compliance program with a dedicated compliance officer for persons with limited mobility and older adults.	<ul style="list-style-type: none"> > Sidewalk (and curb ramp?) condition > PEQI? > MySugarLand "Report a Concern" data 	N/A	
G.5 Develop an application-based funding program for residents to advocate for neighborhood/cul-de-sac trail connections within their neighborhood.	N/A	> Map of existing cul-de-sac connections	
G.6 Identify locations where bikeways end abruptly and design improvements for better transitions with the rest of the street network.	> Bikeway and trail map	N/A	
G.7 Construct short trail connections that increase access to off-street trails and fill gaps in the City's existing trail network.	> Bikeway and trail map	N/A	
G.8 Identify and construct short trail connections to connect the trail network with on-street bikeway network and area sidewalks within the roadway ROW.	> Bikeway and trail map	N/A	

Strategy **H** Initiate a **small area mobility plan & corridor studies** program.

Action Item	Existing Data	Data Needed	100-Day Action
H.1 Refine the purpose and goals for small area plans and corridor studies as outlined within this Plan to ensure alignment with the Comprehensive Plan process. Purpose and goals to include: safety, complete streets, neighborhood access points, needs of community, etc.	N/A	N/A	
H.2 Develop a community engagement approach for small area plans and corridor studies to ensure early and frequent community engagement that sets expectations and understands needs.	> Existing community listservs/ address lists	N/A	
H.3 Identify corridors from the Transformative Mobility Network to be studied further in a designated Corridor Study. Use the Implementation Framework to prioritize corridors and develop projects and identify funding.	> Transformative Mobility Network map	N/A	
H.4 Implement the City's first small area plan through the 2023 H-GAC Livable Center Study.	N/A	N/A	
H.5 Use small area planning process and/or corridor studies planning process to identify and address feasibility of potential grade-separated rail crossings of the UPRR along 90A to reduce the number of at-grade crossings within the City. Assessment to include crossing for all modes.	> FRA crossing data > Vehicle volumes (e.g. Power BI) > Existing ped/bike counts	N/A	

Strategy 1 Provide consistent, centralized, and **transparent mobility-related information and resources** about the City's mobility initiatives.

Action Item	Existing Data	Data Needed	100-Day Action
1.1 Create a Mobility Dashboard to track and communicate the City's progress in Mobility Master Plan achieving Superior Mobility. The Dashboard should include (1) the status of key Plan Metrics, (2) an interactive map of the Transformative Mobility Network, and (3) links to additional data from the Traffic Management Center and other data sources that help residents understand mobility in Sugar Land.	<ul style="list-style-type: none"> > Map of Transformative Mobility Network > Other data from Traffic Management Center 	<ul style="list-style-type: none"> > Data aligned with understanding usage and utility of the dashboard 	
1.2 Build on the City's robust community engagement, including the MySugarLand App and social media presence, to share information about traffic congestion on local streets, construction impacts, and mobility topics to improve safety and knowledge of local traffic laws.	<ul style="list-style-type: none"> > Number of social media followers > MySugarLand app usage 	<ul style="list-style-type: none"> > Data aligned with understanding usage and utility of the dashboard 	
1.3 Build on existing CIP Story Map to develop a citywide project dashboard to communicate proposed design, funding, timing, and other details for City transportation projects.	N/A	N/A	
1.4 Work with Economic Development Department to define metrics that align mobility improvements with the City's economic attractiveness for business and employers to best meet the needs/aspiration of existing and future employers.	<ul style="list-style-type: none"> > Citizen Satisfaction Survey results > Tax base data > Other data from Economic Development 	N/A	
1.5 Develop a transportation demand management (TDM) program and a mobility communications strategy to encourage more people to walk, bike, and take transit.	N/A	<ul style="list-style-type: none"> > Survey data about program to address efficacy and desires of community 	

Strategy **J** Integrate health into transportation projects, programs, and policies.

Action Item		Existing Data	Data Needed	100-Day Action
J.1	Partner with Fort Bend County Health & Human Services to support and apply recommendations from County health studies and programs. Ensure that the City is a partner in the current/ongoing county health assessment (2022).	N/A	> Data included within the health studies and programs specific to City of Sugar Land	
J.2	Develop a new "Slow Streets" or "Sunday Streets" program to temporarily close streets for special events to encourage walking, biking, and rolling.	N/A	> Data about attendees during events	
J.3	Develop and implement a Safe Routes to Parks program in conjunction with the Parks Department.	N/A	> Before and after ped/bike counts	
J.4	Develop and implement a micromobility policy to define and enforce the City's approach to bike share, scooter share, and any other micromobility modes.	N/A	N/A	
J.5	Implement a pilot micromobility program with a partner that meets the City's objectives and expectations.	N/A	N/A	

Strategy **K** Invest in transit to support economic development and regional connectivity to, from, and within Sugar Land.

Action Item	Existing Data	Data Needed	100-Day Action
K.1 Partner with Fort Bend County Transit to construct permanent Park & Ride locations in the City with real-time information, shade, seating, and other amenities that improve the experience for people riding transit.	> Fort Bend County Transit ridership & service schedule	N/A	
K.2 Support Fort Bend County Transit as it returns to pre-COVID service levels. Collaborate with Fort Bend County Transit on data collection and ridership information to assist with strategies that best align with the Sugar Land community's needs.	> Fort Bend County Transit ridership & service schedule	N/A	
K.3 Coordinate with the University of Houston and Fort Bend County Transit Park & Ride services to reduce trip redundancies and increase overall transit service. Coordination can provide the opportunity to leverage grant and funding opportunities due to higher combined ridership between the two services.	> Fort Bend County Transit ridership & service schedule > University of Houston ridership and service schedule	N/A	
K.4 Continue to partner with Fort Bend County Transit to provide demand response service to residents. Ensure that demand response service meets the community's needs. Find opportunities to expand the service to better support those that can not drive. This should help meet the City's objectives of supporting aging in place.	> Fort Bend County Transit ridership (specifically for demand response)	N/A	
K.5 Participate in regional transit conversations, including at H-GAC's High-Capacity Transit Taskforce. Sugar Land's location can benefit from two regional corridors under consideration for potential future high-capacity, frequent transit - US 90A and IH69. Joining conversations and providing a clear vision of how the City can benefit from a potential future service can influence conversations and plans in a manner to best benefit residents and employers within Sugar Land.	N/A	N/A	
K.6 Explore the feasibility of providing innovative transit services, including, but not limited to, microtransit, gondolas, and other emerging technologies.	N/A	N/A	
K.7 Coordinate with senior living centers and/or medical providers that have existing services to identify areas of synergy between private services and existing public services. Identify partnerships if possible.	> Fort Bend County Transit ridership (specifically for demand response) > List of existing private services	N/A	
K.8 Expand marketing efforts with Fort Bend County Transit to develop and distribute marketing materials to increase transit ridership for existing Park & Ride services. Coordinate this effort with TDM programming.	> Fort Bend County Transit ridership	N/A	

Strategy **L Collaborate** with surrounding cities, Fort Bend County, TxDOT, school districts, and other **regional entities** to create meaningful transportation partners and leverage resources.

Action Item	Existing Data	Data Needed	100-Day Action
L.1 Continue to coordinate with school districts on bus operations, parent pick-up and drop-off, and new school siting to improve mobility to and from school campuses.	<ul style="list-style-type: none"> > School queueing data > School map > Student commute data > Any bus data from school districts? 	N/A	
L.2 Coordinate with Fort Bend County to plan for new street connections to and within the ETJ to proactively design infrastructure that encourages walking and biking. Collaborate on ensuring new infrastructure in the City's ETJ aligns appropriately with both County and City standards.	N/A	N/A	
L.3 Establish regular coordination meetings with adjacent jurisdictions and regional partners as mobility-related and economic extensions into/out of city limits. Sugar Land should lead these endeavors. Regular coordination meetings can lead to the creation of a Fort Bend County Mobility Consortium.	N/A	N/A	
L.4 Partner with other agencies to proactively invest in mobility infrastructure that anticipates and complements population growth in nearby communities.	<ul style="list-style-type: none"> > H-GAC regional growth model > Any development data/insights 	> Data from surrounding communities to share information across partner Cities	
L.5 Expand the data sources available to the Traffic Management Center by collaborating with new agencies (e.g., rail, TxDOT, etc.) to support more integrated planning and emergency response.	<ul style="list-style-type: none"> > Existing TMC data > Emergency response data 	N/A	
L.6 Continue frequent coordination with UPRR to share information and concerns about existing freight movement through the City and highlight opportunities for improvement and collaboration.	<ul style="list-style-type: none"> > FRA crossing data > Vehicle volumes (e.g. Power BI) > TxDOT CRIS or other crash data 	N/A	
L.7 Continue participating regional planning committees and expand participation in state-level groups such as TxDOT's advisory committees to coordinate closely with statewide mobility-related initiatives.			

Strategy **M** Incorporate **resiliency** into the City's mobility-related decision-making.

Action Item	Existing Data	Data Needed	100-Day Action
M.1 Institutionalize the exploration and use (through pilot programs as warranted) of innovative construction materials and methods to ensure lasting and resilient infrastructure.	> Detailed project budgets/specs	N/A	
M.2 Create an electric vehicle plan (either internally or with external consultation) to guide the City's policy and actions for siting and constructing electric vehicle charging stations.	> Number and location of EV charging stations	> Utilization of EV charging stations	
M.3 Ensure that Design Standards for roadways are aligned with storm water drainage needs and incorporate low impact/green infrastructure design and materials.	> Location of existing stormwater utilities > Floodplain data	N/A	
M.4 Conduct a citywide infrastructure vulnerability assessment to define a baseline for existing infrastructure condition and prioritize resilient investments.	> Infrastructure age/condition > Pavement quality > Hazard data	N/A	
M.5 Incorporate air quality improvement solutions into mobility decision-making and explore grant funding for these programs. Improvements could include: decreasing vehicular delay, reducing daily trips by vehicle, increasing mode choices for active transportation, and supporting the incorporation of electric vehicles into City infrastructure.	> Vehicle volumes (Power BI)	> Existing air quality data	
M.6 Coordinate with the Emergency Management Department on the Hazard Mitigation Plan and identify mobility projects to include within the Hazard Mitigation Plan.	> Infrastructure age/condition > Pavement quality > Hazard data	N/A	
M.7 Coordinate with the Emergency Management Department on Hazard Mitigation Grant Opportunities to fund/implement mobility projects included in the Hazard Mitigation Plan.	> Infrastructure age/condition > Pavement quality > Hazard data	N/A	
M.8 Formalize and enforce hazardous material routes through the City to keep hazardous materials on regional roadways and off of local roads.	> Location of hazardous materials routes > Land use > Vehicle volumes	N/A	
M.9 Participate in quarterly hazard risk assessment drills.	> Infrastructure age/condition > Pavement quality > Hazard data	N/A	

Strategy **N** Refine funding processes to **leverage local dollars with grants, partnerships, and other innovative financing solutions** supporting Superior Mobility in Sugar Land.

Action Item	Existing Data	Data Needed	100-Day Action
N.1 Hire a grants coordinator staff member to proactively lead and pursue grant and funding opportunities leveraging local dollars supporting mobility and quality of life projects. Potential grants coordinator would keep a pulse on local, regional, statewide, and national public or private grant opportunities that align with the Mobility Master Plan’s Vision for Superior Mobility and Five Core Values. The coordinator would also work closely with other City departments (ex: Parks & Recreation, etc.) to identify and develop larger-scale improvement projects to seek grants that enhance mobility as well as quality of life, health, economic development, etc. Coordinator to also support the City in tracking funding obligation across projects and programs to report back success in diversifying funding streams.	> Percent of funding coming from federal dollars vs. local dollars vs. partnership dollars	N/A	
N.2 Create a grants database based off of the Funding Matrix that matches types of projects (and/or specific projects) to grant opportunities and sources, and tracks estimated timing and requirements.	N/A	N/A	
N.3 Utilize the Implementation Framework to develop and maintain a comprehensive list of mobility-related projects for implementation that can be packaged quickly and easily (including cost, City funding obligation, level of effort, timing) for a grant application or local non-routine funding opportunity.	> Percent of funding coming from federal dollars vs. local dollars vs. partnership dollars	N/A	
N.4 Identify specific projects and programs through the use of the Implementation Framework to be included in an upcoming General Obligation bond to secure designated funds to implement thoughtful projects. Projects and programs could include specific mobility projects and/or maintenance needs supporting Superior Mobility.	>City's bonding capacity	N/A	
N.5 Develop a routine maintenance program framework that proactively sets aside projects, time, and money to provide preventative maintenance on the City’s infrastructure – saving money and time in the long run.	>Infrastructure age/condition	N/A	
N.6 Explore assessment fee opportunities in special areas around the City where money can be generated and directly reinvested into the public infrastructure supporting safe places to walk, bike, drive, or take transit.	N/A	N/A	

Strategy **N** Continued

Action Item	Existing Data	Data Needed	100-Day Action
N.7 Continue close coordination with other City departments, specifically the Economic Development department to identify potential partnership opportunities on projects or efforts that support mobility, commerce, and enhanced quality of life in the City.	N/A	N/A	
N.8 Set up an annual coordination meeting (at minimum) to meet with statewide grant coordinators at TxDOT to understand potential grant opportunities hosted by the state in line with Mobility Master Plan.	> Percent of funding coming from federal dollars vs. local dollars	N/A	
N.9 Participate in state-level groups such as TxDOT's advisory committees to coordinate closely with statewide mobility-related initiatives.	N/A	N/A	

Metrics & Metrics Data

Appendix J



Safety: The number of crashes and severity of crashes across all modes of transportation.



City-wide Reporting

See Chapter 5

PROGRESS

- » Reduce fatal and serious injury crashes along Transformative Mobility Network
- » Reduce fatal and serious injury crashes along entire street network

SUCCESS

- » Zero* fatal and serious injury crashes along the Transformative Mobility Network
- » Zero* fatal and serious injury crashes in Sugar Land

**Zero crashes to be defined by crashes that can be lessened or avoided through design improvements and enhancements*

Opportunities Analysis (Corridor Selection)

See Chapter 6

KEY QUESTIONS

- » What is the crash rate along this corridor?
- » How many fatal and/or serious injury crashes have occurred on this corridor?
- » Is there a speeding issue along this corridor?

METRICS DATA (IN THE INTERACTIVE MOBILITY MAP)

- » Corridor crash rate per million VMT based on FHWA methodology
- » Number of fatal and serious injury crashes; number of pedestrian and bicycle crashes
- » Observed vehicular speeds vs. posted speed limit

Additional Data Collection for Decision Making

This additional data is not required to measure safety citywide but should be used for further discussion on targeted initiatives to improve safety throughout the City. This additional data will be useful for Opportunities Analysis and Project Definition.

Continue Collecting:

- » Traffic volume data at signals and along corridor segments to calculate intersection crash rates and corridor crash rates as a comparison tool to assess safety
 - » Calculate intersection crash rates using FHWA standard: crashes per million entering vehicles (MEV).
 - » Calculate corridor crash rate using FHWA standard: crashes per 100 million vehicle-miles of travel
- » Posted and measured speed along corridors to assess speed differentials
- » Speeding tickets issued along a corridor

Start collecting:

- » Safety related service requests via 311 or other City resources
- » Information from traffic apps, such as WAZE, to supplement official crash reports collected via police departments
- » Trends in crash patterns to identify commonalities across the City to develop a safe systems approach to address safety concerns
- » Near-miss crash data of high-priority intersections (Action Item D.4)

Destination Connectivity: The ability to safely and comfortably reach nearby Activity Centers through short trips.



City-wide Reporting

See Chapter 5

PROGRESS

- » Every TMN corridor within a 1/2 mile of an Activity Center* has a continuous high-quality sidewalk
- » 50% increase in number of residential neighborhoods with access to all Activity Centers* within 1/2 mile via high-quality sidewalk
- » Every TMN corridor within 2 miles of an Activity Center* has a high-comfort bikeway
- » 50% increase in number of residential neighborhoods with access to all Activity Centers* within 2 miles via high-comfort bikeway

SUCCESS

- » Every street within a mile of an Activity Center* has a continuous high-quality sidewalk
- » Every street within 2 miles of an Activity Center* has a high-comfort bikeway
- » Every residential neighborhood has access to all Activity Centers* within 1/2 mile via high-quality sidewalk
- » Every residential neighborhood has access to all Activity Centers* within 2 miles via high-comfort bikeway

*Includes Regional Activity Centers (RAC) and Neighborhood Activity Centers (NAC)

Opportunities Analysis (Corridor Selection)

See Chapter 6

KEY QUESTIONS

- » How many Neighborhood and Regional Activity Centers are along this corridor?
- » How many people have access to the Activity Centers within 1/2 mile walk along the corridor?
- » How many people have access to the Activity Centers within 1/2 mile bike ride along the corridor?

METRICS DATA (IN THE INTERACTIVE MOBILITY MAP)

- » Activity Centers along or near corridor; review direct and indirect access to all nearby Activity Centers
- » Pedestrian connectivity to Activity Centers
- » Bicycle connectivity to Activity Centers

Additional Data Collection for Decision Making

This additional data is not required to measure Destination Connectivity citywide but can be used in support of improved connections to all Activity Centers. This additional data will be useful for Opportunities Analysis and Project Definition.

Continue Collecting:

- » Detailed geospatial data on sidewalk condition and sidewalk amenities throughout the City

Start collecting:

- » Percent of population within 1/2 to 1 mile walk to all Activity Centers
- » Percent of population within a 2 mile bike ride to all Activity Centers
- » Intersection characteristics for all intersections near Activity Centers that include information on intersection crash rates, vehicular capacity and operations, and pedestrian and bicycle crossing conditions
- » Bluetooth based data like Streetlight or similar to collect origin and destination travel data

Increased Mobility: Increase the movement of people and goods through expanded multimodal options on the TMN.



City-wide Reporting

See Chapter 5

PROGRESS

- » No increase in vehicle miles traveled (VMT) along the TMN
- » Doubling the total miles of corridor completeness along the TMN
- » 5% reduction in delay due to blocked rail crossings

SUCCESS

- » A 10% reduction in VMT along the TMN.
- » All corridors along the TMN are Complete Streets
- » 10% reduction in delay due to blocked rail crossings

Opportunities Analysis (Corridor Selection)

See Chapter 6

DESCRIPTION

- » How much multimodal mobility capacity could be added to this corridor?
- » Which mode(s) are missing and/or need improvements?
- » Can we increase freight mobility along this corridor?

METRICS DATA (IN THE INTERACTIVE MOBILITY MAP)

- » Corridor completeness/modes served
- » Planning-level corridor Level of Service (LOS)
- » Number of blocked rail crossings within past year

Additional Data Collection for Decision Making

This additional data is not required to measure Increased Mobility citywide but can be used for further discussion on targeted initiatives to increase mobility throughout the City. This additional data will be useful for Opportunities Analysis and Project Definition.

Start Collecting:

- » Planning-level corridor Level of Service (LOS) for all TMN corridors using Highway Capacity Manual methodology
- » Modes served along all City streets to develop measure of Corridor Completeness for all City streets

Mobility Network Condition: The infrastructure condition for people walking, biking, and driving along the TMN.



City-wide Reporting

See Chapter 5

PROGRESS

- » 50% of all corridors along the TMN have a corridor PCI of 70 or above
- » 50% of all corridors along the TMN have a Level of Traffic Stress of 2 or 1
- » 25% increase in mileage of high-quality TMN sidewalks that meet or exceed City standards
- » Every bridge along the TMN has a Bridge Condition Score of 85 or above

SUCCESS

- » All corridors along the TMN have a corridor PCI of 70 or above
- » All corridors along the TMN have a Level of Traffic Stress of 2 or 1
- » All TMN sidewalks are high-quality and meet or exceed City standards
- » Every bridge along the TMN has a Bridge Condition Score of 90 or above (TxDOT)

Opportunities Analysis (Corridor Selection)

See Chapter 6

KEY QUESTIONS

- » What are the infrastructure conditions along this corridor?
- » Are the conditions for one mode disproportionately better or worse?

METRICS DATA (IN THE INTERACTIVE MOBILITY MAP)

- » PCI (Pavement Condition index) for the corridor
- » Pavement environmental quality index score for sidewalks and trails
- » Level of Traffic Stress (LTS)

Active Lifestyles: The number of people walking and bicycling to destinations, within Activity Centers, and along the TMN and trails.



City-wide Reporting

See Chapter 5

PROGRESS

- » 5% increase, year over year, of students walking or biking to school
- » 5% increase, year over year, of people walking or biking within Active Centers
- » 15% increase of people walking or biking along the City's trail network
- » 15% increase of people walking or biking along or across the TMN

SUCCESS

- » 10% increase, year over year, of students walking or biking to school
- » 10% increase, year over year, of people walking or biking within Active Centers
- » 25% increase of people walking or biking along the City's trail network
- » 25% increase of people walking, biking, jogging, or rolling along or across the TMN
- » Those that wish to walk or bike are able to

Opportunities Analysis (Corridor Selection)

See Chapter 6

DESCRIPTION

- » What are the current counts of people walking and biking on this corridor (if data exists)?
- » What destinations and/or trip generators (schools, parks, dense housing) exist along this corridor?

METRICS DATA (IN THE INTERACTIVE MOBILITY MAP)

- » Count data
- » Destinations including parks, schools, and other key civil/community destinations

Additional Data Collection for Decision Making

This additional data is not required to measure Active Lifestyles citywide but can be used for further discussion on targeted initiatives to increase active modes within the City. This additional data will be useful for Opportunities Analysis and Project Definition.

- » Where possible, document outcomes of programs for encouraging people to walk or bike
- » Create a repository of data the include pedestrian and bicycle counts anywhere within the City to track trends

Community Satisfaction: Residents' perceptions and satisfaction with mobility.



City-wide Reporting

See Chapter 5

PROGRESS

On the next survey:

- » 75% of residents state they are satisfied with the “flow of traffic & congestion management”
- » 85% of residents stated they are satisfied with the “maintenance of streets/ sidewalks/infrastructure” *

SUCCESS

In 10 years:

- » 80% of residents state they are satisfied with the “flow of traffic & congestion management”
- » 90% of residents stated they are satisfied with the “maintenance of streets/ sidewalks/infrastructure”

**This percentage is the same as the Citizen Satisfaction Survey results from 2015*

Opportunities Analysis (Corridor Selection)

See Chapter 6

KEY QUESTIONS

- » What comments/requests have been made by the public?

METRICS DATA (IN THE INTERACTIVE MOBILITY MAP)

- » Resident satisfaction survey
- » Feedback from 311 requests and future planning efforts

Additional Data Collection for Decision Making

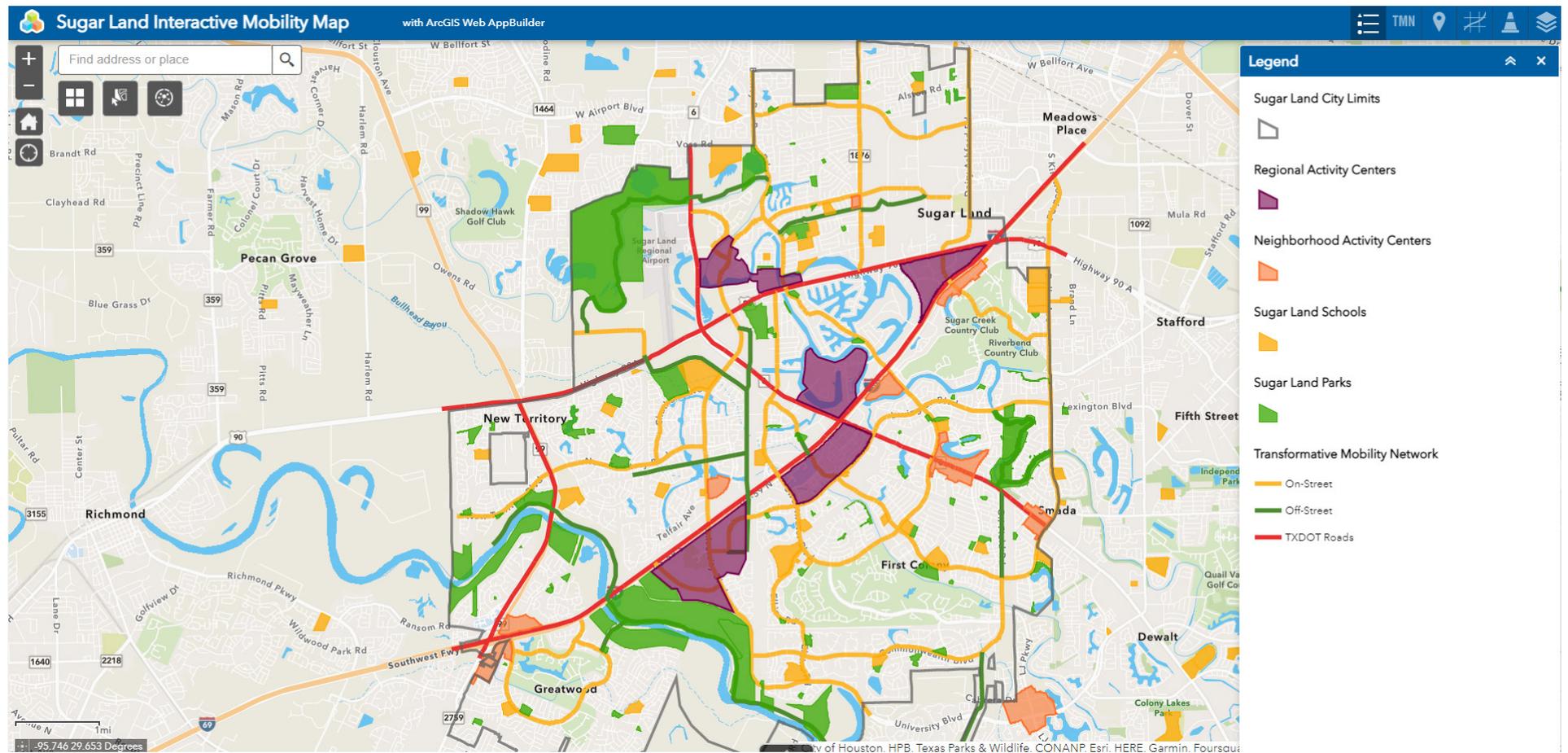
This additional data is not required to measure Community Satisfaction citywide but can be used for increasing understanding of mobility satisfaction across the community over time. This additional data will be useful for Opportunities Analysis and Project Definition.

- » As the number of potential mobility related questions on the Citizen Satisfaction Survey is limited, and due to the structure and time frame of the survey, find other methods for assessing mobility satisfaction citywide
 - » If another regular survey method is defined, track year-over-year results and develop progress and success objectives for this series of questions in combination with questions from the Citizen Satisfaction Survey
- » Collect and analyze 311 data and serve requests
 - » Focus on collecting and summarizing safety issue inquiries, connectivity issue inquiries, and network condition issue inquiries (over a 3 year period)
- » Community feedback from other planning initiatives, corridor studies and small area plans
- » Work with communications department and utilize social media and other resources to better understand needs and expectations of residents

Interactive Mobility Map

The Interactive Mobility Map was created for this plan and is an online, living, georeferenced, GIS data map. This map is designed to allow staff, public officials, and community members to easily toggle layers on and off and compare corridors to each other. The Interactive Mobility Map allows staff and leadership to view TMN corridors, and the entire City mobility network, in their broader context by showing data related to land use and destinations, safety, existing mobility conditions, and other data for all modes of travel. This will ensure that City decisions are made with the most complete set of data to move the needle on the Plan's Core Values.

Not all of this data currently exists, and City staff will need to initiate Action Items that will help collect, analyze, and present this data on the Interactive Mobility Map. Overlapping impacts of all six metrics layers will determine how corridors are ultimately scored and prioritized. See Chapter 6 for more information on how to use the Map within the Implementation Framework, specifically the Opportunities Analysis.



Snip of Interactive Mobility Map, January 2023

City Council and Planning & Zoning Commission

Appendix K



City Council

Sugar Land City Council is made up of seven members including the mayor, four district positions, and two at-large positions indicated in the table below. Council members were engaged during both City Council meetings and workshops at key points during Plan development. Each presentation to City Council is included in the table on page K-4. City Council is expected to approve the final Plan for City adoption in April 2023.

In addition, Council Members were engaged individually in one-on-one meetings during early stages of Plan development. The interviews functioned as a way to inform and collaborate with the council members on the Mobility Master Plan process and to understand the council members' hopes and concerns regarding mobility for his or her district and the City as a whole.

City Council Members
Mayor Joe R. Zimmerman
District 1 - Council Member Suzanne Whatley
District 2 - Council Member Naushad Kermally, Mayor Pro Tem
District 3 - Council Member Stewart Jacobson
District 4 - Council Member Carol K. McCutcheon
At-Large 1 - Council Member William Ferguson
At-Large 2 - Council Member Jennifer J. Lane
Former Council Members
District 1 - Steve R. Porter (term ended May 2021)
At-Large 1 - Himesh Gandhi (term ended December 2020)

Planning & Zoning Commission

Sugar Land Planning & Zoning Commission (P&Z) is a nine member governing body with a Chair, Vice Chair, and seven, two-year term members. The make up of the City's P&Z Commission is presented in the table below. P&Z was engaged during both meetings and workshops at key points during Plan development. Each presentation to P&Z is included in the table on page K-4.

At the time of Plan completion, P&Z will make recommendations to City Council pertaining to the approval of this Master Plan. The final Plan presentation to P&Z is expected to occur in March 2023.

Planning & Zoning Commission Members
Matthew Caligur - Chair
Chuck Brown
Fareena Dawood
Randall Halbrook
Taylor Landin
Apurva Parikh
Sapana Patel
Mary Smith
Former Planning & Zoning Commission
Jay Canine
Diane Englet
Tim Hart
Kathy Huebner
Dan Simeone
Carl Stephens
Thomas "Andy" Uschold

Presentation to City Council and Planning & Zoning Commission

The table below summarizes each point of engagement with City Council and the Planning & Zoning Commission during Plan development. Insights and guidance from both City Council and P&Z have been critical for Plan development and will ensure successful Plan implementation.

Date	Meeting Type	Topic	Brief Overview
Summer 2022	One-on-one Interviews	One-on-one Interviews with each City Council Member	Each member of City Council, along with the Mayor, were interviewed in one-on-one sessions with the project Team to talk through Plan objectives, goals, and desired outcomes. Each member was asked about top mobility concerns from constituents and key areas of focus for the Plan.
November 10, 2020	Planning & Zoning Commission Meeting	State of Sugar Land Mobility: Baseline Conditions & Insights	The project team and the MTF Vice-chair presented a Plan update that included the project background, the Plan process and approach, the insights from the State of Mobility, and a summary of input and guidance received from the MTF. In addition, an update on the ongoing public survey was presented.
November 17, 2020	City Council Meeting	State of Sugar Land Mobility: Baseline Conditions & Insights	The project team and the MTF Chair presented a Plan update that included the project background, the Plan process and approach, the insights from the State of Mobility, and a summary of input and guidance received from the MTF. In addition, an update on the ongoing public survey was presented.
August 3, 2021	Joint Workshop with City Council and Planning & Zoning Commission	City of Sugar Land Mobility Master Plan Update: Five Core Values & Supporting Goal Statements	The MTF Chair and Vice-chair presented on the Five Core Values and supporting goal statements developed for the Plan. The project team also presented the findings of the Round 2 public survey which showed overwhelming support for the Five Core Values.
September 12, 2022	Joint Workshop with City Council and Planning & Zoning Commission	City of Sugar Land Mobility Master Plan Update: Strategies & Action Items and the Transformative Mobility Network	The project team presented the Transformative Mobility Network, the Strategies & Action Items, and introduced the concept of the Six Mobility Metrics. An overview of the Implementation Framework was presented.
June 22, 2023	Planning & Zoning Commission Meeting: Public Hearing & Recommendation	Final Plan Presentation	The project team presented the final Mobility Master Plan to the Planning & Zoning Commission and asked for a recommendation to send this to City Council for adoption. The Commission provided unanimous approval to move forward to Council for adoption.
July 18, 2023	City Council Meeting: Public Hearing and 1st Reading of Ordinance 2301	Final Plan Presentation	The project team presented the final Mobility Master Plan to City Council with a public hearing. The City Council unanimously approved the adoption of the plan.
July 25, 2023	City Council Meeting: 2nd Reading of Ordinance 2301	Final Plan Presentation	City Council officially adopts the Mobility Master Plan on the consent agenda.

Major Thoroughfare Network Table

Appendix L



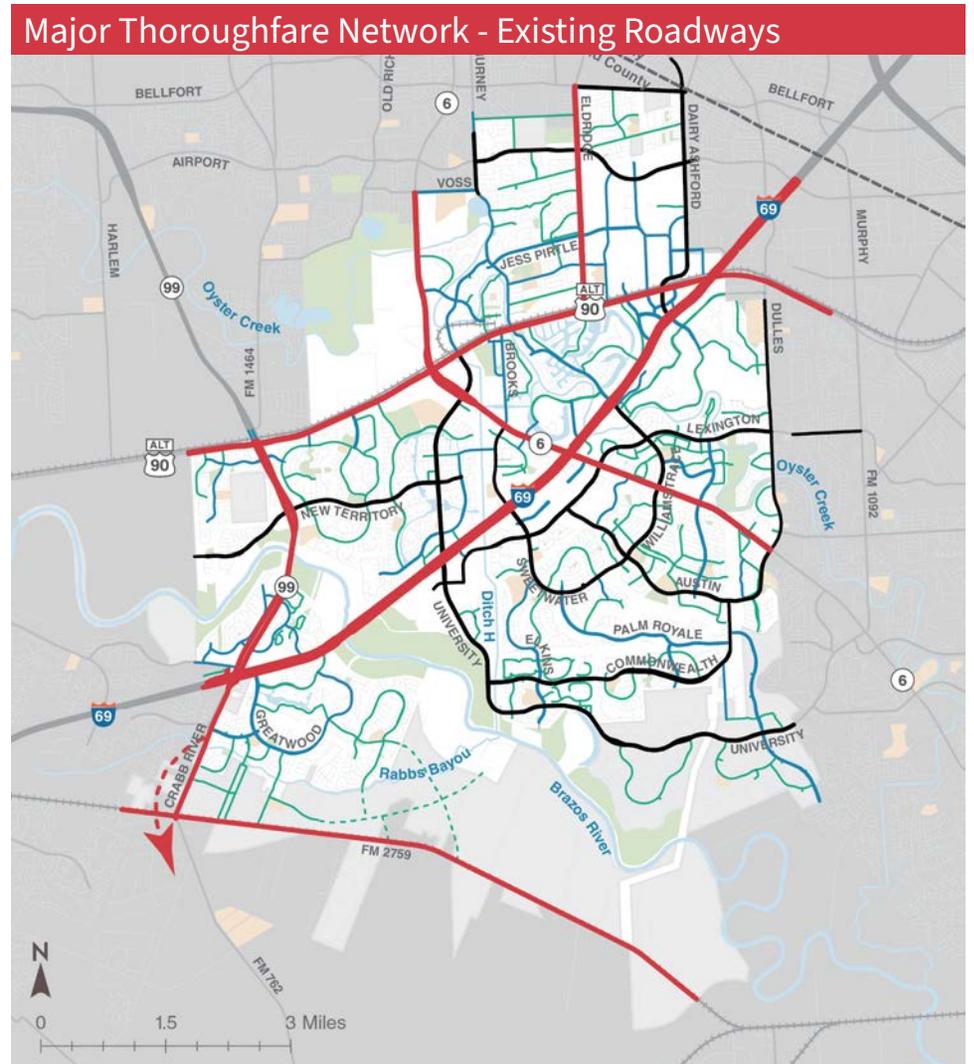
Major Thoroughfare Network

The most updated network map and corresponding table — adopted by City Council in 2019 — highlight key characteristics of major corridors in Sugar Land. In particular, the useful corridor characteristics of the Major Thoroughfare Network are:

- » **Functional Classification:** Classification is based on the ownership of the roadway, its design, vehicle volume, and context. The six functional classifications are Freeway, State Highway, Arterial, Major Collector, Minor Collector, and Other.
- » **Right-of-way (ROW) needs:** Each corridor of the network has corresponding recommended ROW needs. Some corridors require no additional ROW to meet expected demand while others are proposed to be widened. By defining ROW needs, this network allows the City to acquire ROW along a corridor as part of private development processes and future roadway projects.
- » **Alignment of new roadways:** Primarily within the City’s extraterritorial jurisdiction (ETJ), the network highlights proposed alignment of new roadways. This is a critical input into developments of large parcels and areas as future roadway networks get built out.

This network map and table will continue to provide useful information for mobility decision moving forward. For that reason, the Major Thoroughfare Network should be maintained as a living document. For the purposes of mobility decision making, the Major Thoroughfare Network is a tool for both the City and private developers to understand key characteristics of a roadway and gauge ROW needs. It is a forward-looking tool to ensure continuous development of a functional roadway network that meets the City’s mobility objectives of efficiently and safely moving people and goods.

The Major Thoroughfare Network should be reviewed yearly with regular network updates adopted by City Council (**Action Item B.3**).



Major Thoroughfare Network Functional Classifications

Source: City of Sugar Land 2019

Functional Classification (Existing Roadways)		Functional Classification (Proposed)	
■ Freeway/State-Owned	■ Major Collector	■ Proposed Freeway/State-Owned	■ Proposed Minor Collector
■ Arterial	■ Minor Collector		
	■ Other		

Major Thoroughfare Network

Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
SH 6	Bissonnet	0.3 mi north of US 90A	Existing	State	P6D	55	TxDOT	n/a	130	130	No change
SH 6	0.3 mi north of US 90A	Ditch H	Existing	State	P6D	55	TxDOT	n/a	130	130	No change
SH 6	Ditch H	IH-69/US 59	Existing	State	P6D	45	TxDOT	n/a	130	150	ROW change
SH 6	IH-69/US 59	Lexington Boulevard	Existing	State	P6D	45	TxDOT	n/a	130	150	ROW change
SH 6	Lexington Boulevard	0.4 mi east of Settlers Way	Existing	State	P6D	45	TxDOT	n/a	130	130	No change
SH 6	0.4 mi east of Settlers Way	ETJ	Existing	State	P6D	45	TxDOT	n/a	130	130	No change
SW Freeway	East Corporate Limit	0.5 miles East of SH 99	Existing	State	F10D	70	TxDOT	n/a			
SW Freeway	0.5 miles East of SH 99	SH 99 (West ETJ Limit)	Existing	State	F10D	70	TxDOT	n/a			
SW Freeway Frontage Road	SH 99	Kirkwood Drive	Existing	State	P6D	50	TxDOT	n/a	130	130	No change
US 90A	East Corporate Limit	Parkland Boulevard	Existing	State	P6D	50	TxDOT	n/a	130	130	No change
US 90A	Parkland Boulevard	SH 6	Existing	State	P8D	45	TxDOT	n/a	150	150	No change
US 90A	SH 6	West ETJ Limit	Existing	State	R4D	60	TxDOT	n/a		150	ROW change
Grand Parkway	US 90A	IH-69/US 59	Existing	State	R4D	60	TxDOT	n/a			ROW change
Aberdeen Drive	Commonwealth Drive	Hillswick Drive	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Acacia Drive	Austin Parkway	Felicia Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Addison Avenue	Telfair Avenue	IH-69/US 59	Proposed	Minor Collector			n/a	n/a		80	
Alcorn Oaks Drive	Elkins Rd	Felicia Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Alcorn Bayou Drive	Sweetwater Boulevard	Alcorn Hill Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
W Alkire Lake Drive	Horseshoe Drive	Alkire Lake Drive	Existing	Minor Collector	R2U	30	n/a	n/a	50		No change
Alkire Lake Drive	W Alkire Lake Drive	US 90A	Existing	Minor Collector	R2U	30	n/a	n/a	50		No change
Alston Rd	Airport Blvd	Dairy Ashford Road	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Arundel Crossing Drive	Berkshire Ridge Drive	E Riverpark Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Austin Parkway	Lexington Boulevard	1500 feet East of Lexington Boulevard	Existing	Arterial	C4D	35	On-Street	8	80	80	No change
Austin Parkway	1500 feet East of Lexington Boulevard	Commonwealth Boulevard	Existing	Arterial	C4D	35	On-Street	8	80	80	No change
Austin Parkway	Commonwealth Boulevard	Dulles Avenue	Existing	Arterial	C4D	35	On-Street	3	80	80	No change
Austins Place	Ferry Crossing Landing	1st Crossing Blvd	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Avalon Place	Statford Gardens Drive	Regency Drive	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
W. Airport Boulevard	Burney Road	Eldridge Road	Existing	Arterial	P4D	40	On-Street	4	105	150	ROW change
W. Airport Boulevard	Eldridge Road	Dairy Ashford Road	Existing	Arterial	P4D	40	On-Street	4	105	150	ROW change
Azalea Trail Ln	Elkins Rd	April Run Ct	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Azalea Trail Ln	April Run Ct	East of April Run Ct	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Barrington Place	Belfort Road	Alston Road	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Bay View Drive	Oyster Creek Drive	Sugar Lakes Drive	Existing	Major Collector	C4D	30	On-Street	6	80	80	No change
Belfort Avenue	Eldridge Road	Dairy Ashford	Existing	Arterial	P4D	35	n/a	n/a	105	130	ROW change
Bent Tree Drive	Wildacre Drive	Sansbury Blvd	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change

Major Thoroughfare Network

Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
Berenger Place	Turning Leaf Lane	Waterford Pointe Circle	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Berkshire Ridge Drive	140ft south of Sand River Ct	Canyon Crest Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Bournewood Drive	Eldridge Road	Ravenscourt Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Bournewood Drive	Ravenscourt Drive	7th Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Brazos Ridge Drive	300ft south of River Crossing	Bridge Hampton Way	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Briarwood	Briar bend Drive	Sansbury Blvd	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Briarstone Lane	Meadow Landing Ln	End of Road	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Briarwood Drive	Commonwealth Drive	Pendelton Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50		
Bridge Hampton Way	Brazos Ridge Drive	300ft south of River Crossing	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Broadmoor Drive	Dulles Blvd	Longview Drive	Existing	Minor Collector	C4D	30	On-Street	2	80	80	No change
Broadmoor Drive	Longview Drive	Fairway Drive	Existing	Minor Collector	L2U	30	On-Street	2	50	50	No change
Brooks Street	SH 6	700 feet North of SH 6	Existing	Major Collector	C4D	40	On-Street	7	80	80	No change
Brooks Street	700 feet North of SH 6	Matlage Way	Existing	Major Collector	R2U-M	35	On-Street	7			
Brooks Street	Matlage Way	Guenther Street	Existing	Major Collector	C4U	35	On-Street	7	70		
Brooks Street	Guenther Street	US 90A	Existing	Major Collector	C4U	35	On-Street	7	70		
Burney Road	Old Richmond	Airport Boulevard	Existing	Arterial	R2U	45	On-Street	6	50	90	ROW change
Burney Road	Airport Boulevard	Voss Rd	Existing	Arterial	R2U	45	On-Street	6	50	90	ROW change
Burney Road	Voss Rd	Gannoway Lake Dr	Existing	Major Collector	C2U-B	35	On-Street	6	60	60	No change
Burney Road	Gannoway Lake Dr	Vinehill Drive	Existing	Major Collector	C2U-B	35	On-Street	6	60	60	No change
Burney Road	Vinehill Drive	Jess Pirtle	Existing	Major Collector	C2U-B	35	On-Street	6	60	60	No change
Burney Road	Jess Pirtle	Oyster Creek	Existing	Major Collector	C2U-B	30	On-Street	6	60	60	No change
Burney Road	Oyster Creek	7th Street	Existing	Major Collector	C2U-B	30	On-Street	6	60	60	No change
Cabrera Drive	Scenic Rivers Dr	LJ Pkwy	Existing	Minor Collector	R2U	30	n/a	n/a	50	60	ROW change
Cabrera Drive	LJ Pkwy	University Blvd	Proposed	Minor Collector			n/a	n/a		60	ROW change
Camelot Place	360ft south Madeleine Ct	Oyster Point Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Campwood Drive	Coopers Post Ln	Long Reach Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Canyon Crest Drive	Berkshire Ridge Drive	140ft south of Sand River Ct	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Cardinal Meadow Drive	Dairy Ashford Road	.33miles west Dairy Ashford Road	Existng	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Cartwright Rd	Dulles Ave	Magnolia Ln	Existing	Minor Collector	C4D	35	n/a	n/a	80	80	No change
Century Square Boulevard	US 90A	Sugar Creek Center	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Chatham Ave	Telfair Ave	New Territory Boulevard	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Chatham Ave	New Territory Boulevard	Easton Ave	Proposed	Minor Collector	C2U	30	On-Street	15	60	60	No change
Chatham Ave	Easton Ave	University Blvd	Proposed	Minor Collector	L2U	30	On-Street	15	50	50	No change
Chatham Ave	University Blvd	Ehrhardt Ln	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Circle Drive	John Sharpe Road/Owens Road	US 90A	Existing	Other		30	On-Street	14			

Major Thoroughfare Network

Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
Clawson Falls Ln	River Lodge Ln	Canyon Brook Ct	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Colony Lakes Drive	1st Colony Blvd	180ft east of Gray Birch Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Colony Meadow Drive	Sweetwater Boulevard	Meadow Green Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Country Club Blvd	Dulles Blvd	150ft north of Montclair Blvd	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Country Club Blvd	150ft north of Montclair Blvd	Southwestern Blvd	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Country Club Blvd	Southwestern Blvd	Sugar Creek Blvd	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Country Club Blvd	Sugar Creek Blvd	Locke Lane	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Crabb River Road	IH-69/US 59	Rabbs Bayou	Existing	State	R2	45	n/a	n/a	50		
Crabb River Road	Rabbs Bayou	FM 2759	Existing	State	R2	45	n/a	n/a	50	80	ROW change
Creekbend Drive	Fluor Daniel Drive	Lake Pointe Parkway	Existing	Minor Collector	C4U	30	n/a	n/a	70	70	No change
Creekbend Drive	Lake Pointe Parkway	Sugar Lakes Drive	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Creekshire Drive	Pecan Point Drive	Honey Creek Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Crown Garden Trail	SH 6	Imperial Boulevard	Existing	Minor Collector		30	On-Street	13			No Change
First Crossing Blvd	Ferry Crossing Landing	SH 6	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Colonist Park Drive	Edgewater Drive	320ft north of Deer Creek Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Colony Park Drive	W Autumn Run Cir	Sweetwater Blvd	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Commerce Green Boulevard	Southwest Fwy	US 90A	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Commonwealth Boulevard	Austin Parkway	0.1 mi S of Palm Royale Boulevard	Existing	Arterial	C4D	40	On-Street	11	80	80	No change
Commonwealth Boulevard	0.1 mi S of Palm Royale Boulevard	University Boulevard	Existing	Arterial	C4D	35	On-Street	11	80	80	No change
Cunningham Creek Boulevard	Foxbush Lane	Sandhill Drive	Existing	Major Collector	C2U	30	n/a	n/a	60	60	ROW change
Cunningham Creek Boulevard	Sandhill Drive	US 90A	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Dairy Ashford Road	Bellfort	Julie Rivers Road	Existing	Arterial	P4D	35	On-Street	2	105	100	No change
Dairy Ashford Road	Julie Rivers Road	US 90A	Existing	Arterial	P4D	35	On-Street	2	105	130	ROW change
Dairy Ashford Road	US 90A	IH-69/US 59	Existing	State	P4D	35	On-Street	2	105	100	No change
David Searless Blvd	Sugar Creek Blvd	Country Club Blvd	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	ROW change
David Searless Blvd	Country Club Blvd	Southwest Fwy	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Dawnington Place	Cul-de-sac	Pineridge Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Deerbourne Chase Drive	West of Dynasty Place	Dawnington Place	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Drake Elm Drive	Scarlet Maple Drive	Elis Creek Blvd	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Dulles Avenue	US 90A	Dulles Elementary School	Existing	Arterial	P4D	40	On-Street	3	105	100	No change
Dulles Avenue	Dulles Elementary School	Avenue E	Existing	Arterial	C4U	40	On-Street	3	70	100	ROW change
Dulles Avenue	Avenue E	SH 6	Existing	Arterial	P4D	40	On-Street	3	105	100	No change
Dynasty Place	Deerbourne Chase Drive	Commonwealth Blvd	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Easton Ave	US 90A	Chatham Ave	Existing	Minor Collector	C4U	30	n/a	n/a	70	70	No change

Major Thoroughfare Network

Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
Eldridge Road	Belfort Avenue	Jess Pirtle	Existing	State	P4D	45	On-Street	1	105	100	No change
Eldridge Road	Jess Pirtle	US 90A	Existing	State	P4D	40	On-Street	1	105	100	No change
Edgewater Drive	Williams Trace Blvd	Settlers Way Blvd	Existing	Major Collector	C4D	35	n/a	n/a	80	80	No change
Elkins Road	Alcorn Hill Drive	Sweetwater Blvd	Existing	Major Collector	L2U	35	n/a		50	50	No change
Elkins Road	Sweetwater Blvd	Oakland Drive	Existing	Major Collector	C4U	35	On-Street	10	70	60	No change
Elkins Road	Oakland Drive	Colony Crossing Drive	Existing	Major Collector	C2U-B	35	On-Street	10	60	60	No change
Elkins Road	Colony Crossing Drive	Alcorn Oaks Drive	Existing	Major Collector	C2U-B	35	On-Street	10	60	60	No change
Elkins Road	Alcorn Oaks Drive	University Boulevard	Existing	Major Collector	C4D	35	On-Street	10	80	80	No change
Elkins Road	Alcorn Oaks Drive	Saber River	Existing	Major Collector	C4D	35	n/a		80	80	No change
Fairway Drive	Broadmoor Drive	Sugar Creek Blvd	Existing	Minor Collector	L2U	30	On-Street	2	50	50	No change
Ferry Crossing Landing	Williams Trace Blvd	Austins Place	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Festival Boulevard	IH-69/US 59	End of existing Boulevard section	Existing	Other		30	On-Street	12			No change
Festival Boulevard	End of existing Boulevard section	University Boulevard	Proposed	Other			On-Street	12			No change
First Colony Boulevard	SH 6	Creek	Existing	Arterial	P4D	40	On-Street	7	105	100	No change
First Colony Boulevard	Creek	IH-69/US 59	Existing	Arterial	P4D	40	On-Street	7	105	100	No change
Florence Road	Eldridge Road	Burney Road	Existing	Minor Collector	R2U	30	n/a	n/a	50	60	ROW change
Fluor Daniel Drive	Soldiers Field Drive	SH 6	Existing	Major Collector	C4U	35	n/a	n/a	70	80	ROW change
Fluor Daniel Drive	SH 6	Creekbend Drive	Existing	Major Collector	C4D	30	n/a	n/a	80	90	ROW change
FM 2759	Crabb River Road	East ETJ Limit	Existing	State	R2U	50	n/a	n/a	50	130	ROW change
Frost Pass	SH 6	Merriweather St	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Frost Pass	Merriweather St	Tarlton Way	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Gaelic Hill Lane	Pipers Walk	Inverrary Ln	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Garden Hills Drive	Weatherstone Cir	Kings Pass	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Gillingham Lane	Airport Boulevard	Jess Pirtle Boulevard	Existing	Major Collector	C2U	40	n/a	n/a	60	60	No Change
Gillingham Lane	Jess Pirtle Boulevard	7th Street	Existing	Major Collector	C2U	30	n/a	n/a	60	60	No Change
Gillingham Lane	7th Street	US 90A	Existing	Major Collector	R2U	30	n/a	n/a	50	60	ROW change
Grants Lake Boulevard	SH 6	Austin Pkwy	Existing	Major Collector	C2U	30	n/a	n/a	60	60	No Change
Gray Birch Drive	Colony Lakes Drive	280ft south of Great Oak Ln	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Great Lakes Avenue	Lakefield Way	Lakefield Boulevard	Existing	Major Collector	L2U	30	n/a	n/a	50	50	No change
Great Oak Ln	Red Bud Ln	Soldiers Field Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Greatwood Glen Drive	Greatwood Pkwy	Tara Blvd	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Greatwood Lake Drive	Greatwood Pkwy	Shadow Bend Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Greatwood Parkway	IH-69/US 59	Forrest Woods	Existing	Major Collector	C4D	35	On-Street	16	80	80	No Change
Greatwood Parkway	Forrest Woods	Riverbrook Drive	Existing	Major Collector	C2U	35	On-Street	16	60	60	No Change

Major Thoroughfare Network

Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
Green Fields Drive	River Branch Drive	Settlers Way Boulevard	Existing	Minor Collector	L2U	30	n/a	n/a	50		
Green Fields Drive	Settlers Way Boulevard	Flintrock Lane	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Greenway Drive	Eldridge Road	150ft West of Hanbury Ct	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Greystone Way	April Meadow Way	.08 east of Greystone Court	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Greystone Way	.08 east of Greystone Court	Sweetwater Boulevard	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Greywood Drive	Pincroft Drive	Eldridge Road	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Guenther Street	Ulrich Street	Brooks Street	Existing	Major Collector	C2U	30	n/a	n/a	60	60	No change
Guenther Street	Brooks Street	Venice Street	Existing	Minor Collector	L2U	31	n/a	n/a	50	50	No change
N. Hall Drive	Ken Hall Blvd	Venice Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Harmon Street	Burney Road	E Park Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Hickory Run Drive	West Autumn Run Circle	Austin Pkwy	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Hickory Run Drive	Austin Pkwy	Planters Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
High Meadows Drive	US 90A	Sandhill Drive	Existing	Major Collector	C2U	30	n/a	n/a	60	60	No change
High Meadows Drive	Sandhill Drive	Harwood Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
High Meadows Drive	Harwood Drive	Crestridge Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Homeward Way			Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Honey Creek Drive	Settlers Way Blvd	Creekshire Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Horseshoe Drive	Sandpiper Drive	Meadowlark Lane	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Horseshoe Drive	Meadowlark Lane	W Alkire Lake Drive	Existing	Minor Collector	R2U	30	n/a	n/a	50	50	No change
Imperial Boulevard	SH 6	Stadium Drive	Existing	Major Collector	C4D-P	30	On-Street	13	90	90	No change
Imperial Boulevard	Stadium Drive	Ulrich Street	Existing	Major Collector	C4D-P	30	On-Street	13	90	90	ROW change
Indigo River Lane	Ransom Road	Misty Park Lane	Existing	Major Collector	C2U	30	n/a	n/a	60	60	No change
Industrial Road	US 90A	Reed Road	Existing	Major Collector	R2U	35	n/a	n/a	50	50	No change
Industrial Road	Reed Road	Jess Pirtle Boulevard	Existing	Major Collector	L2U	35	On-Street	5	50	50	No change
Industrial Road	Jess Pirtle Boulevard	Technology Drive	Existing	Major Collector	L2U	35	n/a	n/a	50	50	No change
Insurance Drive	FM 2759 Rd	1.45 miles north of FM 2759 Rd	Existing	Minor Collector	R2U	30	n/a	n/a	50	50	No change
Inverrary Lane	Palm Royale Boulevard	Pipers Walk	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	ROW change
Jess Pirtle Boulevard	Burney Road	Eldridge Road	Existing	Major Collector	C4D	35	On-Street	5	80	80	No change
Jess Pirtle Boulevard	Eldridge Road	Industrial Boulevard	Existing	Major Collector	C4D	36	On-Street	5	80	80	No change
Julie Rivers Drive	Reed Road	Corporate Drive	Existing	Major Collector	C2U	35	n/a	n/a	60	60	ROW change
Julie Rivers Drive	Corporate Drive	Dairy Ashford Drive	Existing	Major Collector	C4D	35	n/a	n/a	80	80	No change
Ken Hall Blvd	Brooks Street	Hall Drive	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Kings Pass	Garden Hills Drive	Old Windsor Way	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Knights Bridge Boulevard	Palm Royale Blvd	Hessenford Street	Existing	Major Collector	C4D	35	n/a	n/a	80	80	No change
Knights Bridge Boulevard	Hessenford Street	Commonwealth Blvd	Existing	Major Collector	C4D	35	n/a	n/a	80	80	No change

Major Thoroughfare Network

Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
Knights Bridge Boulevard	Commonwealth Blvd	St. Ives Street	Existing	Major Collector	L2U	30	n/a	n/a	50	50	No change
Knoll Forest Drive	Sansbury Blvd	Knoll Park Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50		
Lake Pointe Parkway	IH-69/US 59	Creekbend Drive	Existing	Major Collector	C4D-P	30	n/a	n/a	90	90	No change
Lakefield Way	Sunshine Drive	Lakefield Boulevard	Existing	Major Collector	L2U	30	n/a	n/a	50	50	No change
Lakefield Boulevard	Lakefield Way	Bermuda Drive	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Lakefield Boulevard	Bermuda Drive	Balboa Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Lake Riverstone Dr	LJ Pkwy	.19miles west of LJ Pkwy	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Lakeview Drive	Eldridge Road	Main Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Lakeview Drive	Eldridge Road	Macco Blvd	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Lexington Boulevard	University Boulevard	Oxbow Drive	Proposed	Arterial	C4U-P		On-Street	9	80	80	No change
Lexington Boulevard	Oxbow Drive	Sweetwater Boulevard	Existing	Arterial	P4D	30	On-Street	9	105	100	No change
Lexington Boulevard	Sweetwater Boulevard	SH 6	Existing	Arterial	P6D	40	On-Street	9	130	130	No change
Lexington Boulevard	SH 6	Williams Trace Boulevard	Existing	Arterial	P4D	40	On-Street	9	105	100	No change
Lexington Boulevard	Williams Trace Boulevard	300 ft East of Settlers Way	Existing	Arterial	P4D	35	On-Street	9	105	100	No change
Lexington Boulevard	300 ft East of Settlers Way	Dulles Avenue	Existing	Arterial	P4D	40	On-Street	9	105	100	No change
LJ Parkway	Commonwealth Blvd	Manor Drive	Proposed	Arterial	C4D		n/a	n/a	80	80	No change
LJ Parkway	Manor Drive	ETJ	Existing	Arterial	C4D	30	n/a	n/a	80	80	No change
Lombardy Drive	US 90A	Bel Mar	Existing	Minor Collector	R2U	30	n/a	n/a	50		
Lombardy Drive	Bel Mar	Savoy Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Long Reach Drive	Lexington Blvd	Campwood Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Long Reach Drive	Rivercrest Drive	Lexington Blvd	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Longview Drive	Country Club Blvd	430ft west of Merrick Drive	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Longview Drive	430ft west of Merrick Drive	305ft south of Bainbridge Ct	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Lost Creek Blvd	Settlers Way Blvd	Creekshire Drive	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Lost Creek Blvd	Creekshire Drive	East of Creekshire Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	60	ROW change
Macek Road	FM 2759	Rabbs Crossing	Existing	Major Collector	R2U	30	n/a	n/a	50	60	ROW change
Macek Road	Rabbs Crossing	1650' east of Rabbs Crossing	Existing	Minor Collector	R2U	30	n/a	n/a	50	60	ROW change
Macek Road	1650' east of Rabbs Crossing	1750' east to dirt road	Existing	Minor Collector	R2U	30	n/a	n/a	50	60	ROW change
Macek Road	1750' east to dirt road	East of Shadow Bend Drive	Proposed	Minor Collector			n/a	n/a		60	
Main Street	7th Street	US 90A	Existing	Major Collector	C2U	30	On-Street	6	60		
Mall Ring Road	IH-69/US 59	Lexington Boulevard	Existing	Other			On-Street	25			
Market Place Street	Parkland Boulevard	IH-69/US 59	Existing	Major Collector	C4D	30	n/a	n/a	80	80	
Mason Street	Airport Blvd	Florence Road	Existing	Minor Collector	R2U	30	n/a	n/a	50	60	ROW change
Matlage Way	Guenther Street	.3 miles south of Guenther St	Existing	Major Collector	C2U	30	n/a	n/a	60	60	No change
Meadow Landing Court	Meadow Landing Lane	End of Road	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change

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Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
Meadow Landing Lane	Ravenwood Drive	Briarstone Lane	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Meadowcroft Boulevard	University Blvd	240ft east of Reinhart Ave	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Meadowcroft Boulevard	240ft east of Reinhart Ave	Wescott Ave	Existing	Major Collector	C4U	30	n/a	n/a	70	70	No change
Meadowcroft Boulevard	Wescott Ave	First Colony	Proposed	Major Collector			n/a	n/a		70	
Mesquite Drive	Jenny Drive	1/4 mi. north of Austin Parkway	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Mesquite Drive	1/4 mi. north of Austin Parkway	800' south of Austin Parkway	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Mesquite Drive	800' south of Austin Parkway	Acadia Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Monarch Drive	Springbrook Ct	Briar Ct	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Monarch Drive	Briar Ct	.09miles north of Cameray Pass	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Monarch Drive	.09miles north of Cameray Pass	Commonwealth Blvd	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Nantucket Drive	Eldridge Road	End of Road	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	ROW change
New Territory Boulevard	Jillian Lane	800 ft West of Chatham Avenue	Existing	Arterial	P4D	35	On-Street	15	105	100	No change
New Territory Boulevard	800 ft West of Chatham Avenue	University Boulevard	Existing	Arterial	P4D	35	On-Street	15	105	100	No change
New Territory Boulevard	University Boulevard	Wescott Avenue	Existing	Arterial	P4D	35	n/a	n/a	105	100	No change
Old Windsor Way	Regency Drive	Kings Pass	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Owens Road/John Sharp Road	Houston ETJ	US 90A	Proposed	Arterial			On-Street	14		100	
Oyster Point Drive	100ft south of Pecan Point Drive	Lexington Blvd	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Oyster Point Drive	Lexington Blvd	Camelot Pl	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Oyster Point Drive	Camelot Pl	360ft south of Madeleine Ct	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Palm Royale Boulevard	Springhill Lane	Sweetwater Boulevard	Existing	Major Collector	L2U	30	n/a	n/a	50	50	No change
Palm Royale Boulevard	Sweetwater Boulevard	Commonwealth Boulevard	Existing	Major Collector	C4D	40	n/a	n/a	80	80	No change
Parkland Boulevard	US 90A	Century Square Blvd	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Pecan Orchard Blvd	Homeward Way	Orchard Falls Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Pecan Point Drive	The Highlands Drive	Creekshire Dr	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Pendleton Drive	Brianwood Drive	S. Hampton Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Pinecroft Drive	Greywood Drive	Barrowgate Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Pineridge Drive	Turning Leaf Ln	Dawnington Pl	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Pineleaf Drive	Trail Creek Drive	Williams Trace Blvd	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Plantation Bend Drive	Randall Oaks Drive	Dulles Avenue	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Plantation Colony Drive	Dulles Ave	215ft east of Brigade Ct	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Planters Street	Randons Bell Drive	Pecan Ridge Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Ragus Lake Drive	Burney Road	170ft east of Vickery Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Ragus Lake Drive	170ft east of Vickery Drive	115ft east of Jo Ann Ln	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Reed Road	Jess Pirtle Boulevard	Julie Rivers Drive	Existing	Major Collector	C2U	35	On-Street	5	60	60	No change

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Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
Rabbs Crossing	Macek Road	Greatwood Parkway	Existing	Major Collector	L2U	30	n/a	n/a	50	50	No change
Rabbs Crossing	FM 2759	Macek Road	Proposed	Major Collector			n/a	n/a		60	
Randall Oak Drive	Dulles Ave	Plantation Bend Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Ransom Road	SH 99	Hudson Oaks Lane	Existing	Major Collector	R2U	35	n/a	n/a	50	50	ROW change
Ransom Road	Hudson Oaks Lane	Naple Hollow Lane	Existing	Major Collector	L2U	35	n/a	n/a	50	50	No change
Ravenwood Drive	Dawningtown Place	Meadow Landing Ln	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Regency Drive	Avalon Place	Cul-de-sac	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Riverbrook Drive	Greatwood Pkwy	Fielding Drive	Existing	Minor Collector	C4D	35	On-Street	16	80	80	No Change
Riverbrook Drive	Fielding Drive	IH-69/US 59	Existing	Minor Collector	C4U	35	On-Street	16	70	70	No Change
Rivercrest Drive	Long Reach Drive	Lexington Blvd	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Riverstone Connector	University Boulevard	Brazos River	Proposed	Minor Collector			n/a	n/a		60	
Riverstone Loop	University Boulevard	University Boulevard	Proposed	Minor Collector			n/a	n/a		60	
River Crossing	Bridge Hampton Way	E Riverpark Drive	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
River Lodge Ln	Clawson Falls Ln	200ft north of Summit Creek	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
E. Riverpark Drive	SH 99 (S)	SH 99 (N)	Existing	Major Collector	C2U	35	n/a	n/a	60	60	No change
Three Rivers Drive	Dulles Ave	West of Sugar Crossing Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Royal Lakes Boulevard	FM 2759	Corbridge Drive	Existing	Minor Collector	R2U	30	n/a	n/a	50	50	No change
7th Street	Main Street	Eldridge Road	Existing	Major Collector	C2U	30	n/a	n/a	60	60	No change
Sand Hill Drive	Cunningham Creek Boulevard	Homeward Way	Existing	Major Collector	L2U	35	n/a	n/a	50	50	No change
Sand Hill Drive	Homeward Way	Winston Lane	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Sandpiper Drive	Sugar Lake Drive	Horseshoe Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Sam Houston Drive	Mesquite Drive	Garden Lane	Existing	Minor Collector	L2U	30	n/a	n/a	50		
Sansbury Boulevard	Crabb River Road	Greatwood Parkway	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Sansbury Boulevard	Greatwood Parkway	Greatwood Trails Drive	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Saint Andrews Lane	Inverrary Lane	Sweetwater Blvd	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Savoy Street	US 90A	Lombardy Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Scarlet Maple Drive	Drake Elm Drive	Homeward Way	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Scenic Rivers Drive	Commonwealth Boulevard	Cabera Drive	Existing	Major Collector	R2U	30	n/a	n/a	50	80	ROW change
Schlumberger Drive	US 90A	.13 miles north of Pierre Schlumberger	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Settlers Way Boulevard	Lexington Boulevard	SH 6	Existing	Major Collector	C4D	35	n/a	n/a	80	80	No change
Settlers Way Boulevard	SH 6	Austin Parkway	Existing	Major Collector	C4D	35	n/a	n/a	80	80	No change

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Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
Shadow Bend Drive	Greatwood Lake Drive	Forest Gate Drive	Existing	Major Collector	L2U	30	n/a	n/a	50	50	No change
Shadow Bend Drive	Forest Gate Drive	Charleston Estates Dr	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Shadow Bend Drive	Charleston Estates Dr	End of Road	Existing	Major Collector	C4U	30	n/a	n/a	70	70	No change
Shadow Bend Drive	End of Road	FM 2759	Proposed	Major Collector	C4U		n/a	n/a	70	80	ROW change
Shenandoah Drive	Tara Park Drive	Stonewall Ridge Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Soldiers Field Drive	Soldiers Field Ct	First Colony Boulevard	Existing	Minor Collector	C4U	30	n/a	n/a	70	70	No change
Soldiers Field Drive	First Colony Boulevard	Fluor Daniels Drive	Existing	Minor Collector	C4U	30	On-Street	25	70	70	No Change
Soldiers Field Drive	Fluor Daniels Drive	Great Oak Land	Existing	Minor Collector	C2U	30	On-Street	25	60	60	No Change
South Study Collector "A"	Macek Road	FM 2759	Proposed	Minor Collector			n/a	n/a		60	
South Study Collector "B"	Macek Road	FM 2759	Proposed	Minor Collector			n/a	n/a		60	
Stadium Drive	Burney Road	Imperial Boulevard	Existing	Major Collector	C4D-P	45	On-Street	13	90	90	No Change
Stadium Drive	Imperial Boulevard	Oyster Creek	Existing	Major Collector	C4D-P	45	On-Street	13	90	90	No Change
S. Stadium Drive	Oyster Creek	US90A	Existing	Major Collector	C4D-P	45	On-Street	13	90	90	No Change
Stratford Gardens Drive	Weatherstone Cir	Alvalon Place	Existing	Minor Collector	L2U	30	n/a	n/a	50		
Stephens Grant Drive	Austin Parkway	Sweetwater Boulevard	Existing	Major Collector	L2U	30	n/a	n/a	50	50	No change
St. Michael's Court	S. Hampton Street	Bratton St	Existing	Major Collector	L2U	30	n/a	n/a	50	50	No change
Sugar Creek Boulevard	Locke Lane	Fairway Drive	Existing	Minor Collector	L2U	30	n/a		50	50	No change
Sugar Creek Boulevard	Fairway Drive	Frontage Road	Existing	Major Collector	C4D	30	On-Street	2	80	80	No change
Sugar Creek Center Boulevard	Commerce Green Boulevard	IH-69/US 59	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Sugar Lakes Drive	Bay View Drive	Creek Bend Drive	Existing	Minor Collector	C4D	30	On-Street	6	80	80	No change
Sugar Lakes Drive	Creek Bend Drive	IH-69/US 59	Existing	Minor Collector	C4D	35	On-Street	6	80	80	No change
Summit Creek	Southwest Freeway	East Riverpark Drive	Existing	Major Collector	L2U	30	n/a	n/a	50	50	No change
Sunshine Drive	Lakefield Way	440ft west of Frost Pass	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Sweetwater Boulevard	Austin Parkway	Lexington Boulevard	Existing	Arterial	C4D	35	OnStreet	7	80	80	No change
Sweetwater Boulevard	Lexington Boulevard	IH-69/US 59	Existing	Arterial	P6D	40	OnStreet	7	130	130	No change
Tara Blvd	Sansbury Blvd	Knoll Crest Ct	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Tara Blvd	Knoll Crest Ct	Tara Park Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Tara Drive	Shenandoah Drive	Crabb River Rd	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Tara Park Drive	Shenandoah Drive	Tara Plantation Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Tara Plantation Drive	Tara Park Drive	FM 2759 Rd	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Telfair Avenue	University Blvd	Ralston Branch Way	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Telfair Connection "A"	Wescott Avenue	IH-69/US 59	Proposed	Minor Collector			n/a	n/a		80	
Telfair Connection "B"	Lexington	IH-69/US 59	Proposed	Minor Collector			n/a	n/a		80	

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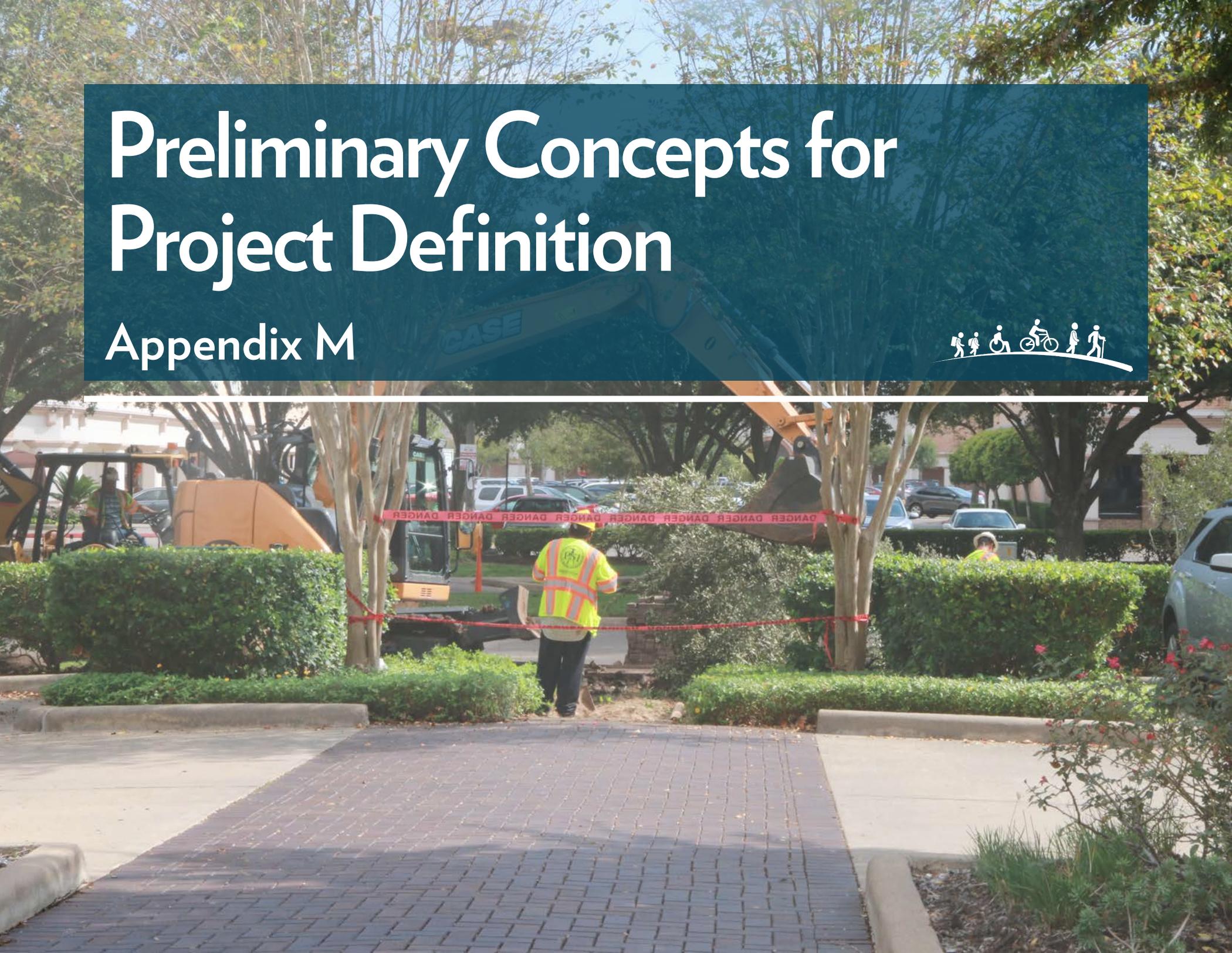
Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
The Highlands Drive	Campwood Drive	Vinces Bridge Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
N. Town Center Boulevard	SH 6	Mall Ring Road	Existing	Major Collector	P6D	35	n/a	n/a	130	130	No change
S. Town Center Boulevard	Mall Ring Road	Sweetwater Boulevard	Existing	Major Collector	C4D	35	n/a	n/a	80	80	No change
Trail Creek Drive	Williams Grant	Pinleaf Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	60	ROW change
Trent Street	Greenlaw Street	Burwick Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	60	ROW change
Trent Street	Burwick Street	Castlewood Street	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change
Turning Leaf Lane	Pineridge Drive	Fenwick Way Ct	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Ulrich Street	Avenue F	Guyer Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Ulrich Street	Guyer Street	US 90A	Existing	Major Collector	C2U	30	n/a	n/a	60	60	No change
Ulrich Street	US 90A	Guenther Street	Existing	Major Collector	C2U	30	n/a	n/a	60		
University Boulevard	US 90A	Ditch H	Existing	Arterial	P4D	35	On-Street	13	105	130	ROW change
University Boulevard	Ditch H	SH 6	Existing	Arterial	P4D	35	On-Street	13	105	130	ROW change
University Boulevard	SH 6	New Territory Boulevard	Existing	Arterial	P4D	35	On-Street	13	105	130	ROW change
University Boulevard	New Territory Boulevard	IH-69/US 59	Existing	Arterial	P4D	35	On-Street	12	105	130	ROW change
University Boulevard	IH-69/US 59	Commonwealth Boulevard	Existing	Arterial	P4D	45	On-Street	12	105	130	ROW change
University Boulevard	Commonwealth Boulevard	Old River Trail	Existing	Arterial	P4D	45	On-Street	12	105	100	No Change
University Boulevard	Old River Trail	Missouri City	Existing	Arterial	P4D	40	On-Street	12	105	100	No Change
Vinces Bridge Street	Pecan Point Drive	The Highlands Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Vinehill Drive	Burney Road	Woodchester Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Venice Street	N Hall Drive	Borden Street	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Venice Street	Borden Street	Brooks	Existing	Minor Collector	R2U	30	n/a	n/a	50	50	No change
Voss Road	SH 6	Kempner High School	Existing	Major Collector	C4D	35	n/a	n/a	80	80	No change
Voss Road	Kempner High School	Burney Road	Existing	Major Collector	C4D	35	n/a	n/a	80	80	No change
Walker School Road	Homeward Way	Homeward Way	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Waterford Pointe Circle	Berenger Place (W)	Berenger Place (R)	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Waters Way Drive	Settlers Way Blvd	Edgewater Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Weatherstone Circle	Kathie Leigh Lane	Garden Hills Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Wescott Avenue	Prestwick Avenue	New Territory Boulevard	Existing	Major Collector	C4D	30	n/a	n/a	80	80	No change
Wescott Avenue	New Territory Boulevard	University Boulevard	Proposed	Major Collector			n/a	n/a		80	
W Park Street	Harmon Street	Avenue F	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Williams Grant	West of Planters	Robinsons Ferry	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Williams Grant	Robinsons Ferry	Trail Creek	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Williams Trace Boulevard	IH-69/US 59	Oyster Creek	Existing	Arterial	P4D	35	On-Street	6	105	130	ROW change
Williams Trace Boulevard	Oyster Creek	Lexington Boulevard	Existing	Arterial	P4D	35	On-Street	6	105	130	ROW change
Williams Trace Boulevard	Lexington Boulevard	SH 6	Existing	Arterial	P4D	35	On-Street	7	105	130	ROW change
Williams Trace Boulevard	SH 6	Austin Parkway	Existing	Arterial	P4D	35	On-Street	7	105	100	No change
Winding Brook Drive	Big Bend Drive	Terrace View Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change

Major Thoroughfare Network

Facility Name	Limits		Condition Defined	Functional Class	Existing Section	Posted Speed	TMN Class	TMN Corridor ID	Existing ROW	Proposed ROW	ROW Change
	From	To									
Winding Brook Drive	Terrace View Drive	Macek Rd	Proposed	Minor Collector			n/a	n/a		60	
Winding Waters Lane	University Blvd	Lake Riverstone Drive	Proposed	Major Collector			n/a	n/a		80	
Winding Waters Lane	Lake Riverstone Drive	LJ Parkway	Existing	Major Collector	C4D		n/a	n/a	80	80	No change
Woodchester Drive	Eldridge Road	Vinehill Drive	Existing	Minor Collector	L2U	30	n/a	n/a	50	50	No change
Woodstream Boulevard	Alcorn Hill Drive	Woodsage Drive	Existing	Minor Collector	C2U	30	n/a	n/a	60	60	No change
Woodstream Boulevard	Woodsage Drive	Sweetwater Boulevard	Existing	Minor Collector	C4D	30	n/a	n/a	80	80	No change

Preliminary Concepts for Project Definition

Appendix M



Project Title	Facility	Limits	Potential Agency Coordination	Status (as of May 2023)	Potential Improvements & Preliminary Concepts	TMN Corridor	Priority Tier	Score Out of 100
Williams Trace Blvd Phase 2 Widening	Williams Trace Blvd	SBFR US 59 to North of Oyster Creek Bridge	Fort Bend County, H-GAC	Needs PER	- Widen from 4 - 6 lanes - Improvements to intersection at 59 & William Trace - Potential Triple Left - Intersection Improvements to Parkway Blvd & Williams Trace - Roadway Improvements to SB Williams Trace- potentially adding an additional right turn lane -Install 10-ft. wide sidepath on one side of street	Corridor 6C	Tier 1	34.5
Williams Trace Blvd Phase 3 Reconstruction	Williams Trace Blvd	South of Oyster Creek Bridge to SH6	Fort Bend County, H-GAC	Needs PER	- Reconstruct 4 lane divided roadway including curb and gutter, left turn lanes, inlets and manholes - Construct a triple left from SB Quarry Hill to SB SH6, will increase turn volumes for SB movement and minimize back up on Williams Trace. -Install 10-ft. wide sidepath on one side of street	Corridor 6C	Tier 1	34.5
Austin Parkway Phase 1	Austin Parkway	Lexington Blvd to Williams Trace Blvd	Fort Bend County, H-GAC	Needs PER	- Street reconstruction - Installation of a 10-ft. sidepath on one side of street	Corridor 8	Tier 1	36.5
Austin Parkway Phase 2	Austin Parkway	Williams Trace Blvd to Commonwealth Blvd	Fort Bend County, H-GAC	Needs PER	- Street reconstruction - Install 10-ft. sidepath on one side of street - Potential roundabout at Austin Pkwy & Commonwealth intersection	Corridor 8	Tier 1	36.5
Sweetwater Blvd Phase 1	Sweetwater Blvd	Austin Pkwy to Palm Royale Blvd	Fort Bend County, H-GAC	Needs PER	- Street reconstruction, install 10-ft. wide sidepath on one side of street, including connection to First Colony Trail project.	Corridor 7	Tier 1	39
Sweetwater Blvd Phase 2	Sweetwater Blvd	Palm Royale Blvd to Town Center Blvd	Fort Bend County, H-GAC	Needs PER	- Street reconstruction; install 10-ft. wide sidepath on one side of street - Install pedestrian bridge over Ditch A near Clements HS	Corridor 7	Tier 1	39
Burney Road/Main St Improvements	Burney Road	Stadium Drive to 7th Street	Fort Bend County, H-GAC, TxDOT, UPRR	Needs PER	- Potential realignment of Stadium Drive & Burney Road - Multimodal safety improvements along Burney Rd/Main St for current and anticipated traffic due to the Imperial Development	Corridor 6A	Tier 2	46
University Blvd Widening & Intersection Improvements (CST2102/CST2203)	University Blvd	From New Territory Blvd to Wentworth Ave	TxDOT, H-GAC, Fort Bend County	Design Underway	- Widen existing roadway from 4 lanes to six lanes and intersection improvements at Wescott & Branford Place.	Corridor 12A	Tier 2	46.5
Lexington Blvd Phase 2	Lexington Blvd	Austin Parkway to Oxbow Drive	Fort Bend County, H-GAC, TxDOT	Needs PER	- Street reconstruction - Install 10-ft. wide sidepath on one side of street	Corridor 9A	Tier 3	47
Dulles Avenue Pedestrian Improvements	Dulles Avenue	From Avenue E to 3 Rivers Drive	Missouri City, Fort Bend County, H-GAC, TxDOT	Needs Design	- Install 10-ft wide sidepath on one side of street and pedestrian bridge over American Canal near Riverbend Country Club. - Pedestrian midblock crossing and connection at Oyster Creek Trail. - Install pedestrian bridge over Ditch B - Dulles Ave midblock crossing connection to Missouri City Oyster Creek Trail w/pedestrian bridge over Oyster Creek	Corridor 3	Tier 2	48.5
Lexington Blvd Phase 1	Lexington Blvd	SH6 to Austin Parkway	Fort Bend County, H-GAC, TxDOT	Needs PER	- Street reconstruction - Install sidepath on one side of street - Project fulfills portion of Town Center Pedestrian Improvements	Corridor 9B	Tier 2	53.5
Soldiers Field Extension/ Roundabout @ First Colony Blvd & Brooks St Improvements (CST1901)	Soldiers Field Blvd/First Colony Blvd/Brooks Street	From Fluor Daniel Drive to SH6	N/A	Design Complete	- Extend the existing Soldiers Field roadway to SH 6 and install roundabout at the intersection of Soldiers Field and First Colony Boulevard - Project will include sidepaths, buffered bike lanes, and shared lanes. - The roadway extension will serve the future expansion of the Police and Court complex.	Corridor 7	Tier 3	67
John Sharp (Owens Rd) Trail	John Sharp Road	US 90A to Cullinan Park	TxDOT, H-GAC, Fort Bend County	Design Underway	- Approx. 1.5 mile trail west of the Sugar Land Regional Airport connecting from US 90A along John Sharp Rd to the existing trail system within Cullinan Park. - Includes pedestrian & bicycle improvements at the US 90A and John Sharp Rd intersection.	Corridor 14	N/A	N/A

Project Title	Facility	Limits	Potential Agency Coordination	Status (as of May 2023)	Potential Improvements & Preliminary Concepts	TMN Corridor	Priority Tier	Score Out of 100
Brazos River Multimodal Bridge & Connections	Brazos River Corridor	From Greatwood Community to Brazos River Park	Fort Bend County, H-GAC, TxDOT	Needs PER	- Multimodal bridge over the Brazos River connecting residents south of the Brazos River to regional destinations, including The Crown Festival Park, Brazos River Park, UH Sugar Land Campus and Park & Ride, Memorial Park, and the Smart Financial Centre	N/A	N/A	N/A
New Territory Trail	CenterPoint Corridor in Telfair & New Territory	From Wescott Avd to New Terriroty Blvd	Fort Bend County, H-GAC, CenterPoint	Needs PER	- Approx. 1.5-mile, 10-ft wide concrete trail within CNP easement	N/A	N/A	N/A
Next Gen ITS Upgrades	Citywide ITS	City Limits	Fort Bend County, H-GAC	Concepts In Development	- In order for ITS to continue support mobility goals, hardware and software need to be upgraded after reaching end of life - Major componenets currently need to be replaced due to end of life and some will need to be replaced within 5 years to continue to support future ITS initiatives like connected vehicles and others	N/A	N/A	N/A
ITS Railroad Monitoring, Notification, & Communication (CTR2203)	Cravens Road	Pitts Road	Fort Bend County, H-GAC	Concepts In Development	- Install railroad notification DMS prior to RR crossings to reroute traffic - Add Lidar or other technology to the Rail Monitor System to detect trains on dual tracks	N/A	N/A	N/A
Sugar Land Trail Phase 2 (Ditch H Trail) (PK1702)	Ditch H/ Bullhead Bayou/ CenterPoint Corridor	From Imperial Park to Lexington Blvd near Smart Financial Centre	Fort Bend County, H-GAC, TxDOT	Needs PER	- Approx. 4 mile, 10-ft wide concrete trail with below-grade crossings at state highway intersections and three pedestrian bridges - Approx. 2 mile, 10-ft wide concrete trail along Lexington Blvd connecting from Phase 1 to First Colony Trail along Austin Pkwy. - Potential to combine with Lexington Blvd Ph2 project.	N/A	N/A	N/A
Sugar Land Business Park Trail	Drainage Corridor	Eldridge Road to West Airport Blvd	H-GAC	Needs PER	- Approx. 1 mile trail within the Sugar Land Business Park.	N/A	N/A	N/A
Gannoway Lake Trail	Gannoway Lake Park	From Voss Rd to Cullinan Park	TxDOT, H-GAC, Fort Bend County	Needs PER	- Approx. 2 mile, 10-ft wide concrete trail with below-grade crossings and two pedestrian bridges	N/A	N/A	N/A
Settlers Way Blvd	Settler Way Blvd	SH6 to Austin Parkway	Fort Bend County, H-GAC, TxDOT	1) Design underway for intersection at SH6; 2)Remaining corridor needs PER	- Street reconstruction - Install a 10-ft. wide sidepath on one side of street	N/A	N/A	N/A
Brazos River Turnaround Alt/UHSL Roadway (CST2103)	UHSL Roadway/ US 59 Frontage Road	From Wallingford Ave to Grand Pkwy/SH99	TxDOT, UHSL, H-GAC, Fort Bend County	Traffic Study Complete	- Design new roadway from existng Festival Blvd to University Blvd at Wentwork Ave through UHSL campus as low-speed facility using traffic calming, such as raised crosswalks or narrow lanes. - Intersection improvements at University Blvd @ US 59 and replace existing substandard bike lane with side path in each direction - Construct a triple left from SBFR US 59 to SB Crabb River Rd, will increase turn volumes for WSB movement and minimize back up SBFR US 59 - Combine intersection using one signal cabinet, current box diamond runs on two controllers - Construct improvements to entrances/exits of Greatwood onto the NBFR US59 at Greatwood Pkwy and Riverbrook Drive	N/A	N/A	N/A
Bullhead Bayou Trail	University Blvd	University Blvd to Easton Ave	H-GAC, Fort Bend County	Needs PER	- Approx. 1.25 mile trail along Bullhead Bayou within Telfair.	N/A	N/A	N/A

Project Title	Facility	Limits	Potential Agency Coordination	Status (as of May 2023)	Potential Improvements & Preliminary Concepts	TMN Corridor	Priority Tier	Score Out of 100
East Utility Corridor Greenway	Utility Corridor	SH 6 to Austin Parkway	TxDOT, H-GAC, Fort Bend County	Needs PER	- Approx. 1.25 mile trail along utility corridor between Chimneystone and Lakefield neighborhoods and pedestrian bridge connection to Oyster Creek Park over SH6.	N/A	N/A	N/A
Traffic Signal Detection Update	Various	Various	TxDOT, H-GAC, Fort Bend County	Needs Funding	- The City has identified the need to update detection to as it reaches end-of-life.	N/A	N/A	N/A
Adaptive Signal Timing Update	Various	Various	TxDOT, H-GAC, Fort Bend County	Needs Funding	- Update adaptive signal timing for top 3 corridors.	N/A	N/A	N/A
Via Microtransit Pilot	Various	Various	H-GAC, Fort Bend County	Needs Funding	During the Sugar Land Mobility Master Plan public engagement and over the past few years, the community has expressed the need to expand on the existing transit services available in Sugar Land. - This microtransit service will serve to supplement the current Park & Ride and Demand Response services provided by Fort Bend County by providing a 10-15 minute on-demand service and first and last mile connections to destinations for people who live, work, and visit Sugar Land.	N/A	N/A	N/A
Next Gen ITS Upgrades	Various	Various	Fort Bend County, H-GAC, TxDOT	Concepts In Development	- In order for ITS to continue to support mobility goals, hardware and software need to be upgraded after reaching end of life. Major components currently need to be replaced due to end of life and some will need to be replaced within 5 years to continue to support future ITS initiatives like connected vehicles and others. - The project will look to replace signal detection to add benefits of computer vision (delay, pedestrian counts, red light running, etc), establish next gen controller/ATMS, ATSPMS platform, add travel time devices, and other technology improvements.	N/A	N/A	N/A
Quiet Zones	Various	Various	Fort Bend County, H-GAC, TxDOT	Needs PER	- Wayside horns provide a quality of life to residents living near very busy UPRR dual track with trains only expected to increase due to Kansas City merger. It is important system be kept in good operational order. There has been changes in hardware and software with an end of life in future. City needs to consider all possible solutions including true quiet zones without wayside horns. - This project should include a study to investigate and plan for future of RR crossing improvements within the City.	N/A	N/A	N/A
Traffic Signal Structure Rehab	Various	Various	Fort Bend County, H-GAC	Needs Funding	- Analysis to evaluate expected life & structural integrity of old traffic signal structures. There are poles along major highways within the City that seem to be showing fatigue (sagging arms). We need to understand if the structures meets latest standards (hurricane requirements), evaluate, and start replacing them if necessary.	N/A	N/A	N/A
Regional Transportation Operations	Various	Various	Fort Bend County, H-GAC, TxDOT	Needs Agency Coordination	- Implement regional system so agency TMCs can better share information to trigger operations to address issues like traffic incident management, emergency management, traveler info, etc. - System would automate some of these Responses. Would need to include communication interconnects with local/regional Traffic Management Centers	N/A	N/A	N/A