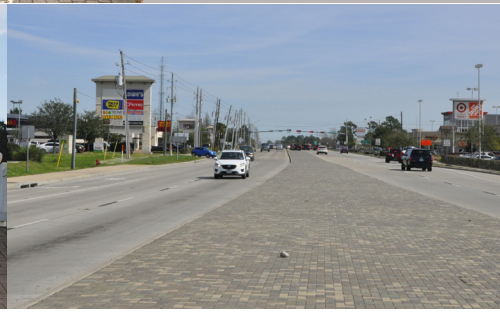
League City Master Mobility Plan

Updated October 2024

LC TX
LEAGUE CITY



FREESE AND NICHOLS

League City Mobility Plan Update

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Acknowledgements

City Council Members

Nick Long, Mayor
Andy Mann, Position 1
Tommy Cones, Position 2
Tom Crews, Position 3
Courtney Chadwell, Position 4
Justin Hicks, Mayor Pro Tem
Chad Tressler, Position 6
Sean Saunders, Position 7

Transportation and Infrastructure Committee

Andy Aycoth
Dave Person
Paul Maaz, P&Z Member
David Johnson
Justin Hicks, Council Member
Staff Liaison: Executive Director of Development Services

Planning and Zoning Commission

Pamela Arnold
Matthew Hyde
Scott Higginbotham
Matthew Propst
Paul Maaz
Ruth Morrison
Nathan Jong
Frank Dominguez
Staff Liaison: Director of Planning
Ex-Officio Members: City Engineer, City Attorney

League City Staff

Christopher Sims, P.E., Executive Director of Development Services
Kris Carpenter, AICP, CFM, Director of Planning
Ameena Padiath, P.E., Assistant Director/City Traffic Engineer
Mark Linenschmidt, Planning Manager
David Tickell, Public Works Manager

Freese and Nichols, Inc.

Edmund Haas, AICP, Vice President, Transportation Planning Program Manager
Kevin St. Jacques, P.E., PTOE, PTP, Senior Transportation Engineer
Brian Crooks, AICP, Transportation Planner
Kelly Brasseaux, AICP Candidate, Transportation Planner

Acronyms

ADA	Americans with Disabilities Act
CRIS	TxDOT Crash Records Information System
EPA	Environmental Protection Agency
FM	Farm-to-Market Road
GCTD	Gulf Coast Transit District
H-GAC	Houston-Galveston Area Council
HOV/HOT	High-occupancy vehicle lane/high-occupancy toll lane
IH	Interstate Highway
ISD	Independent School District
LC	League City
LOS	Level-of-Service
METRO	Metropolitan Transit Authority of Harris County
PROWAG	Public Right-of-Way Accessibility Guidelines
REAL	Regional Express Access Lanes
ROW	Right-of-way
RTP	Regional Transportation Plan
SH	State Highway
SMART	Strengthening Mobility and Revolutionizing Transportation
SS4A	Safe Streets for All
STEP	Statewide Transportation Enhancement Program
TAZ	Traffic Analysis Zone
TIP	Transportation Improvement Program
TWLTL	Two-way left turn lane
TxDOT	Texas Department of Transportation
US	US Highway
USDOT	United States Department of Transportation
UTP	Unified Transportation Plan
VMT	Vehicle Miles Traveled

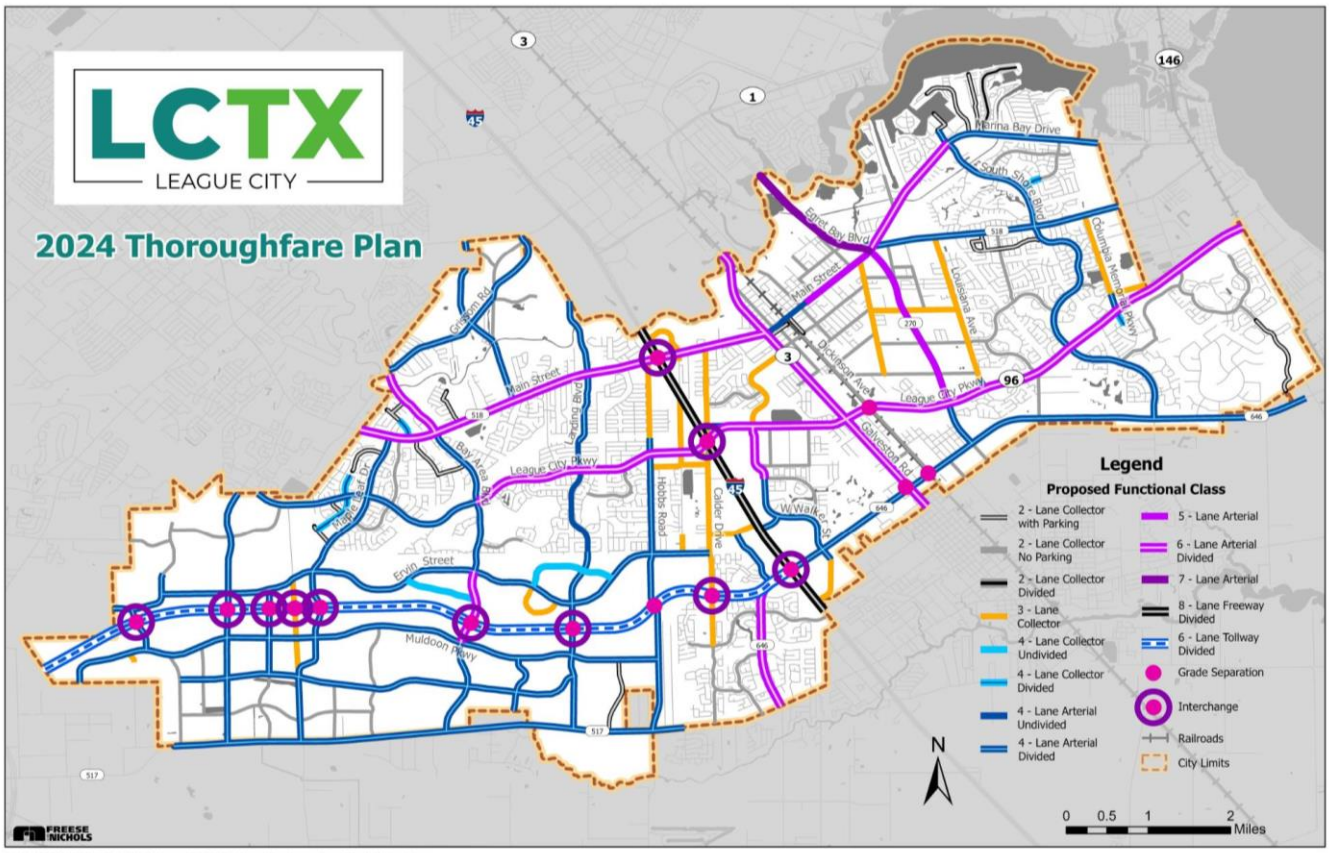
Executive Summary

The 2024 League City Master Mobility Plan is an update to the 2018 Master Mobility Plan. Its goals focus on improving mobility and safety for all users, practicing responsible fiscal management, and preserving existing infrastructure to create a livable community and a special place to live.

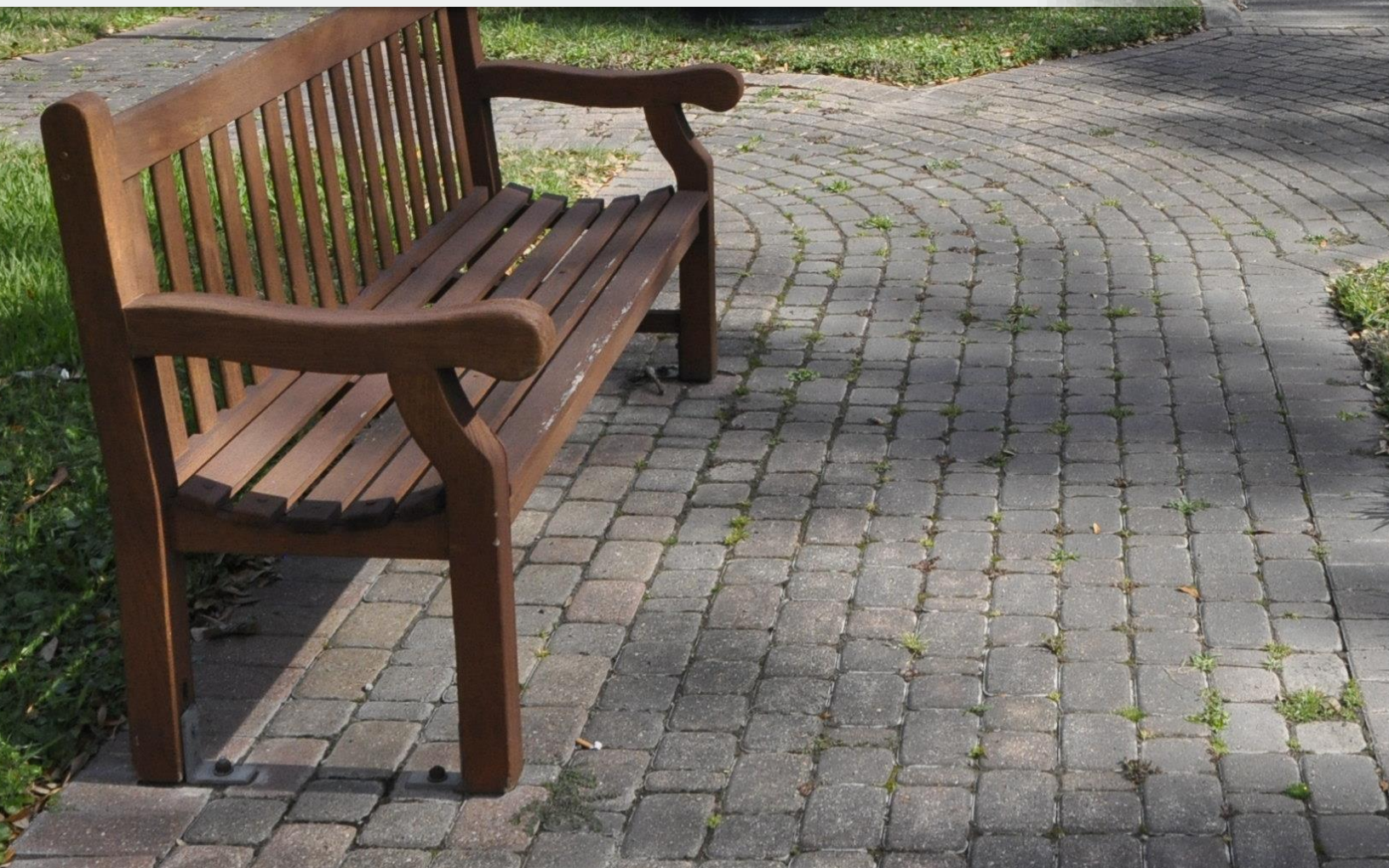
Developing the Mobility Plan was broken down into five components: data gathering, identification of issues and needs, community outreach, plan development, and plan adoption. Data was collected on the existing network, regional plans were reviewed, and demographic projections analyzed. Both stakeholders and the general public were consulted to determine issues and needs; comments received focused on mobility concerns regarding congestion along major arterials, safety issues, and the lack of adequate sidewalks near schools.

Key to the future League City mobility network is the construction of SH 99 in the southwestern sector of the City, as well as specific improvements rooted in the City's Capital Improvements Plan (CIP) and capital recovery program (Road CRF). Collectively, these investments improve mobility and safety in a financially responsible manner.

Policy recommendations included continued support for safe routes to school programs, development of a roadway safety action plan, continued adherence to ADA compliance, and a high-level assessment of future transit demand and service options. Future corridor study recommendations included the five-point intersection, FM 518, FM 270, Marina Bay Drive, and SH 96/League City Parkway (east of Hobbs Rd).



1 Introduction



Chapter 1: Introduction

Developing transportation networks to accommodate future growth can be challenging for any community. Creating plans to accommodate future growth requires understanding what factors can be reasonably predicted within specific time periods.

Reductions in funding from traditional sources, changing social preferences, and the emergence of new transportation technologies necessitate the development of thoroughfare plans that create safe, connected, and cost-effective transportation networks to support long-term growth.

What is a Thoroughfare Plan?

While there is substantial variation between thoroughfare plans, all plans share the following attributes to ensure they are comprehensive and easily implemented:

A Policy Document

A key function of all thoroughfare plans is to set policies for orderly development of the roadway network that emphasizes network connectivity, optimizes roadway capacity, and reflects the preferences of the community through a robust outreach program that includes City staff and officials, key stakeholders, and the public. All thoroughfare plans identify the general location and type of facilities required to support future growth and development. Thoroughfare plans are related to, but completely separate from, Impact Fee/Cost Recovery Factor Studies.

Long-Range In Scope

All thoroughfare plans are forward-thinking, focused on addressing long-range transportation needs to manage forecast growth. The planning horizon for implementation is typically 20 years or more.

Focused On Right-Of-Way Preservation

A key component of a thoroughfare plan is to create a mechanism to safeguard sufficient roadway right-of-way (ROW) for future roadways so that an effective and efficient roadway network can be developed over time to support growth as it occurs, while preventing expensive land acquisition for roadways in the future.

Defines Roadway Functional Classification

All thoroughfare plans include a discussion of proposed roadway functional classifications and recommended design cross-sections for the study area.

Thoroughfare Plan Map

The Thoroughfare Plan Map is a visual representation of future roadway recommendations, limited to arterials and collector roadways, is a critical plan element. The map identifies and integrates existing municipal thoroughfare plans within the study area to produce a clear and consistent vision for the development of the roadway network.

The roadway alignments outlined in the plan may be revised several times before a final alignment is designed, approved, and implemented. Such revisions happen for a variety of reasons, such as for

environmental considerations; engineering design; compatibility with surrounding developments; future potential development; available funding; or in response to stakeholder/public comments. As a statement of policy, the plan informs new development, the public, and partnering agencies of the desired mobility network envisioned by the City.

A Living Document

Roadway recommendations outlined in thoroughfare plans are not final. The plan itself is subject to constant revision and amendment and is typically updated every 5-7 years, depending on growth. As such, the thoroughfare plan acts as a "living document".

Overview of the Thoroughfare Plan Development Process

Figure 1: Project Development Process

2 Vision, Goals, and Objectives

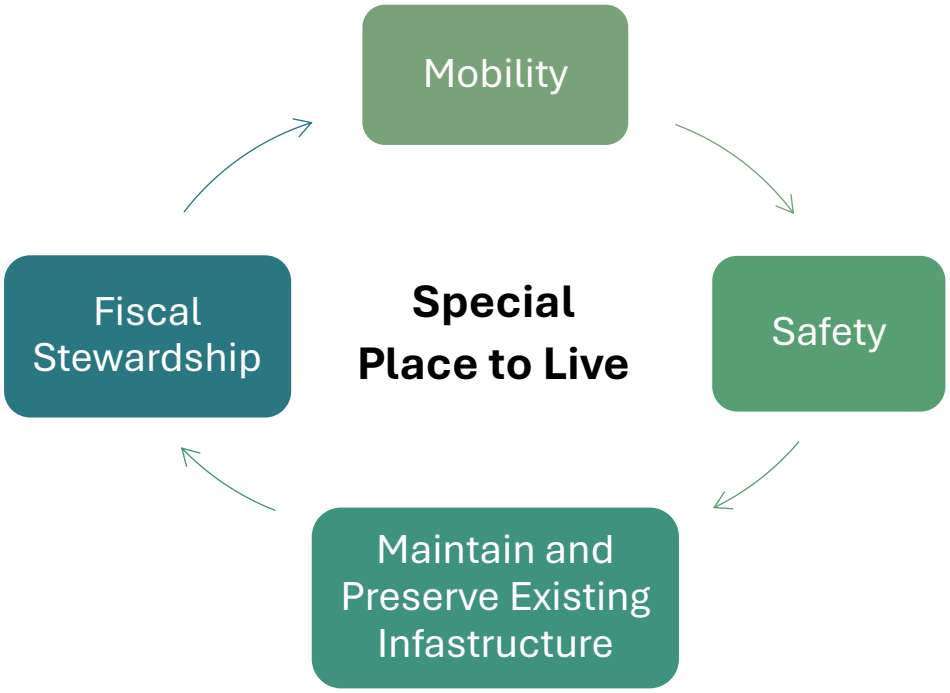
Chapter 2: Vision, Goals, and Objectives

The Goals and Objectives section outlines the desires and aspirations of League City's residents regarding mobility, supports a vision of the City's transportation system's future, and sets the framework for specific implementation actions. The stated objectives use the SMART doctrine—specific, Measurable, Achievable, Realistic, and Timely—as a best practice (Figure 2).

Figure 2: SMART Doctrine

The goals in the 2018 Master Mobility Plan were adapted to create the 2024 Master Mobility Plan Update (Figure 4). When the goals of Mobility, Safety, Fiscal Stewardship, and Maintaining and Preserving the Existing Infrastructure are combined, the outcome is a Special Place to Live characterized by a sustainable multi-modal, well-maintained network, thus creating a livable community.

Figure 3: Master Mobility Plan Goals



The 2024 Master Mobility Plan includes the addition of a vision statement. This vision statement serves as a long-term guiding declaration of key values for League City's future. This vision statement was informed by the goals of the 2024 Master Mobility Plan Update and influenced by the Guiding Principles outlined in the 2035 Comprehensive Plan.

Vision Statement

League City will feature a system of thoroughfares and corridors that promotes multi-modal mobility, connectivity, and safety; maintains and improves our existing infrastructure; supports future growth; and leverages economic benefit to sustain its long-term viability in a fiscally responsible manner. Together, these ideals will help promote League City as a special place to live, work, and play.

GOAL 1: Mobility

Provide a transportation system that will enhance the mobility needs of League City.

Objective 1: Develop a coordinated, efficient, and unified thoroughfare network that considers the concerns of all system users.

- → Coordinate planning activities with adjacent counties, and supporting agencies, to promote effective connections to regional networks within and beyond League City.
- → Continue to support partnerships between local governments and federal and state agencies to facilitate funding and implementation of regionally significant projects.
- → Work to ensure that all proposed transportation plans, policies, programs, and projects are equitable for all users. Equity in transportation means that all users have equal access and opportunity to use transportation services; all proposed services and improvements accommodate as many users as possible.

Objective 2: Maintain a functionally classified thoroughfare network that will provide for efficient and effective flow of traffic throughout the City.

- → Maintain a robust thoroughfare network planning process to ensure efficient connections between freeways, arterials, collectors, and local roadways.
- → Continuously review and update roadway design standards to ensure sustainable roadways that provide seamless connectivity.
- → Work to ensure that the roadway network development does not exclude active transportation options, such as walking and biking, or create obstacles to their development.
- → Ensure that congestion on all roadways and intersections is efficiently managed.

Objective **3:** Promote integration between transportation and land use development.

- → Evaluate planned developments to identify future alignments and ensure consistency with other planned facilities in adjacent areas.
- → Collaborate with local independent school districts (ISDs) on proposed school locations to improve school safety and mitigate any adverse impacts on the transportation system.
- → Promote connectivity between adjacent developments to lessen travel demand on surrounding thoroughfares.

Objective **4:** Improve the ease of access to residential and commercial destinations within the city.

- → **c**Develop access management strategies, such as intersection spacing, speed restrictions, and driveway consolidation for specific commercial corridors or residential areas.

Objective **5:** Assess, identify, plan, and implement investment strategies in transit, bicycle, and pedestrian mobility infrastructure growth.

- → Develop local champions to promote cycling and walking as viable forms of transportation.
- → Build partnerships with key stakeholders to identify opportunities for investment.
- → Assess capital improvement plans to identify resurfacing/reinvestment projects where bicycle/pedestrian facilities can potentially be expanded.

GOAL 2: Safety

Prioritize improving safety within the transportation system.

Objective **1:** Improve roadway safety.

- → Continuously assess high accident intersections and prioritize treatments to reduce collisions along all roadways.
- → Excessively wide thoroughfares should be discouraged where they transect with other modes of transport, especially pedestrian and bicycle paths.
- → Consider facilities, such as roundabouts, pedestrian refuge islands or other innovative intersection designs, to promote safety.
- → Consider strategies to reduce speed along high-speed corridors, including reduced lane widths, bulb outs, on-street parking, and enhanced bike/pedestrian facilities, as appropriate.

Objective **2:** Improve transportation safety around schools.

- → Collaborate with local ISDs to encourage safe and effective transportation to and from schools.

→ Continue collaboration on developing a Safe Routes to School program, which promotes walking and cycling to school as a safe, viable option through infrastructure improvements, education, and policy tools.
→ Evaluate active transportation options to and from schools, including bike and pedestrian facilities.

Objective

3: Ensure effective implementation of safety improvements.

→ Monitor relevant crash records to measure the impact of safety improvements on reducing the number and severity of crashes.
→ Continually consult key stakeholders such as emergency personnel to identify high-risk areas as they develop.
→ Identify potential funding sources including the Safe Streets for All Grant Program (SS4A) and Strengthening Mobility and Revolutionizing Transportation (SMART) from the US Department of Transportation (USDOT).

GOAL 3: Maintain and Preserve Existing Infrastructure

Improve existing transportation infrastructure to enhance system carrying capacity, reduce congestion and minimize crashes.

Objective

Objective 1: Preserve rights-of-way future transportation and related supporting infrastructure investments.

→ Regularly update the League City Mobility Plan to identify required right-of-way for future transportation projects.
→ Identify existing corridors that may need to be widened and/or upgraded in functional class to accommodate future transportation needs.
→ Identify truck/shipping corridors, industrial zones, and other logistics routes that may need additional right-of-way to accommodate future freight traffic.

Objective

2: Identify structurally deficient corridors and bridges for inclusion in a database that prioritizes roadway improvements by level of deficiency, current and projected traffic volumes, and cost of maintenance and repairs.

→ Utilize existing pavement and bridge maintenance data to identify deficiencies in the existing network.
→ Coordinate and collaborate with state and local agencies to prioritize improvements.
→ Incorporate rehabilitation or replacement of substandard bridges and roads into corridor improvement plans, when applicable.
→ Implement a uniform pavement management grading system for all city roads and update it preferably every 5 years or earlier as needed.

Objective **3**: Identify future areas of roadway congestion and develop roadway recommendations to accommodate future demand.

- → Leverage regional travel demand model outputs to identify potential congestion areas and bottlenecks within League City.
- → Identify roadway capacity improvements and connections to reduce the number of lane miles at LOS E and F.

Objective **4:** Identify and promote improvement of existing transit, bicycle and pedestrian infrastructure to assist in the promotion and usage of alternative transportation methods.

- → In the future, consider studying transit demand to identify areas with residents more likely to utilize transit and determine the best locations for park and ride facilities and on-demand transit services.
- → Utilize bike and pedestrian counters to determine how many people utilize bike and pedestrian facilities.
- → Utilize ridership data to determine the number of people utilizing transit services to identify when a transit study is needed.

GOAL 4: Fiscal Stewardship

Optimize the use of City funds and leverage additional funding for strategic implementation of transportation improvements to maximize public return on investment in transportation infrastructure and operation.

Objective **1:** Identify funding sources to leverage existing city investments to maximize the impact of dollars allocated to transportation improvements in the city.

- → Partner with regional and state agencies, such as H-GAC and TXDOT, to fund transportation infrastructure improvements.
- → Identify federal, state, and local funds for roadway maintenance throughout the city.
- → Prioritize and phase transportation investments to maximize the use of available and programmed funds.
- → Identify and pursue private, regional, state and federal revenue sources for funding multimodal transportation improvements.
- → Monitor funding agency websites for information on upcoming opportunities for funding and public-private partnerships that may benefit the city in terms of transportation and economics.

Objective **2:** Provide transparency and meaningful public awareness, ongoing citizen input, and participation opportunities to implement and update the Plan.

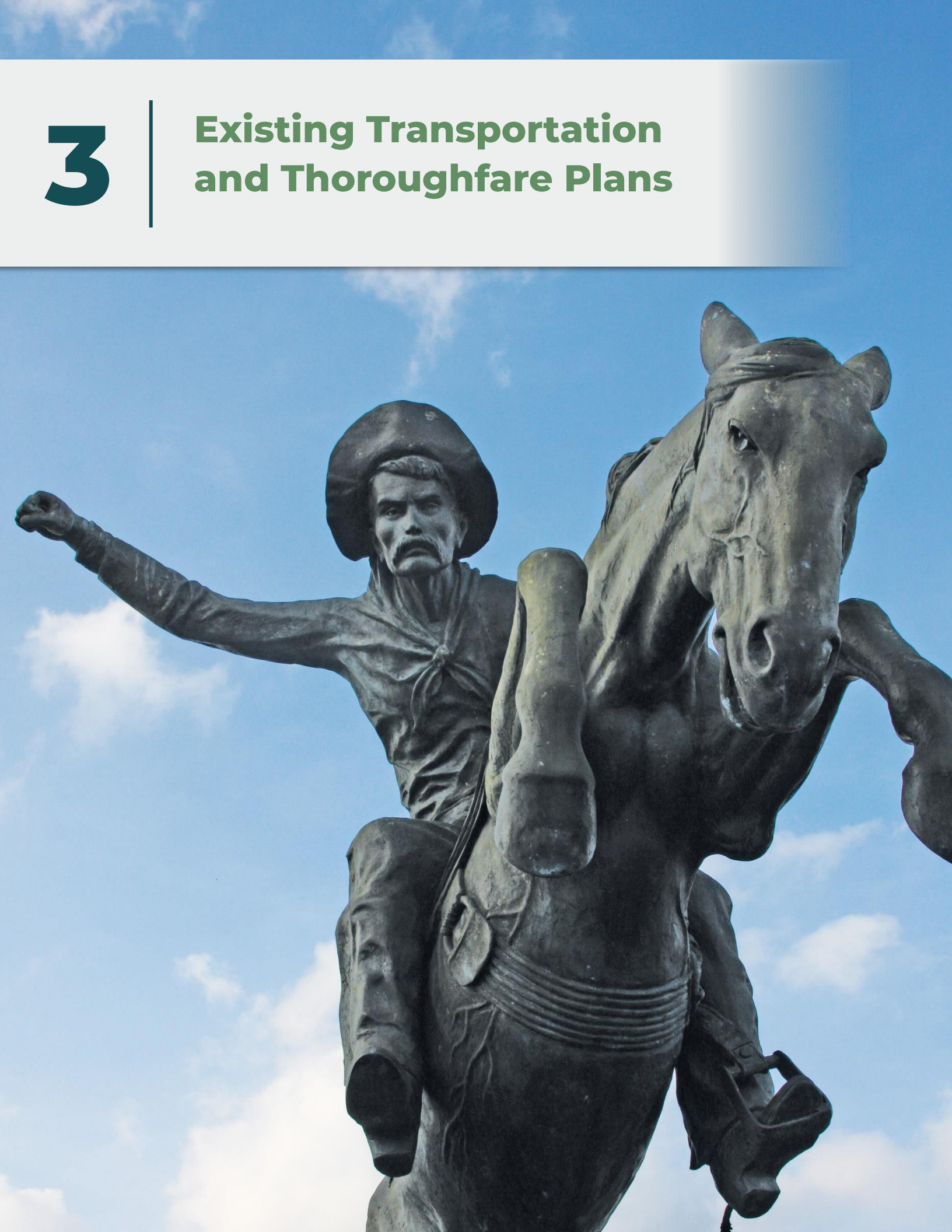
- → Provide feedback on the development and implementation of the plan (even after adoption) to ensure it remains a part of future land use and transportation decisions.

- → Incorporate plan recommendation, including, but not limited to, recommended functional classification and right-of-way, into the League City General Design and Contraction Standards Manual and Subdivision Related Ordinances.
- → Continue support for the Transportation Infrastructure Committee where city stakeholders can effectively communicate transportation issues and concerns with League City staff and other decision-makers.

Objective 3: Plan for and preserve rights-of-way for future multimodal transportation and supporting infrastructure investments.

- → Identify future transportation corridors within the city to preserve the right-of-way for future transportation projects.
- → Maintain City thoroughfare standards to ensure available right-of-way for future transportation projects.
- → Identify potential multimodal corridors that accommodate automobiles, transit, bicyclists, and/or pedestrians.
- → Identify truck/shipping corridors that may need wider designated rights-of-way to accommodate more truck traffic.

3 Existing Transportation and Thoroughfare Plans



Chapter 3: Existing Transportation and Thoroughfare Plans

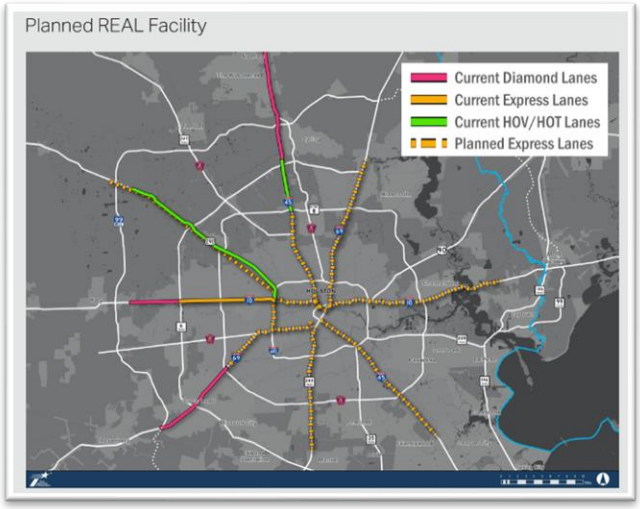
A review of related plans that have been developed since the adoption of League City's 2018 Master Mobility Plan has been conducted as part of the plan update process. These plans were reviewed for updated goals, objectives, and project listings that could be relevant to League City, so that the 2024 Master Mobility Plan Update is compatible with local and regional long-term plans.

Existing Regional Transportation Plans

TxDOT REAL Plan

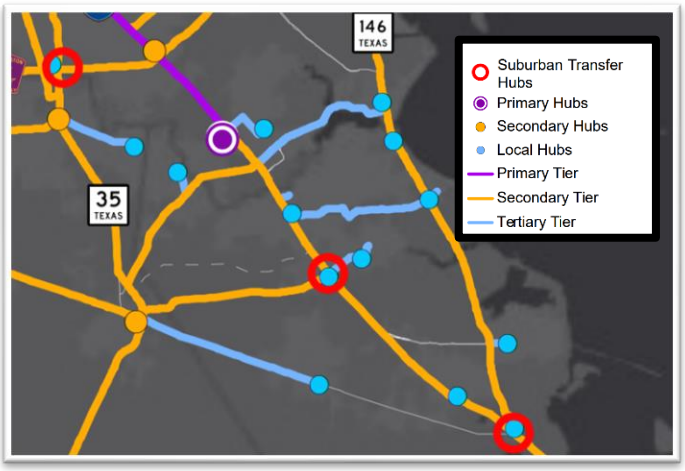
The Regional Express Access Lane (REAL) Plan is TxDOT Houston District's long-range comprehensive plan on its managed express lanes and mobility hubs system. It identifies problems with the existing roadway system, including discontinuity along the same corridor, incomplete network, inconvenience in corridor/mode transfer, inconsistency in managed lane policies, and missing connection with regional activity centers outside of Downtown. The plan envisions REAL as a system with an uninterrupted flow of people and goods (Figure 4). It aims to eliminate linear gaps within existing express lanes, improve inter- and multi-modal connections, and identify strategic mobility hubs to facilitate future planning.

Figure 4: Existing and Planned REAL Facilities



Currently, TxDOT recommends changing the HOV/HOT lanes on IH 45 between Houston and League City to express lanes. League City was also identified in the TxDOT REAL Plan as a Local Hub (Figure 5), which is a small-scale hub that focuses on neighborhood-level transportation solutions.

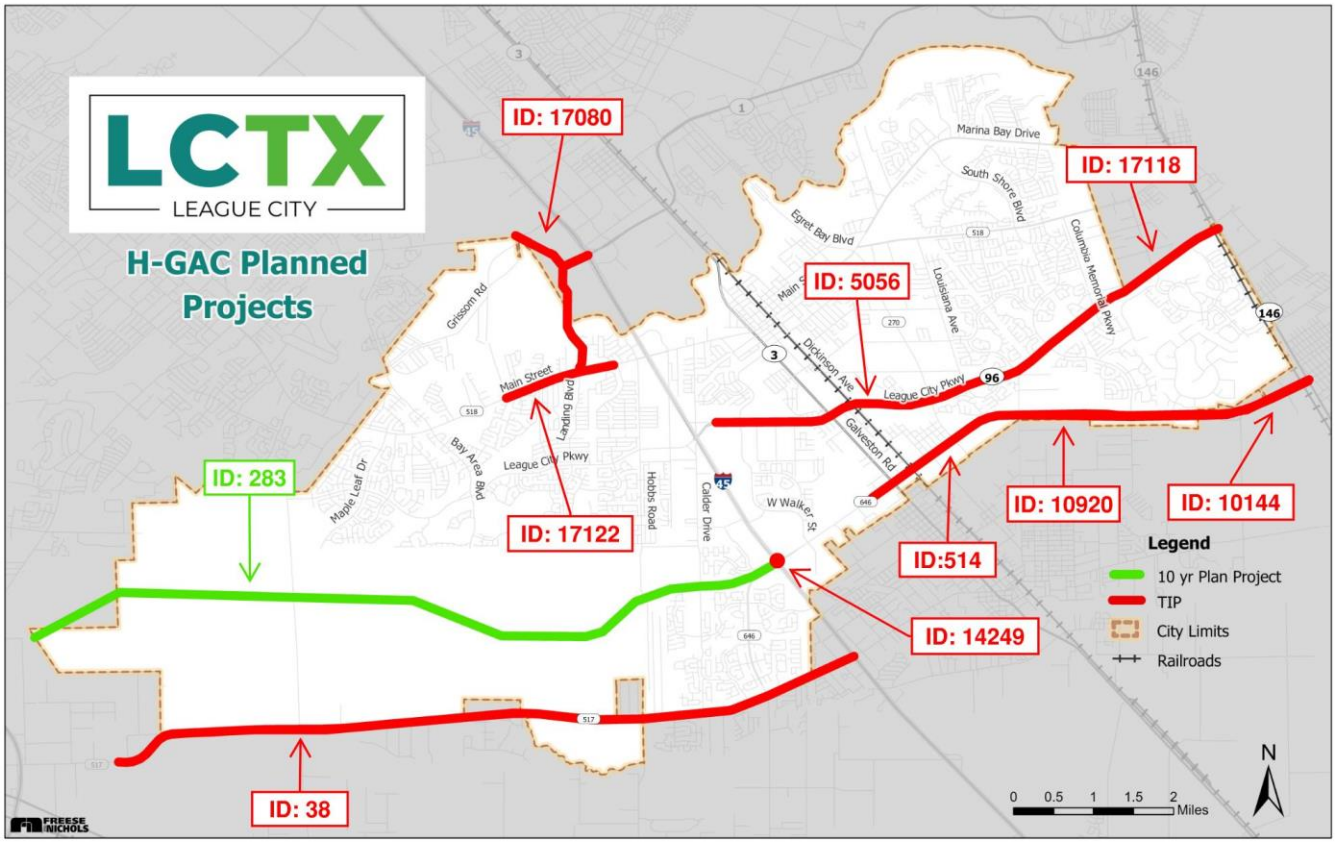
Figure 5: TxDOT REAL Plan Recommended People System around League City



The plan suggests that local hubs are focused on first mile/last mile connections such as scooter and bike share as well as low-cost, low-investment solutions like street reconfiguration. These local hubs are important for creating a complete multi-modal regional transportation system, as they help regional travelers commute seamlessly from one area to another by facilitating mode transfer at these hubs. As a result, connection and access to local goods and services is increased.

H-GAC Projects

Figure 6: H-GAC Planned Projects in League City



Metropolitan Planning Organizations in Texas are required to develop a Ten-Year Transportation Plan for the use of funding allocated in the TxDOT Unified Transportation Plan (UTP). TxDOT's FY 2021 Ten-Year Plan outlines approved transportation projects in the state. The plan was completed in coordination with TxDOT and reflects committed funds from local governments and transit providers, with several projects located in League City (Figure 6 and Table 1). A Project Type of "TIP" indicates that the project is featured in the H-GAC's FY 2023-2026 Transportation Improvement Plan.

Table 1: H-GAC Planned Projects in League City

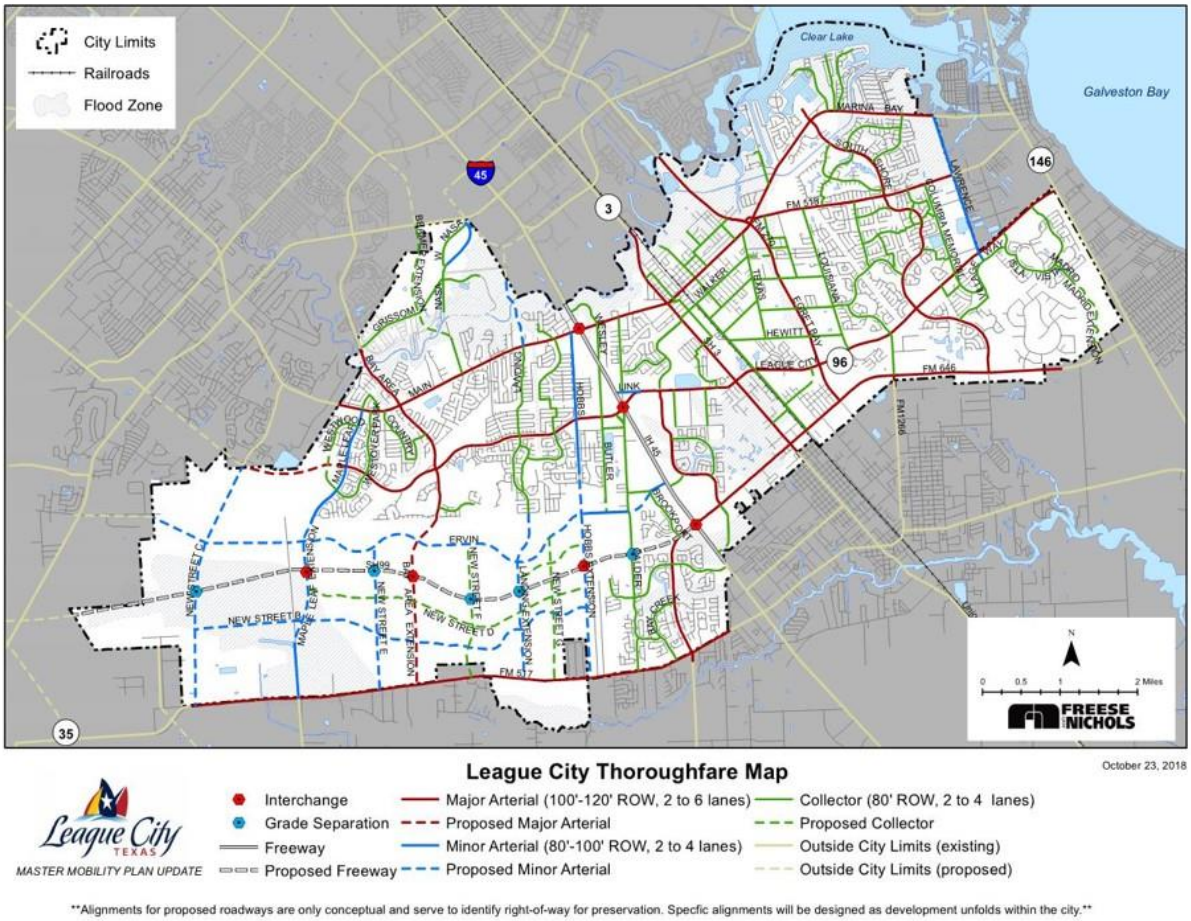
ID	Sponsor	Street	From	To	Project Description	Project Type
38	TXDOT Houston District	FM 517	FM 646	Brazoria C/L	Reconstruct and widen from 2 lanes to 4 lanes and access management treatments	TIP
17122	City of League City	FM 518	Palomino Rd	Williamsport St	Construct 10 10-foot-wide shared path with intersection improvements and pedestrian crossings	TIP
514	TXDOT Houston District	FM 646	Edmunds Way	FM 1266	Reconstruct and widen from 2 lanes to 4 lanes divided roadway with raised median and railroad overpass	TIP
10144	TXDOT Houston District	FM 646	FM 3436	SH 146	Widen from 2 lanes to 4 lanes divided	TIP
10920	TXDOT Houston District	FM 646	FM 1266	FM 3436	Widen from 2 lanes to 4 lanes divided	TIP
5056	City of League City	SH 96	0.26 miles E of IH 45	FM 1266	Construct hike and bike trail	TIP
283	TXDOT Houston District	SH 99	IH 45 S	Brazoria C/L	Seg B-1: Construct 4 lane tollway with interchanges and 2 noncontinuous 2 lane frontage roads	10 Y
14249	Galveston County	SH 99	At IH 45 S	Null	Seg B: Construct 4 direct connectors (Toll) (EB-NB, SB-WB, NB-WB, EB-SB)	10 Y
17118	City of League City	Various	On SH 96, FM 270, and FM 2094	SH 146	Construct bike lane (milling and asphalt overlay of shoulders, shoulder widening, pavement markings, striping) with signage, sidewalk and associated intersection improvements	TIP
17080	City of League City	Landing Blvd/NASA Rd 1 Bypass	NASA 1 Bypass at IH 45	FM 518	Construct 4-lane divided roadway on new alignment with pedestrian/bicycle accommodations	TIP

Existing City Transportation Plans

League City 2018 Master Mobility Plan Update

The League City Master Mobility Plan is the City's existing transportation plan and is an update to the 2011 plan. The four goals of Preservation and maintenance of existing infrastructure; A special place to live; Fiscal stewardship; and Enhance economic vitality support increased mobility as the central goal. The Thoroughfare Plan (Figure 7) indicates the functional classification of existing and proposed roadways in League City.

Figure 7: 2018 League City Thoroughfare Plan Map



The 2018 Mobility Plan provided recommendations in terms of roadway functional classifications and design standards, network alignment, intersection improvements, as well as non-motorized transportation and transit improvements. The report also identified three key systems that require improvements.

Main Street (FM 518) Corridor – corridor-wide recommendations included raised medians, a traffic signal timing plan, and widening major arterial intersections.

League City Parkway – recommended additional right-of-way at major arterial to major arterial intersections and left- and/or right-turn lanes to mitigate intersection congestion.

SH 99 (Grand Parkway) Interchange Relocation – recommended that the interchange be relocated from Calder Road to Hobbs Road to minimize congestion and accidents. *This recommendation is no longer in place due to changes in recent Grand Parkway connections*.

Adjacent City Transportation Plans

The development of this Mobility Plan included a review of surrounding cities' plans to ensure cohesion between them and League City's Mobility Plan. Several cities, including the Cities of Alvin, Dickinson, Friendswood, Santa Fe, and Webster, have adopted formal plans which outline goals and objectives for various topics, including transportation. These communities immediately surrounding League City provide additional context to the larger regional transportation system.

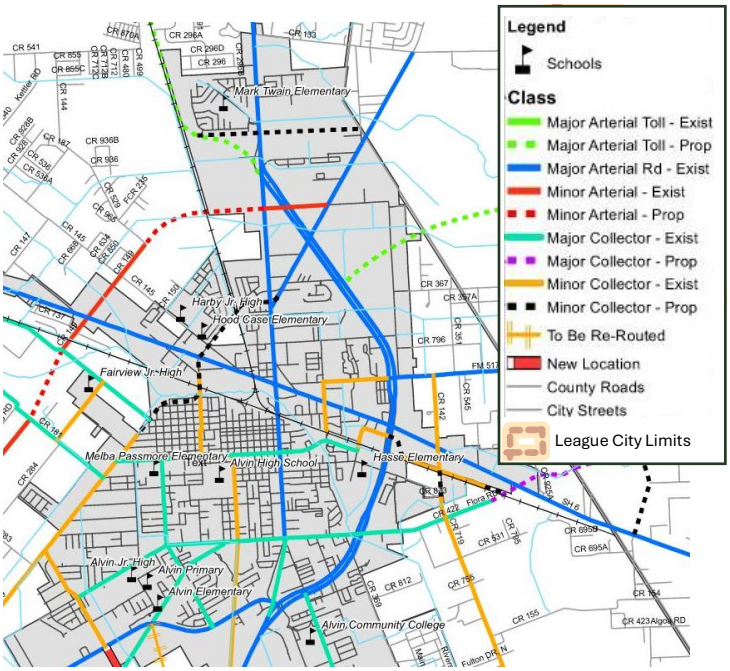
City of Alvin Major Thoroughfare Plan (2023)

Directly to the southwest of League City, the City of Alvin's Major Thoroughfare Plan was adopted in 2016 and updated in 2023. The plan shows several proposed thoroughfares connecting to League City.

The plan recommends integrated transportation and land use planning for the proposed Grand Parkway (SH 99). It recognizes that there are insufficient connections between suburban communities and major radial roadways and proposes additional linkages.

The plan also recognizes the need for an interconnected system of bicycle and pedestrian facilities between neighborhoods, schools, and community amenities. Solutions include extending existing bike paths and trails and construction of additional facilities.

Figure 8: City of Alvin Major Thoroughfare Plan



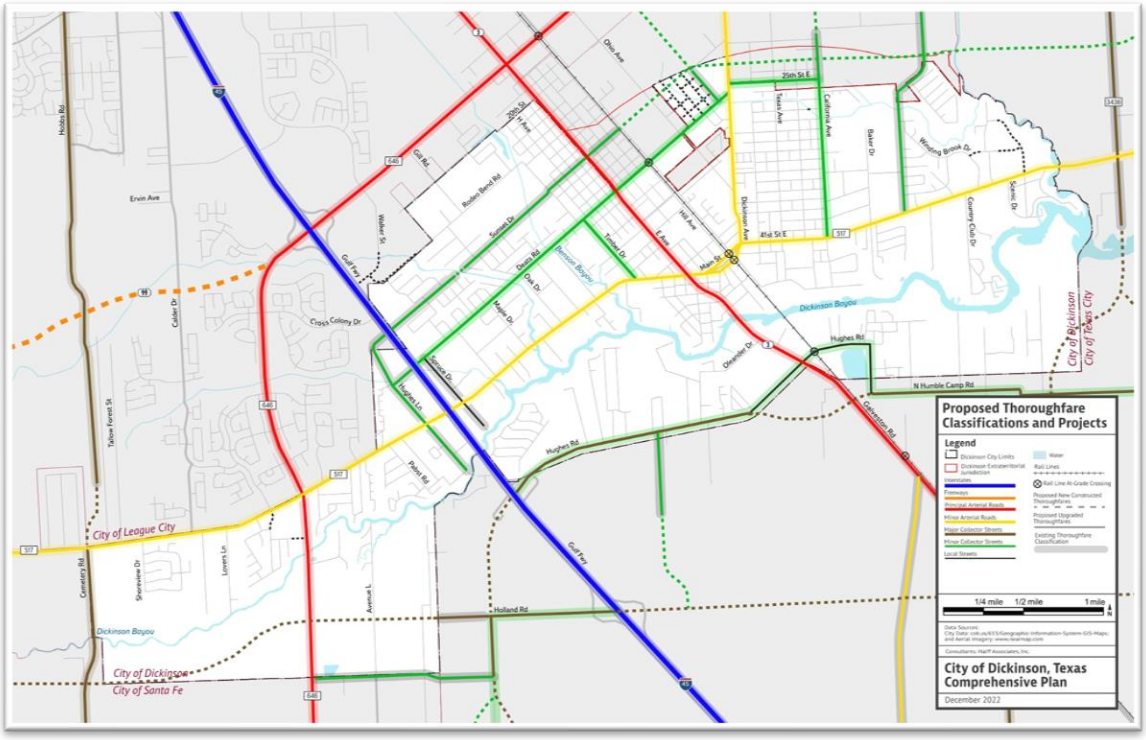
Dickinson Comprehensive Plan 2045 (2023)

Dickinson is located to the south of League City, and the two cities are connected by Interstate 45 (IH 45), State Highway 3 (SH 3), FM 646, and FM 1266. A segment of FM 517 is also located along the boundary of the two cities. Street connectivity is highlighted as an important factor in the design of Dickinson's future street network, as well as providing transportation options including safe and connected pedestrian pathways, transit, and micromobility. The guiding principles for transportation in the plan are:

1. Promote Connectivity.
2. Encourage Multi-Modal Transportation Investments.
3. Provide Transportation Options.
4. Balance Transportation Investments.
5. Strengthen Public Transit.
6. Reduce Vehicle Miles Traveled (VMT).

The Comprehensive Plan also includes a Proposed Thoroughfare Plan Map, which shows planned transportation projects within and around Dickinson. Several of these affect League City, including a proposed improvement of N. Wyoming Avenue, The planned SH 99 Toll Facility, and a connection between Hobbs Rd and Cemetery Rd which is consistent with League City's 2024 Thoroughfare Plan.

Figure 9: Dickinson Proposed Throughfare Plan

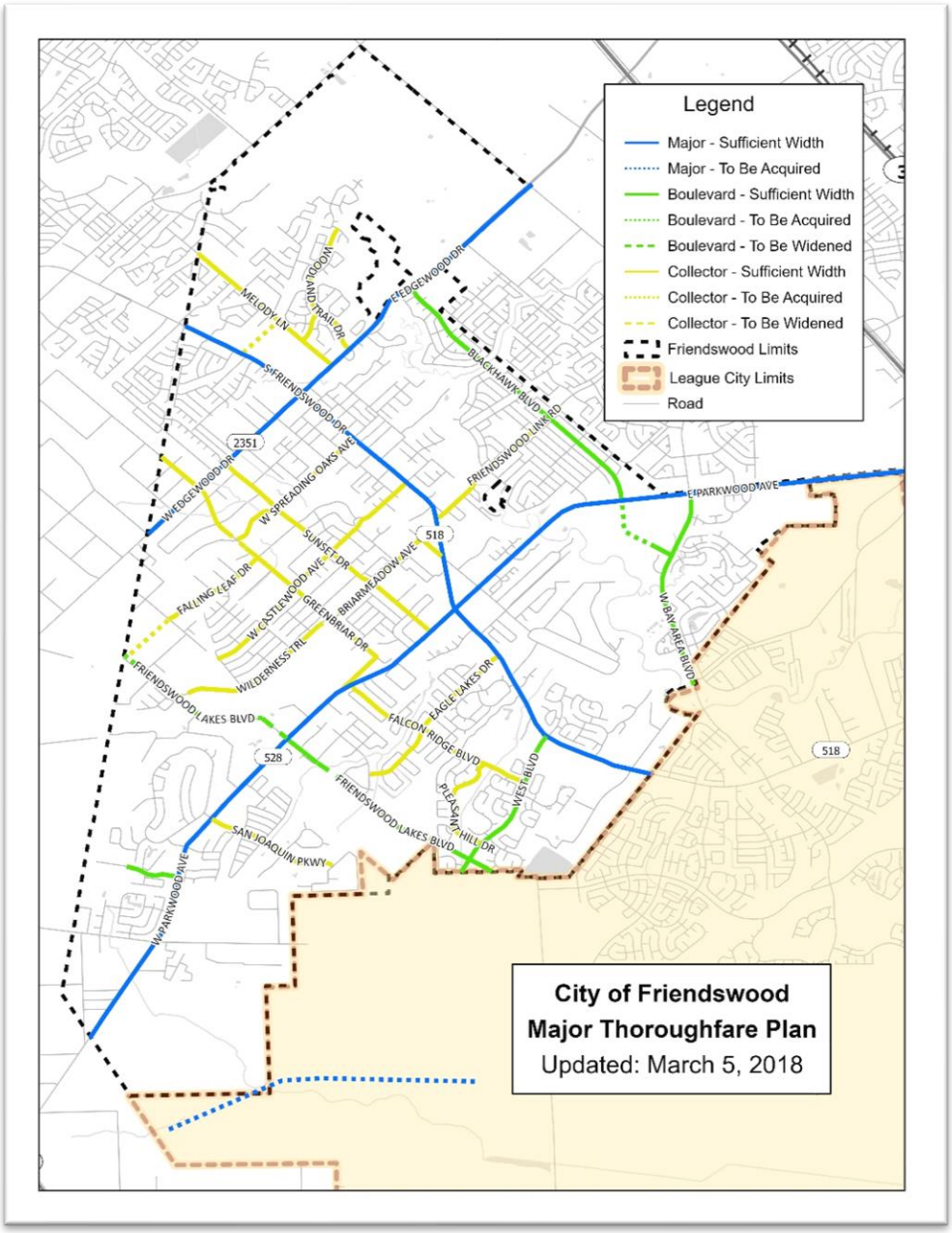


Friendswood, TX Major Thoroughfare Map (2018)

The City of Friendswood updated their thoroughfare plan in 2018, which identifies the locations of major thoroughfares, boulevards, and collectors. Each roadway classification is further categorized as sufficient width, to be acquired, and to be widened.

One proposed project ties into League City: a major thoroughfare which is approximately where SH 99 is planned to be built. No further information is available about this thoroughfare or the City of Friendswood's plans for the corridor. All other connecting thoroughfares to League City are existing and determined to be sufficient width.

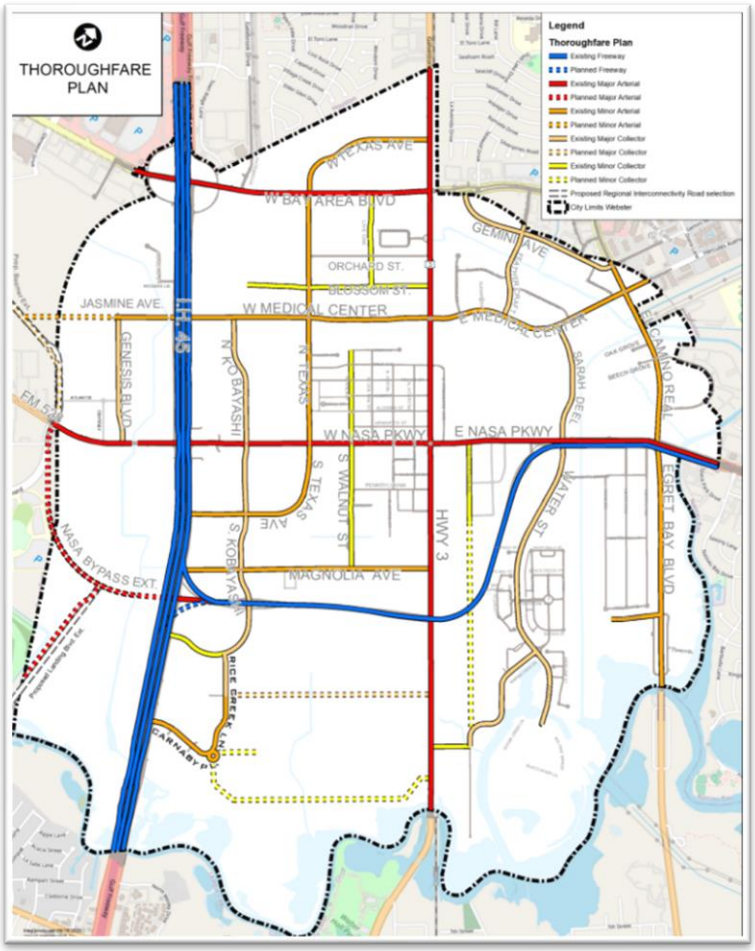
Figure 10: Friendswood 2018 Major Thoroughfare Plan



Webster, TX Comprehensive Plan 2020 (2014)

Webster's Comprehensive Plan, adopted in 2014, outlines a vision for Webster in 2020. Located just to the north of League City, the plan envisions that Webster will "foster a thoroughfare system that provides safe and efficient movement of goods and people and alternative modes of transportation, while also protecting the integrity and security of neighborhoods." The plan emphasizes the local transportation system as a part of the larger regional transportation network and the need for effective partnerships with surrounding communities such as League City.

Figure 11: Webster 2014 Thoroughfare Plan



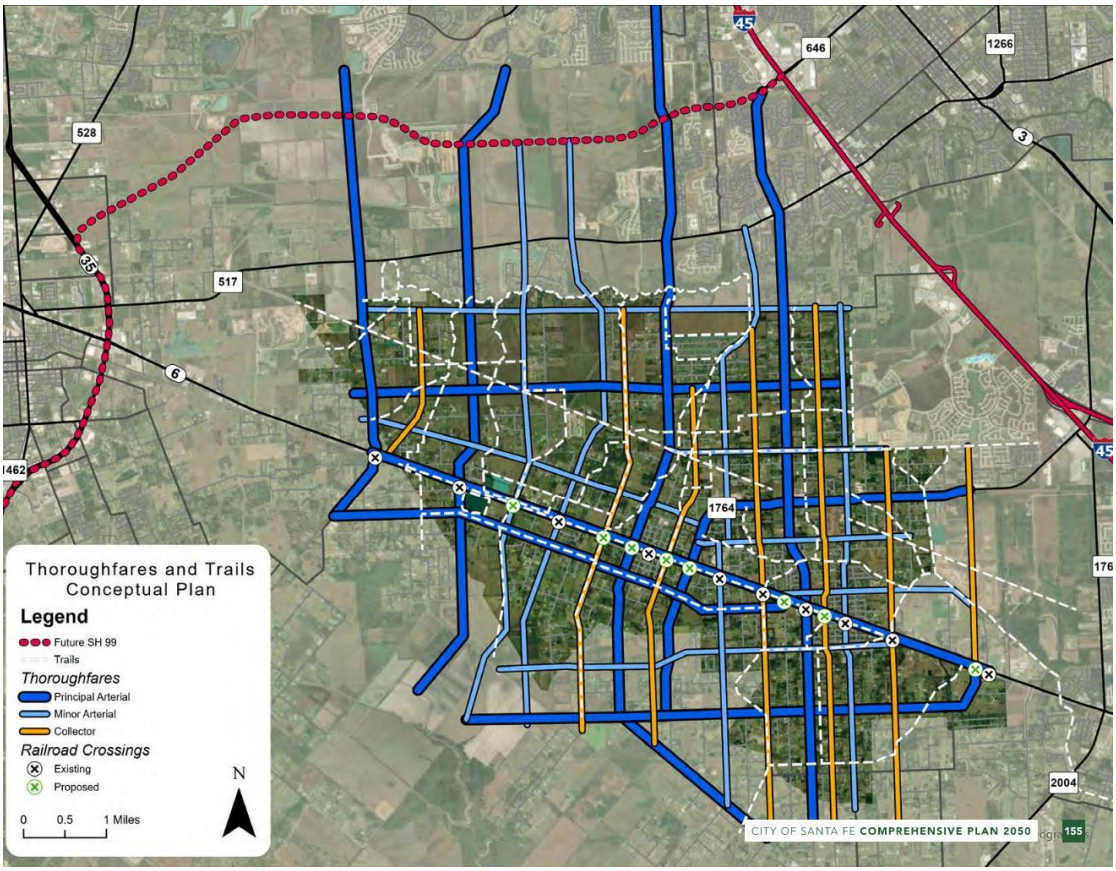
City of Santa Fe Comprehensive Plan 2050 (2023)

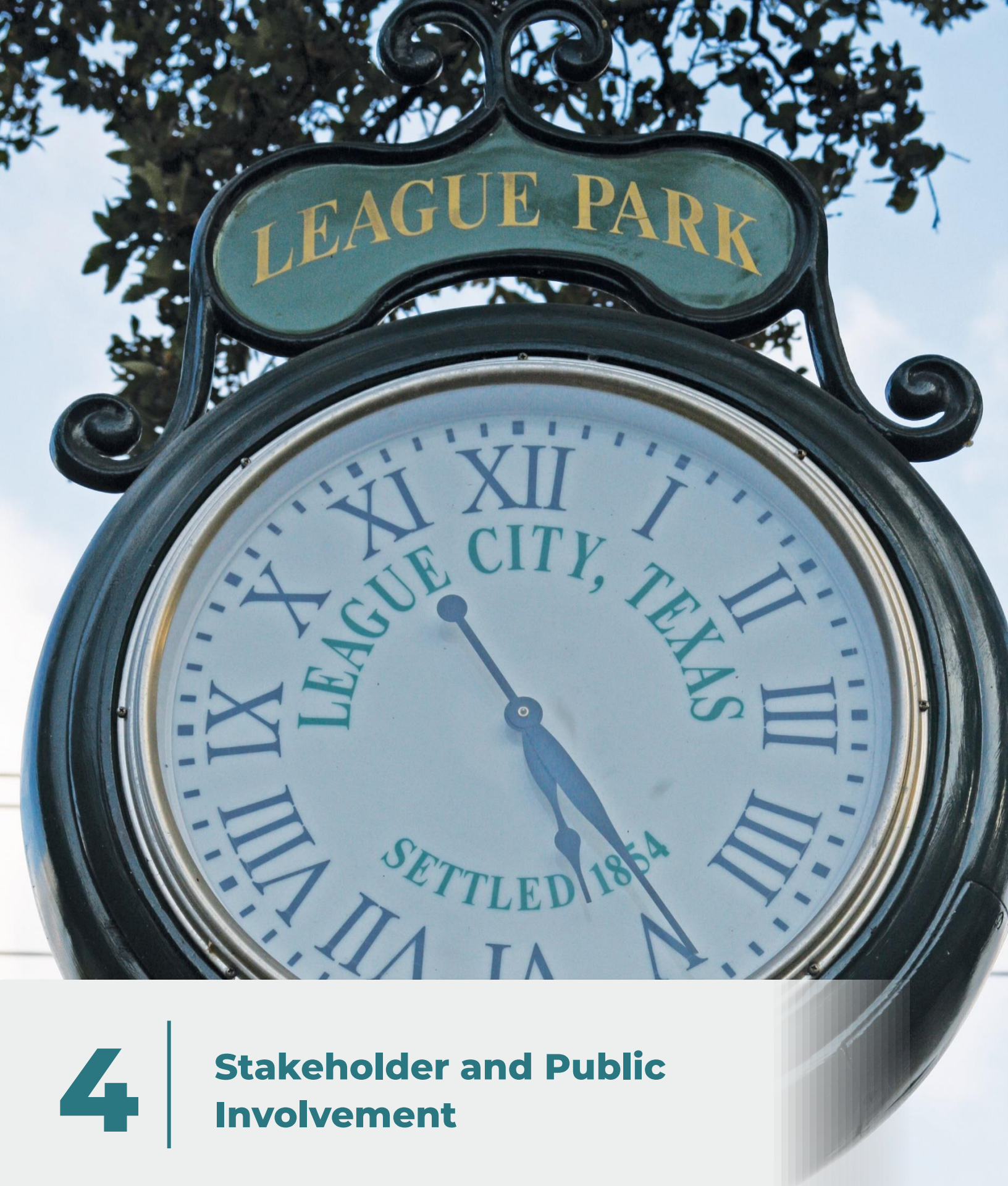
The City of Santa Fe's 2023 Comprehensive Plan details the City's vision for enhancing its rural character through intentional growth. While there is no official Thoroughfare Plan or Mobility Plan in place, the Comprehensive Plan presents a conceptual thoroughfare and trails plan (Figure 12) which could be a starting point for a future Thoroughfare Plan. The plan shows several major arterials connecting to League City which are generally consistent with League City's 2024 Thoroughfare Plan, including FM 646, Algoa-Friendswood Rd, and Cemetery Rd. The plan emphasizes that the construction of SH 99 will increase activity in the area, and that connections to and from FM 517 may become overburdened as a result.

Recommendations related to mobility in the Santa Fe Comprehensive Plan are:

1. Conduct an official Mobility Plan that includes a Thoroughfare Plan
2. Establish Roadway Impact Fees to implement roadway projects
3. Implement safety measures for non-vehicular modes.

Figure 12: City of Santa Fe Thoroughfare and Trails Conceptual Plan





4 Stakeholder and Public Involvement

Chapter 4: Stakeholder and Public Involvement

Plan Input

Public input is needed for the development of an effective plan. It is a way to gather critical information while ensuring that the community has ownership of the plan. During this process, input was gathered via public meetings, stakeholder meetings, an online survey, and coordination with the City of League City and relevant agencies. The Steering Committee provided feedback on plan recommendations, goals and objectives, and transportation network connectivity throughout the development of the plan. In addition to the Steering Committee, a total of 11 separate interviews were held with City elected officials, City staff, and other pertinent stakeholders.

February 22-23, 2023	Stakeholder Meeting
May 22, 2023	Public Meeting
Oct. 22, 2024	City Council Presentation

Stakeholder Input

Stakeholder engagement was conducted in February 2023 and included 11 different key figures in the community. Stakeholders were interviewed and asked to complete a survey about transportation issues in League City. Some common themes expressed by stakeholders were the need for intersection improvements, major safety concerns, and issues related to growth in the southwestern area of League City. Specific areas of need, included:

- "Five Corners" intersection (FM 518, FM 270, and Marina Bay Dr) – heavy delays
- Palomino Lane – needed extension over Clear Creek
- FM 646 – safety issues
- SH 96 – safety issues
- FM 518 – access management issues

Stakeholders felt that although access to public transit could be improved, it is less of a priority at this time. Very important to stakeholders was reduced travel delay, transportation safety initiatives, and preserving transportation corridors for future needs. **Both stakeholders and the public agree that congestion and intersection improvements should be a top priority in improving League City's transportation system.** Both groups commonly brought up the "Five Corners" intersection.

Public Outreach

A Master Mobility Plan Public Meeting was held on May 22, 2023. One of the main themes discussed by League City residents is the need for accessible and affordable non-driving transportation options, especially for disabled residents. These residents need to rely on transit services to satisfy their daily needs, such as attending medical appointments and going to vocational schools. A few respondents also expressed their desire for regional rail lines between Houston to Galveston, with League City as one of the stops.

Residents also expressed concern over the overall safety of the roadway network. People indicated that accidents involving pedestrians and cyclists are common, especially near schools. Multiple participants highlighted the need for better-maintained and wider sidewalks for pedestrians and cyclists to ensure pedestrian safety. Residents also stated a preference for more bike lanes. Participants also recommended reducing speed limits in neighborhoods to slow down commercial vehicles and improve roadway safety for all users.

One resident also stated that large trees in residential neighborhoods were not being properly trimmed and their low branches were damaging passing vehicles.

Online Survey

In addition to in-person meetings, an online attitudinal survey was available as a way for residents to participate in the public involvement process. The survey was available from April 13, 2023 to June 30, 2023 on Social Pinpoint. Links to the survey were available on the city website.

The survey had a total of 220 respondents from throughout League City and revealed which issues are most pressing to residents. Mobility and intersection improvements were commonly selected as the most important transportation issue facing the community, while bicycle and pedestrian facilities was commonly identified as the least important initiative (Figure 13). This is contrasted by comments from the public meeting wherein participants expressed the desire for alternate modes of transportation. Roadway maintenance and transportation safety initiatives were ranked as the third and fourth most important initiatives, respectively.

Figure 13: Responses to Public Survey Question #1

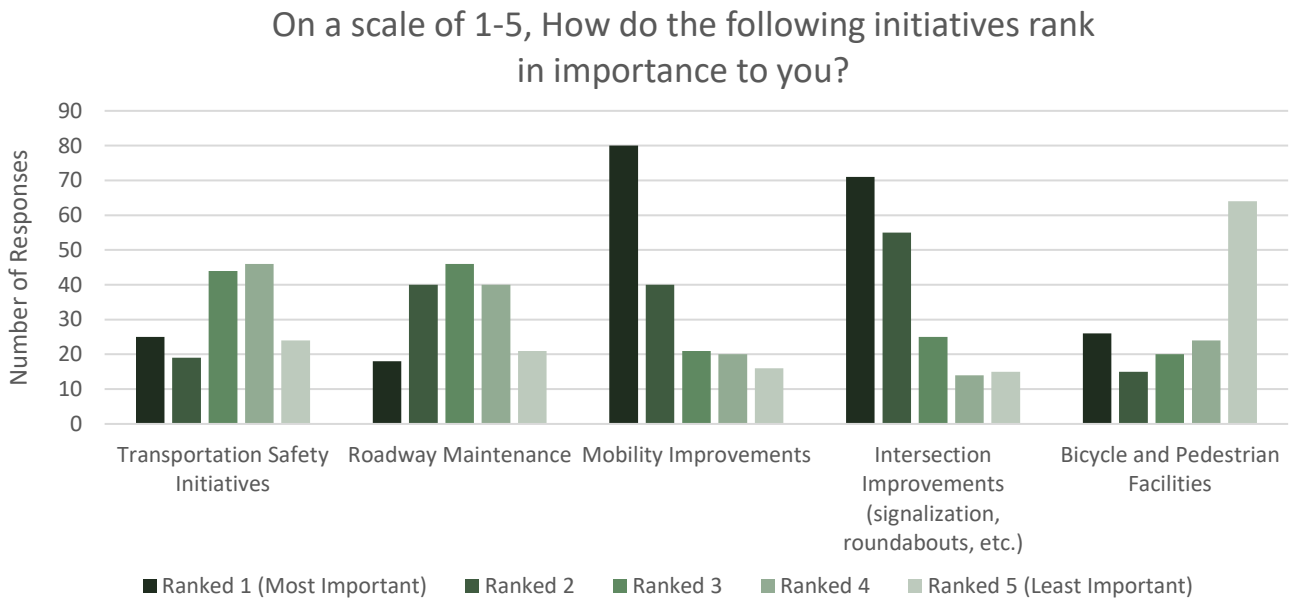
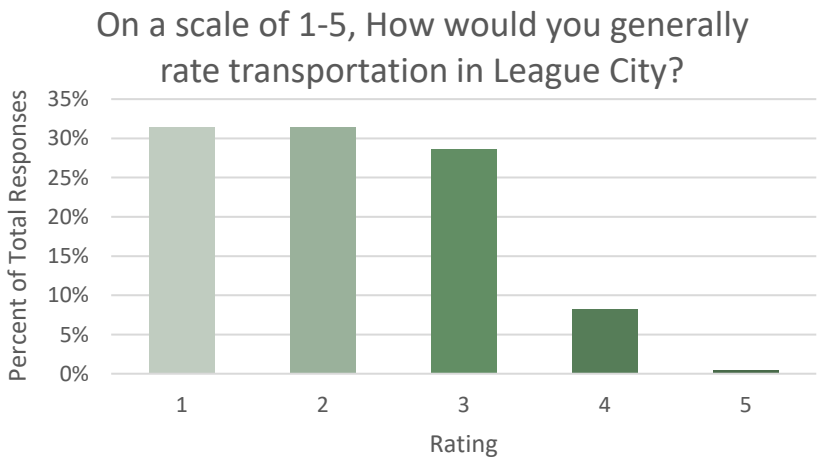


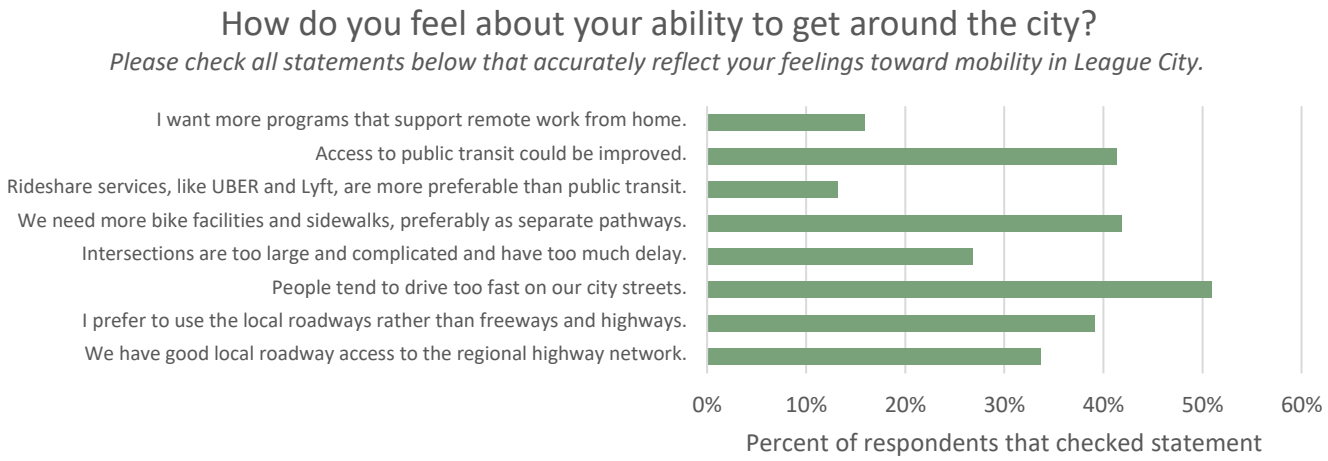
Figure 14: Responses to Public Survey Question #2

On average, when asked to rate transportation in League City from 1 (worst) to 5 (best), the respondents answered a 2.15 (Figure 14). This reveals a mixed impression of the performance of the existing transportation system and the desire for improvements.



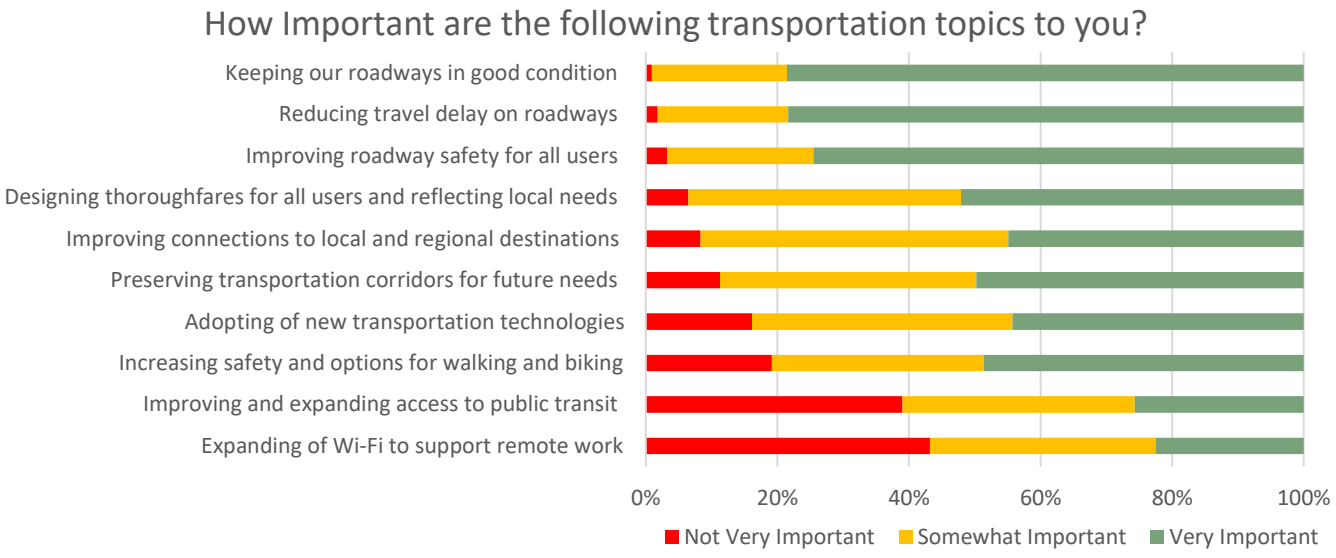
Of those surveyed, 51% have the perception that people tend to drive too fast on city streets. Around 40% of respondents agreed that access to public transit could be improved; a similar percentage also expressed a preference for more bike facilities and sidewalks. Support for expansion of programs for remote work was low, and few respondents felt that rideshare services are preferable to public transit (Figure 15).

Figure 15: Responses to Public Survey Question #3



As shown below in Figure 16, the topics that were most important to people who took the survey were keeping our roadways in good condition, reducing travel delay, and improving safety for all users. Conversely, access to public transit and support for remote work were often indicated as not very important. This contrasts with the comments in the public meeting, where many of the participants expressed an interest in public transit.

Figure 16: Responses to Public Survey Question #4

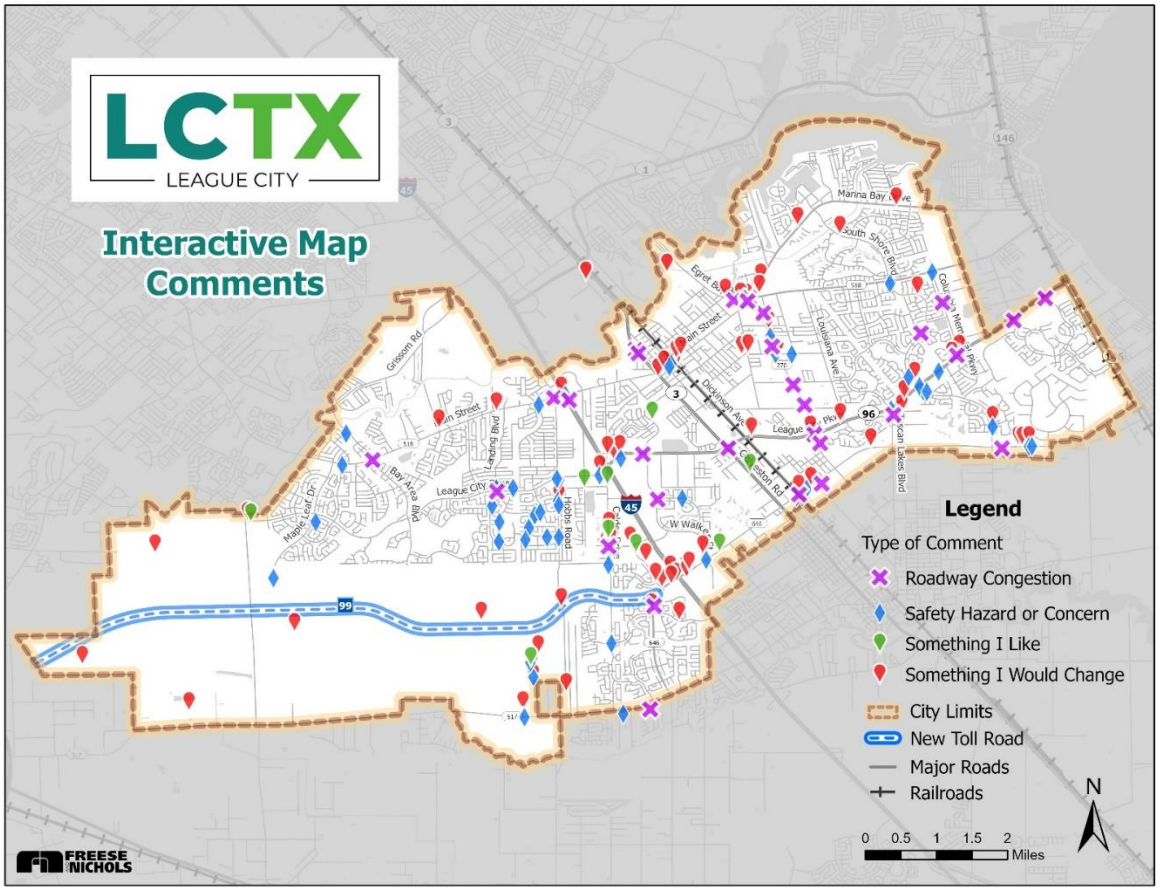


Interactive Map

Accompanying the online survey was an interactive mapping activity where users could drag and drop pins onto a map of League City and add corresponding comments. The full list of comments can be found in Appendix E. The pins were divided into four categories: Roadway Congestion, Safety Hazard or Concern, Something I Like, and Something I Would Change. Figure 17 shows the geographical location of comments placed by respondents on an interactive map. Common areas with comments included:

- Roadway congestion and opportunities for change at "Five Corners" intersection (FM 518, FM 270, and Marina Bay Dr)
- Opportunities for change at IH 45 and FM 646 intersection
- Roadway congestion along FM 270
- Safety concerns in the western section of the city

Figure 17: Interactive Map Comments



Issues And Needs

During plan development, input from key stakeholders and the general public identified several key issues within League City. These ideas were further evaluated during the thoroughfare development process for verification and to determine priority areas. Recurring themes were issues with safety, particularly for pedestrians around schools, and connectivity between areas within the city and with surrounding cities. Concerns about upcoming developments in the southeast sector of the city were also commonly mentioned.

Throughout this process, five major themes emerged as priorities for residents of League City:

- Safety
- Mobility
- Intersection Improvements
- Sidewalks and Schools
- Transit Access

The most pressing issue as identified by stakeholders and the general public was roadway safety. Pedestrian safety was given the highest priority, with several intersections and roadways being identified as high-conflict areas for pedestrians. The corridor on Main Street between Bay Area Blvd and Landing Blvd, near Clear Springs High School, was seen by respondents as potentially hazardous to students walking to or from school.

An analysis of crash data shows the areas where crashes occur most frequently in League City. Most accidents occur along high-volume roadways, most notably along IH-45, FM 518 (Main Street), SH 96 (League City Parkway), and FM 646. For additional discussion on safety in League City, see Safety Analysis on page 52.

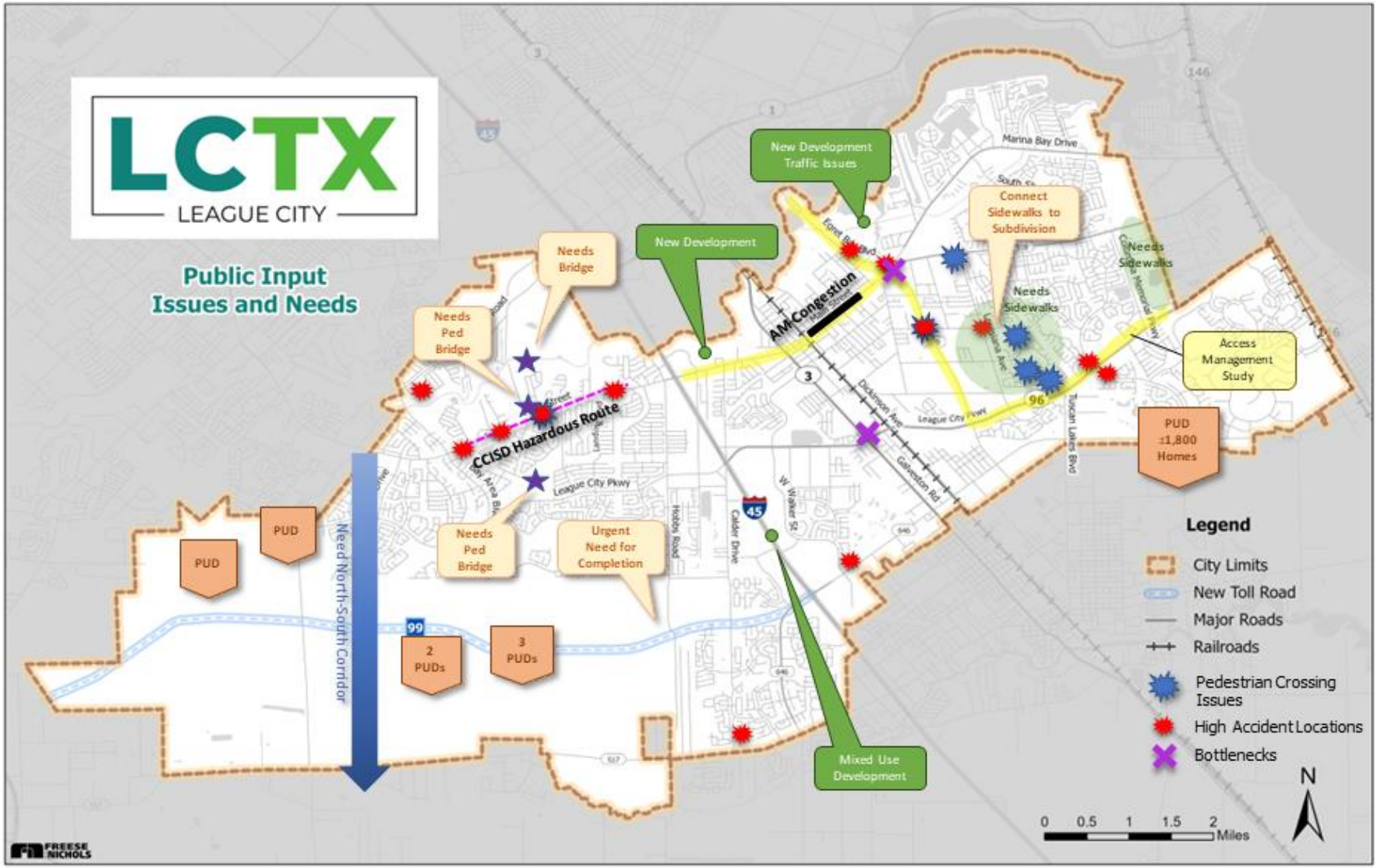
Through public and stakeholder involvement, respondents listed several corridors that they felt experienced heavy congestion. These included:

Roadway	Limits	Issues
Main Street	Dickinson Ave to Egret Bay Blvd	Morning congestion
Main Street	Landing Blvd to Calder Dr	Morning congestion
Dickinson Ave	Dickinson Ave at Hewitt St	Congestion
Egret Bay Blvd	Egret Bay Blvd at Main St and FM 518	Congestion Pedestrian crossing issues Bottlenecks
League City Pkwy	League City Pkwy at Galveston Rd	Bottlenecks

Common issues and needs expressed during engagement are visualized in Figure 19 and 19.

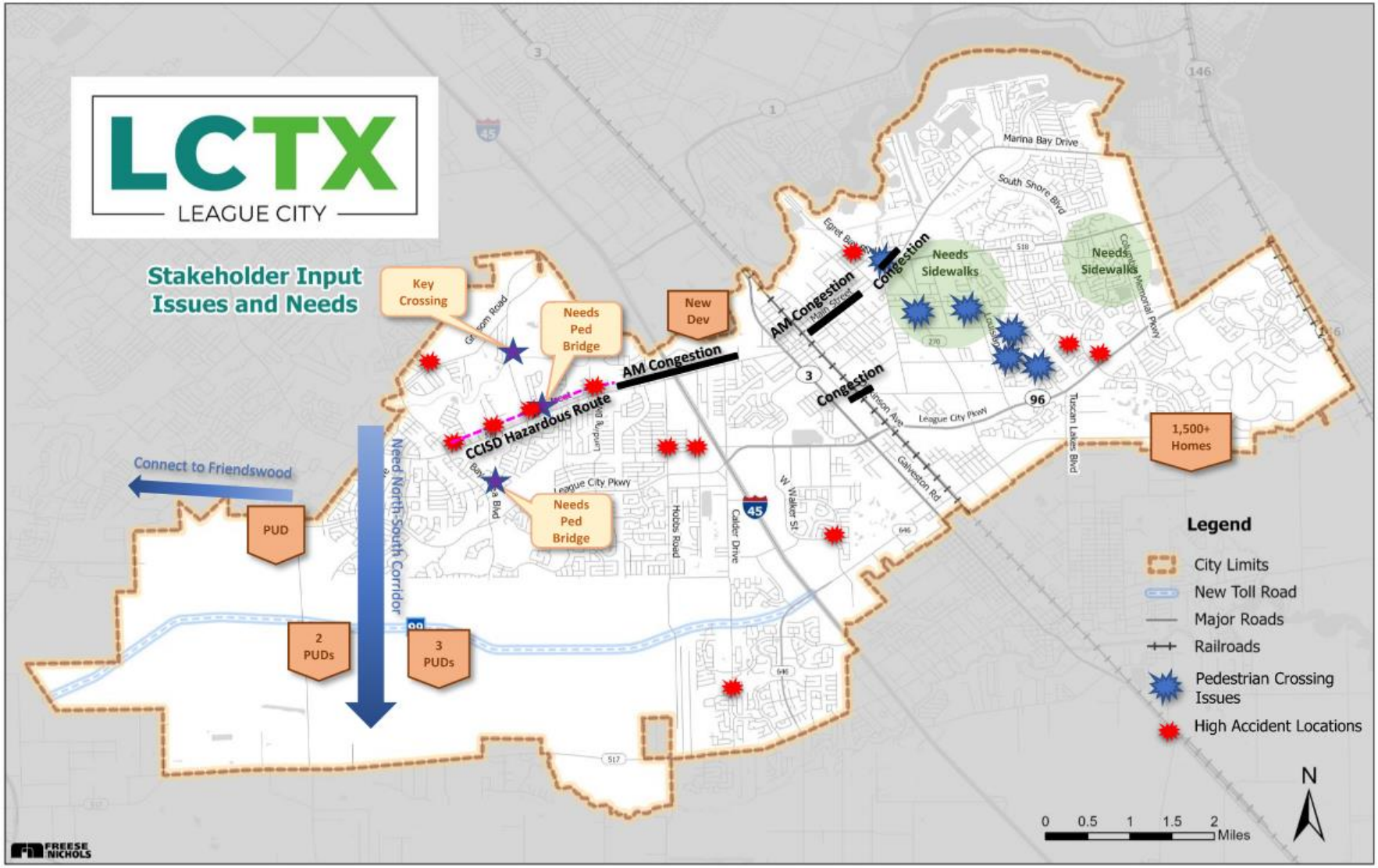
Public input revealed areas where developments impact residents' everyday travels, specifically in northern League City. Main Street west of IH 45 was identified as a large problem area for vehicular traffic and pedestrian travel. This is especially concerning given the presence of three schools along this corridor.

Figure 18: Issues and Needs – Public Input



Stakeholders shared many concerns with the public, including high-accident locations and the safety issues along near schools on Main Street. Additionally, stakeholders mentioned a lack of connection to Friendswood as a major issue in western League City. Both groups noted a lack of pedestrian infrastructure in neighborhoods in the east.

Figure 19: Issues and Needs – Stakeholder Input

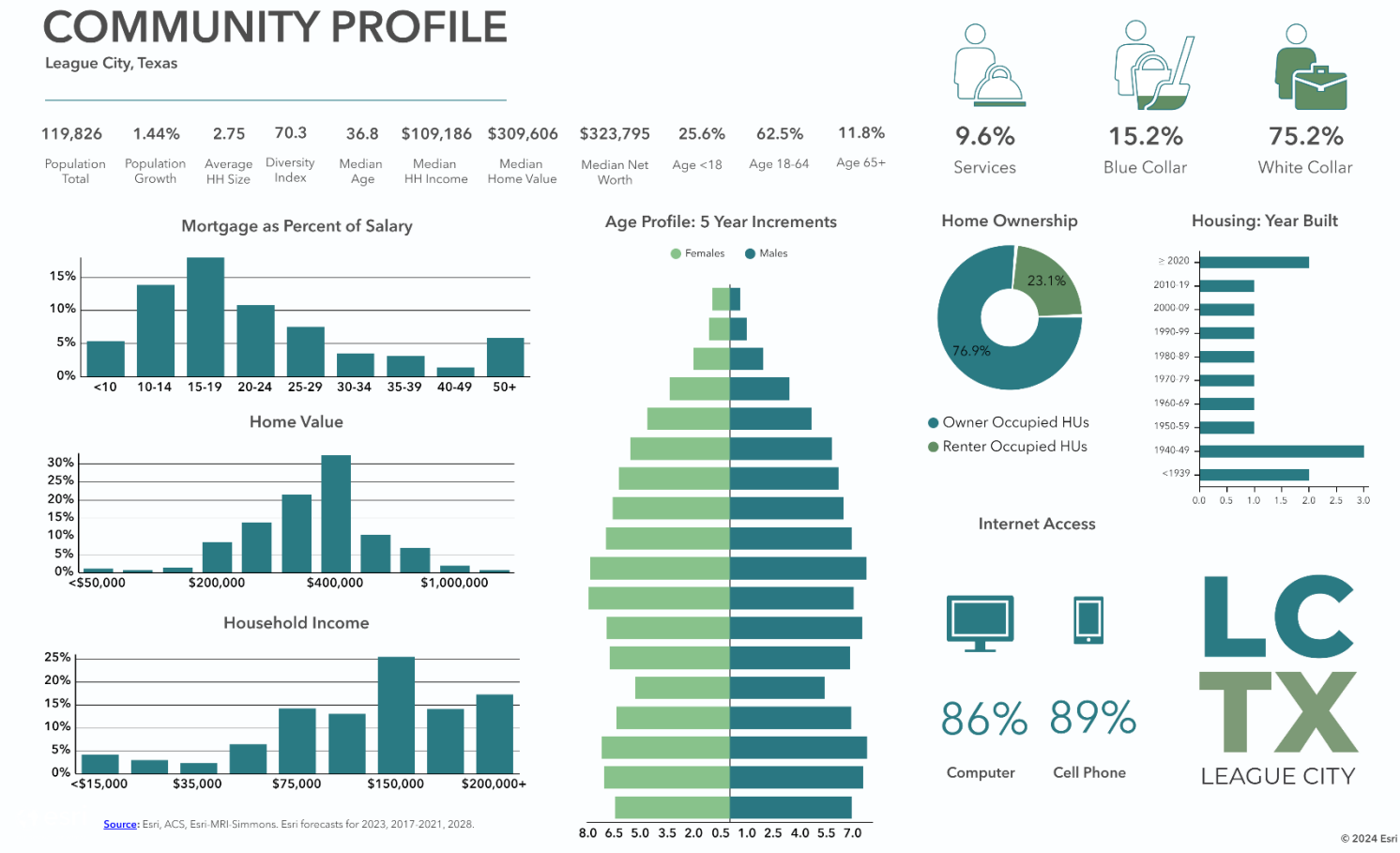


5 City Profile

Chapter 5: City Profile

As shown in League City's Community Profile (Figure 20), the community is heavily composed of relatively new homes and high home ownership rates (76.9%). White collar jobs are the most common type of job (75.2%), and the majority of people in League City pay less than 30% of their salary to their mortgage. Internet access (84%) is high. League City's Median Household Income of $109,186 is notably higher than the state's ($69,529) and Galveston County's ($82,153). Similarly, median net worth in League City ($323,795) compared to state and county median net worths ($132,092 and $197,117, respectively). Census data points to League City as a relatively young, affluent population with high incomes and home values.

Figure 20: League City Community Profile

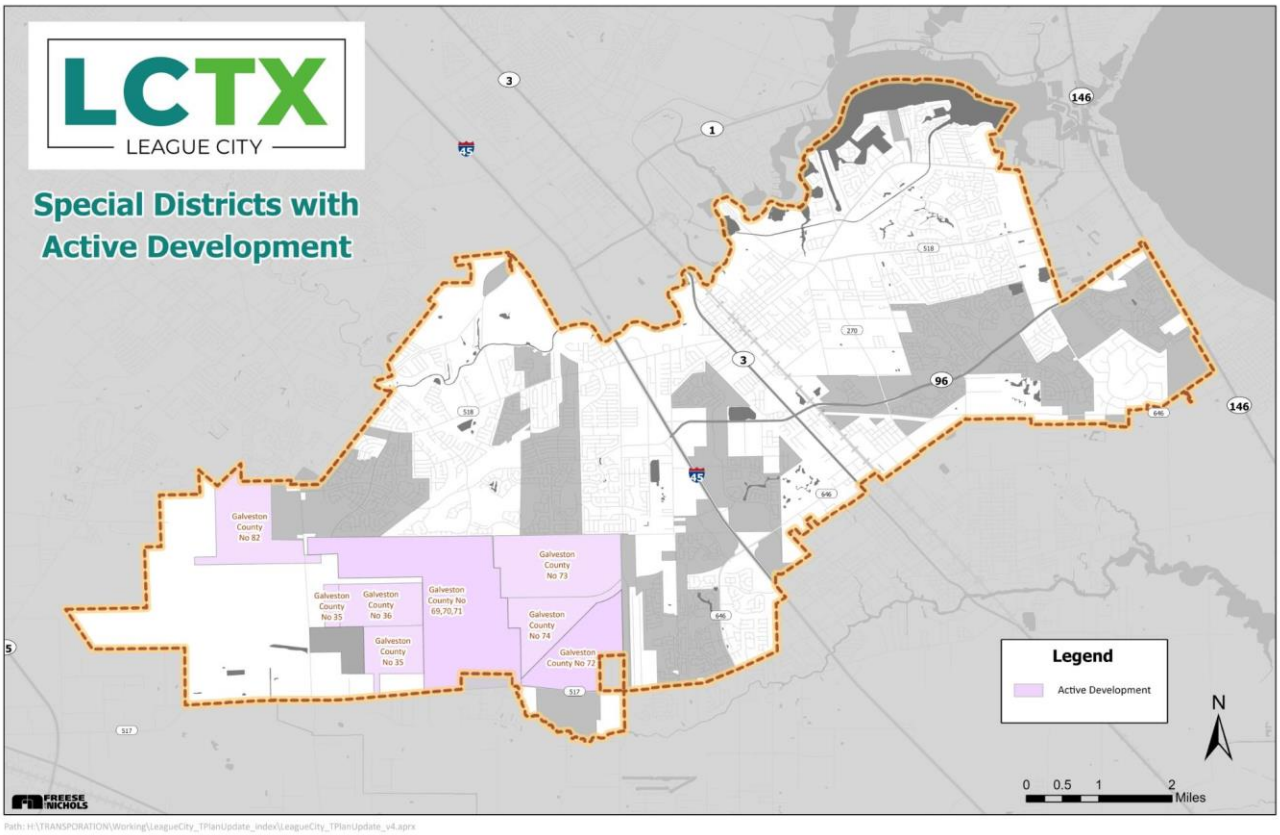


Population and Employment Growth

Growth Areas

Known development activities can indicate where growth may occur. As shown in Figure 21, several special districts within League City are in active development and are notably concentrated in the southwest area of the city. This development activity is reflected in the population and employment projections shown on the following pages.

Figure 21: Special Districts with Active Developments



Population

League City is expected to have sustained population growth for the next 20 years. The overall population in League City is forecasted to grow over 75% from 114,392 in 2020 to over 200,000 in 2045, a compound annual growth rate (CAGR) of 2.3% (Figure 22).

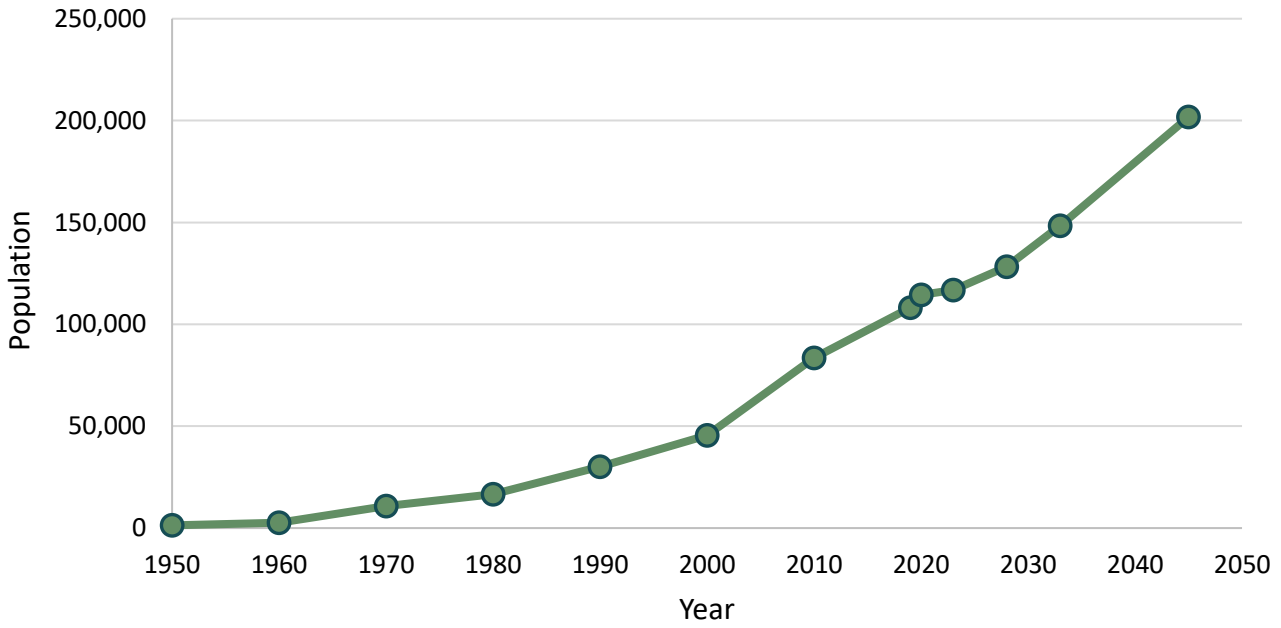
Figure 23, 23, and Figure 24 illustrate population growth and show forecast growth to be concentrated in the southwest area of the city, with additional growth on the outer edge of the city expected by 2033 and 2045. The central areas of the city, where population is currently concentrated, are expected to grow nominally.

Table 2: League City Population, 1950 - 2045

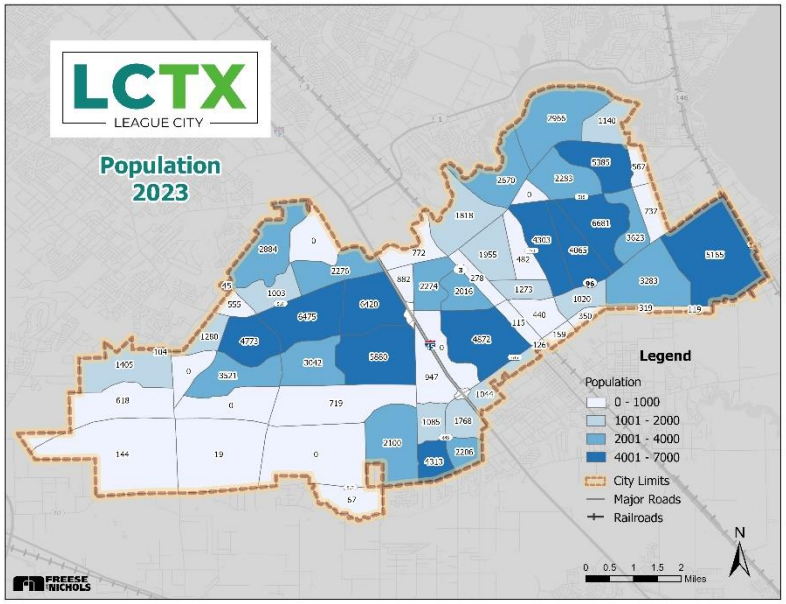
Year	Population	CAGR	
1950	1341		
1960	2622	6.94%	
1970	10,818	15.23%	
1980	16,578	4.36%	
1990	30,159	6.17%	
2000	45,444	4.19%	
2010	83,560	6.28%	
2019	108,184	2.91%	
2020	114,392	5.74%	
2023	116,831	0.71%	
2028	128,217	1.88%	2.30%
2033	148,308	2.95%	
2045	201,727	2.60%	

Source: U.S. Census Bureau, Texas Almanac, and H-GAC

Figure 22: League City Population, 1950 - 2045



Source: U.S. Census Bureau, Texas Almanac, and H-GAC



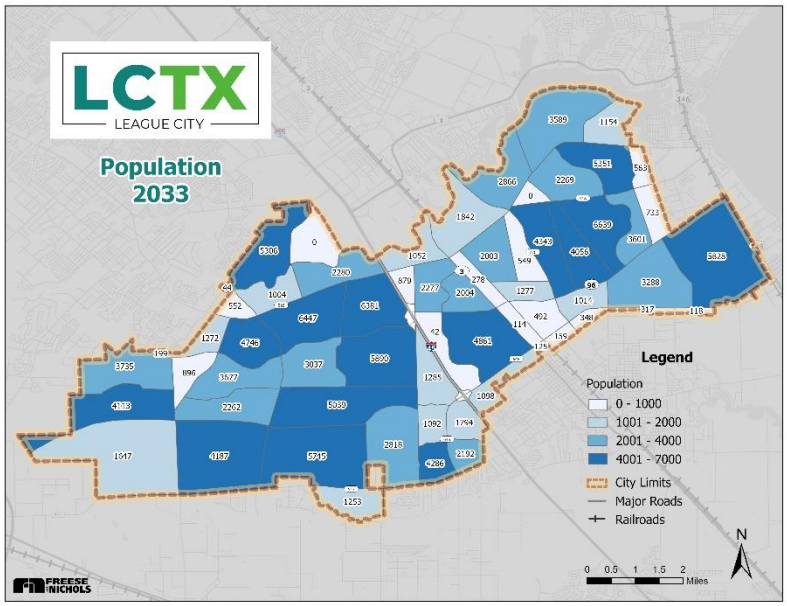
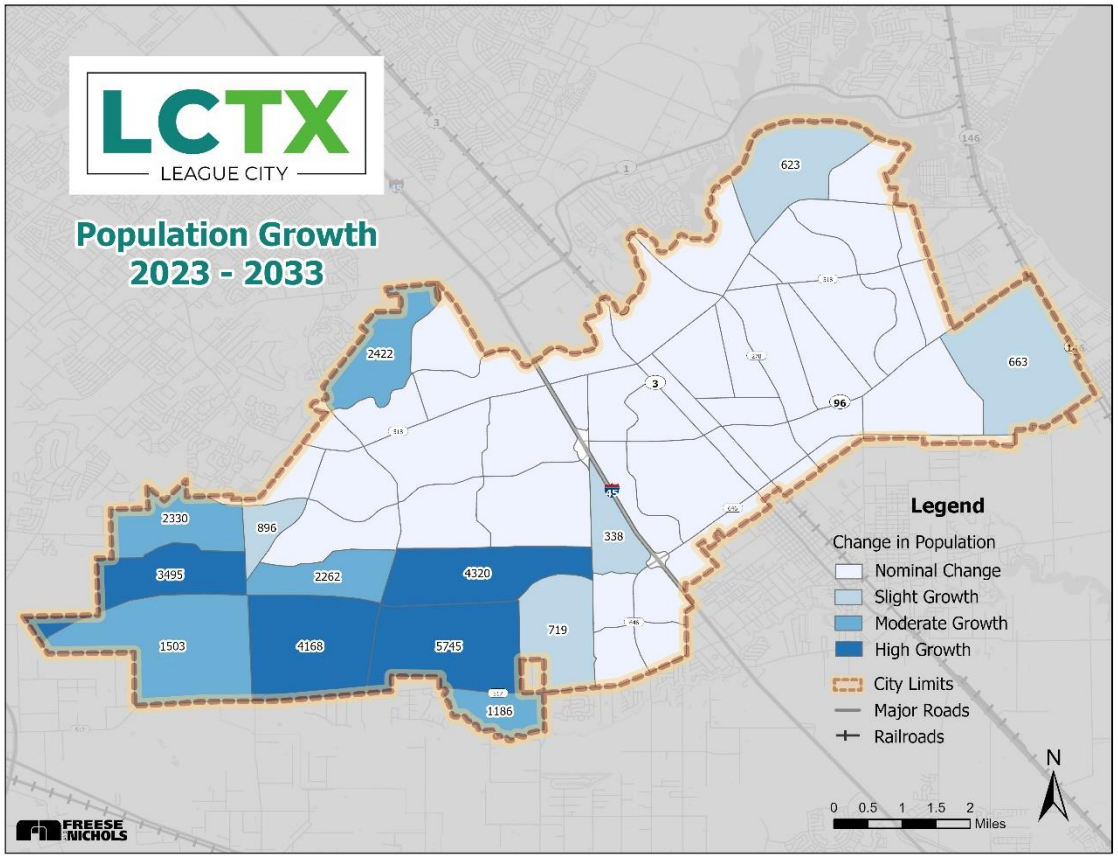
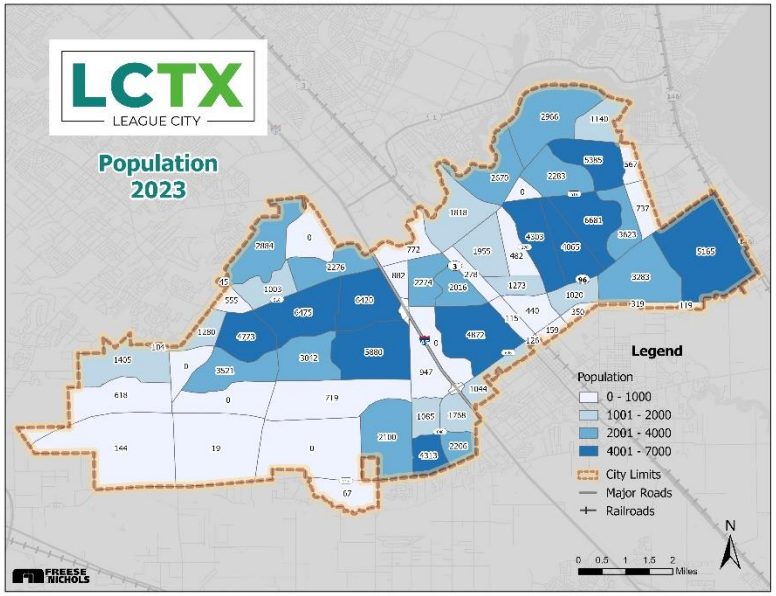


Figure 23: League City Population Growth, 2023 - 2033





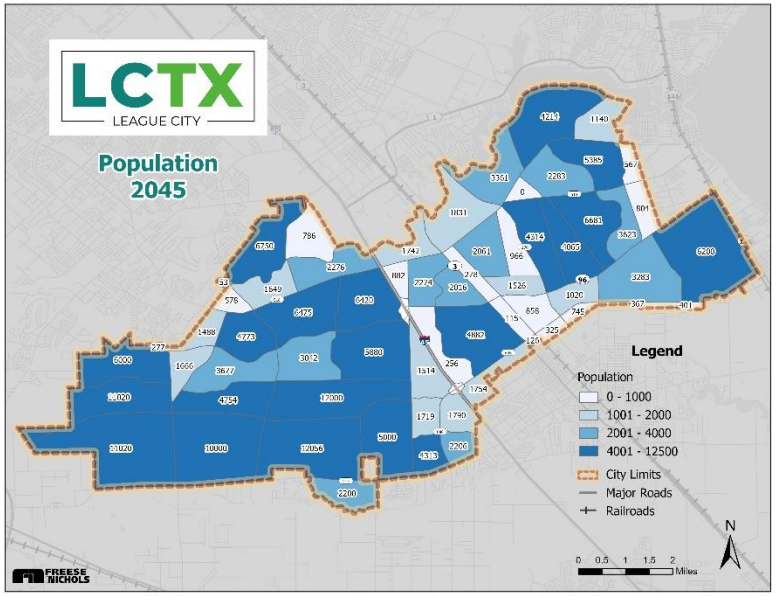
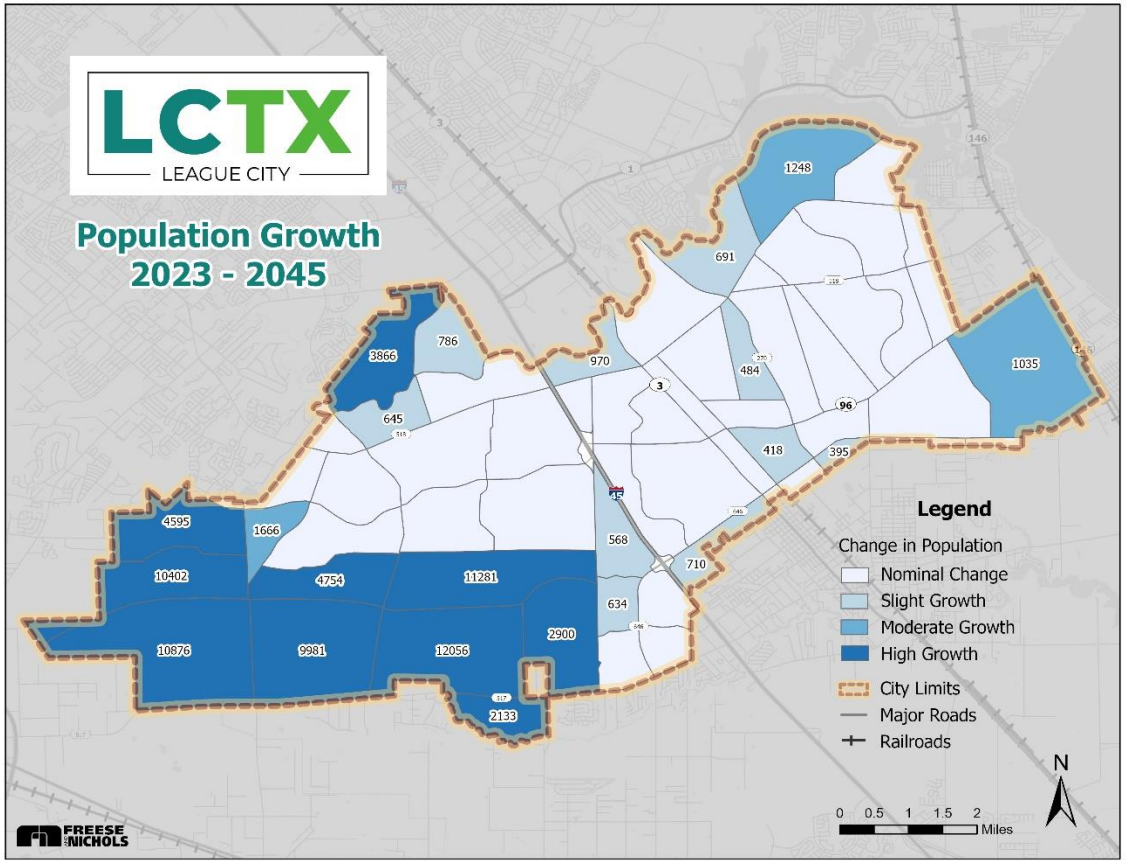


Figure 24: League City Population Growth, 2023 - 2045



Employment

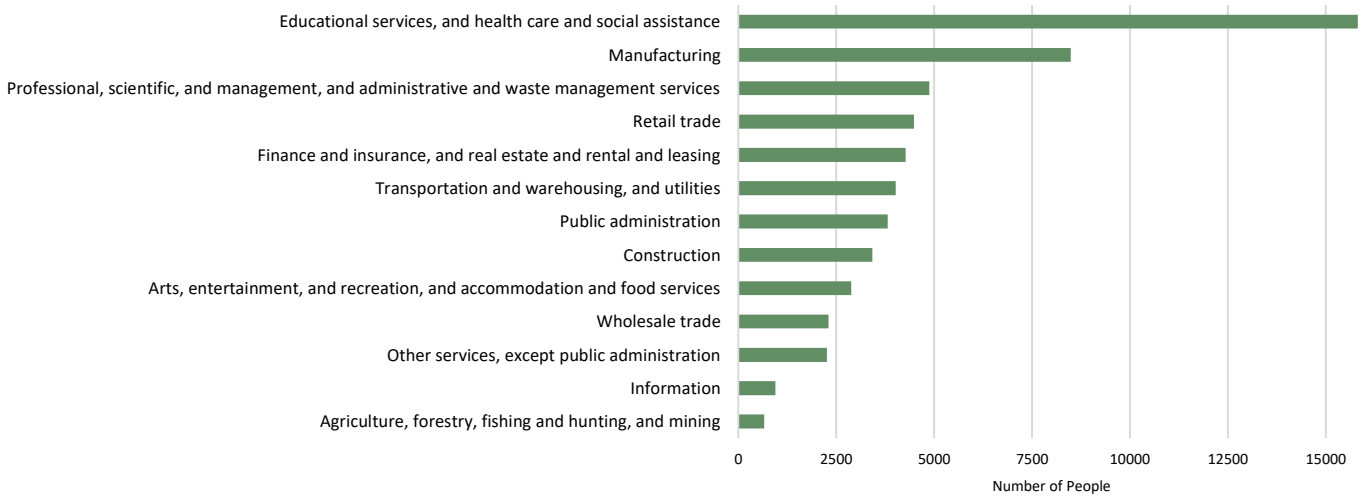
As shown in Figure 25, employment is dominated by the educational, health care, and social assistance industries. The Clear Creek Independent School District is the largest employer with almost 5,500 employees. The top employers in League City are listed in Table 3.

Table 3: Top Employers in League City, 2022

Employer	Industry	Employees
Clear Creek Independent School District	Education	5,459
H-E-B	Retail	934
University of Texas Medical Branch - League City	Education	700
City of League City	Government	657
American National Insurance Company	Service	653
Walmart	Retail	393
Kroger	Retail	338
INEOS USA	Manufacturing	319
MD Anderson	Medical	250
Devereux Texas Treatment Network	Medical	135

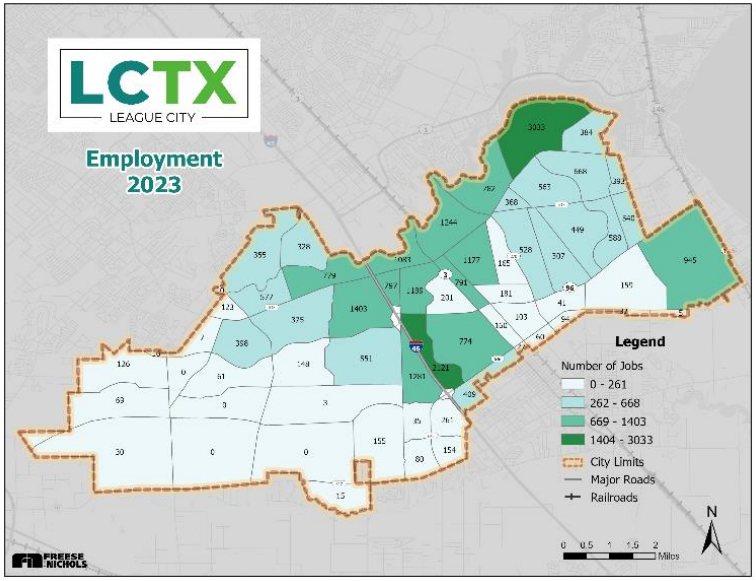
Source: League City Economic Development, 2022

Figure 25: Employment Industries in League City, 2021



Source: U.S. Census

The figures on the following pages show the current and projected employment numbers in League City. High growth is expected in the City's southwest section, where several planned developments are located. Elsewhere, employment levels are expected to remain relatively constant or decrease slightly.



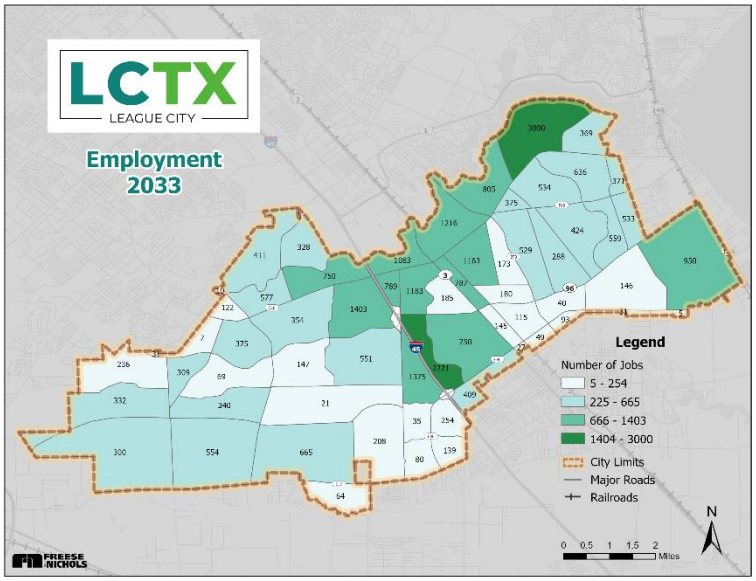
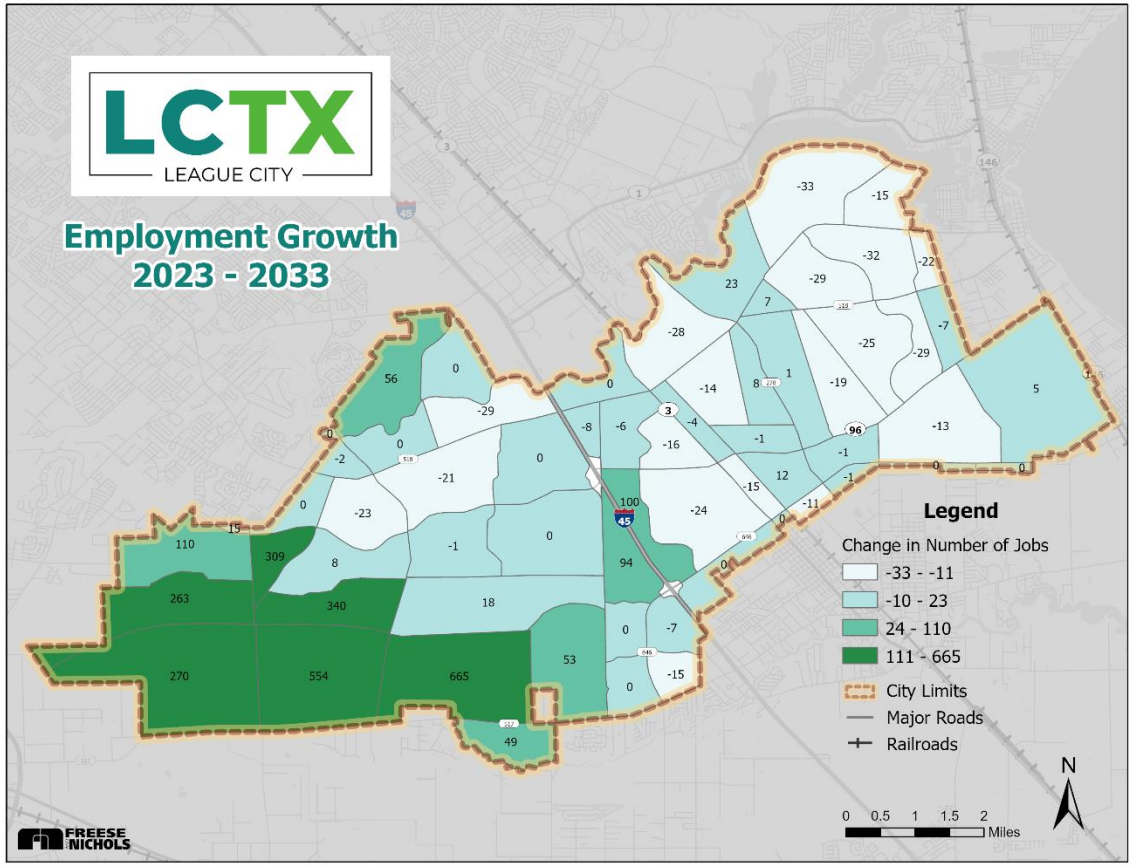
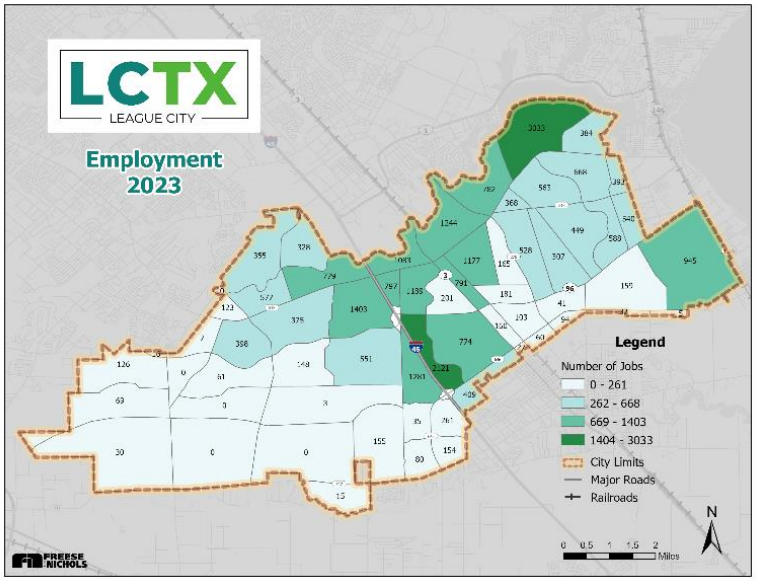


Figure 26: League City Employment Growth, 2023 - 2033





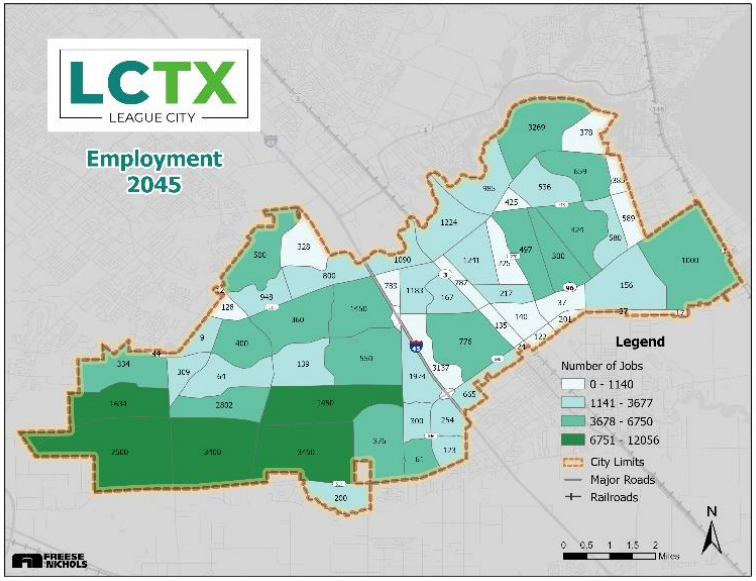
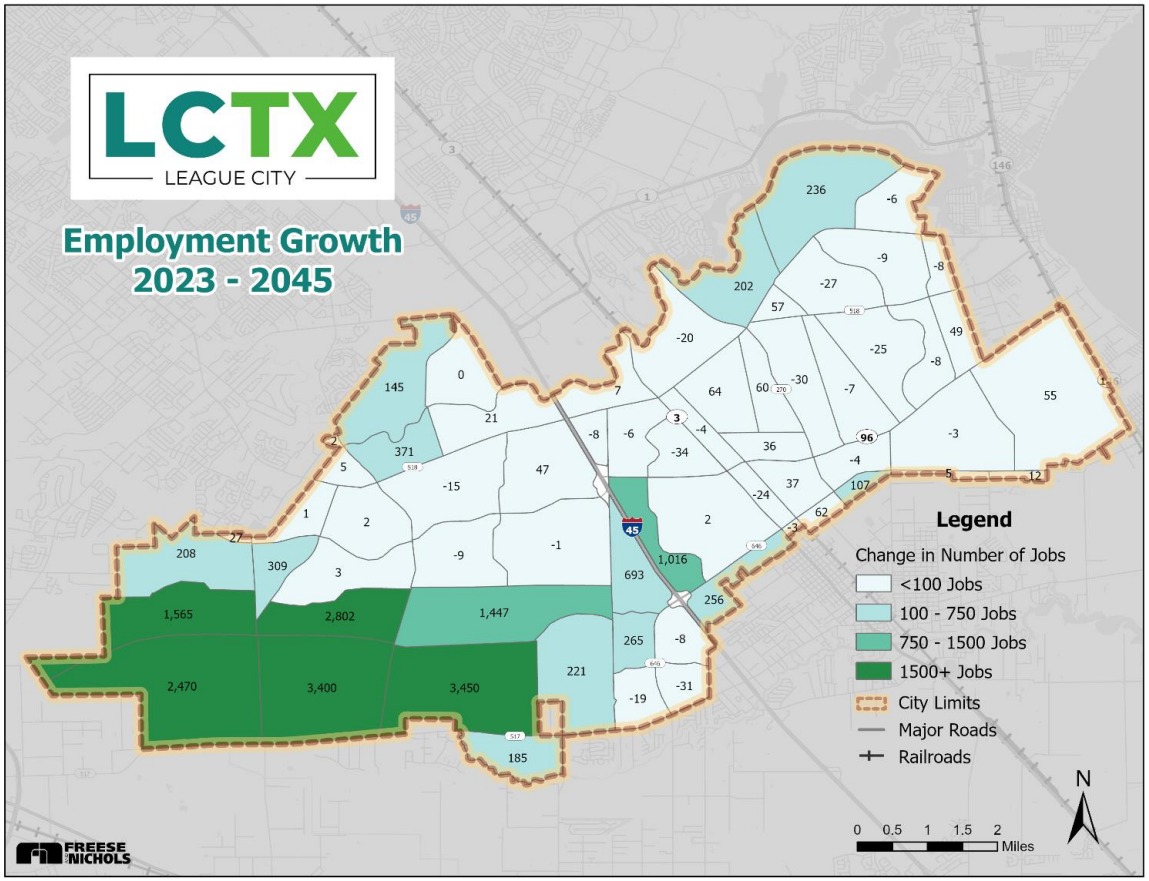


Figure 27: League City Employment Growth, 2023 - 2045



Land Use Analysis

Figure 28: 2017 League City Future Land Use Map

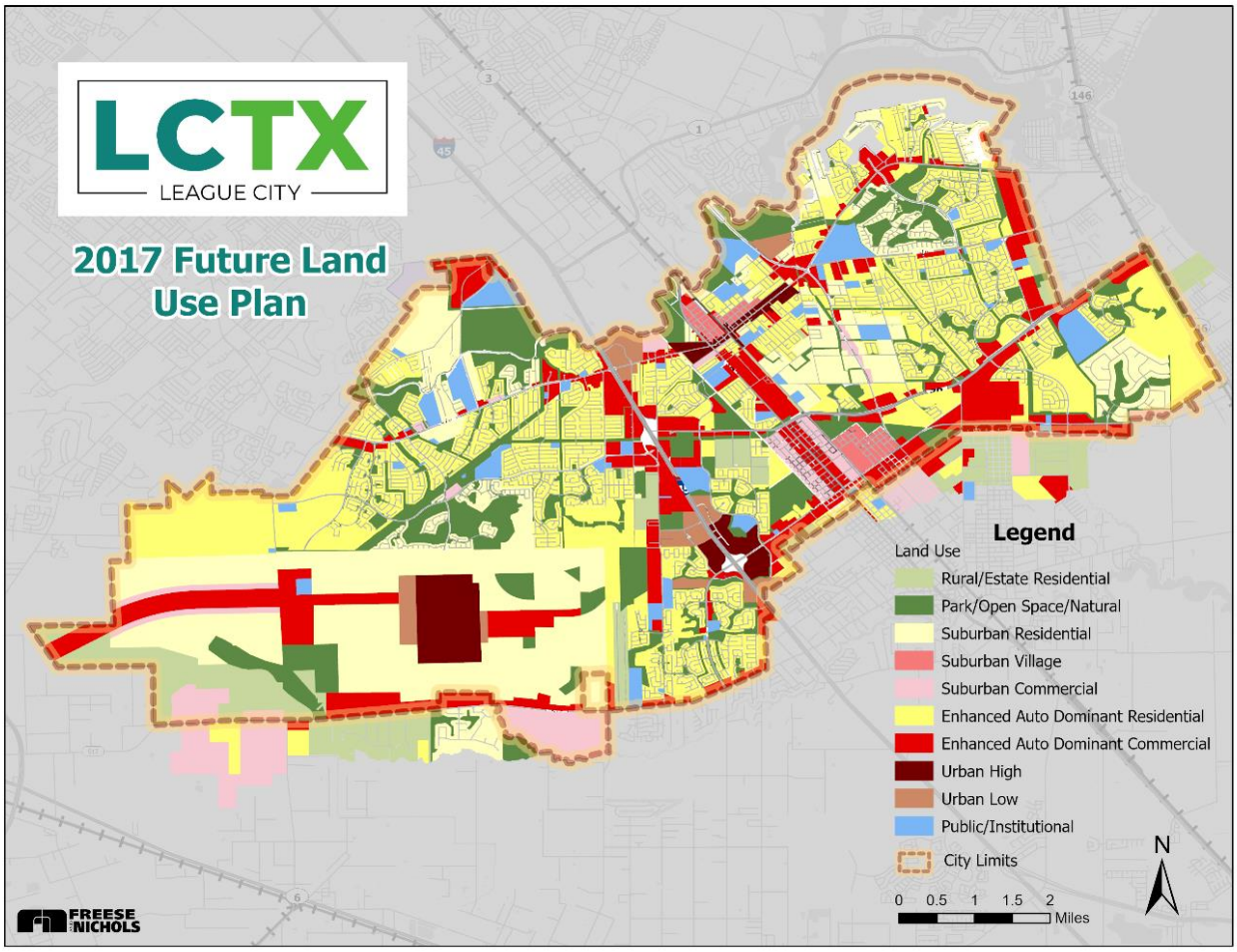


Figure 29: Future Land Use Distribution

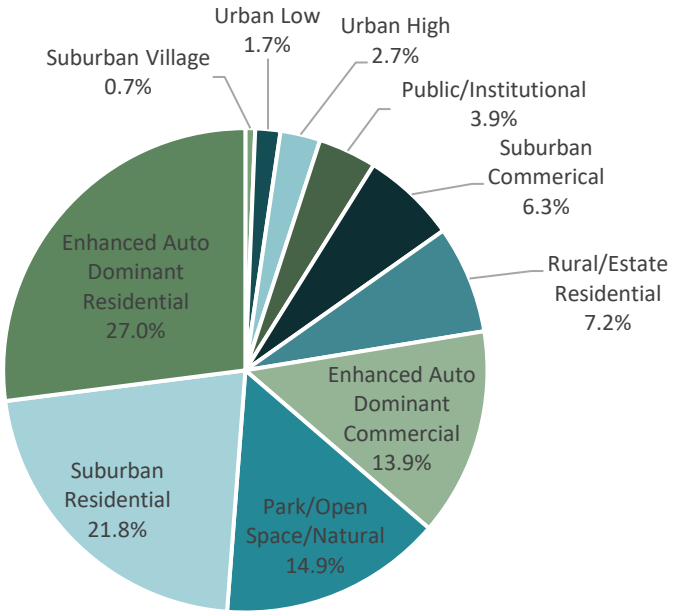


Figure 28 displays the Future Land Use Plan as shown in the League City 2035 Comprehensive Plan, updated in 2017. The most common land use designations in League City are auto dominant residential (27.0%) and suburban residential (21.8%), with large areas of commercial (13.9%) and park/open space (14.9%). Other land uses represent a small percentage of overall land use (Figure 29).

New Technologies

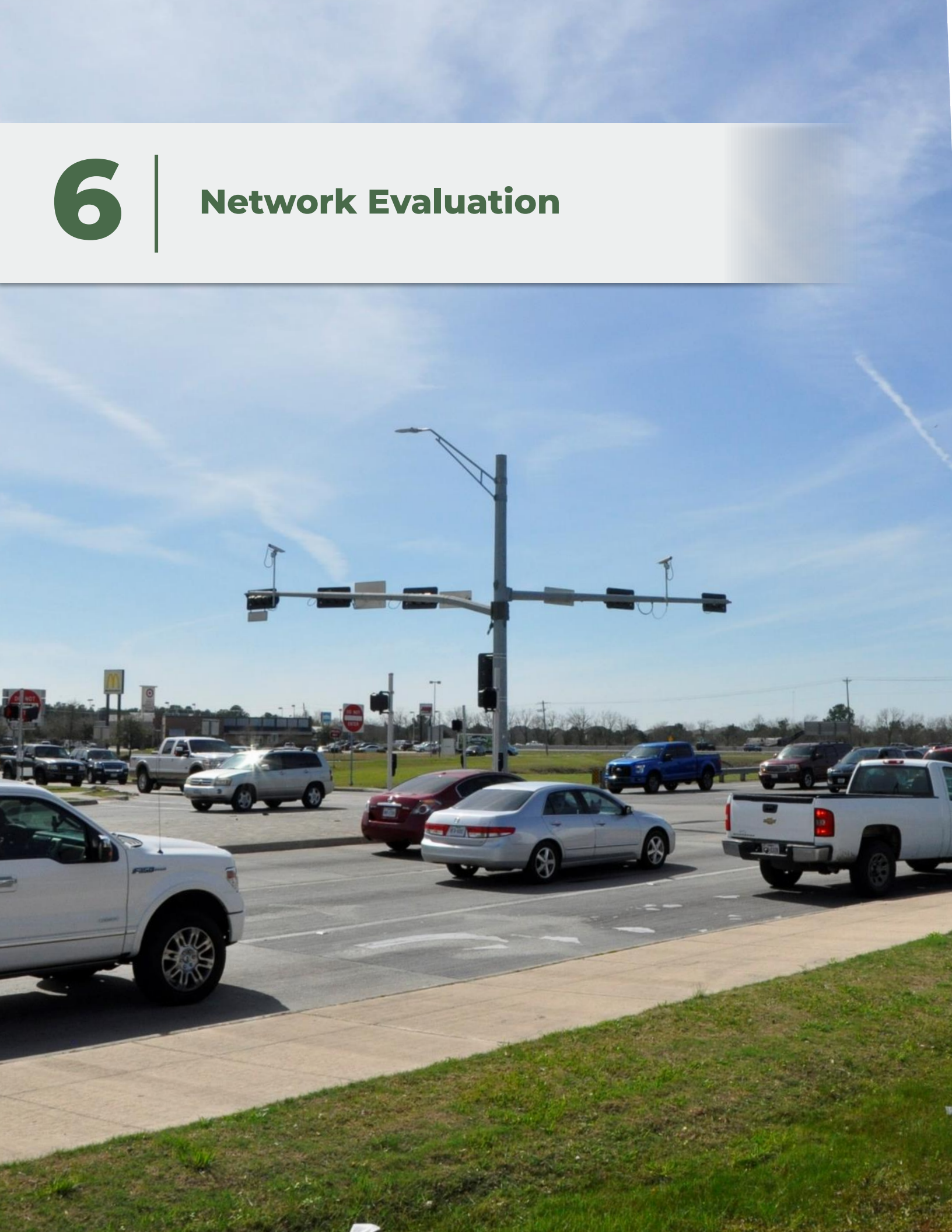
Emerging technologies offer potentially huge changes in how we travel in the future. The recent use of drone technology and the possible future implementation of air taxis in the near future requires the consideration of establishing vertical air rights along City thoroughfares to establish a basic framework to accommodate these types of services.

Currently there are few options to travel around League City apart from the private automobile. Efforts should be made to identify opportunities to support initiatives in developing areas that increase transportation choice. A Bike/Ped/Micromobility Study would identify potential areas and improvements as well as potential funding sources including public/private partnerships.

A review of traveler behavior showed that at least 15% percent of people worked from home in League City in 2022[1]. Observations from the online survey showed support for expanding remote work by the general public. Efforts should be made by League City to increase its knowledge of remote work and other future technologies, identify opportunities to improve wireless network coverage within League City, promote the construction of home offices in new housing, and support other initiatives to reduce travel demand and improve roadway safety.

[1] US Census Bureau, 2022 ACS 1-Year Estimate, Table S0801

6 Network Evaluation



Chapter 6: Network Evaluation

Traveler Behavior

Understanding traveler behavior is key to developing solutions to mobility needs and thoroughfare plan development. Figure 30 shows commuting and demographic data for League City and reveals key trends for how residents of League City use the transportation system.

Figure 30: League City Transportation Profile

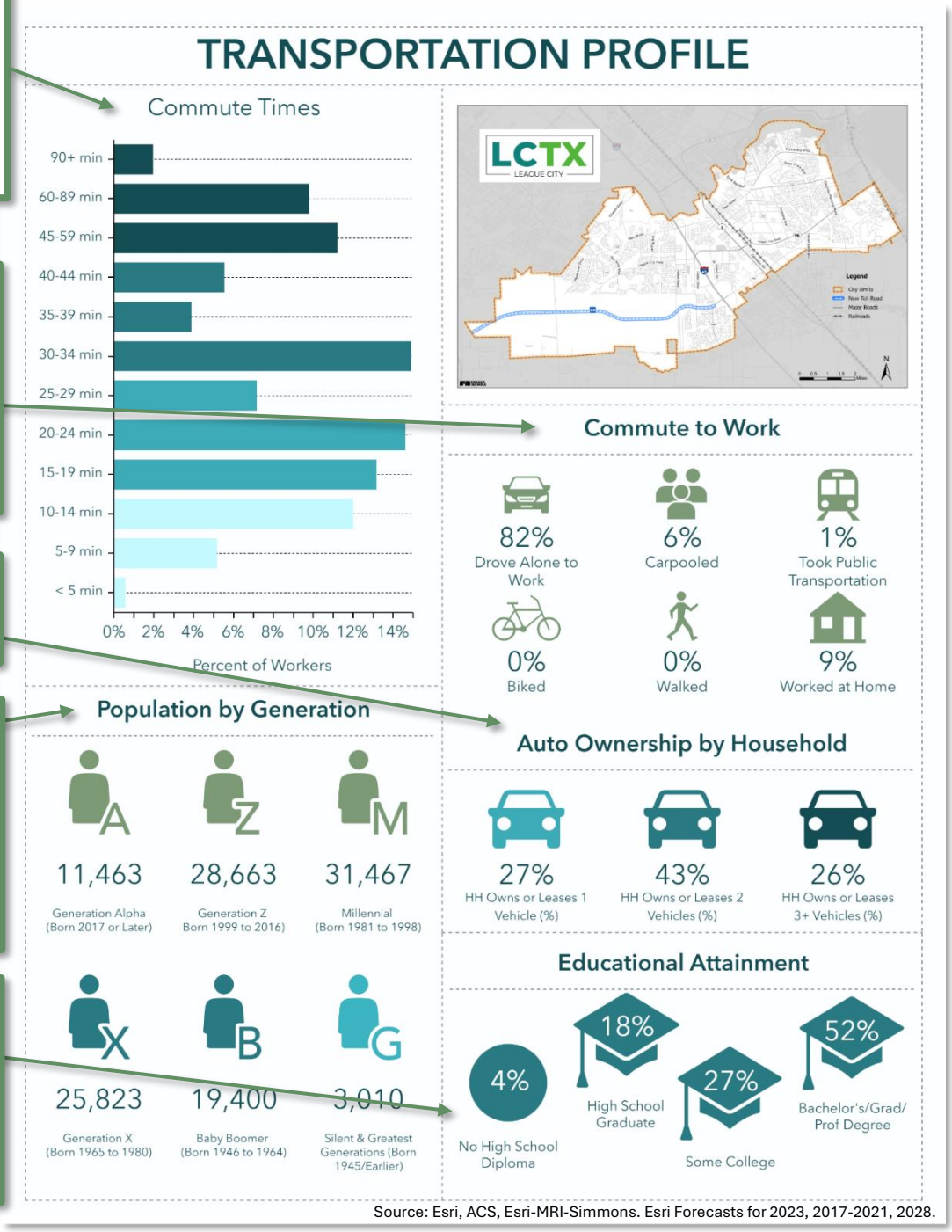
Low Commute Times
About 53% of workers travel less than 30 minutes to work. 5.7% of workers have a commute less than 10 minutes, and 11.7% have a commute over one hour.

Commuting via Car
Most residents of League City (82%) commute to work via car, truck, or van by themselves. Few (about 0.3%) travel via active transportation (biking or walking).

High Auto Ownership
Around 94% of households have at least one vehicle.

Working-Age Population
Millennials and Gen X make up a large portion of the population (47.8%) as Gen Z (23.9%) continually adds to the workforce and Baby Boomers and the Silent Generation decline.

High Educational Attainment
Over 50% of people have at least one higher education degree, with almost 80% of people having at least some college education.



Source: Esri, ACS, Esri-MRI-Simmons. Esri Forecasts for 2023, 2017-2021, 2028.

Figure 31: Screenlines/ Daily Traffic Volumes in League City

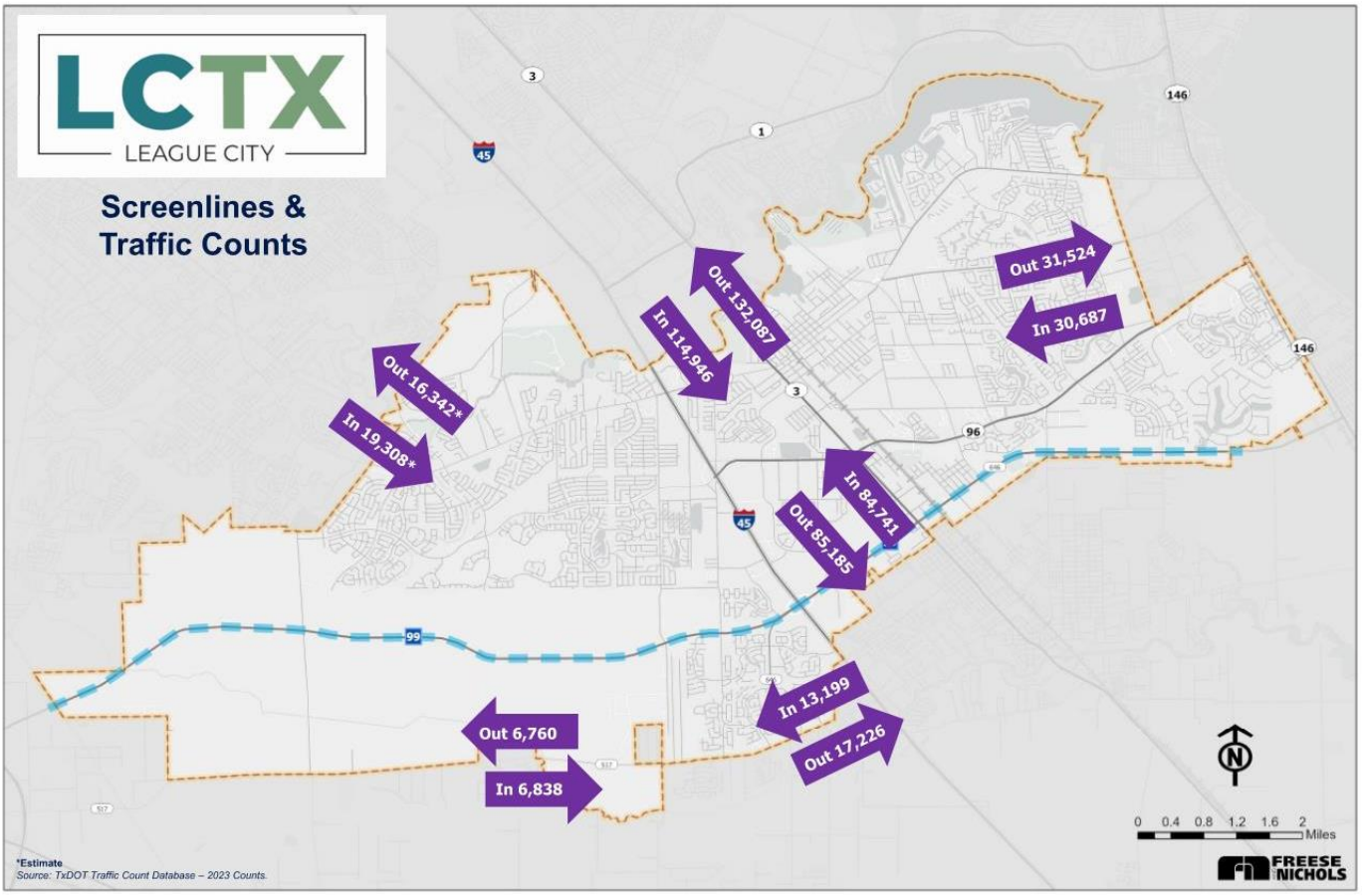
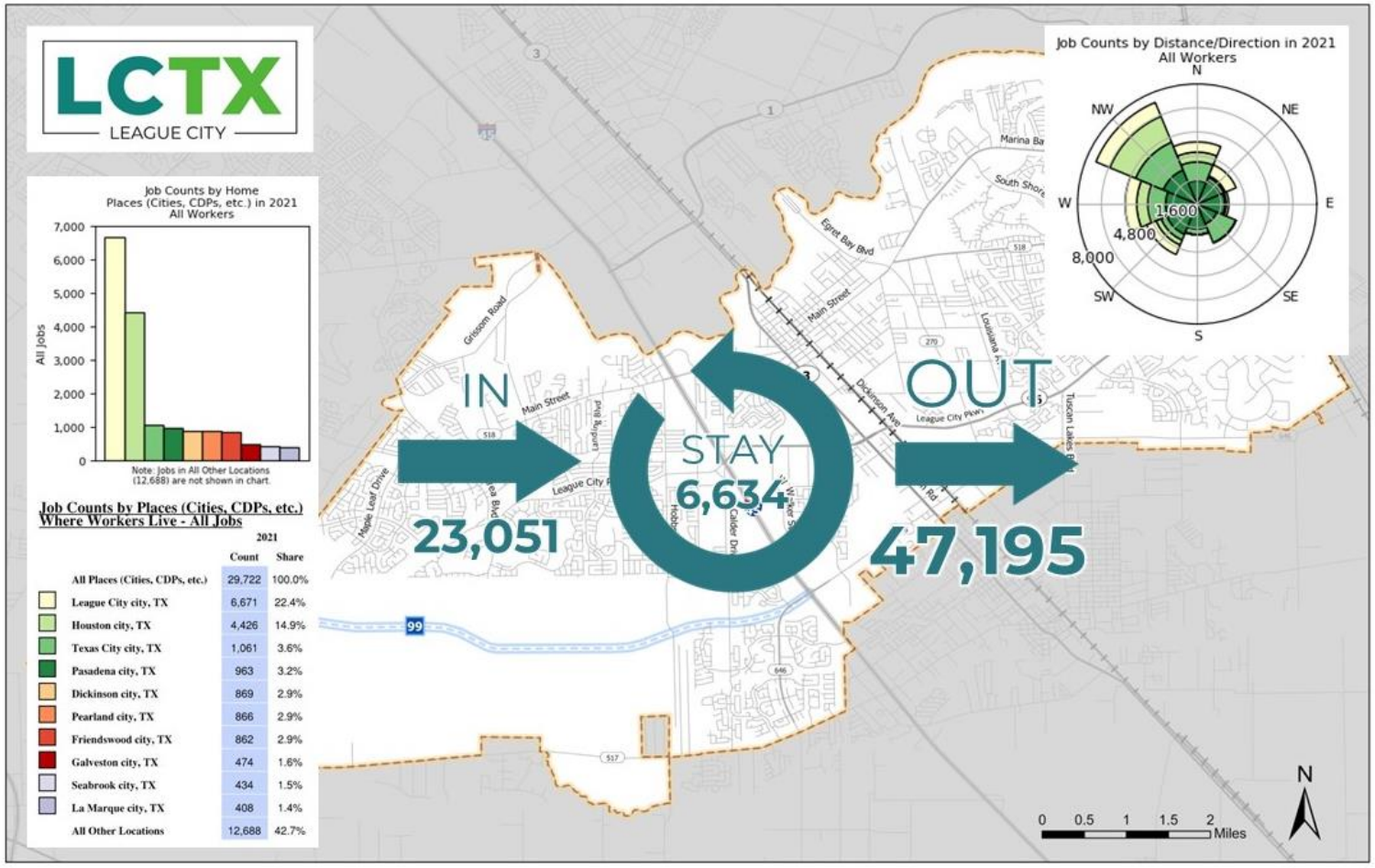


Figure 31 shows observed daily traffic volumes in and out of League City at major entry points. Screenline analysis of observed traffic shows that traffic activity is highest along the northern boundary with significant volumes of traffic not continuing beyond League City. East-West traffic is higher along the eastern boundary than the western boundary. Traffic activity is lowest along the western boundary.

Figure 32: 2021 Commuter Flows



Source: U.S. Census Bureau, OnTheMap Application and LEHD Origin-Destination Employment Statistics (Beginning of Quarter Employment, 2nd Quarter of 2002-2021)

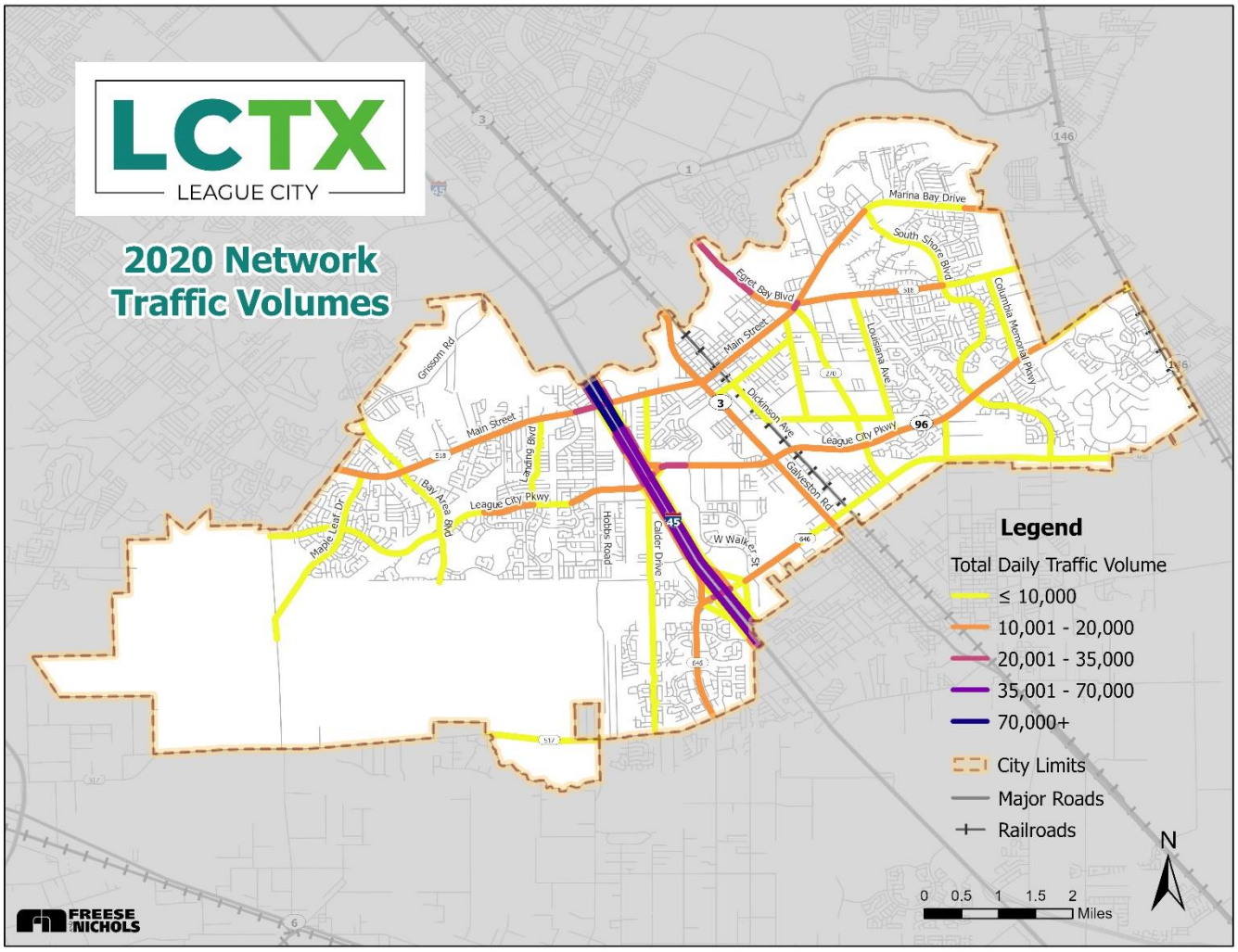
Commuters in League City tend to follow similar travel patterns (Figure 32). Most workers (47,195) travel out of League City for work, with a significant portion of workers (23,051) traveling into League City from elsewhere. Only a small portion of commuters (6,634) live and work within the city. Of those who travel out of the city for work, most travel northwest towards Houston. Pasadena and Texas City are other common destinations.

Observed and Forecasted Travel Demand

Understanding how traffic flows into and out of League City is key to prioritizing roadway improvements. Using the latest daily traffic volume data from the Houston-Galveston Area Council (H-GAC) regional travel demand model, traffic volumes were analyzed for 2020, 2030, and 2045.

2020 traffic volume data for each roadway in League City shows that IH 45 has the highest daily traffic volume of any roadway, with the next most-traveled roads being FM 518 and SH 96. FM 518 (Main Street) provides access to residential communities and some schools. Note: the COVID-19 pandemic may have impacted the traffic counts displayed in Figure 33, with the calibrated model reflecting lower numbers than are typical for League City.

Figure 33: 2020 Traffic Volumes



The 2030 and 2045 roadway volume projections show the impact of SH 99 on the network. IH 45 will remain the roadway with the highest volume, and the planned SH 99 extension will also see high volumes. Other major arterial roads are projected to maintain similar traffic volumes or significantly increase. Additions to the roadway network in the north will also impact the distribution of volumes.

Figure 34: 2030 Projected Traffic Volumes

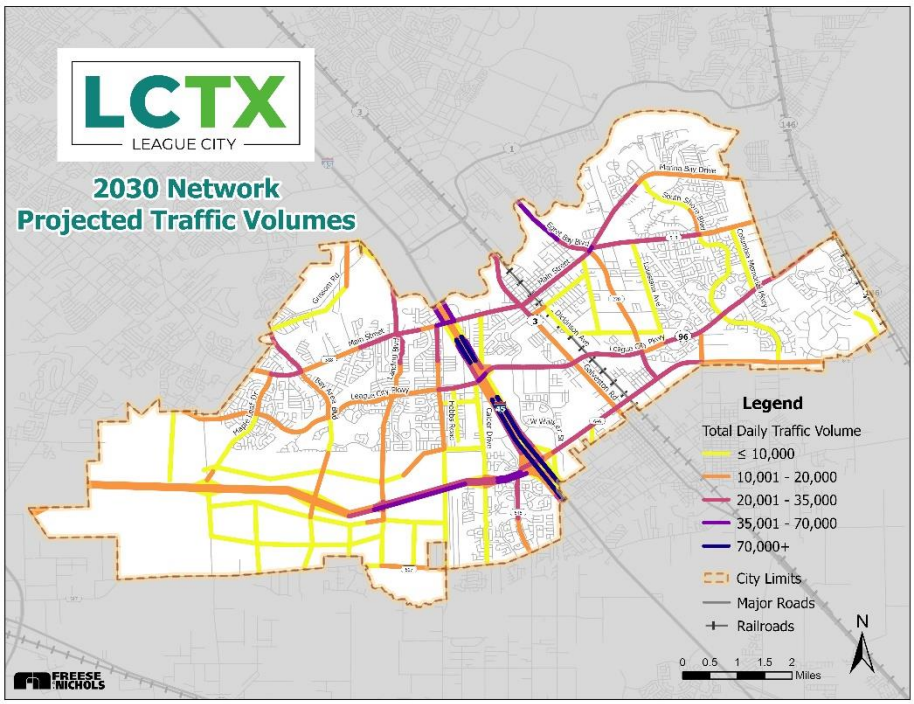
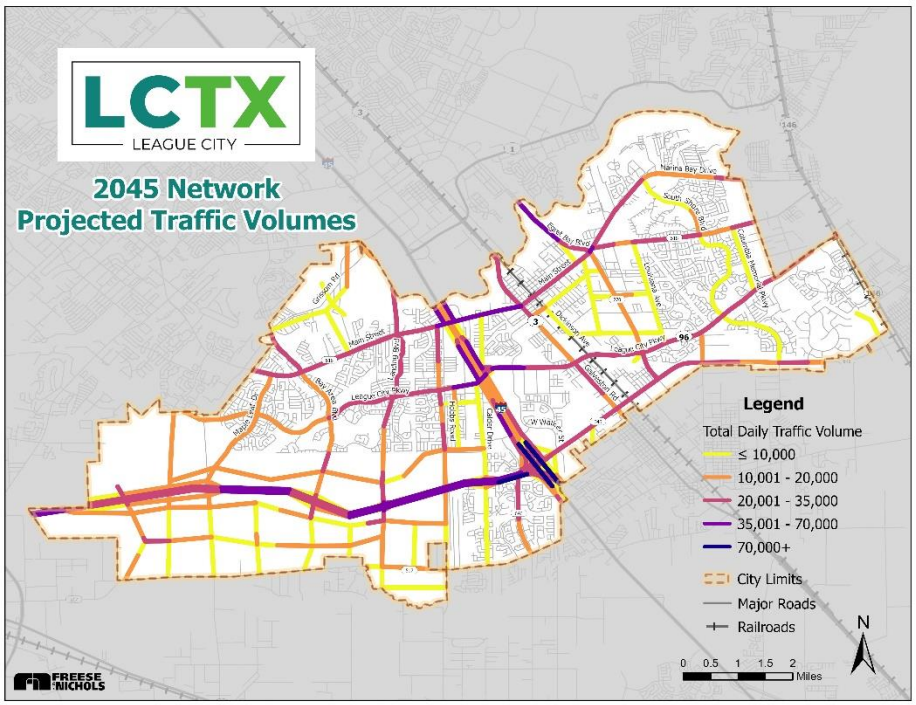


Figure 35: 2045 Projected Traffic Volumes



Level of Service

Level-of-Service (LOS) is a performance measure used to evaluate the function and flow of traffic through a roadway network. LOS is a measure of congestion expressed as the volume to capacity ratio of a roadway. Volumes represent an estimated number of vehicles observed on a road segment, while capacity is the maximum number of vehicles a roadway was designed to accommodate within that segment.

Traffic operational performance is based on a LOS scale from A through F, with A referring to free flow traffic conditions and F representing severely congested facilities. The closer a roadway's volumes are to equaling or exceeding their capacity, the lower the level-of-service (D-F); lower volumes and volumes further below the roadway's capacity exhibit a higher level-of-service (A-C).

Most cities design for operational conditions resulting in LOS C and D during peak hours. Economically, LOS C or D roadways are ideal for pedestrian activity. In some cases, optimization of LOS may be constrained due to right-of-way or environmental factors. The operational conditions are described in Figure 36.

Note that the use of level of service as a measure to review congestion has come under criticism by urban and transportation professionals recently, with some agencies abandoning its use altogether. While LOS still provides context for congestion, its use for evaluating transportation networks may be viewed with less weight than other measures. This is due to the historical trend of LOS encouraging sprawl by placing emphasis on reducing congestion at intersections, opposed to measures like vehicle miles traveled (VMT) which emphasize reducing vehicle miles travelled through alternative modes of transportation and infill/mixed-use development.

Figure 36: Typical Level of Service Operational Conditions

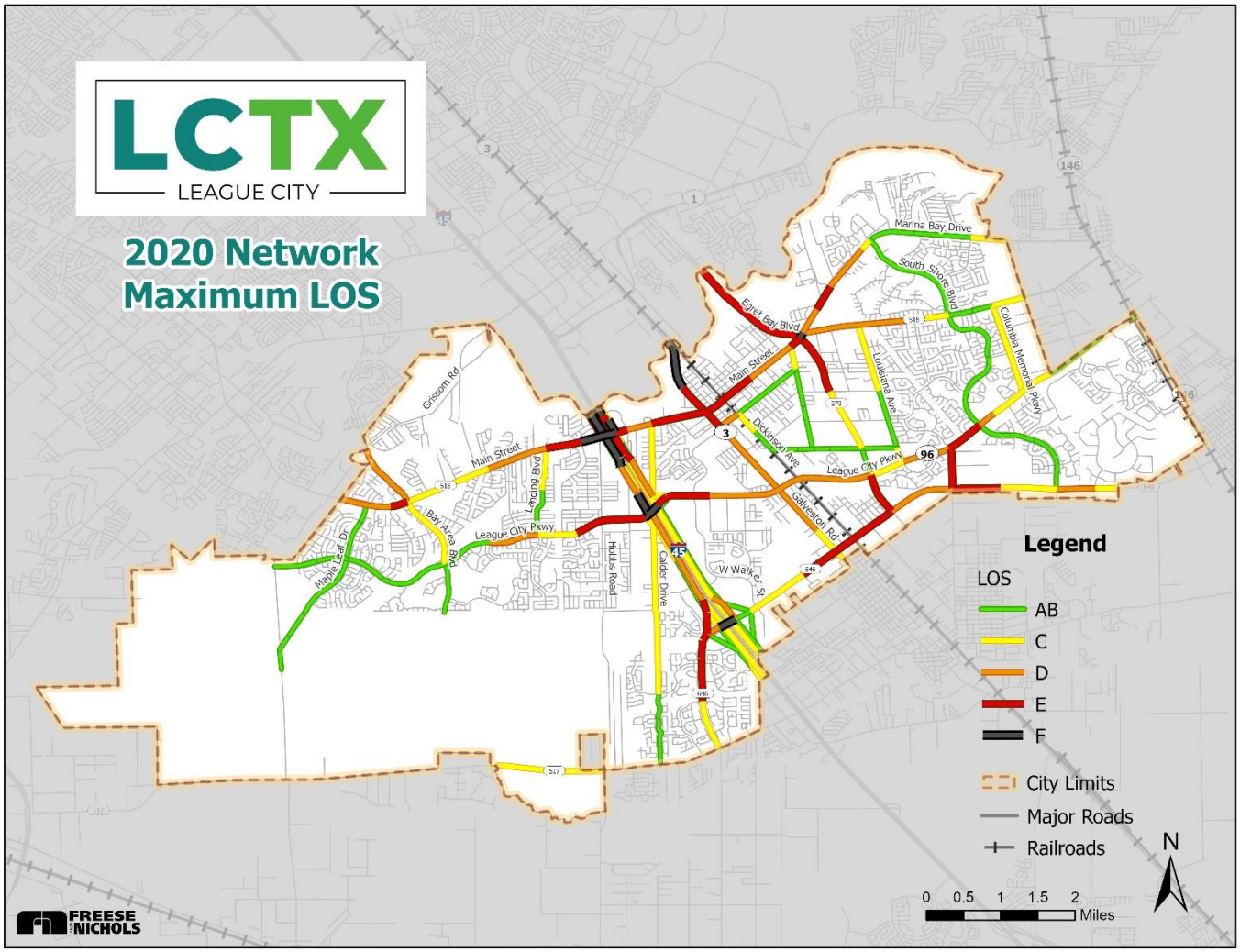
LOS A, B, C: Traffic flow in this category moves at or above the posted speed limit. Travel time in this category is not hindered as a result of congestion because traffic volumes are much less than the actual capacity.

LOS D-E: This category is slightly more congested than LOS ABC; however, traffic volumes are beginning to reach their capacity of the thoroughfare. Traffic usually moves along at an efficient rate and posted speeds may not be fully reached.

LOS F: Congestion is apparent in this level-of-service category. Traffic flow is irregular, and speed varies. The posted speed limit is rarely, if ever, achieved in this category. In more congested corridors, traffic can be at a mere standstill with limited progression during peak hours.

An analysis of the 2020 Level of Service shows that several places have acceptable levels of congestion (LOS is a D or lower), including several major arterial roads such as FM 518 and FM 646. Many minor arterial roads have an LOS of C or higher, indicating a good flow of traffic on those corridors. Congestion levels are highest on and around IH 45 (LOS F).

Figure 37: 2020 Maximum LOS



Forecasts show an overall increase in congestion throughout the City by 2045. In 2030, congestion will be limited to major arterials and freeways. By 2045, congestion will spread to the arterial network and became more severe at select locations.

Figure 38: 2030 Maximum LOS

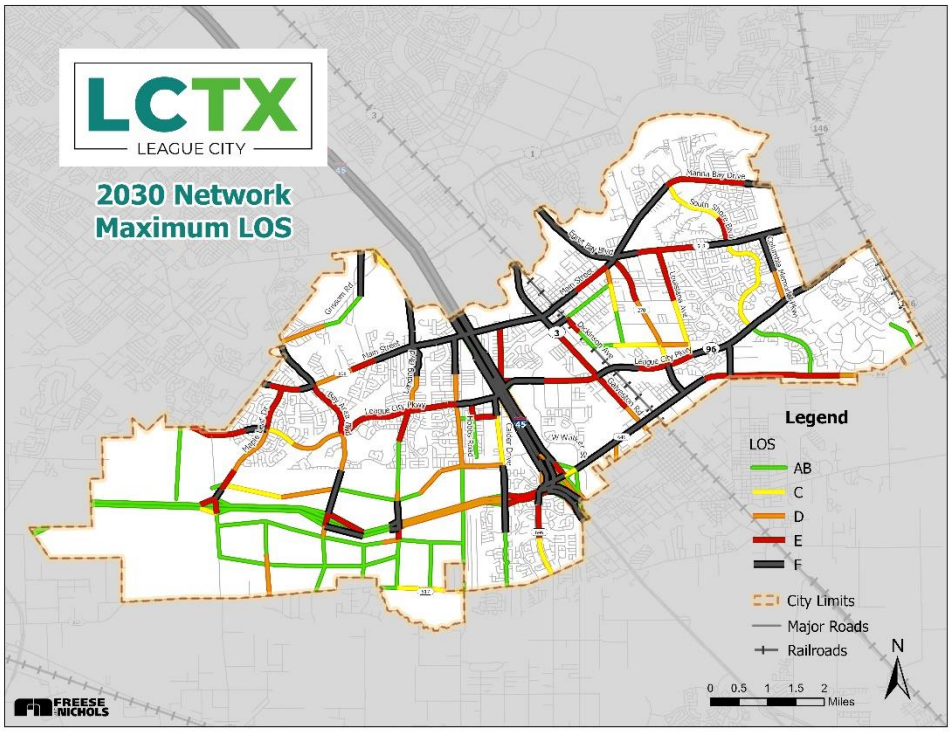
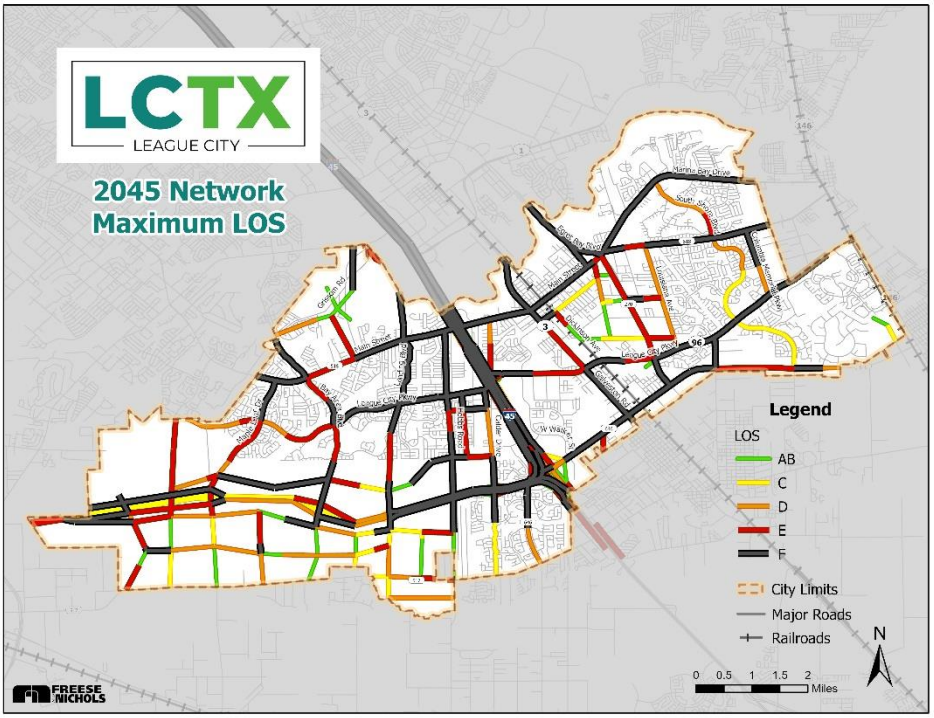


Figure 39: 2045 Maximum LOS

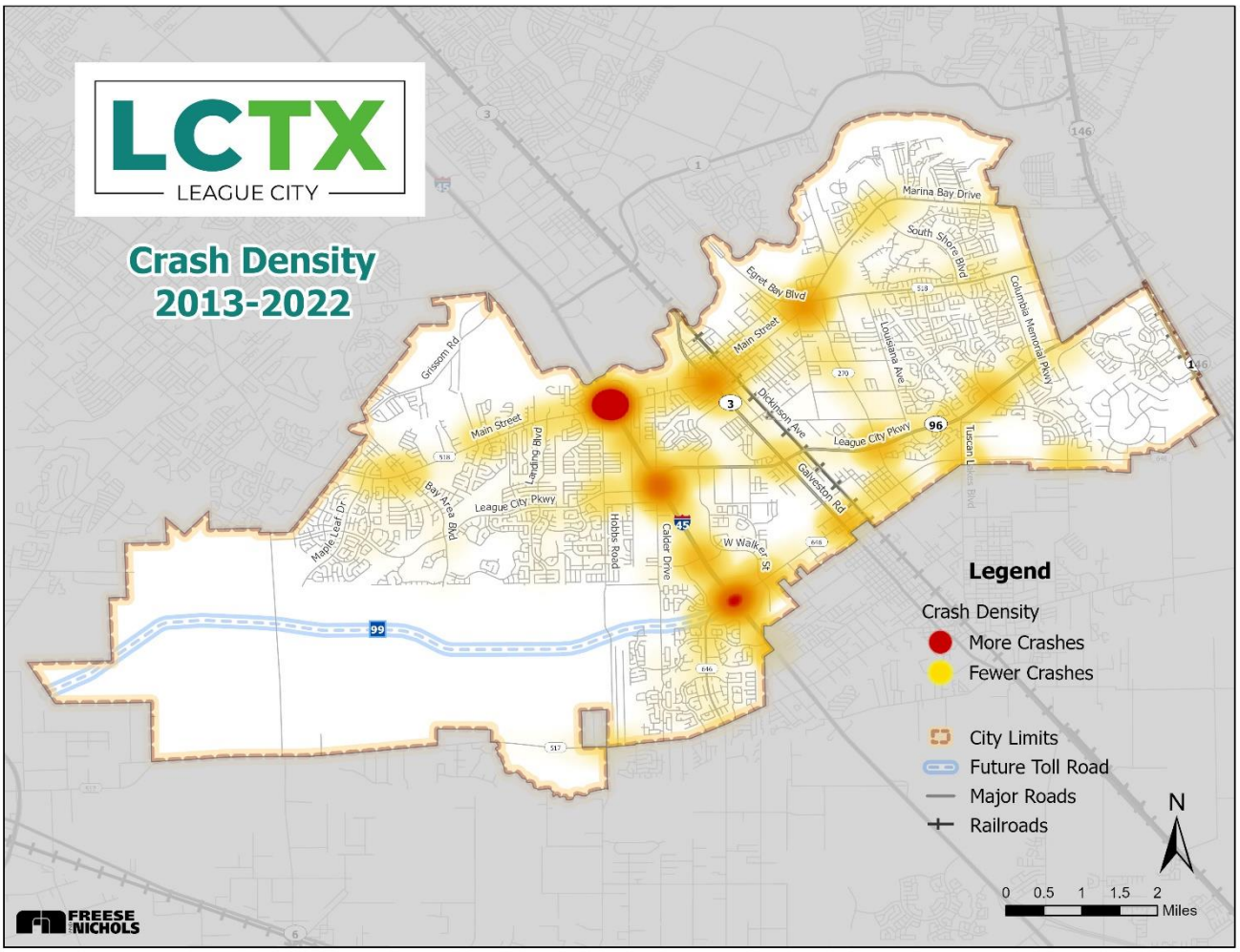


Safety Analysis

Locations of Crashes in League City

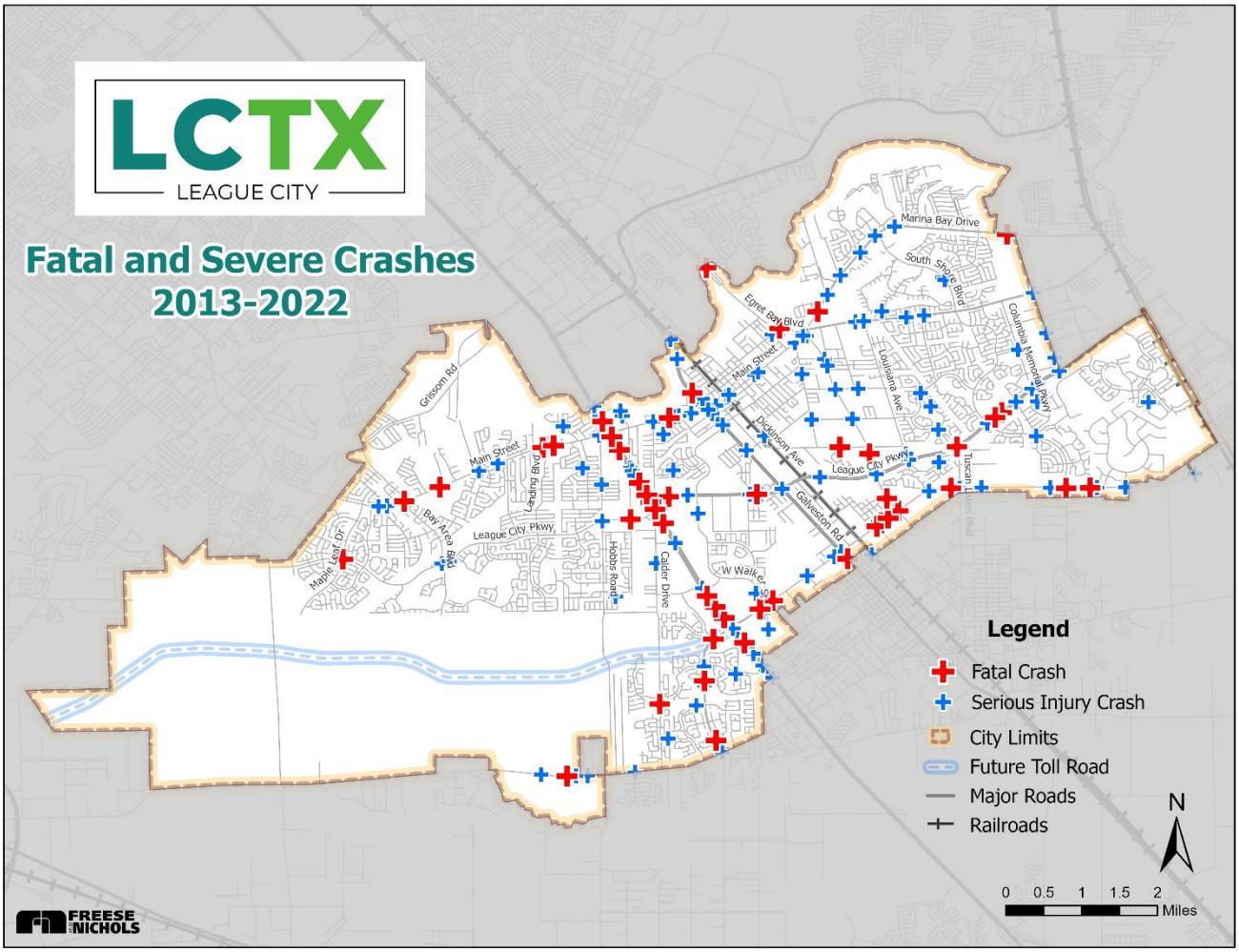
Safety is one of the most important considerations in thoroughfare planning. Analysis of traffic accidents from 2013 through 2022 were conducted using the TxDOT Crash Records Information System (CRIS). This analysis showed that crashes in League City often occur at intersections and along corridors with high traffic volumes like IH 45 and FM 518, as shown in Figure 40.

Figure 40: Crash Density in League City, 2013-2022



Source: TxDOT Crash Records Information System, all crashes in League City 2013-2022

Figure 41: Fatal and Severe Crashes in League City, 2013-2022



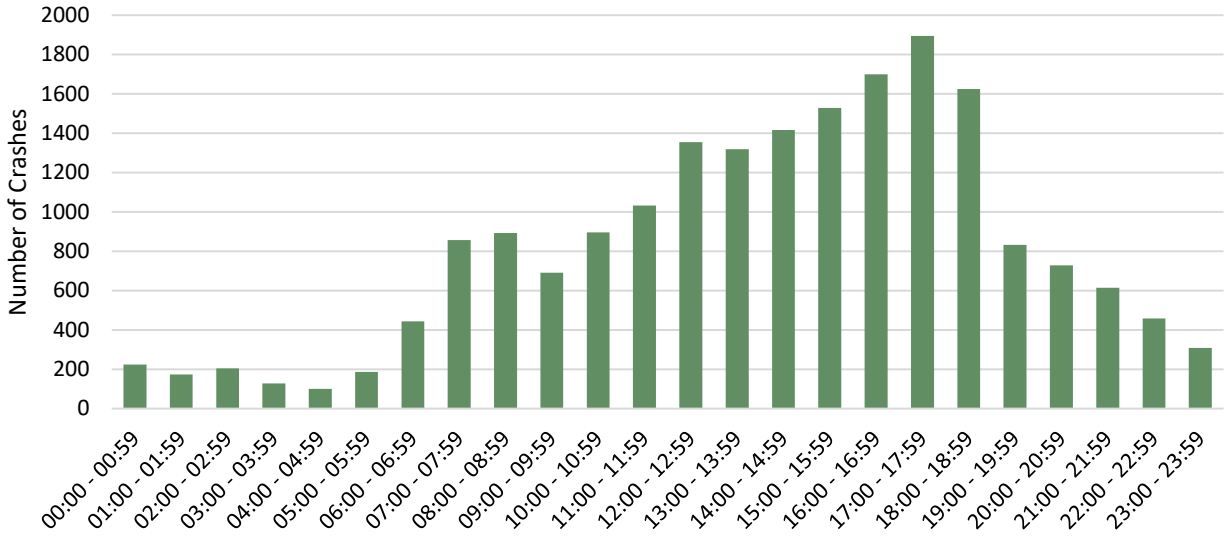
Source: TxDOT Crash Records Information System, all crashes in League City 2013-2022

Figure 41 shows the locations of crashes with fatal and serious injuries. These more severe crashes appear to occur frequently along major arterial roadways or freeways, with fewer on collector or local roads. High-speed, high-volume corridors are associated with more severe injuries to persons involved in crashes.

Crashes by Time of Day

As shown in Figure 42, crash activity during the day occurs during midday and PM peak traffic periods. Crashes are noticeably less frequent in the early morning hours. The AM peak has the lowest number of crashes during the day.

Figure 42: Crashes in League City by Time of Day, 2013-2022

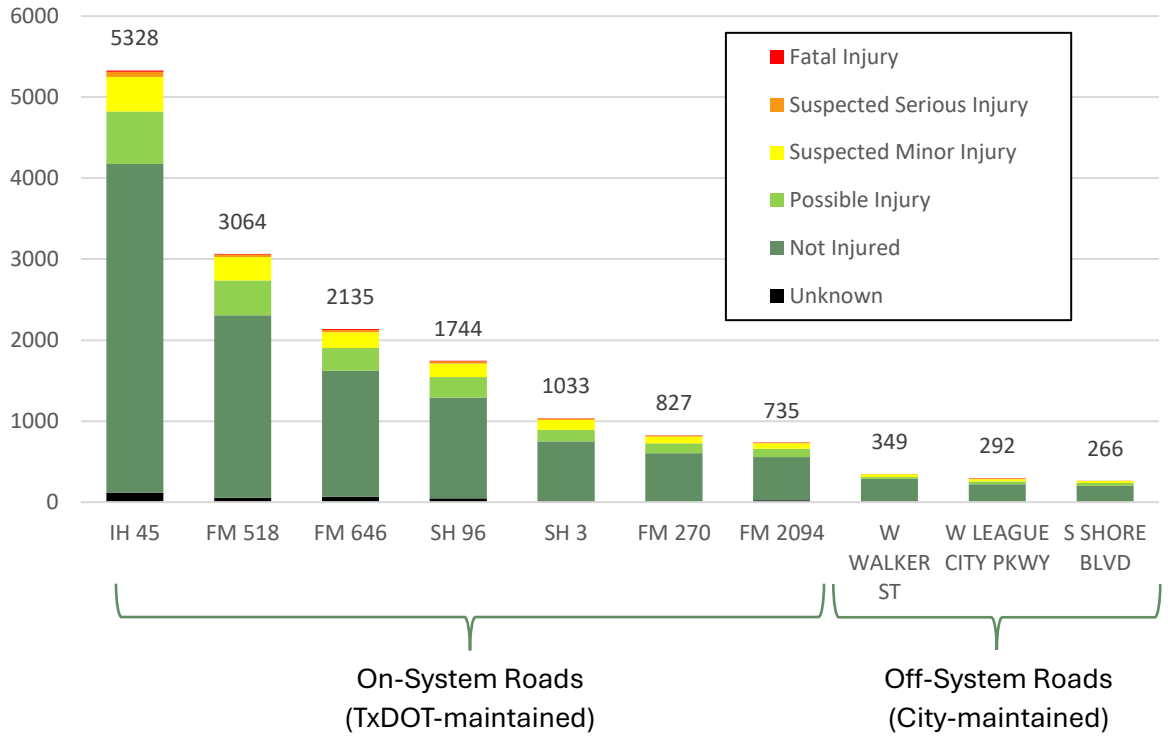


Source: TxDOT Crash Records Information System, all crashes in League City 2013-2022

Crashes by Facility

As shown in Figure 43, the number of crashes on local roads is much lower than those on Interstates or farm-to-market roads. IH 45 had the highest number of crashes from 2013-2022. The top 7 roadways by number of crashes are on-system roadways, and TxDOT is the lead agency in addressing safety concerns on these facilities.

Figure 43: Injury Severity in League City by Road, 2013-2022

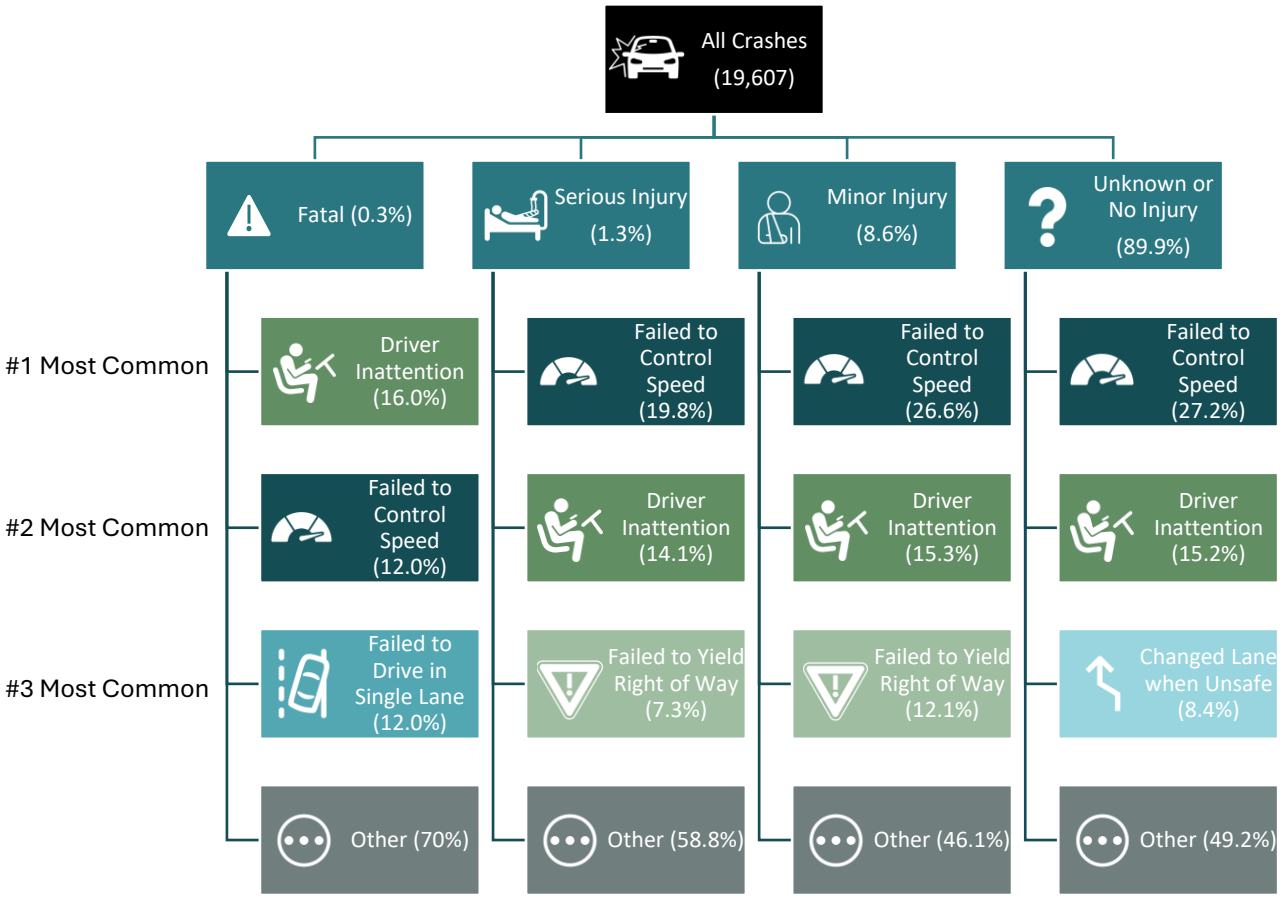


Source: TxDOT Crash Records Information System, all crashes in League City 2013-2022

Contributing Factors

Figure 44 illustrates the primary contributing factors for all crashes in League City from 2013-2022, separated by the severity of the crash. Driver inattention and failure to control speed are the primary contributing factors across all crash severity levels, with driver inattention being the most common contributing factor in fatal crashes (16.0% of all fatal crashes). The top three most common primary contributing factors in non-fatal and non-serious crashes constitute over 50% of the crashes. Countermeasures should focus on these factors to make the most significant reduction in these crashes. Efforts to control speed through traffic calming measures like chicanes, narrower lanes, parallel street parking, and sidewalk bulb-outs should be encouraged.

Figure 44: Primary Contributing Factors in Crashes in League City, 2013-2022

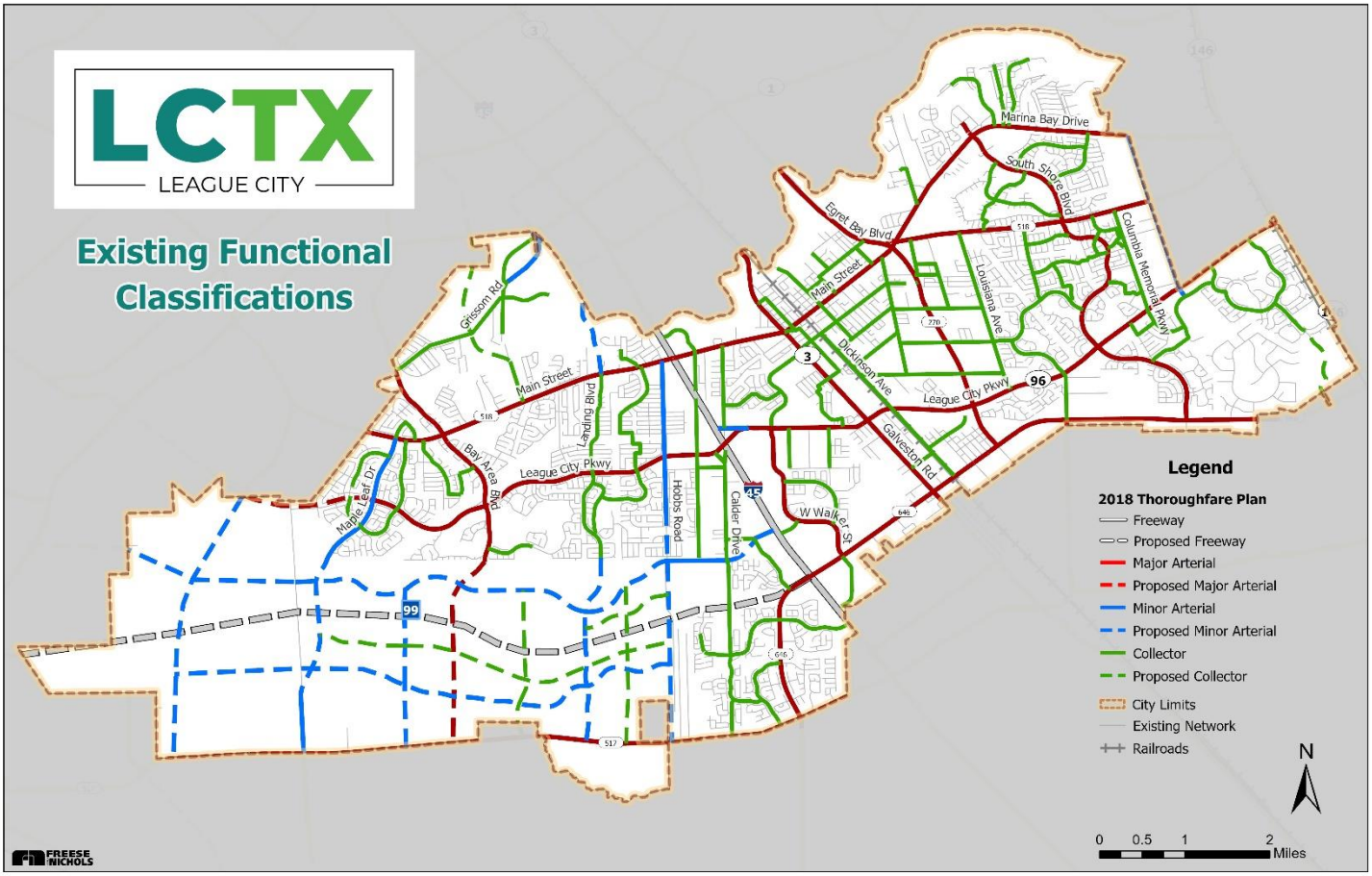


Source: TxDOT Crash Records Information System, all crashes in League City 2013-2022

Transportation Network Review

The City's transportation network provides the framework for future growth and development. Figure 45 provides an illustration of League City's existing transportation network. Interstate 45 (IH 45), State Highway 3 (SH 3), and State Highway 270 (SH 270) and Bay Area Boulevard provide the main north-south connections. East-west connections are provided by State Highway 96 (SH 96), Farm to Market Road 518 (FM 518), Farm to Market Road 646 (FM 646), Farm to Market Road 517 (FM 517), and the incoming State Highway 99 (SH 99).

Figure 45: Existing Functional Classifications in League City



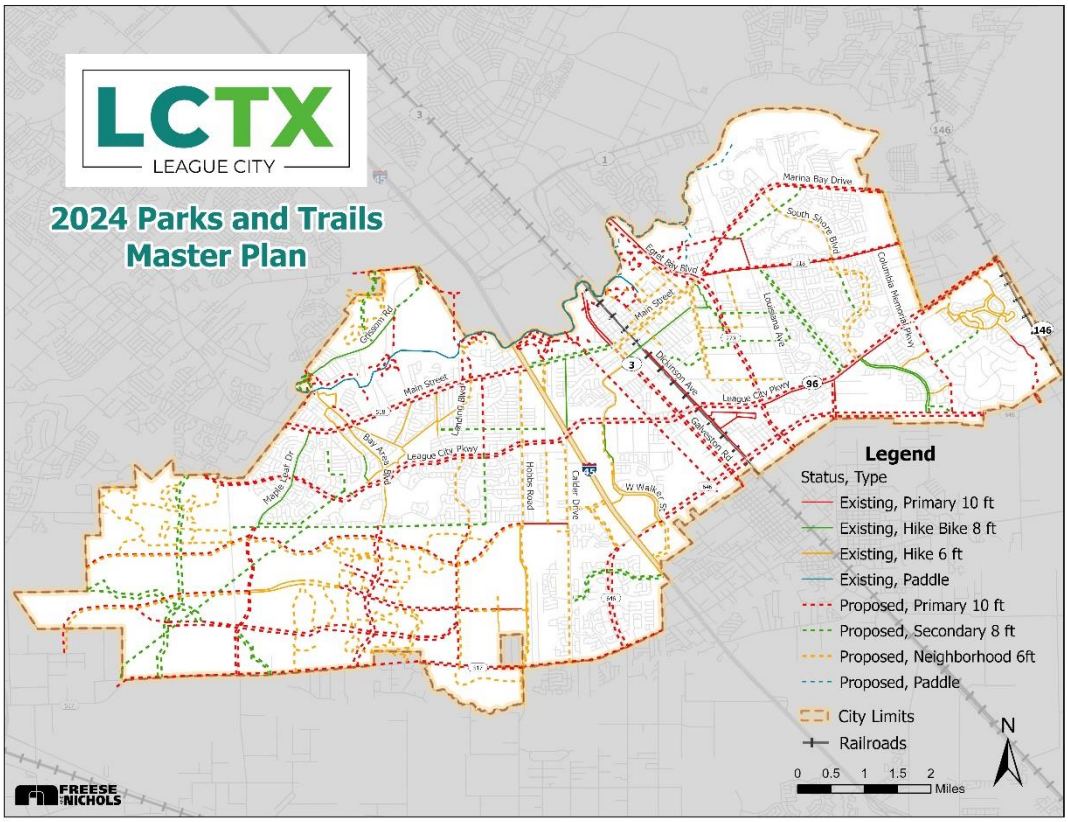
Connectivity within League City

North-South Connectivity – Currently, there are limited continuous routes for commuters to travel north to south through the west side of the city. With the addition of new residential developments throughout southwest League City, stakeholders expressed concern over the lack of north-south corridors in the area.

East-West Connectivity – FM 518 and SH 96 provide east-west connectivity in League City, as well as FM 646 along the southeastern edge of the city. The southwestern sector will be supplemented by the proposed SH 99 Toll Road. Public and stakeholder input indicated the desire for additional east-west connectivity due to several planned developments in the area that will affect the traffic flow.

Pedestrian Connectivity – A key concern identified by both public and stakeholder input is the need for improved pedestrian connectivity. As previously mentioned, certain areas on the eastern side of the city were identified as needing additional pedestrian infrastructure such as sidewalks. It was especially important to stakeholders that sidewalks are a part of a larger mobility network to encourage their use. Connection between land uses such as schools, housing, and commercial uses were encouraged. League City's 2024 Parks, Trails, and Open Space Master Plan (Figure 46) outlines the city's plans to expand its hike and bike trail network and includes a prioritized list of trail projects for the near future.

Figure 46: League City Parks and Trails Master Plan 2024

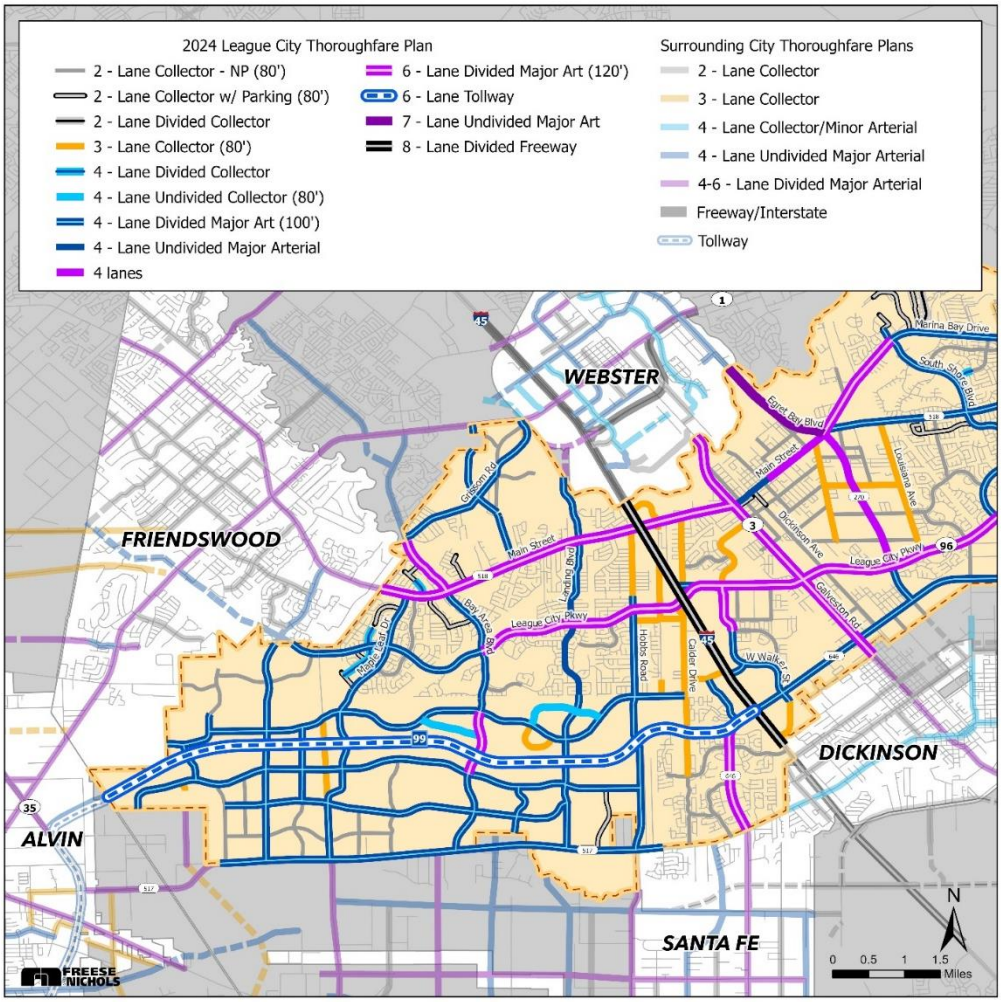


Connectivity with Surrounding Cities

Thoroughfares should generally be consistent between League City and surrounding cities to facilitate smooth travel between cities. A comparison of League City's 2024 Thoroughfare Plan and the most recent thoroughfare plans adopted by nearby cities of Webster, Friendswood, Alvin, Santa Fe, and Dickinson reveals that the plans are generally well connected. Figure 47 shows the surrounding cities' thoroughfare plans in relation to the 2024 League City Thoroughfare Plan.

There are some discrepancies between the proposed thoroughfares. In Webster's Thoroughfare Plan, Egret Bay Blvd is shown as a 4-lane Minor Arterial, while in League City, it is listed as a 7-lane Major Arterial. Additionally, some roads on Santa Fe's Thoroughfare Plan could have improved their connection to League City; however, their plan is only conceptual.

Figure 47: Thoroughfare Plan Comparison



On-System Roads

On-system roadways are defined as roadways that TxDOT is responsible for planning, constructing, and maintaining (Figure 48). These roads connect the city to surrounding communities on all sides. Most of the major roadways in League City are on-system, with fewer facilities to the west.

Figure 48: On-System Roadways in League City

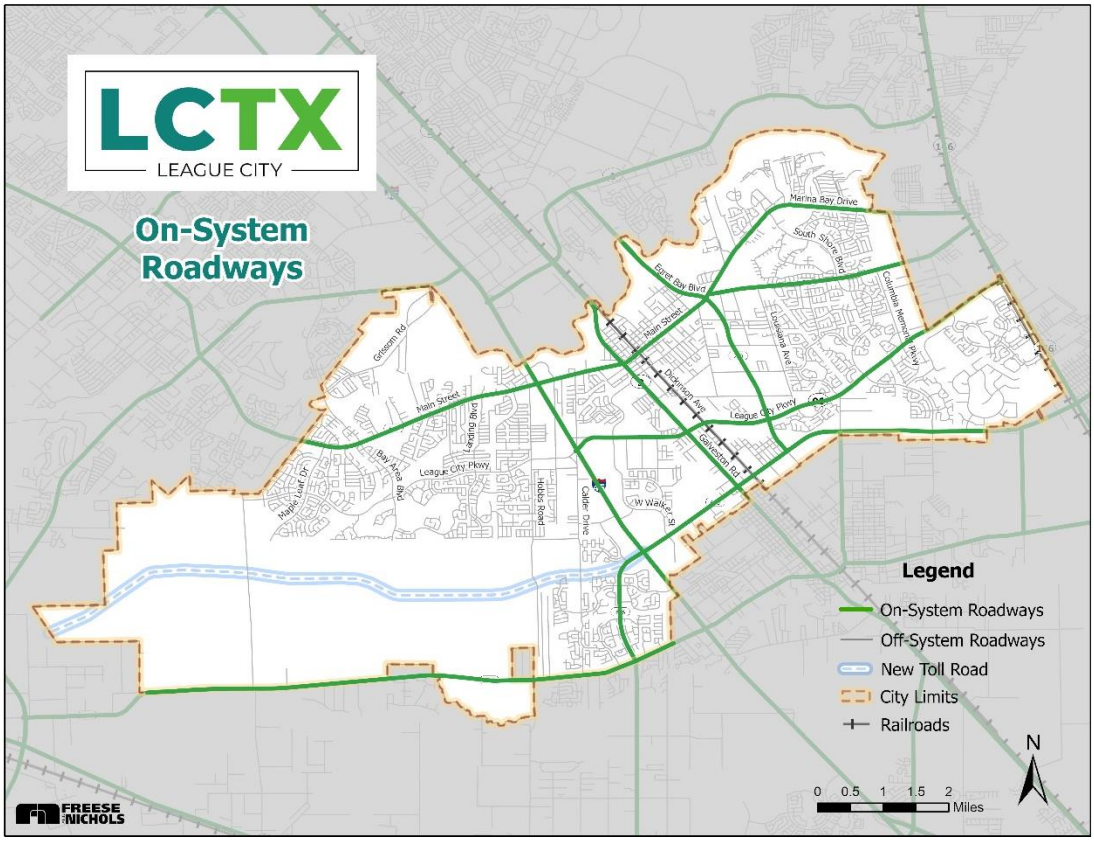


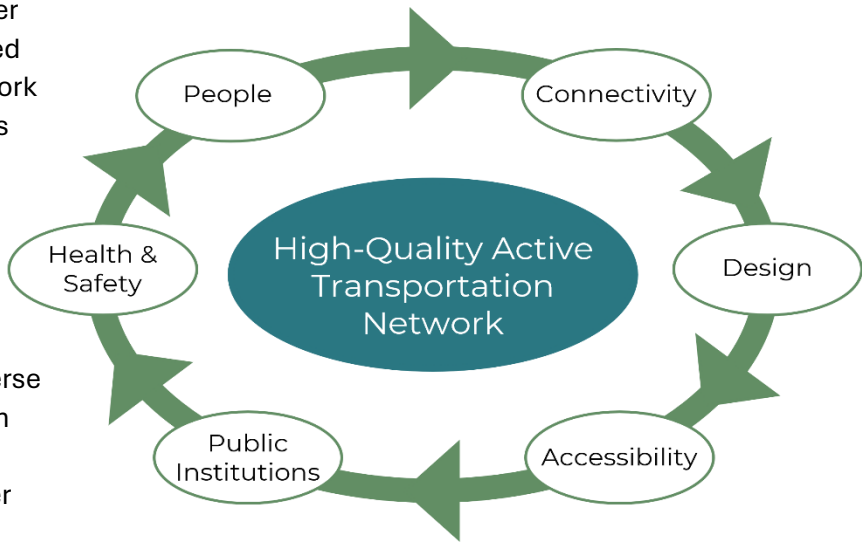
Table 4: Functional Classification of On-System Roadways in League City

On-System Roadway	TxDOT Functional Class
IH 45	Freeway
FM 518 / Main Street	Principal Arterial
SH 96 / League City Pkwy	Principal Arterial
FM 270 / Egret Bay Blvd	Minor Arterial
FM 2094 / Marina Bay Dr	Minor Arterial
FM 646	Principal Arterial
FM 517	Minor Arterial
SH 3	Principal Arterial

Review Of Complementary Transportation Services

A high-quality active transportation network is a cornerstone of resilient communities and involves integrating a series of essential elements (Figure 49) that promote equity, health and safety, accessible design, connectivity and coordination of citizens and public institutions. It is becoming more necessary to look at the overall right-of-way and full spectrum of user needs when a roadway is constructed or reconstructed to create a framework for decision-making which prioritizes different modes based on land-use context and the hierarchy of functional purposes of the road.

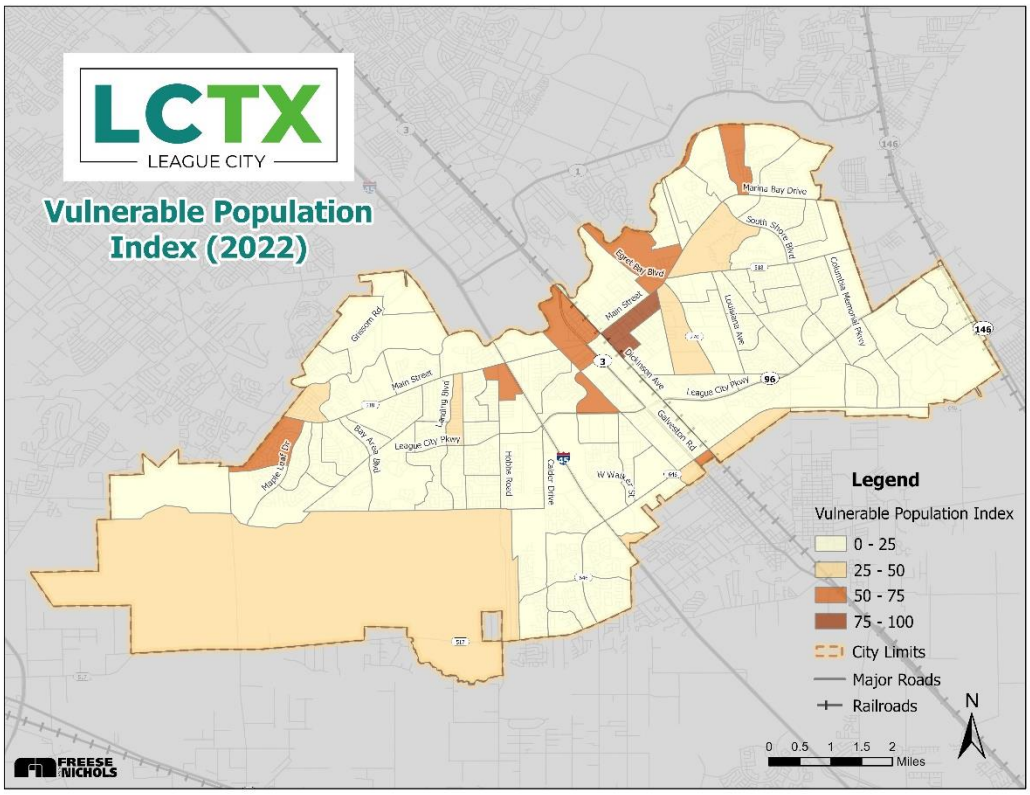
Figure 49: Elements of a High-Quality Active Transportation Network



Overall mobility is dependent on having multiple transportation options. One benefit of having a diverse set of complementary transportation services available in League City is reducing congestion. By having fewer people driving in personal vehicles, more space is available on the road, and travel times are reduced. Additionally, accessibility and equity is improved because people of low income are more likely to need access to alternative modes of transportation like transit or micromobility (scooters, bikes, and other small, lightweight conveyances).

H-GAC's Vulnerable Population Index (VPI) provides insight into sensitive populations that may be more likely to rely on alternative modes of transportation. The VPI synthesizes data for each block group, including poverty, minority populations, disabled and elderly populations, and carless households, and compares it to the entire H-GAC region (Figure 50). Several block groups within League City have a VPI of greater than 50, meaning that they are at, or above average vulnerability compared to the H-GAC area. One block group, located at the southeast corner of Main Street and Dickinson Ave, has a VPI of 79.8%.

Figure 50: Low-Income Percentiles of Block Groups in League City, Compared to Texas



Source: H-GAC, US Census ACS 2022 5 Year BGs Vulnerable Population

Rideshare

Rideshare options are available via Uber and Lyft. These private companies will transport passengers to their destination for varying rates, depending on total distance and current demand. Rides are booked on an app, and discounts are available for certain riders.

Transit

Gulf Coast Transit District

Transit service in League City is provided by Gulf Coast Transit District (GCTD). GCTD offers several services in League City: one Fixed-Route Service, ADA Paratransit Service, and a Park-and-Ride to Galveston. Although GCTD does not originate trips in League City, its ADA Paratransit service can take qualifying riders from other parts of its service area into League City. To qualify, one must live within 0.75 miles of a fixed-route service and complete an application.

GCTD Quick Facts

2,483 sq. mi.	• Service Area
28	• Total Vehicles Operated at Maximum Service
100,271	• Annual Unlinked Trips (number of passengers who board a transit vehicle)

GCTD's Fixed-Route Service spans Texas City, La Marque, Dickinson, Bacliff/San Leon, and parts of League City. The Dickinson Route 105 has several stops in League City, mostly along IH 45.

The League City Park-and-Ride on IH 45 and Ashbel Smith Ave offers rides to Galveston and Texas City several times a day, costing $4 each way. These buses have digital TVs and are Wi-Fi enabled, giving riders a relaxing journey into Galveston. In Galveston, riders can connect to the local transit system, Island Transit. For more information about GCTD, see Figure 51 or refer to www.gulfcoasttransitdistrict.com.

Gulf Coast Transit District
League City Park and Ride

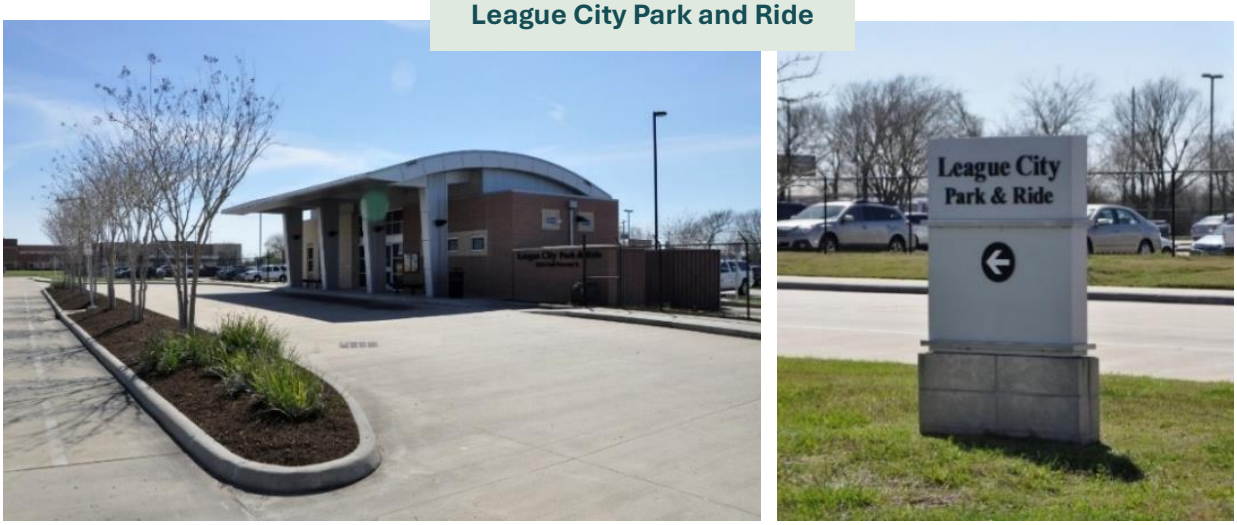
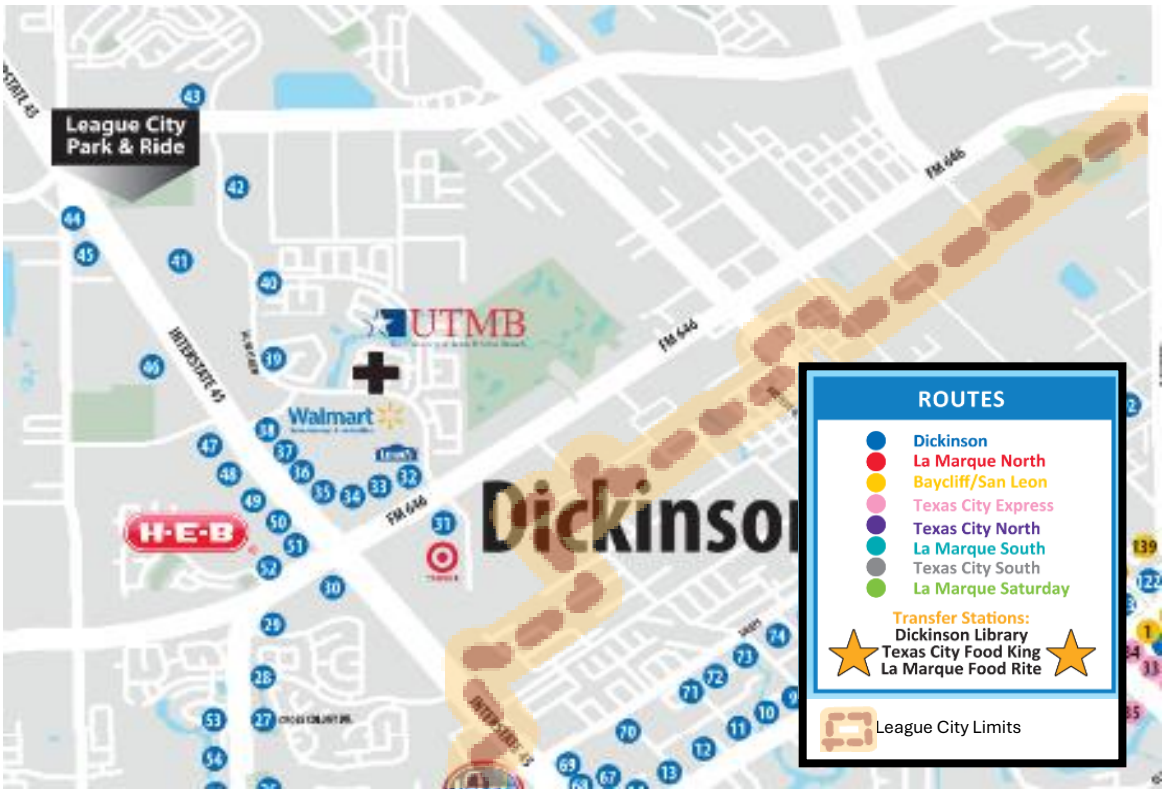


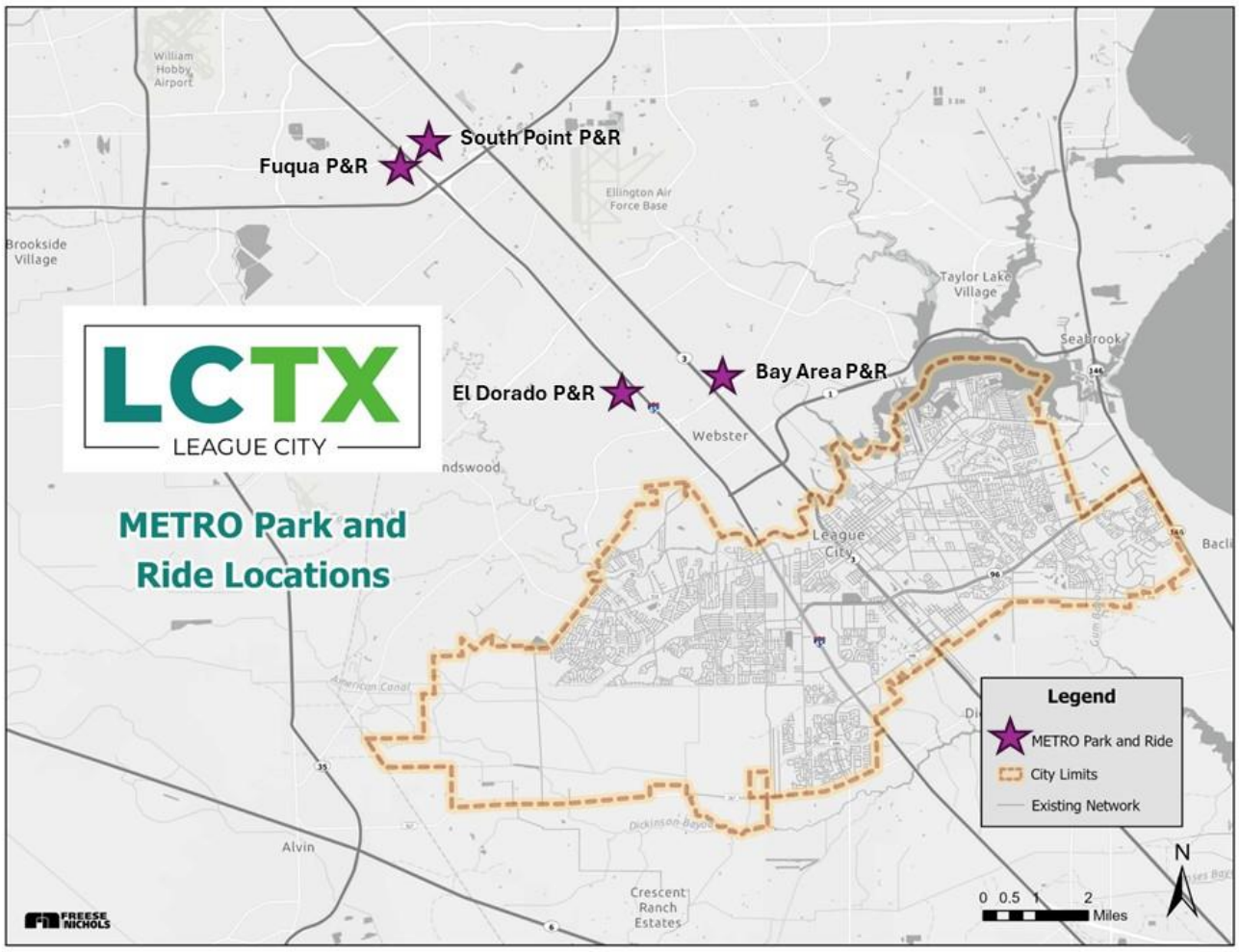
Figure 51: Gulf Coast Transit District Fixed Route Service around League City



Houston METRO

The Metropolitan Transit Authority of Harris County (METRO), the Greater Houston area's transit service, does not provide any services to League City. However, METRO operates two park-and-ride facilities just north of League City in Houston and Friendswood at El Dorado Park & Ride and Bay Area Park & Ride (see Figure 52). These routes will take riders from the facilities into Houston's Central Business District.

Figure 52: METRO Park and Ride Maps



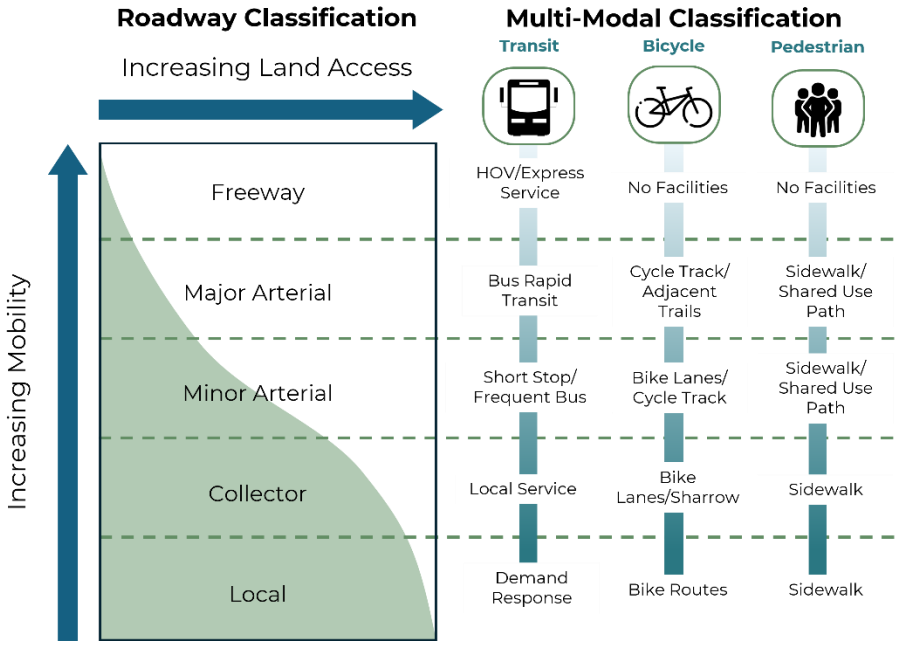
7 | Thoroughfare Functional Classification and Design Standards

Chapter 7: Thoroughfare Functional Classification and Design Standards

Functional Classification Review

Functional classification of streets is used to identify the hierarchy, function, and dimensions of a roadway. Streets and highways are grouped into classes based on facility characteristics, such as geometric design, speed, traffic capacity, and access to adjacent lands. Functions range from providing mobility for through traffic and major traffic flows to providing access to specific properties. Typically, the higher the roadway's functional classification, the higher the level of mobility and lower the level of land use access. The balance of land use access and mobility have significant impact on the overall traffic flow within a transportation network. Figure 53 illustrates the relationship between functional classification, mobility, and access.

Figure 53: Roadway Classification, Land Access, and Mode Utilization



Functional classes can be updated over time if there are significant changes in surrounding land uses. A facility may move up in the hierarchy as the surrounding area becomes denser and additional cars are drawn to the area.

Freeways/Highways

Freeways and highways are designed to accommodate large volumes of traffic at high speeds with a high level of mobility and a low level of access. These facilities are most appropriate for regional trips. IH 45 provides the foundation of the City's thoroughfare network. The function of IH 45, though managed by TxDOT, is pivotal to the overall operation of the system. It spans north-south and divides the city in half. The SH 99 toll road will be a major east-west thoroughfare along the southern portion of the city.

Major Arterials

Major arterials are ideally designed to allow large volumes of traffic and operate at a high level of mobility. They are designed for longer-distance trips and provide access to major activity centers and adjacent cities. Major arterials have a limited number of driveways directly accessing primary arterials and only connect to other primary arterials or freeways. Typically, major arterials do not have on-street parking. Examples of major arterials in League City include FM 518, League City Parkway, and South Shore Blvd. Major arterials typically support daily traffic volumes between 7,000 – 27,000 vehicles per day (vpd).

Figure 54: Intersection of FM 518 and FM 270, both major arterials

Minor Arterials

Minor arterials connect traffic from collectors to major arterials and are designed to accommodate moderate traffic volumes at relatively low speeds. These roadways attempt to provide a balance between mobility and land use access and often extend from local communities to a larger geographic area. In certain situations, minor arterials may accommodate on-street parking. Minor arterials typically support daily traffic volumes between 3,000 – 14,000 vehicles per day (vpd). The MTP does not distinguish between minor and major arterials, grouping the classes together as arterials due to areas of uncertainty and overlap in ranges and values.

Collectors

Collectors are designed for short trips and low speeds. They primarily connect trips to higher functional class facilities and provide a high level of access to adjacent land uses. These thoroughfares carry moderate traffic volumes and have lower speeds to accommodate access to adjacent properties. The number of lanes ranges from two (2) to four (4) depending on the current and future demands and potential development. Examples of collectors in League City are Enterprise Avenue, Dickinson Avenue, and Kessler's Crossing. Collectors typically support daily volumes between 1,100 – 6,300 vpd.

Local Streets

This street class provides the highest level of access to land use, in this case residential neighborhoods. Speeds on local residential streets are typically 25 miles per hour (mph), have low traffic volumes, and usually accommodate on-street parking. Bicycle use on local streets is more permissible than on other facilities.

Figure 55: Michigan Avenue, a local street in League City

Design Standards

Thoroughfare Design Standards

Versatility is a strength in any policy document because it gives policymakers flexibility to address unforeseen issues that may arise during the implementation phase. To provide flexibility, thoroughfare design standards were developed to accommodate a variety of land uses adjacent to both urban and rural rights-of-way including potential future developments. The various design controls, criteria, and elements presented in this section shall be used to design each roadway to accommodate the expected traffic volume and provide consistency in traffic operations and development conditions.

Transitions Between Design Sections

In cases where thoroughfare corridors cross between municipal boundaries, it is recommended that staff from affected agencies develop a memorandum of understanding or other legally binding agreement to determine final design of transition between roadway sections.

Current Design Standards

Previous design standards for League City and adjacent cities were evaluated to ensure consistency of the revised standards. League City's and surrounding cities' design standards vary significantly, with some standards being more detailed than others. In Table 5, a red box indicates that the standard is significantly different than League City's, meaning that there is a significant chance of conflict where a future roadway in League City passes into the corresponding city that will require reconciliation.

Recommended Design Standards

Through analysis of previous design standards, and in consultation with key stakeholders, League City's street design standards were updated and are shown in Table 9. These design standards provide consistency with adjacent communities and existing roadway design guidelines and help address safety and connectivity concerns identified through stakeholder input.

Table 5: Comparison of Surrounding Cities' Right Of Way Standards

Functional Classification	Lanes	Divided/Undivided	League City (Existing Standards)	Alvin	Dickinson	Friendswood	Webster
Major Arterial	6	D	100'-120'	180'	N/A	120'	120'
	4	D	100'-120'	N/A	80'-120'	100'	100'
	2	D	100'-120'	N/A	N/A	N/A	N/A
Minor Arterial	2-4	D	80'-100'	N/A	N/A	N/A	N/A
	4	D	120'	120'	80'-120'	N/A	80'
	4	U	N/A	N/A	N/A	N/A	60'
Collector	2-4	D	90' (urban) - 100' (rural)	N/A	65'-75'	N/A	N/A
	4	D	N/A	N/A	N/A	N/A	80'
	4	U	N/A	100'	N/A	80'	60'
	2	U	80' (urban) - 90' (rural)	80'	50'-60'	60'	60'
Residential	2	D or U	60' (urban) - 70' (rural)	60'	50'	50'	60'

N/A indicates that the city does not have any standards for that functional class and lane number. No Data indicates that the city does have some standards for that functional class and lane number, but does not have ROW standards for that functional class and lane number.

Table 6: Comparison of Surrounding Cities' Lane Width Standards

Functional Classification	Lanes	Divided/Undivided	League City	Alvin	Dickinson	Friendswood	Webster
Major Arterial	6	D	12'	12'-16'	N/A	12'	12'
	4	D	12'	N/A	11'-12'	12'	12'
	2	D	12'	N/A	N/A	N/A	N/A
Minor Arterial	2-4	D	12'	N/A	N/A	N/A	N/A
	4	D	12'	14'-16'	10'-12'	N/A	12'
	4	U	N/A	N/A	N/A	N/A	11'
Collector	2-4	D	12'	N/A	10'-12'	N/A	N/A
	4	D	N/A	N/A	N/A	N/A	12'
	4	U	N/A	11'-13'	N/A	11' F-F	11'
	2	U	12'	12'-14'	10'-11'	40' F-F*	36'-40' F-F*
Residential	2	D or U	12'	14'	10'	27' F-F*	36' F-F*

N/A indicates that the city does not have any standards for that functional class and lane number. No Data indicates that the city does have some standards for that functional class and lane number, but does not have lane width standards for that functional class and lane number.
*F-F indicates that the measurement is "face-to-face", meaning curbface-to-curbface

Table 7: Comparison of Surrounding Cities' Design Speed Standards

Functional Classification	Lanes	Divided/Undivided	League City	Alvin	Dickinson	Friendswood	Webster
Major Arterial	6	D	50	No Data	No Data	40-55	40-50
	4	D	50	N/A		40-50	40-50
	2	D	50	N/A		N/A	N/A
Minor Arterial	2-4	D	40	N/A		N/A	N/A
	4	D	40	No Data		N/A	35-45
	4	U	40	N/A		N/A	35-45
Collector	2-4	D	35	N/A		N/A	N/A
	4	D	35	N/A		N/A	30-40
	4	U	35	No Data		30-40	30-40
	2	U	35	No Data		30-40	30-40
Residential	2	D or U	25	No Data		20-30	20-30

N/A indicates that the city does not have any standards for that functional class and lane number. No Data indicates that the city does have some standards for that functional class and lane number, but does not have design speed standards for that functional class and lane number

Table 8: 2018 League City Design Standards

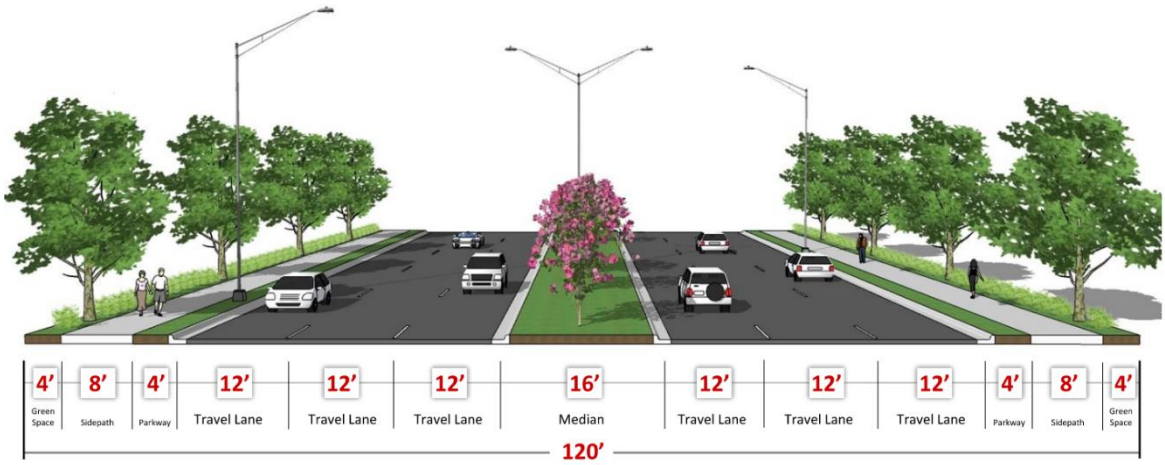
Functional Classification	Lanes	Area Type	Pavement width (feet)	Right Of Way (feet)	Lane width (feet)	Median (feet)	Parkway (feet)	Sidewalk (feet)	Green space (feet)	Design Speed (mph)	Parking	Shoulder (feet)
Freeway/ Highway	4-8; Divided	-	Varies	400'-500'	Varies	Varies	-	-	-	Varies	-	-
Major Arterial	6; Divided	Urban	74'	100'-120'	12'	16'	6'	5'	5'	40-50	-	-
	4; Divided	Urban	50'	100'-120'	12'	16'	7'	5'	6'	40-50	-	-
	2; Divided	Urban	26'	100'-120'	12'	16'				40-50	-	-
Minor Arterial	2-4; Divided	Urban	50'	80'-100'	12'	16'	10.6'	5'	12.5'-22.5'	40-50	-	-
	4; Divided	Urban	50'	120'	12'	16'		5'		40-50	-	-
Collector	2-4; Divided	Urban	50'	90'	12'	14'	8.5'	5'	8'	35	Two 9' parking lanes or 13' Unstriped parking lanes	-
	2; Undivided	Urban	42'	80'	12'	-	5'-6'	5'	6'-8'	35	Two 9' parallel parking lanes or 12' unstriped parking lane	-
	2-4; Divided	Rural	50'	100'	12'	14'	8.5'	5'	8'	35	Two 9' parking lanes or 13' Unstriped parking lanes	-
	2; Undivided	Rural	42'	90'	12'	-		5'		35	Two 9' parallel parking lanes or 12' unstriped parking lane	-
Residential	2	Urban	28'	60'	12'	-		4'		25	Permitted	4' for ditch drainage
	2	Rural	28'	70'	12'	-		4'		25	Permitted	4' for ditch drainage

Table 9: Proposed League City Design Standards

Functional Classification	Lanes	Area Type	Pavement width (feet)	Right Of Way (feet)	Lane width (feet)	Median (feet)	Parkway (feet)	Sidewalk (feet)	Green space (feet)	Design Speed (mph)	Parking	Bike Lanes
Freeway/ Highway	4-8; Divided	-	Varies	400'-500'	Varies	Varies	-	-	-	Varies	-	-
Major Arterial	6; Divided	Urban	88'	120'	12'	16'	4'	8’	4’	45	-	-
	5; Undivided	Urban	64’	100’	12’	16’ TWLTL	4’	10’	4’	45	-	-
	4; Divided	Urban	64’	100’	12’	16’	4’	10’	4’	45	-	-
Collector	4; Undivided	Urban	46'	80'	11', 12’	-	5'	8'	4'	30	-	-
	3; Undivided	Urban	40'	80’	12'	16' TWLTL	6'	10'	4'	35	-	-
	2; Undivided	Urban	50’	80’	10’	-	5’	5’	5’	25	9’	6’
	2; Undivided	Urban	24'	80'	12'	-	8'	10’	10’	25	-	-
	2; Undivided	Urban	24’	70’	12’	-	5’	10’	8’	25	-	-
Local	2	Urban	28'	60'	14'	-	6’	5'	5’	25	Permitted	-

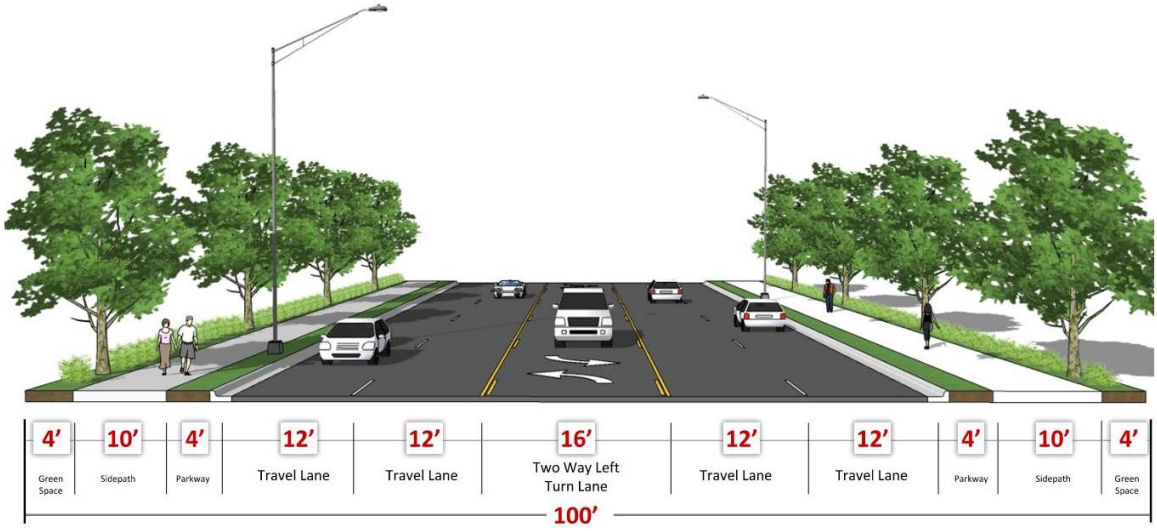
Recommended Typical Sections

Figure 56: Recommended Section – Major Arterial, 6-Lane Divided



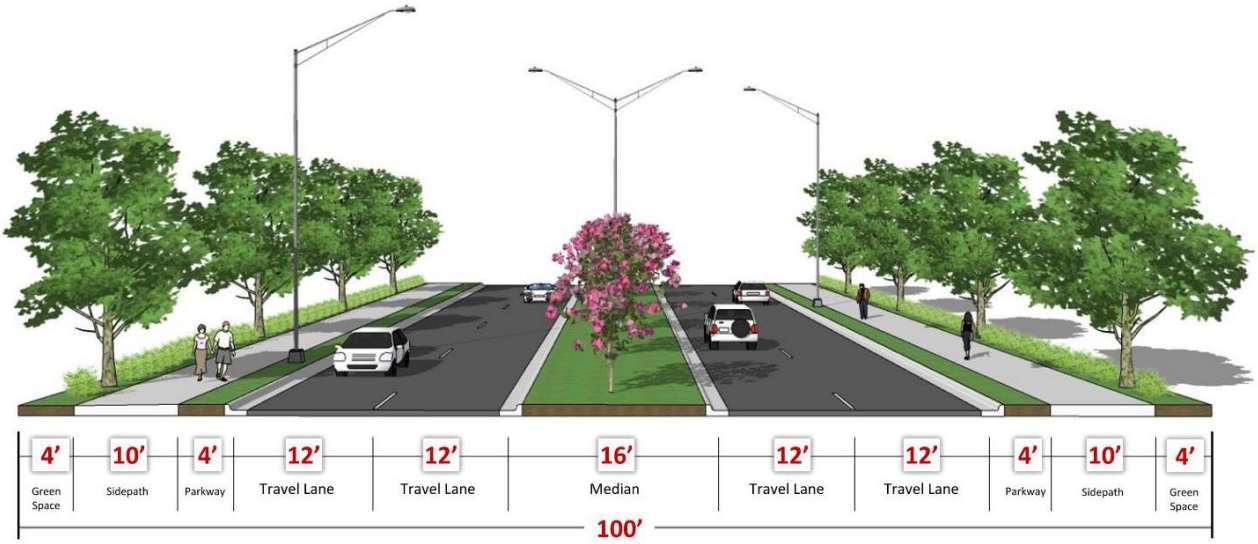
Major Arterial – 6 Lanes, 120’ ROW, 12’ Lanes w/ 16’ Median

Figure 57: Recommended Section – Major Arterial, 5-Lane Undivided



Major Arterial – 5 Lanes, 100’ ROW, 12’ Lanes w/ 16’ TWLTL

Figure 58: Recommended Section – Major Arterial, 4-Lane Divided

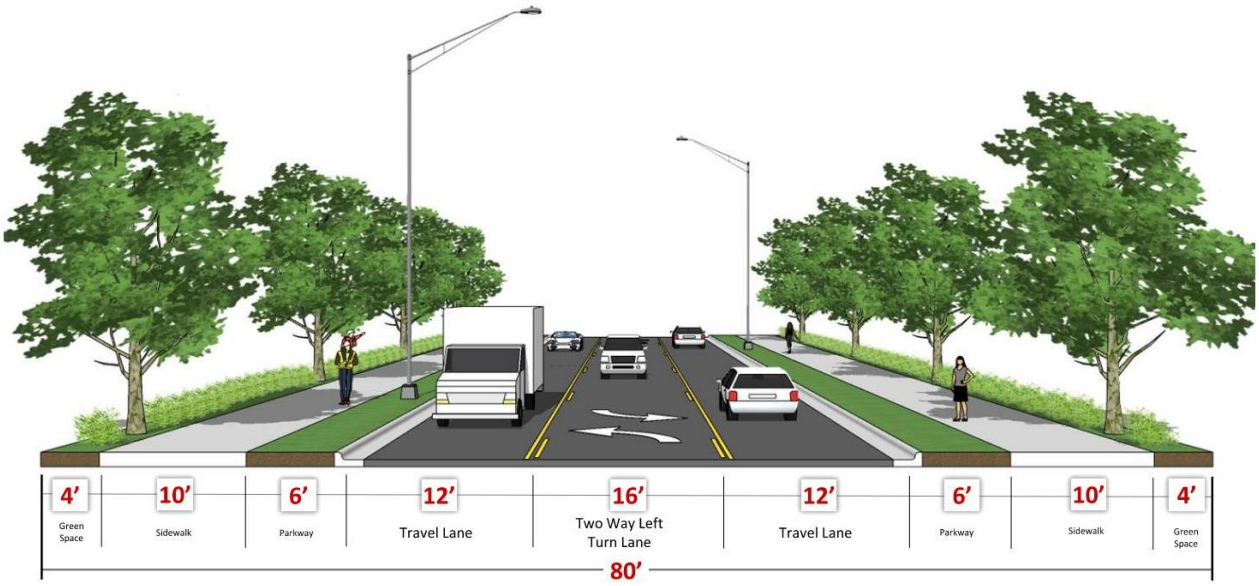


Major Arterial – 4 Lane, 100’ ROW, 12’ Lanes w/ 16’ Median

Figure 59: Recommended Section – Urban Collector, 4-Lane Undivided

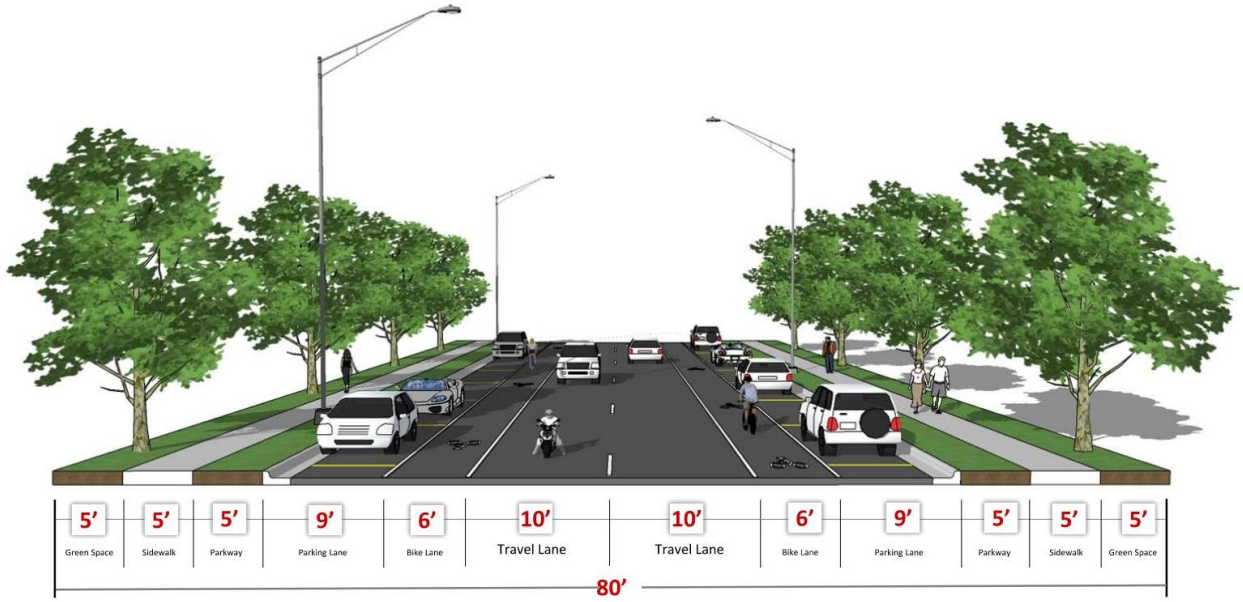
Urban Collector – 4 Lane, 80’ ROW, 11-12’ Lanes

Figure 60: Recommended Section – Collector, 3-Lane Undivided



Collector – 3 Lane, 80’ ROW, 12’ Lanes w/ 16’ TWLTL

Figure 61: Recommended Section – Collector, 2-Lane Undivided with Bike Lanes and Parking



Collector – 2 Lane, 80’ ROW, 10’ Travel Lanes, 6’ Bike Lanes & On-Street Parking

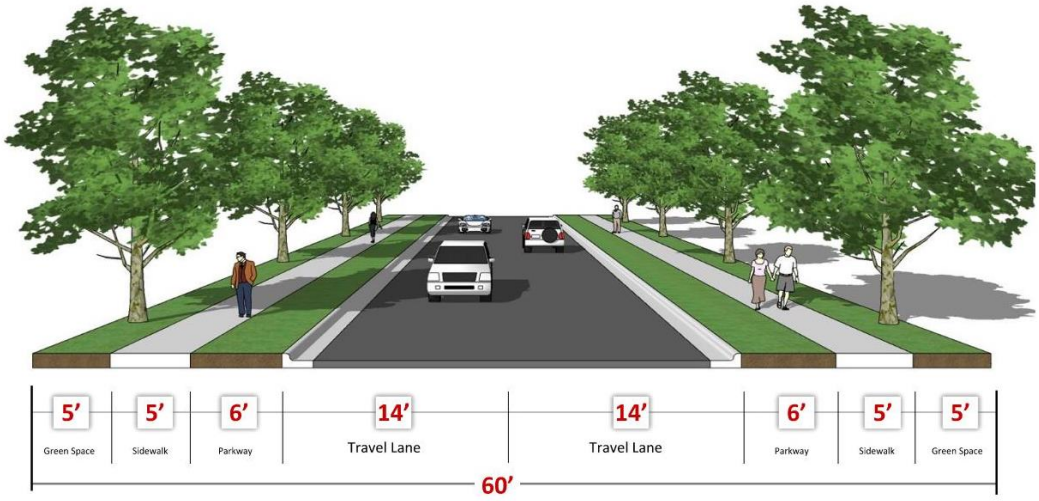
Figure 62: Recommended Section – Collector, 2-Lane Undivided

Collector – 2 Lane, Undivided, 80’ ROW, 12’ Lanes

Figure 63: Recommended Section – Neighborhood Collector, 2-Lane Undivided

Neighborhood Collector – 2 Lane, 70’ ROW, 12’ Lanes with No Parking

Figure 64: Recommended Section – Local Urban



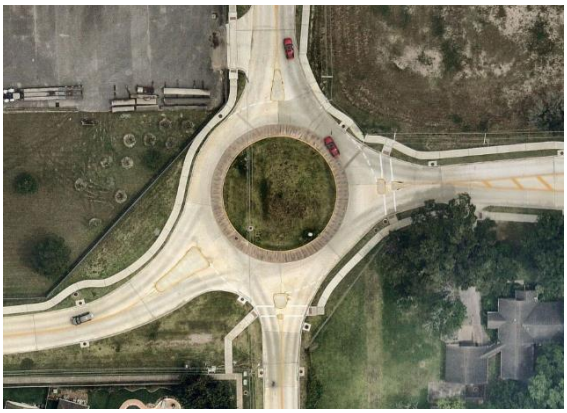
Local Urban Roadway – 2 Lane, 60’ ROW, 14’ Lanes

The City Engineer reserves the right to adjust and/or modify design standards at his or her discretion.

Other Design Elements

Roundabouts

Figure 65: Existing Roundabout at Turner St and Butler St in League City



Roundabouts are a type of intersection characterized by a generally circular shape, yield control on entry, and geometric features that create a low-speed environment through the intersection. Modern roundabouts (Figure 65) have been demonstrated to provide safety, operational, and other benefits when compared to other types of intersections. On projects that construct new or improved intersections on collector or minor arterial roadways, the modern roundabout should be examined as a cost-effective alternative to all-way stops or traffic signal control.

It is recommended that League City consider innovative intersection design, including roundabouts, on internal roadways in new residential developments as opportunities arise, where there are serious intersection safety issues, or there is a preference by the community for an alternative intersection design.

The size of a roundabout, typically measured by its inscribed circle diameter (outside to outside of pavement) is determined by a number of design objectives, including: traffic movements through the intersection, design speed, path alignment, and design vehicle. Smaller size roundabouts can be used for some local street or collector street intersections where the design vehicle may be a fire truck or single-unit truck. Larger inscribed circle diameters generally provide increased flexibility for the entry design to meet design criteria (e.g., speed, adequate visibility to the left, etc.) while accommodating large design vehicles. Table 10 provides common ranges of inscribed circle diameters for various roundabout categories and typical design vehicles. Neighborhood traffic circles, often called mini-roundabouts, are typically built at the intersections of local streets for reasons of traffic calming and/or aesthetics. Needed right-of-way would include the roundabout pavement plus space for sidewalks, buffer and utilities. While roundabouts can require more right-of-way than typical signalized intersections, they typically require less right-of-way between intersections due to the lack of queueing and dedicated turn lanes.

Table 10: Common Inscribed Circle Diameter Ranges

Roundabout Configuration	Typical Design Vehicle	Inscribed Circle Diameter Range*
Mini-Roundabout	SU-30	45 to 90 ft
Single to Double Lane Roundabout	B-40	90 to 150 ft
	WB-50	105 to 150 ft
	WB-67	130 to 180 ft

* Assumes 90-degree angles between entries and no more than four legs

Source: Roundabouts: An Informational Guide, FHWA

For more information on roundabouts, please refer to the FHWA information guide at: https://www.fhwa.dot.gov/publications/research/safety/00067/00067.pdf

Access Management

The FHWA defines access management as "the process that provides access to land development while simultaneously preserving the flow of traffic on the surrounding system in terms of safety, capacity, and speed." In more general terms, access management is a set of strategies designed to optimize land use access using a variety of treatments to improve turning movements and enhance roadway safety. These and other types of programs are becoming preferable to the construction of additional lanes to improve roadway capacity as roadway costs escalate and available funds become more limited.

The benefits of access management are that it has the potential to reduce roadway congestion and travel times, increase traffic safety, reduce development costs, enhance access to adjacent properties, and improve coordination between land use and transportation network development. A brief discussion of selected asset management improvements is presented below.

A. Two Way Left Turn Lanes

Continuous two-way left turn lanes (TWLTL) are a common access management treatment when combined with driveway consolidation and corner clearance. TWLTLs provide a separate lane within the ROW for left-turning vehicles to enhance property access and are considered when existing driveways do not meet spacing criteria. These are commonly used where there are concerns with mid-block crossings, such as strip developments.

These treatments function well when:

- → Traffic levels are moderate (10,000 to 20,000 vehicles per day).
- → Percentage of turning volumes is high.
- → Frequency of mid-block left turns is high (or anticipated to be high).

Conversely, TWLTLs do not function well once traffic rises above 20,000 vehicles per day and are less effective in situations where commercial driveway densities are high, and driveways are closely spaced. It is recommended to consider raised medians instead of TWLTLs if daily traffic exceeds 20,000 for 4-lane streets or 17,500 for 2-lane streets[2]. It is also recommended that TWLTLs have a width of at least 12 feet, with a suggested minimum of 14 feet if possible. Pedestrian crossings should be considered on all roadways where a TWLTL is proposed.

[2] Source: TxDOT Roadway Design Manual, 2022

Table 11 shows roads with TWLTLs in League City and recommendations based on 2030 and 2045 projected traffic volumes.

Table 11: Recommendations for Roads in League City with TWLTLs

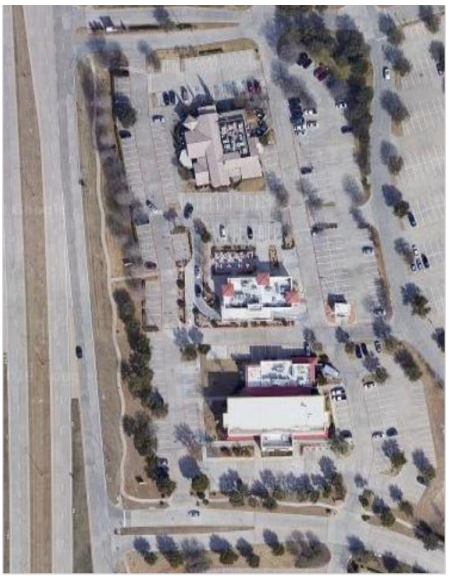
Road	From	To	On- or Off-Sytstem	Recommendation	
				2030	2045
FM 518	W City Limits	IH 45	On	Convert to Median	Convert to Median
FM 518	Wesley Dr	SH 3	On	Convert to Median	Convert to Median
Calder Dr	FM 518	IH 45	Off	Keep TWLTL	Keep TWLTL
Calder Dr	Turner St	Cross Colony Dr	Off	Keep TWLTL	Keep TWLTL
Walker St	SH 3	N of FM 96	Off	Keep TWLTL	Keep TWLTL
Victory Lakes Dr	W Walker St	IH 45	Off	Keep TWLTL	Keep TWLTL
Louisiana Ave	FM 518	Hewitt St	Off	Keep TWLTL	Keep TWLTL
Egret Bay Blvd	Clear Creek	FM 518	On	Convert to Median	Convert to Median
Egret Bay Blvd	FM 518	Webster St	On	Keep TWLTL	Keep TWLTL
Egret Bay Blvd	Hewitt St	E League City Pkwy	On	Keep TWLTL	Keep TWLTL
W Walker St	750 ft S of FM 646	End of W Walker St	Off	Keep TWLTL	Keep TWLTL
FM 646	IH 45	SH 3	On	Convert to Median	Convert to Median
SH 3	FM 518	E Walker St	On	Convert to Median	Convert to Median
SH 3	E Walker St	S City Limit	On	Keep TWLTL	Convert to Median

B. Raised Medians with Channelized Turn Lanes

Raised medians are intended to improve the safety of the roadway by eliminating the number of conflict points along the roadway, and in doing so improve the traffic flow along the corridor. Based on numerous studies from across the nation, the TxDOT Access Management Manual concludes that "roadways with a non-traversable (raised) median have an average crash rate about 30 percent less than roadways with a TWLTL". TxDOT is converting flush medians to raised medians on roadways throughout Texas, especially those that have transitioned from rural to urban development densities with associated increases in traffic volume.

Placement of median turn lanes must consider several factors. Left turns should directly feed a strategic driveway with cross access to adjacent development parking areas. In certain circumstances, it may be prudent to provide as many center left turn locations as possible to facilitate U-turns between major intersections.

Figure 66: Driveway Consolidation in Frisco, TX



C. Driveway Consolidation

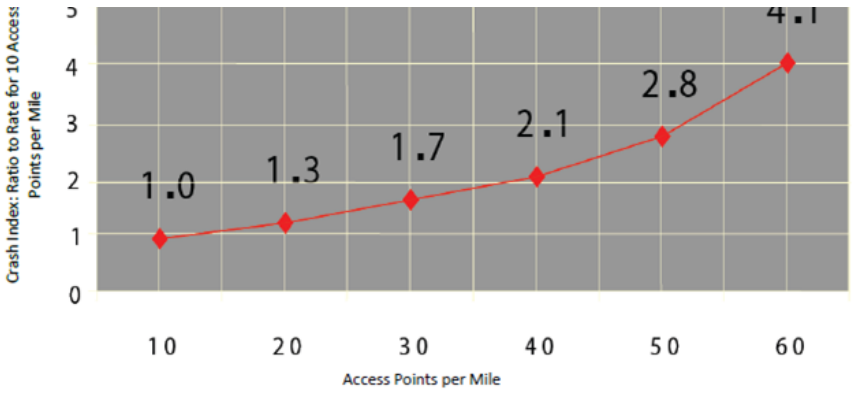
Managing the access points that bring traffic to and from adjacent developments requires negotiation with property owners regarding an amenity that had been previously granted them by the city and/or TxDOT. Often the closing of one or more driveways along the roadway frontage can allow for more parking on the site. However, the layout of some smaller sites relies on the provided driveways to make the on-site circulation and/or parking provisions functional.

Potential treatments should be developed in conjunction with property owners to determine the overall benefit. Such benefits can include the potential to add more parking spaces, reducing the potential for driveway collisions and the number of on-site conflict points for traffic circulation. Figure 66 provides an example of driveway consolidation.

D. Driveway Spacing and Location Standards

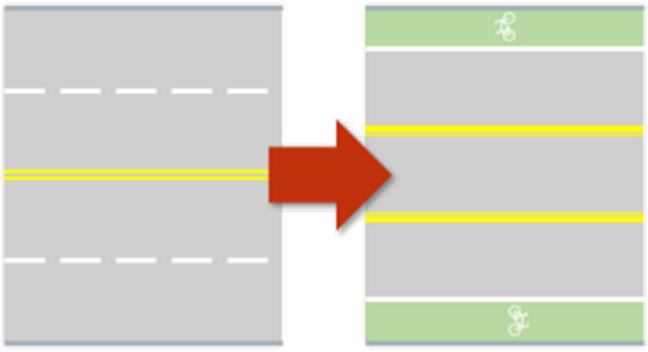
Research by the National Cooperative Highway Research Program has shown a direct relationship between the number of driveways per mile and the propensity for crashes along the roadway (see Figure 67). Driveway spacing and offset from intersection standards should be established by local ordinance and/or site design guidelines. Such a measure helps control the access provided when properties develop and would eventually bring the corridor toward a better balance of throughput and local access. The establishment of the ordinance or site design guidelines would also help to classify existing driveways that are non-compliant and help to establish a list of desired driveway closures for future prioritization. The City of Fort Worth's Access Management Policy, adopted in 2018, is an example of a policy statement which outlines driveway and intersection spacing requirements and the process for redevelopment of non-compliant roadways.

Figure 67: Relationship Between Number of Access Points and Traffic



E. Road Diets

Figure 68: Example of a Road Diet



The reduction of a travel lane for the purpose of reallocating the space to non-travel uses is called a "road diet". Road diet conversion may involve a staged implementation, installed incrementally as adjacent development transitions from an auto-oriented nature to a denser and more pedestrian oriented or human-scale environment.

To complement the road diet treatment and enhance the pedestrian nature of the corridor, sidewalks should also be developed to connect adjacent neighborhoods. Figure 68 illustrates the impact of a road diet on a roadway. It is recommended that the League City continuously evaluate its roadway network for potential opportunities for road diets.

Complete Streets

According to the National Complete Streets Coalition, Complete Streets is a process and approach that enables safe access to streets for all users. Complete Streets aims to fix incomplete streets that have an outdated design that can be dangerous or deadly for users without a personal vehicle.

A benefit of Complete Streets is that it responds to the needs and context of the community and can change shape accordingly. Based on the context of a community, complete streets will look different each time and can include a combination of the following transportation design elements:

- sidewalks,
- bike lanes (or paved shoulders),
- special bus lanes,
- comfortable and accessible public transportation stops,
- frequent and safe crosswalks,
- median islands,
- accessible pedestrian signals,
- curb extensions,
- narrower travel lanes,
- roundabouts and more.

Complete Streets approach works under the belief that aside from limited access roads like interstates and freeways, it is impossible to prioritize street design that encourages both speed and safety. The approach thus emphasizes the use of design to alter driver behavior to lower their speed. Local officials should refer to the NACTO (National Association of City Transportation Officials) Complete Streets Complete Networks Manual for comprehensive guidance on Complete Streets.

Context Sensitive Design

All thoroughfare designs should support context-sensitive design and expand beyond the typically auto-centric mobility purposes of the roadway to accommodate the scale and design of the surrounding community and support connectivity at a human scale with the inclusion of bicycle, pedestrian, and transit modes.

Streets and land use are inextricably connected. Because land use plans are often long-term visions for the community, they should be utilized to further active transportation goals.

Street designs should also reflect the local context to ensure they consider residents' needs. Balancing land use types, density, capacity, environmental concerns, and building setbacks affects the level of safety measures required to ensure streets are welcoming for all users. Considering the anticipated future context, such as planned transportation and land use developments, is equally important.

Accessibility

Under Title II of the Americans with Disabilities Act (ADA) of 1990, state and local governments and public transit authorities must ensure that all of their programs, services, and activities are accessible to and usable by individuals with disabilities. They must ensure that new construction and altered facilities are designed and constructed to be accessible to persons with disabilities. State and local governments must also keep the accessible features of facilities in operable working condition through maintenance measures including sidewalk repair, landscape trimming, work zone accessibility, and snow removal.

Under the ADA, the Architectural and Transportation Barriers Compliance Board (U.S. Access Board) is responsible for developing the minimum accessibility guidelines to measure compliance with ADA obligations when new construction and alterations projects are planned and engineered. Public Right of Way Accessibility Guidelines (PROWAG) contains requirements to ensure that pedestrian facilities

located in the public right-of-way are readily accessible and usable by pedestrians with disabilities. As of September 2023, these standards are enforceable by law. In 2017, the Texas Department of Licensing and Regulation began allowing TxDOT to use the PROWAG as its de facto 'standards'.

The PROWAG specifies guidelines for pedestrian access routes, alternate pedestrian access routes, accessible pedestrian signals, crosswalks, transit stops, and on-street parking. Cities should refer to the PROWAG and TxDOT ADA guidelines for detailed design guidance.

8 Thoroughfare Plan

Chapter 8: Thoroughfare Plan

Thoroughfare Plan Update

The 2024 League City Mobility Plan Update provides a guide for League City staff and Council members to develop their future roadway network. The plan development process used existing ROW, bridges, and overpasses to provide sufficient network to accommodate forecast growth. Key improvements in this plan include enhanced connectivity to proposed roadways in Galveston County, new connections in the north and improved north-south connections across the City. Attention was paid to accommodate proposed growth in southwest League City as well as connections to proposed thoroughfares in H-GAC.

Key updates are shown in Figure 69, with the full 2024 Thoroughfare Plan shown on the next page in Figure 70.

Figure 69: 2024 League City Thoroughfare Plan Key Updates

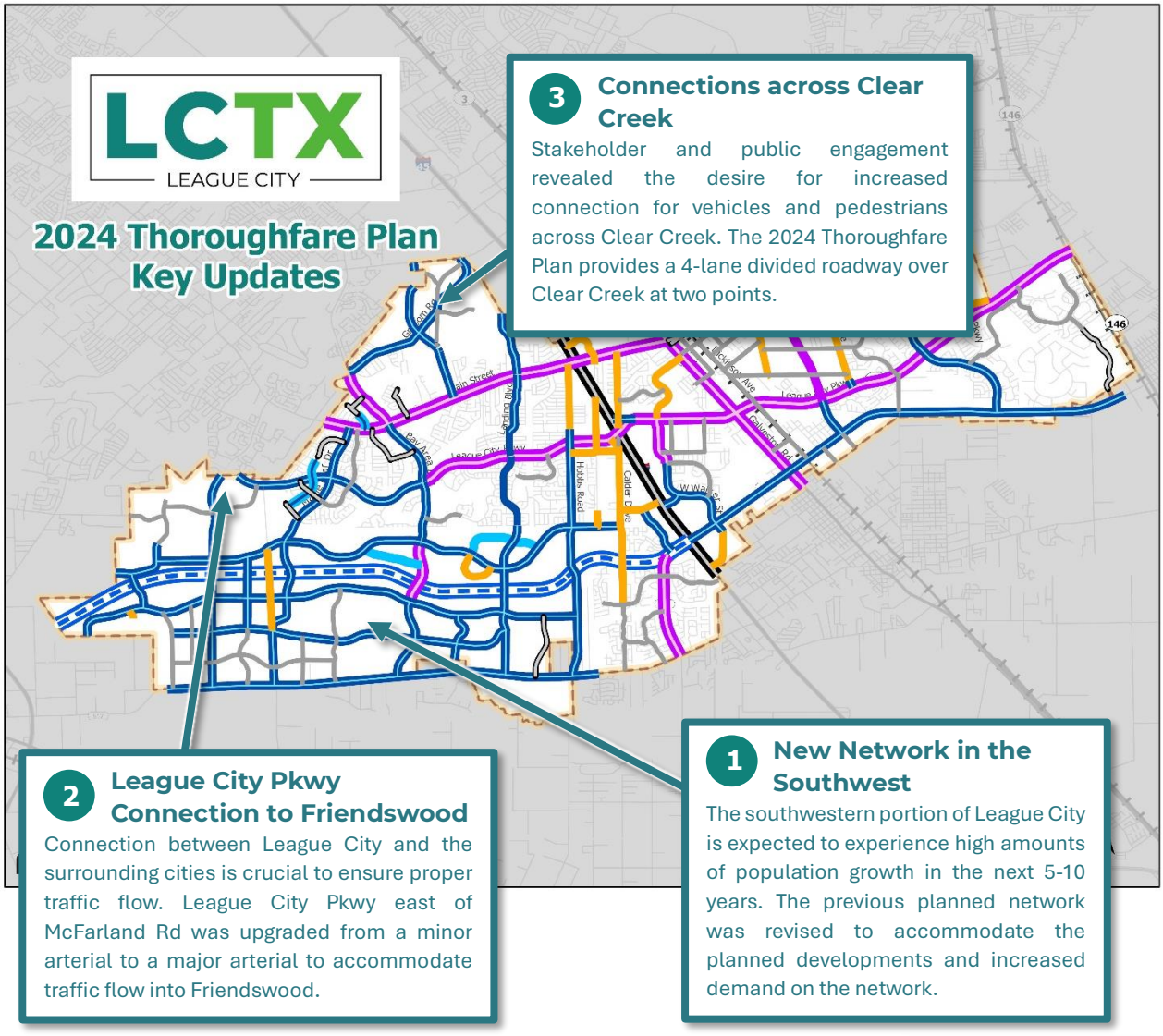
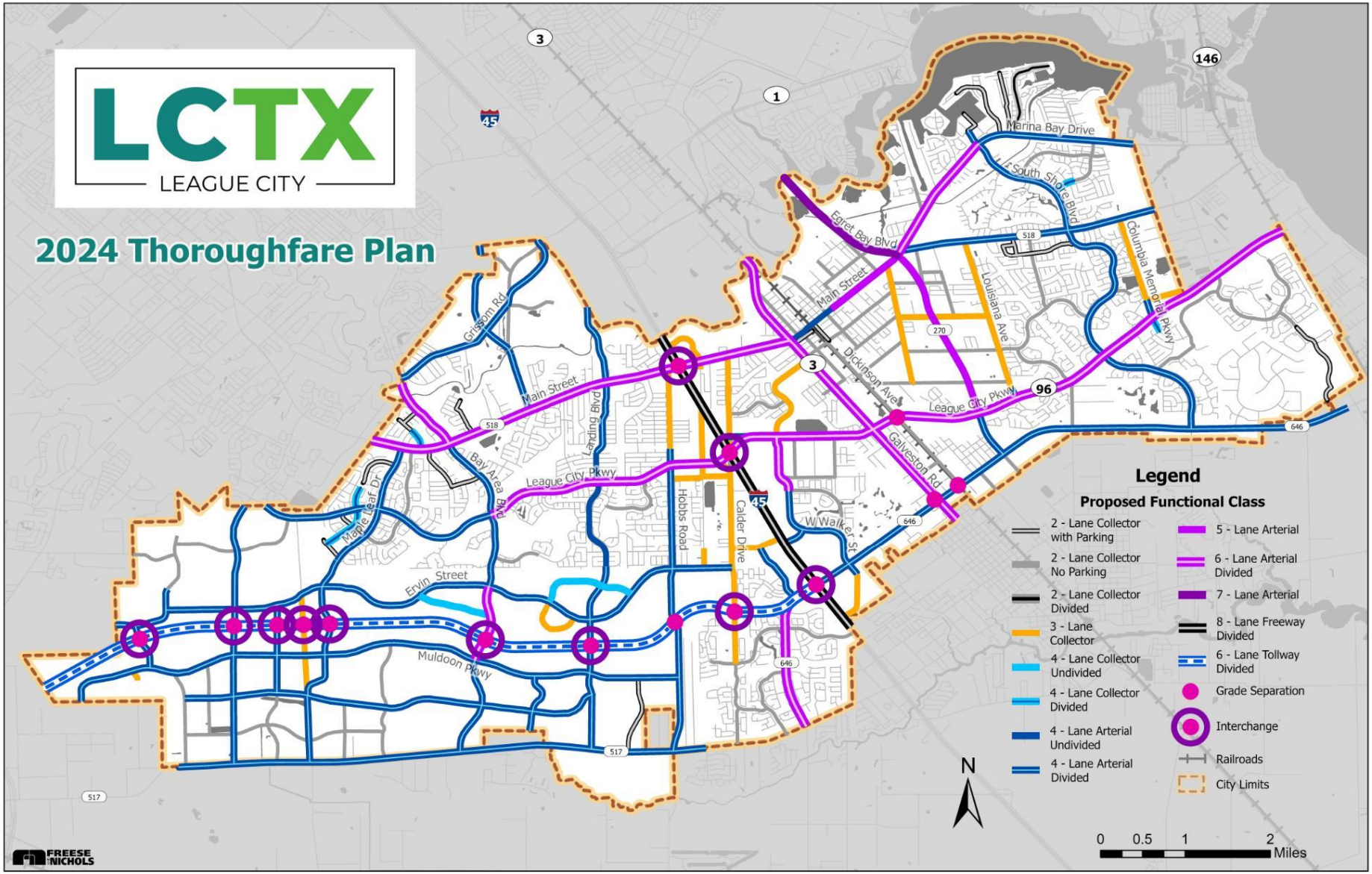


Figure 70: 2024 League City Thoroughfare Plan Map



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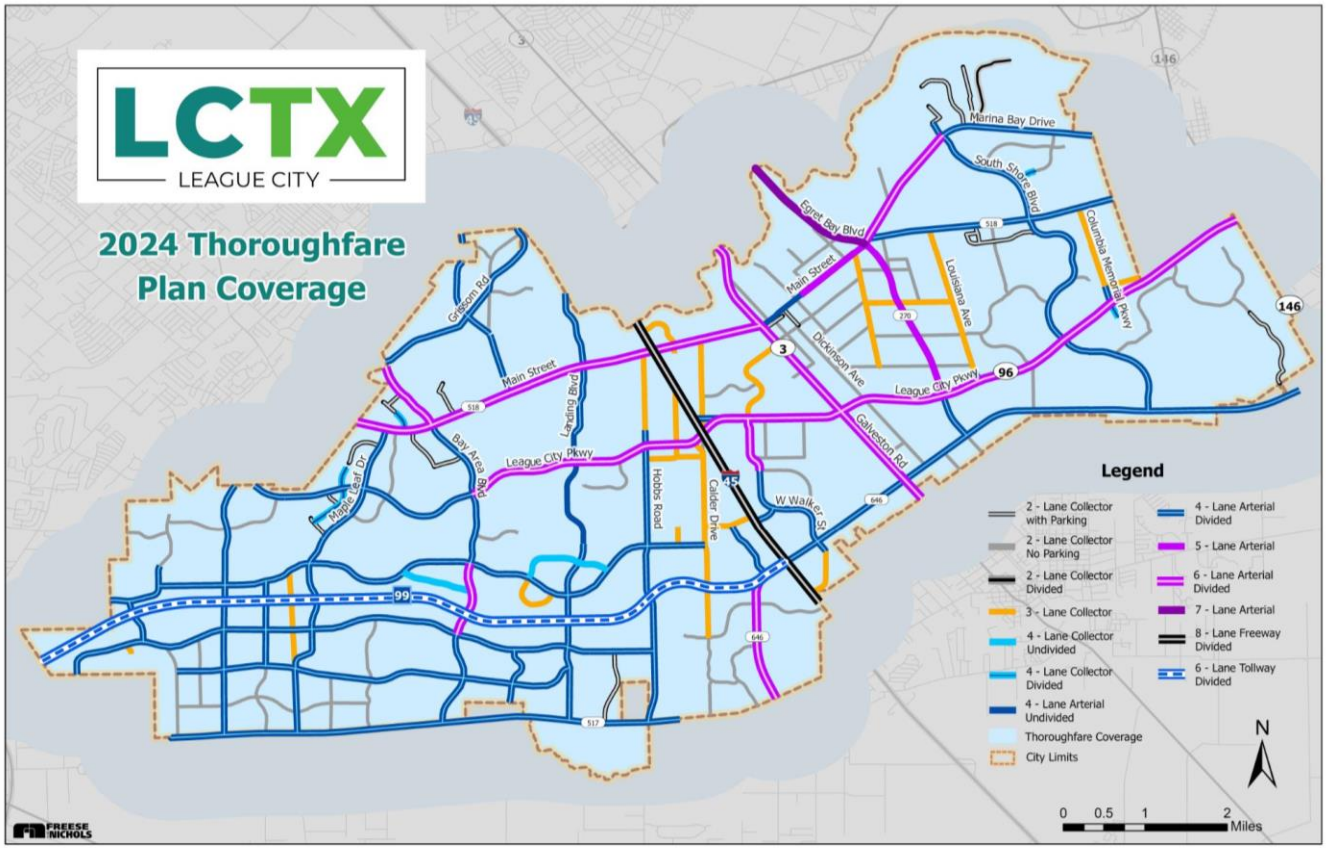
Network Coverage

Functional classification not only dictates the function and relationship between roadways in a transportation network, but it also provides a minimum design standard. The combination of the design elements in a roadway and the associated spacing between facilities directly impacts the right-of-way widths needed to accommodate them adequately. The right-of-way widths are then targeted for corridor preservation through county, city, and state action. An examination of the gaps in the 2024 Thoroughfare Plan was performed, with a one-mile buffer placed around each major arterial and freeway, and a 0.5-mile buffer placed around each minor arterial and collector. As shown in Figure 71, the thoroughfares of the 2024 Thoroughfare Plan provide full coverage of the city, indicating that full build out of the Thoroughfare Plan would provide a sufficient roadway network for the entire city.

Figure 71: 2024 Thoroughfare Plan Spacing Analysis



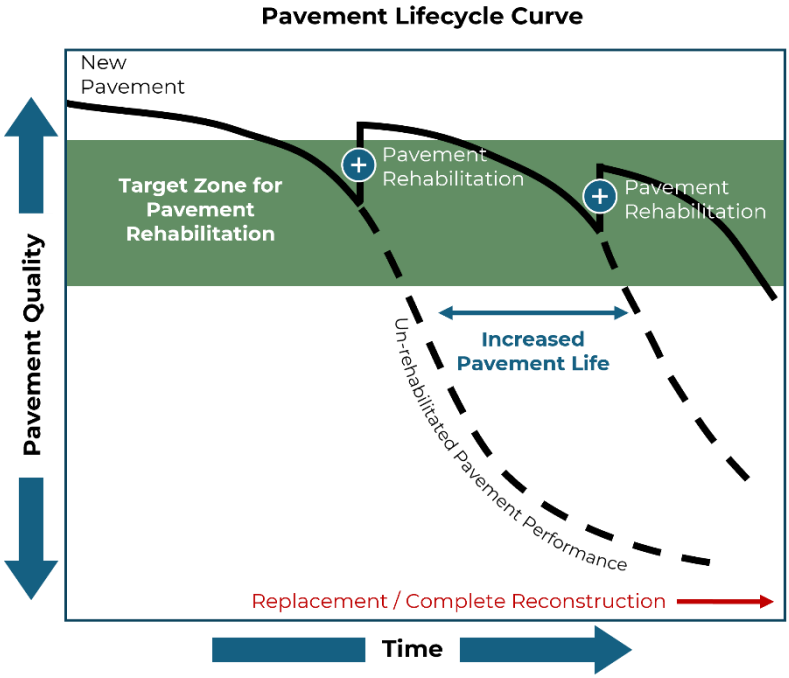
Asset Management

While expanding the roadway network is key to providing mobility in the future, maintaining the existing roadway network is also essential in maintaining acceptable mobility levels and preventing unnecessary roadway expenditures by ensuring that roadways are kept in acceptable condition (Figure 72).

Asset management came about from the general public's wish for more government accountability, increasing demands on the transportation network, declining transportation funds, increasing construction costs, technological advances, and a deteriorating national roadway infrastructure.

In its simplest form, Asset Management is a process designed to reduce roadway and bridge life-cycle costs while maintaining an acceptable level of risk and quality of service. Asset Management provides data-based solutions to justify capital investments and ensures cost-effective and sustainable levels of roadway network performance.

Figure 72: Pavement Lifecycle Curve



League City's Pavement Management Program began in 2020 and includes a full inventory of pavement conditions within the city. As of 2022, the condition of around 74% of the inventoried pavement in the city is "Fair" to "Excellent". Figure 74 shows TxDOT on-system pavement conditions in League City.

Additionally, TxDOT maintains a pavement management system for the on-system network in League City.

Figure 73: League City Pavement Assessment Results, 2022

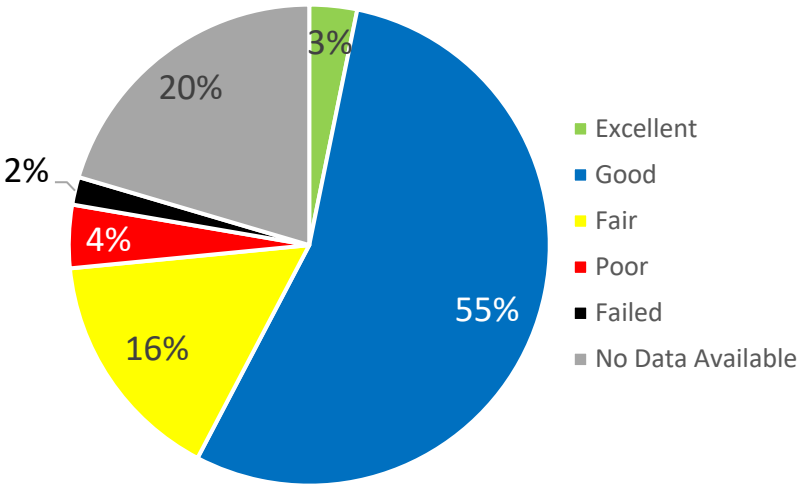
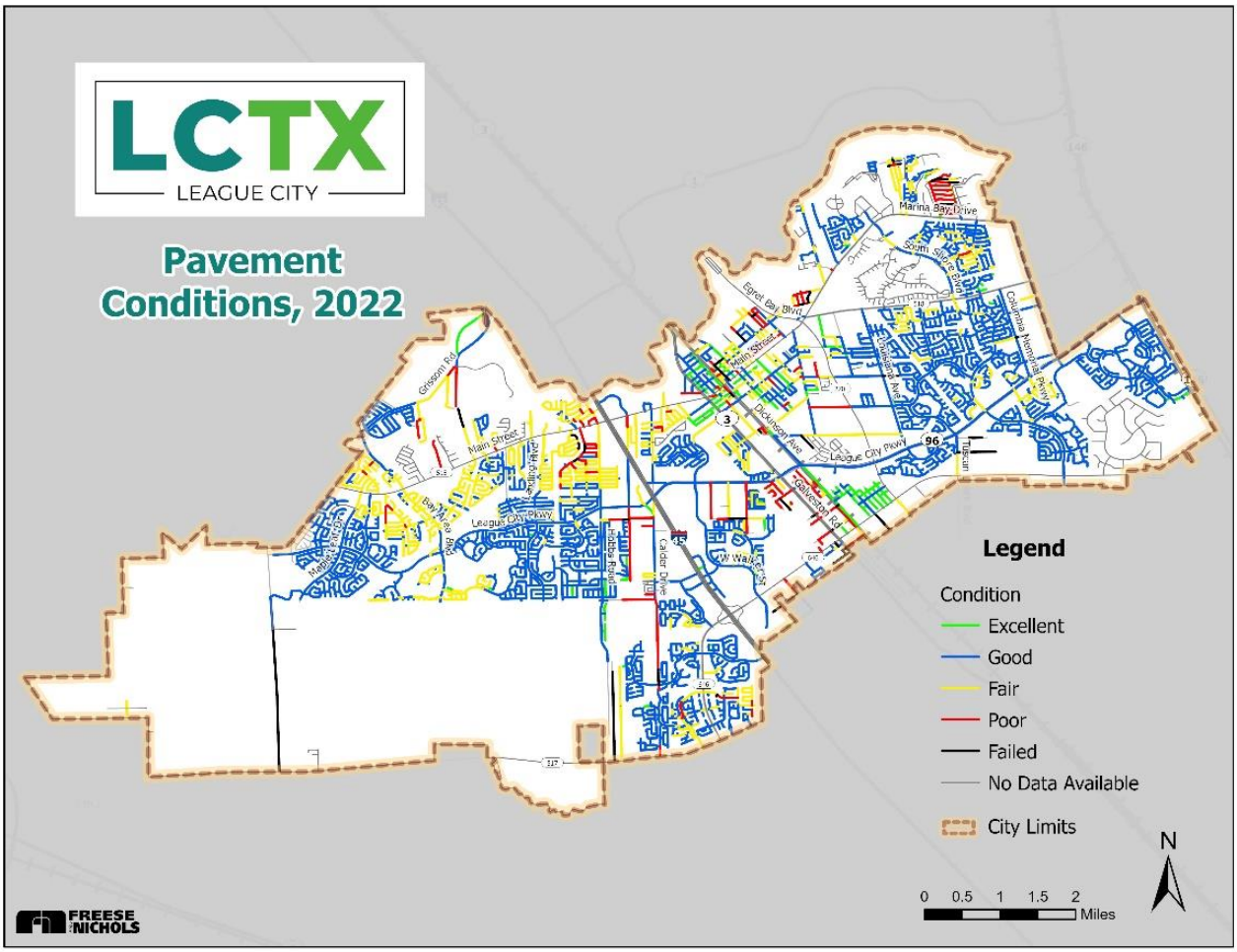


Figure 74: League City Pavement Conditions, 2022



9 Implementation

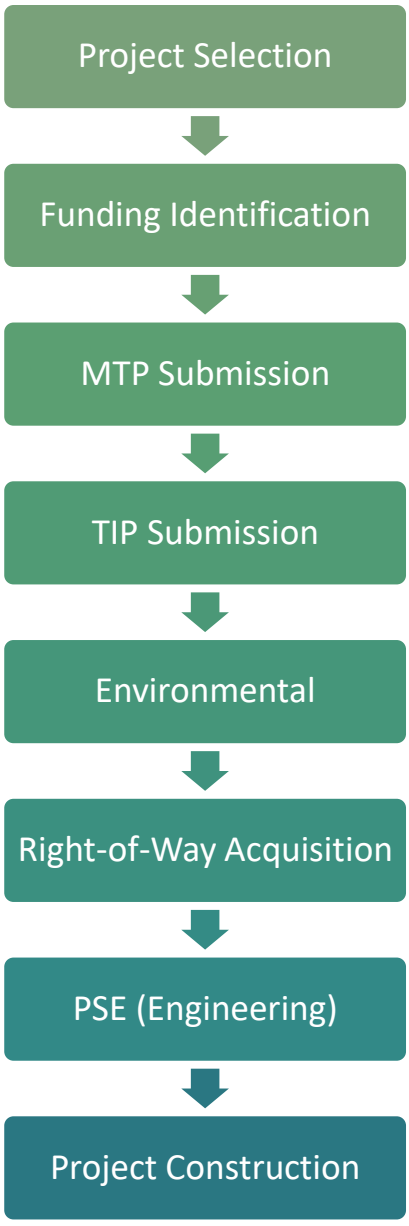
Chapter 9: Implementation

Project Implementation

Implementation is final step in the planning process. H-GAC's process for taking a project from the selection phase to construction is illustrated in Figure 75. All federally funded roadway projects must be in H-GAC's Regional Transportation Plan (RTP) and Transportation Improvement Program (TIP). Depending on the funding source, and/or whether the project is located on an on-system facility, projects will also be subject to the environmental review process, where the environmental impacts of a project are gauged and mitigated through an Environmental Assessment and/or Environmental Impact Statement. Projects with local or non-federal or non-state funds and not located on state facilities may only require Categorical Exclusion documentation.

Right-of-way can be acquired at any time during the implementation phase but should be started as early as possible in the project's life cycle to ensure timely completion of the project. This is particularly important in the implementation of the thoroughfare network as the functional classification recommendations in the Plan may require right-of-way acquisition along existing and recommended roadway alignments.

Figure 75: H-GAC Project Implementation Process



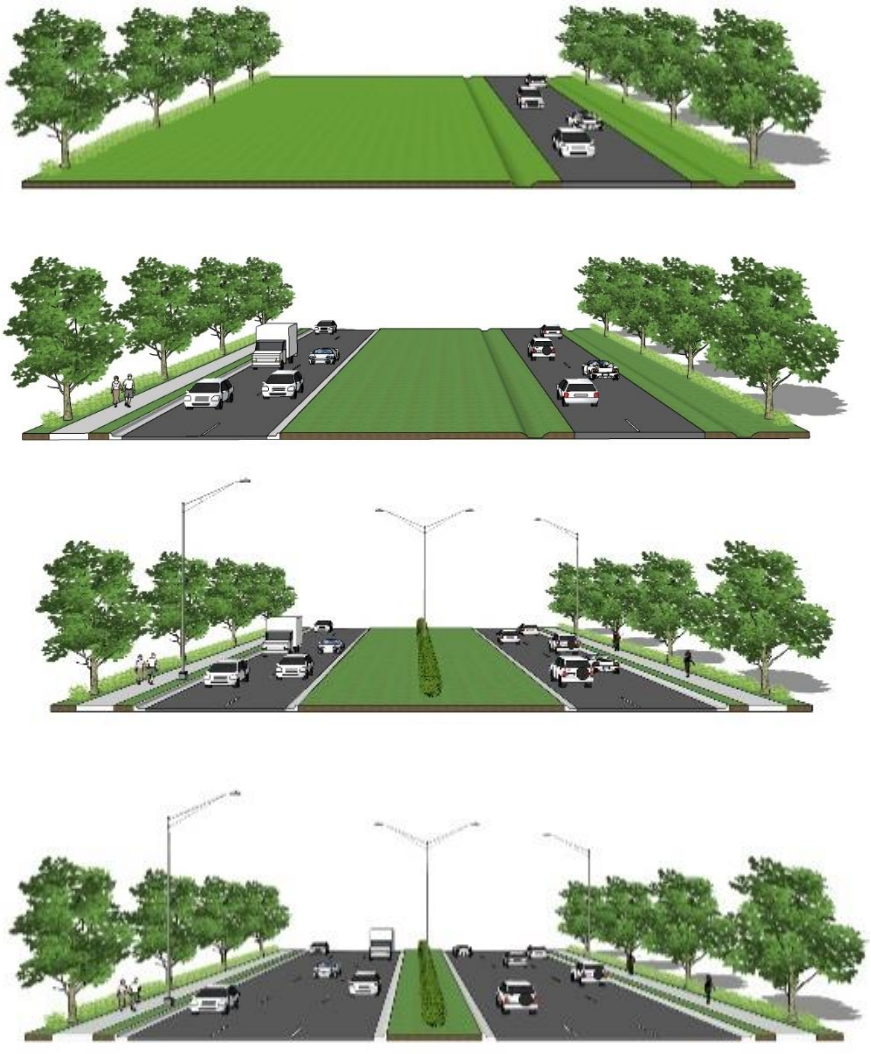
Project Timing

Timing for projects recommended for the 2024 League City Mobility Plan Update is based on project connectivity, identified growth areas, and project knowledge. Short-range projects include projects recommended for the 0-5 year term, medium-term projects recommended for the 5-10 year term, and long-term projects envisioned for the 10+ year time horizon to coincide with the 10-year impact fee window. Proposed project components may include full construction, phasing, planning, design, engineering, or only right-of-way acquisition.

Project Phasing

While the Plan and proposed recommendations provide solutions to long-term mobility needs, these projects are not necessarily expected to be built initially to their full design. Thoroughfare development typically occurs in phases, initially starting out as a simple two-lane roadway culminating in its final design once the surrounding area has land uses that generate sufficient traffic to justify buildout capacity. Figure 76 is an example of a typical evolution of a major arterial thoroughfare over time in a developing urban area.

Figure 76: Typical Rural to Urban Thoroughfare Evolution



Recommended Projects

Short Term Projects: 0-5 Years

Short term projects are considered those which would provide the greatest immediate benefit to support existing development, economic growth, reduce congestion, or redistribute travel demand. Most of these projects provide connections between existing roadway segments to create new connections for traffic distribution within League City.

Short-term projects are broken down into those which are already under design and construction (existing short-term projects) and those recommended under the new Plan (new short-term projects). Table 12 and Figure 79 show these short-term projects.

Table 12: Existing Short-Term Projects

Proj. ID	Roadway	From	To
46	Hobbs Rd Ext	S End of Hobbs Rd	City Limits
84	Winfield Rd	Bay Area Blvd	SA 4 Boundary
86	Winfield Rd	MUD 74 W. Boundary	SA 3 Boundary
89	New Road "M"	Ervin St	Bay Area Blvd
97	Landing Blvd	FM 518/Main St	N. City Limits
132	New Road "Q"	W. City Limits	W. Nasa Blvd
141	McFarland Rd	Ervin St	Muldoon Pkwy
147	Turner	Hobbs Rd	241' E. of Butler
162	Magnolia Bayou	MUD 35 N. Boundary	FM 517
163	Maple Leaf	SH 99	Muldoon Pkwy
164	Winfield Rd	MUD 35 W. Boundary	MUD 35 E. Boundary
165	Landing Blvd	American Canal	Ervin Street
166	Ervin St	Landing Blvd	Existing End of Ervin St.
167	West Blvd	MUD 82 N. Boundary	Ervin St
168	Landing Blvd	MUD #74 S. Boundary	FM 517
171	Maple Leaf	American Canal	SH99
172	Maple Leaf	SH99	Muldoon Pkwy
173	Ervin St	Hobbs Rd	End of Ervin Rd
174	Ervin St	Landing Blvd	SA 3 Boundary
175	Ervin St	MUD 73 E. Boundary	SA 3 Boundary
177	West Blvd	MUD 82 S. Boundary	McFarland Rd
179	Muldoon Pkwy	MUD #74 W. Boundary	MUD #74 E. Boundary
180	Winfield Rd	MUD #74 W. Boundary	Landing Blvd
182	Muldoon Pkwy	Pedregal Rd	MUD 74 E Boundary

Medium Term Projects: 5-10 Years

Medium-term projects are usually thought of as those which are set up to accommodate growth projected out beyond the next 5 years or those roadways whose construction is dependent on development patterns or economic initiatives that are under discussion but have yet to be fully realized. Table 13 and Figure 79 reveal these medium-term projects identified in the 2023 League City Mobility Plan Update.

Table 13: Medium-Term Projects

Proj. ID	Roadway	From	To
4	Bay Area Blvd	Muldoon Pkwy	FM 517
5	Bay Area Blvd	Ervin St	Muldoon Pkwy
6	Bay Area Blvd	N. Side of American Canal	Ervin St
11	Calder Dr	SH 96/LCP	640' S of SH96/LCP
22	Ervin St	Service Area 4 Boundary	Bay Area Blvd
23	Ervin St	Bay Area Blvd	McFarland Rd
45	Hobbs Rd	Ervin St	S. End of Hobbs Road
57	New Street "F"	SA 4 Boundary S.	City Limits
62	Maple Leaf	MUD 35 S. Boundary	McFarland Rd/Windfield Rd
67	Muldoon Pkwy	Bay Area Blvd	394' W of Bay Area Blvd
70	Muldoon Pkwy	Bay Area Blvd	SA 4 Boundary
80	New Road "G"	New Road "C"	New Street "I"
112	Texas Ave	FM 518/Main St	Hewitt St
115	Victory Lakes Dr	IH 45	Walker St
125	Webster St	Texas Ave	FM 270
131	Woodcock St	Columbia Memorial	Lawerence Rd.
142	McFarland Rd	Winfield Rd	FM 517
143	New Street "F"	SA 4 Boundary N.	SA 4 Boundary S.
144	New Street "F"	Muldoon Pkwy	SA 4 Boundary N.
148	Winfield Rd	Bay Area Blvd	MUD 35 W Boundary
176	Landing Blvd	Ervin St	SH 99
178	Landing Blvd	SH99	MUD #74 S. Boundary
181	Maple Leaf	Muldoon Pkwy	MUD 35 S. Boundary

Long Term Projects: 10+ Years

These projects are considered to be visionary beyond the 10-year time horizon and subject to considerable revision as future regional, county, and local thoroughfare plans are developed over time. The 2024 League City Mobility Plan Update represents the final design of the network considering all long-term projects at buildout. A listing of long-term projects is presented in Table 14 and Figure 79.

Table 14: Long-Term Projects

Proj. ID	Roadway	From	To
3	Bay Area Blvd	FM 518/Main St	NW City Limits
10	Butler Rd Ext	S. End of Butler Rd	Ervin St
16	Columbia Memorial	Woodcock	SH 96/LCP
25	Ervin St	New Street "H"	3711' W of McFarland Rd
28	FM 270	Abilene St	SH 96/LCP
29	FM 270	SH 96/LCP	FM 646
35	FM 518	Landing Blvd	SH 3
66	Muldoon Pkwy	City Limits	Maple Leaf
76	New Road "C"	Ervin St	Muldoon Pkwy
81	New Road "H"	Ervin St	Winfield Rd
82	New Road "H"	Winfield Rd	FM 517
83	Winfield Rd	Maple Leaf	MUD 35 W Boundary
85	Winfield Rd	New Road "C"	McFarland Rd
88	New Road "J"	Winfield Rd	FM 517
99	Palomino Ln	Ex. End of Palomino	Clear Creek
100	Palomino Ln / Beamer Rd	Clear Creek	N. City Limits
101	Beamer Road	N. City Limits	N. City Limits
106	SH 96/LCP	Landing Blvd	Walker St
109	SH 96/LCP	SH 3	FM 270
110	SH 96/LCP	Walker St	SH 3
116	Bay Area Blvd	FM 518/Main St	250' S. of Candlewood
120	Walker St	SH 96/LCP	Kesslers Crossing
127	Wesley Dr	IH 45	262' N. of Loch Lomond Dr
128	West Blvd	Ervin St	FM 517
133	New Road "D"	Muldoon Pkwy	FM 517

Corridor Studies

Corridor studies provide insight into specific corridors with specialized needs. Corridor studies are long-range studies with no predetermined time horizons to determine future transportation improvements. These studies are listed in Figure 77 and 78.

Figure 77: Corridor Study Recommendations

Facility	From	To	Purpose
Five Points Intersection	-	-	Capacity and safety improvements
FM 518	W City Limit	E City Limit	Accommodate school cross traffic, safety, access management
FM 2094 / Marina Bay Drive	FM 270	E City Limit	Access management, safety
SH 96 / League City Pkwy	Hobbs Rd	E City Limit	Access management, safety
FM 270	N City Limit	FM 646	Access management, safety

Figure 78: Future Study Corridors

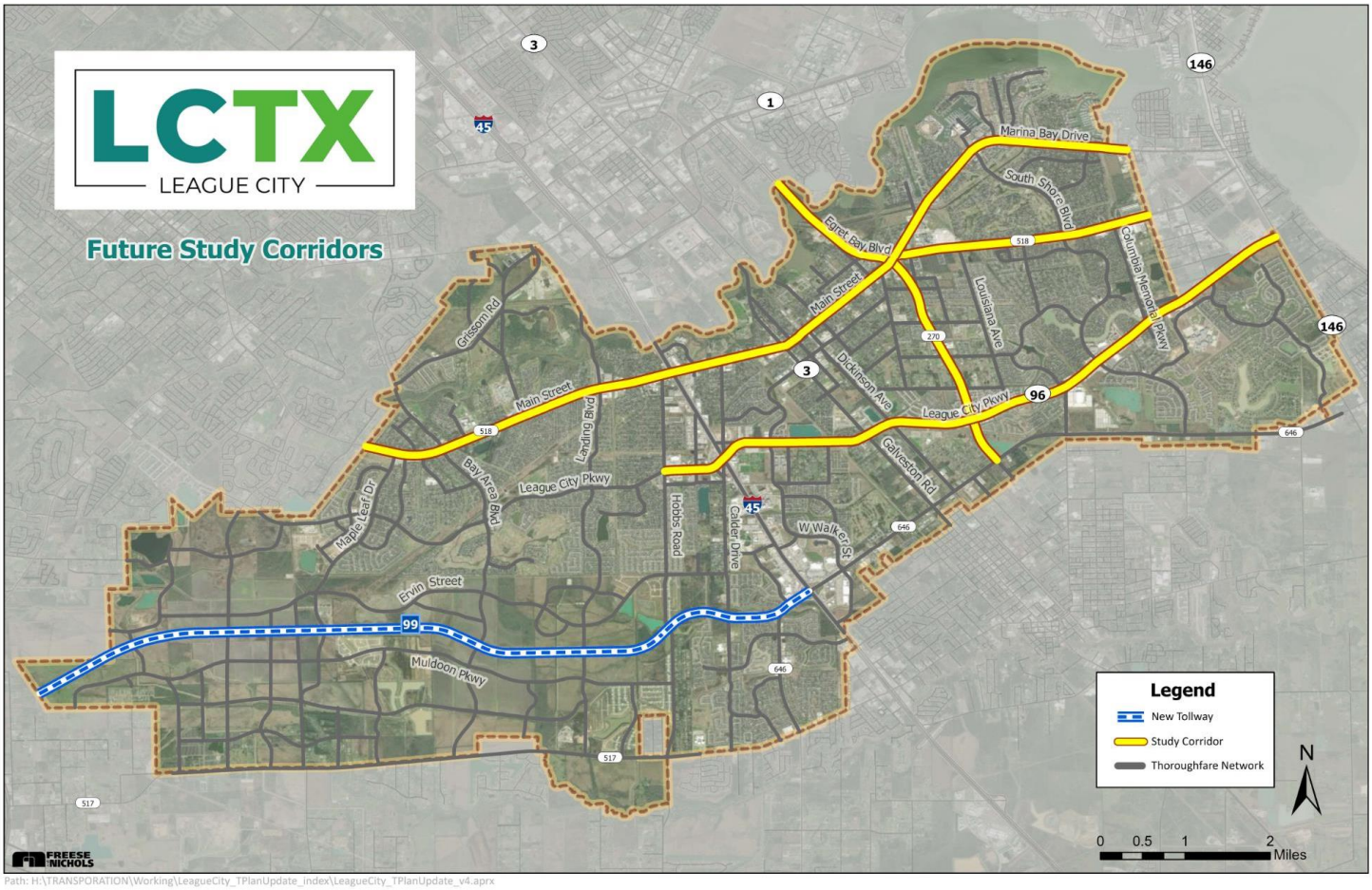


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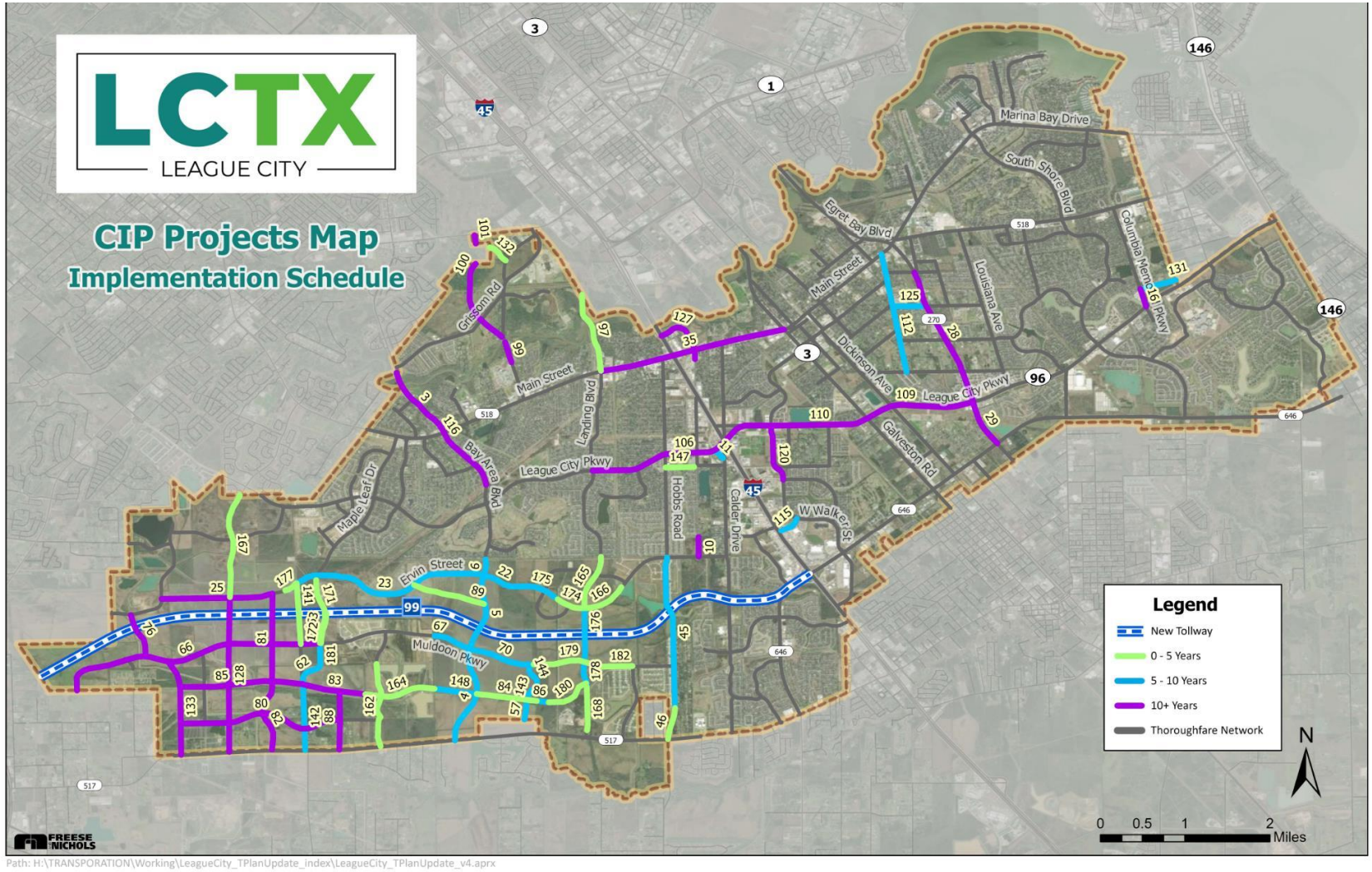
Figure 79: Recommended Plan Projects



Recommendations

In addition to specific project and corridor recommendations, a review of demographics, traveler behavior, input from key stakeholders, and public responses from the online survey has led to the following recommendations.

Table 15: Thoroughfare Plan Recommendations

What	Why	Who	When	Cost
Administration of the 2024 League City Mobility Plan Update	Thoroughfare plans require constant administration to keep the plan map and design standards up to date and accommodate new developments and policies in League City. This is standard practice for all thoroughfare plans.	League City, consultants.	Ongoing	Low
Incorporate the 2024 League City Mobility Plan Update into the H-GAC 2045 Regional Transportation Plan Update	Incorporation of the League City Thoroughfare into the H-GAC 2045 Regional Transportation Plan Update will allow further assessment and prioritization of proposed roadway projects and ensure that mobility priorities for League City are identified and presented at the regional level. Future updates may include a re-evaluation of the travel demand model, including the size of existing network traffic analysis zones (TAZs) and the location of centroid connectors.	League City, H-GAC.	Immediate	Nominal
Ongoing Pavement Assessment Program	League City's Pavement Assessment Program provides key data on current pavement conditions within the city. This inventory of conditions should be updated regularly to ensure up-to-date, actionable information.	League City, H-GAC, consultant.	Ongoing	Low
League City Transit Study	While the environmental justice analysis has shown areas of low-income population (Figure 50) who need alternatives to the automobile, there is currently limited public transportation options within League City. It is recommended that a high-level transit study be conducted to assess the state of current service, identify target service populations, and explore public and private service solutions to improve access and service.	League City, TxDOT, H-GAC, consultant, other identified providers.	Consider within next 5-10 years	Low
Support Remote Work Initiatives	A review of traveler behavior showed that at least 9% of people worked from home in League City. Observations from the online survey showed a strong preference for remote work by the general public. League City should make efforts to increase its knowledge of remote work and other future technologies, identify opportunities to improve wireless network coverage within League City, promote the	League City, HCAG	1-2 years	Low

	construction of home offices in new housing, and support other initiatives to reduce travel demand through remote work.			
Innovative Intersection Design	Innovative intersection designs, such as roundabouts, are becoming more prevalent in new developments for aesthetic and operational efficiencies. Public input from the online survey showed a preference for safety and intersection improvements. It is recommended that League City consider innovative intersection design on internal roadways in new residential developments as opportunities arise, where there are serious intersection safety issues, or a preference by the community for an alternative design.	League City	Immediate	Low
Safety Analysis	To investigate causal factors in high-crash locations to identify low-cost, highly effective solutions focusing on reducing the frequency and severity of crashes involving cyclists and pedestrians as well as schools.	TxDOT, League City, H-GAC, consultants	2-7 years	Low
ADA Sidewalk Program	Ensure all sidewalks and ramps meet ADA standards. Efforts may include a prioritized inventory of sidewalks along select corridors or adjacent to selected facilities.	League City	Immediate	Medium
ITS Master Plan	Develop and implement an intelligent transportation systems master plan for League City. Grants maybe used to fund this initiative.	League City	2-7 years	Medium

Recommended Funding Strategies

Several potential funding sources have been identified for the implementation of recommended transportation improvements in League City. See Appendix C for the full list of funding sources and descriptions.

Implementation Matrix

The funding and implementation matrix were developed to identify potential funding sources for Plan recommendations. For this section of the document, the matrix was broken into four categories:

- → Roadway Construction
- → Roadway Rehabilitation
- → Intersection Improvements
- → Miscellaneous Projects

A. Roadway Construction

Roadway construction funding sources, such as Category 12: Strategic Priority Funds, are geared towards new road roadway construction, roadway realignments, and interchange construction. Table 16 provides a list of funding sources that can be used to roadway fund construction. Category 12 Funds, specifically, are obligated to projects that promote economic development and improve interstate connectivity. Eligible projects include widening (freeway or non-freeway) and freeway interchanges. These funding sources would be instrumental in constructing recommended major mobility projects.

Table 16: Potential Funding Sources for Roadway Construction

Recommendation	Problem Addressed	Potential Funding Sources
Street Construction	Improved Access Capacity Improvement Congestion Relief Economic Development	Category 3: Non-Traditionally Funded Transportation Projects Category 12: Strategic Priority Funds Category 4E: Rural Mobility/Rehabilitation Category 11: Texas Mobility Fund Category 8B: Texas FM Road Expansion Proposition 7 Funds
Frontage Road Construction	Congestion Relief Economic Development Capacity Improvement	Category 12: Strategic Priority Funds Category 11 Proposition 7 Funds
Roadway Realignment	Safety Improved Traffic Flow Congestion Relief	Category 12 Category 4E Category 11 Proposition 7 Funds
Interchange Construction	Capacity Improvement Congestion Relief	Category 2 Category 4 Category 5 Category 7 Category 12 Proposition 7 Funds

B. Roadway Rehabilitation

Roadway rehabilitation projects include investments in transportation improvements that increase capacity, improve safety, or facilitate economic development. It includes enhancements such as grade separations, roadway resurfacing, lane additions, and right-of-way acquisitions. Funding options for roadway rehabilitation include but are not limited to Category 4F: Rehabilitation in Urban and Rural Areas. Category 4F funds are geared towards the rehabilitation of on-system roadways that are functionally classified higher than minor collectors. Table 17 provides a list of funding sources that could be used to fund roadway rehabilitation improvements.

Table 17: Potential Funding Sources for Roadway Rehabilitation

Recommendation	Problem Addressed	Potential Funding Source(s)
Grade Separation	Congestions Relief Safety	CMAQ Category 2: Metro Corridor Funds Category 11 Texas Mobility Fund
Lane Addition	Congestion Relief Improved Capacity	STP-MM Category 12: Strategic Priority Funds Category 11 Texas Mobility Fund
Roadway Widening	Congestion Relief Improved Capacity Accommodates wider vehicles	STP-MM Category 12 Category 4F Category 3C Category 11 Texas Mobility Fund
Narrower Lanes	Traffic Calming Safety	Category 11 Category 4E
Right-of-Way Acquisition	ROW for future Road Expansion	Category 2 Category 4E Proposition 7 Funds
HOV Lane	Congestion Relief Capacity Improvement	Texas Mobility Fund
Road Dieting	Traffic Calming Safety Economic Development	Category 11 Category 4E

C. Intersection Improvements

Intersection improvement funds are geared towards intersections safety improvement and access management projects that improve the overall flow of traffic within a corridor. Intersection improvements include traffic signalization, intersection lighting, roundabouts, turn lanes, and intersection geometry improvements. Intersection improvement funding sources include but are not limited to Category 10A Traffic Control Devices and Category 4E: Rural Mobility/Rehabilitation. Category 10A funds can be used for the installation or rehabilitation of traffic signals and intersection lighting on on-system roadways. Category 4E funds can be used in rural unincorporated areas or cities with populations below 5,000. Eligible projects include right and left turn lanes, intersection geometry improvements, and roundabouts. Table 18 includes a list of funding sources that can be used to fund intersection improvements.

Table 18: Potential Funding Sources for Intersection Improvements

Recommendation	Problem Addressed	Potential Funding Source(s)
Traffic Signalization	Congestion Relief Safety	CMAQ Category 10A: Traffic Control Devices category 10B: Rehab of Traffic Management Systems Category 11
Intersection Geometry Improvements	Safety Congestions Relief Capacity Improvement Accommodates Wider Vehicles	CMAQ Category 4E Category 11
Intersection Lighting	Safety	Category 12 CMAQ Category 11
Left and Right Turn Lanes	Safety Congestions Relief Capacity Improvement	CMAQ Category 11 Category 4E
Roundabout	Congestion Relief Capacity Improvement Safety Traffic Calming	CMAQ STEP Funds Category 11 Category 4E

D. Miscellaneous Projects

Miscellaneous improvements range from bridge construction to pedestrian amenities and traffic impact assessments. Some of the eligible funding sources for these improvements include the Statewide Transportation Enhancement Program (STEP) funds. STEP funds are available for non-traditional transportation projects such as bike and pedestrian initiatives, landscaping, and special studies. Although federally funded, these funds are not restricted to on-system facilities. Table 19 provides a list of funding options available for miscellaneous projects.

Table 19: Potential Funding Sources for Miscellaneous Transportation Projects

Recommendation	Problem Addressed	Potential Funding Source(s)
Bridge Construction/ Reconstruction	Safety Capacity Improvement Accommodate Wider Vehicles	Category 6A: On System Bridge Program Category 6B: Off System Bridge Program Category 11
Street Lighting	Safety Economic Development	CMAQ STEP Funds Category 11
Railroad Grade Separation Repair/ Construction	Congestion Relief Safety	Category 4G: Railroad Grade Separation Category 11
Pedestrian Amenities/ Landscaping	Traffic Calming Safety Economic Development Beautification	CMAQ STEP Funds Green Ribbon Funds Category 11
Transit Expansion	Transit Needs Multimodal Connectivity	CMAQ STEP Funds Category 11

Traffic Impact Assessment	Congestion Relief Traffic Calming Safety Improved Access	CMAQ Regional Toll Revenue
Miscellaneous	Safety Congestion Relief Capacity Improvement	Category 4F: Category 4E Category 3C: NHS Rehabilitation Category 8A: Rehabilitation of FM Roads Category 11 Texas Mobility Fund

E. Safety Projects

Texas Highway Safety Improvement Program (HSIP)

HSIP Is based on USC Title 23, Chapter 1, Section 152 which dictates that all states shall identify hazardous roadway elements that pose a danger to motorists, bicyclists, and pedestrians and shall prioritize projects to improve safety at these locations. The Texas Highway Safety Improvement Program was designed to comply with USC Title 23, and under the direction of the Texas Strategic Highway Safety Plan (SHSP), whose objective is to reduce traffic fatalities and serious injuries on Texas roadways.

This program focuses on data-driven, results-oriented strategies to improve roadway safety on both TxDOT on-system and off-system roadways. The plan lists seven (7) areas with the greatest potential to reduce roadway fatalities and injuries. These are:

- Distracted driving,
- Impaired driving,
- Intersection safety,
- Pedestrian safety,
- Roadway/Lane departures, and
- Speeding.

Funding for proposed projects exclude maintenance projects and bridge replacement. Program funds for eligible projects cover 90 percent of construction costs Funding for HSIP is coordinated by individual TxDOT Districts.

Safe Streets And Roads For All (SS4A)

As part of the Bipartisan Infrastructure Law (BIL), this discretionary program provides $5-6 billion in grants from 2022-2027 to reduce roadway fatalities and injuries, with a goal of zero deaths and injuries on America's roadways.

Eligible projects include those activities that support, or are a component of, safety action plans. This includes planning, design, development of action plans and programs and projects stemming from these plans. Examples of such projects and programs include:

- Multimodal improvements to improve safety for bicyclists and pedestrians

- Implement low-cost safety improvements, such as signs, markings, and rumble strips on rural roadways
- Develop speed reduction strategies, such as traffic calming and reduced speed limits (as appropriate)
- Construct safety enhancements for pedestrians, bicyclists, and low speed motorized vehicles
- Reduce alcohol impaired driving through education and outreach
- Create safe routes to school and transit to ensure user safety, particularly in underserved areas
- Create context-based street design that supports the needs of the local community

SS4A offers two grant opportunities:

- Planning and Demonstration - provides funds to do three types of activities:
    - Develop a comprehensive safety action plan (referred to as an "Action Plan"). Initial actions include identifying stakeholders, developing a community engagement plan, and reviewing strategies that would address the most concerning safety issues.
    - Conduct supplemental safety planning to complete or enhance an Action Plan
    - Carry out demonstration activities to inform the development of, or an update to, an Action Plan
- Implementation - provides funds to implement projects and strategies identified in a comprehensive safety action plan to address a roadway safety problem. Applicants must have an eligible Action Plan to apply for an Implementation Grant.

Road To Zero Community Traffic Safety Grants

This program is administered through the National Safety Council, funded by the National Highway Traffic Safety Administration (NHTSA), and partners with US DOT and National Safety Council, with the goal of ending roadway fatalities by 2050.

Disbursement is $750,000 annually and the applicants must request amounts between $50,000 and $200,000. The application deadline is early January of each year. Applicants must be members of the Road to Zero Coalition, but the membership is free. Road to Zero coalition promotes transportation safety through three pillar framework that focuses on:

- Proven, evidence-based strategies,
- Life-saving technologies in vehicles and infrastructure, and
- Prioritizing safety and promoting a culture of safety.

F. Other Funding Sources

City Bond Program

One key funding stream that has not been discussed which can cover all forms of transportation improvements is a City Bond Program. League City has had recent success leveraging its 2019 bond program funds for 31 roadway and drainage projects, resulting in significant improvements in network development and mobility.

Agency Coordination and Public Consultation

Agency coordination is also essential in the implementation of transportation projects. Different agencies and jurisdictions must communicate to ensure more seamless connectivity. Successful implementation of the City thoroughfare plan will require constant and transparent communication between adjacent cities and agencies, including: Galveston County, Friendswood, Webster, and Dickinson, H-GAC, and TxDOT. Public participation is also essential to plan implementation, and all recommendations presented in this plan need to be vetted in consultation with the public prior to implementation.

Crowd Funding

Through crowd funding, community members raise money to fund certain projects. This approach can raise awareness of community needs on pedestrian and bicycle infrastructures, which may help gather public support on future projects. It may also help attract potential donors for future projects.

Impact/Capital Recovery Fee

Impact/Capital Recovery Fees are fees to ensure the costs of maintaining the local transportation system are shared by developers who bring new growth into the area. League City's Capital Recovery Fee Program is a funding mechanism for identified capital transportation improvements over a 10-year planning period and is updated periodically (at least every 5 years).

Federal Grants and Programs

Several federal grants and programs are available on a regular basis for a variety of local activities. Grants that could be utilized for transportation projects include:

- Community Development Block Grant Program (CDBG): can be used to support projects that improve and revitalize streetscape.
- Highway Safety Improvement Program (HSIP): aims to support projects that reduce conflicts between vehicles and pedestrians or cyclists. Section 405 (National Priority Safety Program) of HSIP specifically provide funds for safety enhancement and education programs related to pedestrians and bicycles.
- TIGER Discretionary Grants Program: provides fundings for road, rail, transit, and port projects that achieve critical national objectives such as environmental sustainability and livability.
- Surface Transportation Block Grant Program Set-aside (STPBG Set-aside): replaces the Transportation Alternative Program (TAP) and includes the Recreation Trails Program (RTP). This source can fund projects that promote alternative transportation modes as well as trail constructions and improvements.
- Safe Streets for All Grant Program (SS4A): provides grants for implementation, planning, and demonstration activities as part of a systematic approach to prevent deaths and serious injuries on the nation's roadways.

- Strengthening Mobility and Revolutionizing Transportation (SMART): provides grants to conduct demonstration projects focused on advanced smart community technologies and systems in order to improve transportation efficiency and safety.