FARMERS BRANCH

FARMERS BRANCH
ACTIVE TRANSPORTATION PLAN

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APPENDIX

CHAPTER 1

OVERVIEW

The Farmers Branch Active Transportation Plan aims to establish and integrate a multi-modal system into a unified network in the City of Farmers Branch. This plan builds on the work accomplished by the 2015 Citywide Trail Master Plan and the Farmers Branch Comprehensive Plan (Farmers Branch 2045).

In the Dallas-Fort Worth Metroplex, pedestrian and bicycle planning and design have grown and evolved. There is a stronger push towards walkability, connectivity between modes, and protected bicycle facilities. The purpose of the Farmers Branch Active Transportation Plan is to establish a prioritized list of projects. These projects aim to connect existing facilities within the city and integrate into a broader regional network.

Chapter 1: Overview

Goals of the Active Transportation Plan
Benefits of Active Transportation
Active Transportation Users
Pedestrian and Bicycle Crash Statistics

GOALS OF THE ACTIVE TRANSPORTATION PLAN

The Plan's six goals—Connectivity, Comfort, Safety, Culture, Transportation Choices, and Funding Sources—reflect input from residents, City staff and public stakeholders. These goals guide future project recommendations and ensure that investments address local needs.

SAFETY

- Safety is priority for all users, regardless of age or ability
- Primary focus is on high-crash locations
- Incorporating safety elements, such as protected crossings, pedestrian-scale lighting, and traffic calming features, helps mitigate vehicle speeds, enhance visibility, and create safer, low-stress conditions for all roadway users.

CULTURE

- Creating a culture of walking and biking
- Methods include education, enforcement, awareness, and visibility
- Improvements are needed to shift community perception of active transportation

CONNECTIVITY

- Routes should connect destinations to communities
- Sidewalk gaps should be eliminated
- Bike lanes should be continued through intersections

TRANSPORTATION CHOICES

- Create safe and convenient alternatives to driving
- Enhance mobility and reduce environmental impacts

COMFORT

- Walking and biking in Farmers Branch should be a comfortable, low-stress experience

FUNDING SOURCES

- Identify funding, such as grants, that allows the City budget to cover more active transportation projects

BENEFITS OF ACTIVE TRANSPORTATION

A complete network of pedestrian and bicycle facilities helps create vibrant, connected communities by providing safe, comfortable, convenient, and affordable ways for people to get around. Active transportation infrastructure also reduces traffic congestion, improves access to essential destinations, and supports healthier, more equitable communities. When designed with all users in mind, these networks foster economic growth, enhance public health, reduce environmental impacts, and strengthen the social fabric.

BENEFIT	DESCRIPTION
Economy	A well-connected active transportation network improves access to essential destinations (work, school, retail, and entertainment), which supports economic growth, increased property values, and local vitality.
Environment	Active transportation includes zero-emission modes like walking and biking, which reduces motor vehicle emissions, improves air quality, and contributes to a healthier environment.
Health	Accessibility to pedestrian and bicycle facilities encourage more physical activity, improving mental health and overall quality of life.
Comfort	A thoughtfully designed and interconnected network throughout the community encourages users of all ages and abilities to use active transportation facilities by providing a low-stress, safe experience.
Equity	Active transportation provides individuals with affordable transportation options to safely and conveniently connect to essential destinations, including public transit, at low or no cost per trip.

ACTIVE TRANSPORTATION USERS

An active transportation network is used by a diverse group of all ages and abilities who rely on non-motorized modes of transportation, such as walking, cycling, or other forms of movement. For Farmers Branch, this means ensuring the network is safe, accessible, and equitable to meet the needs of all residents and visitors. The primary user groups of an active transportation network include:

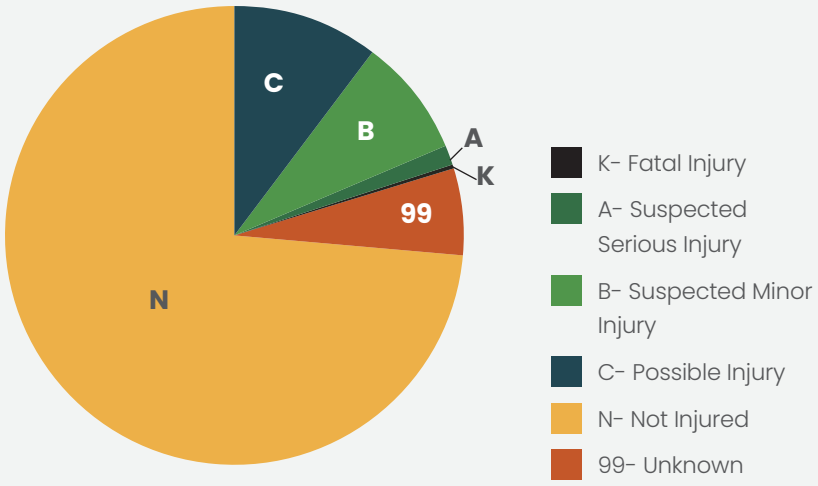
BENEFIT	DESCRIPTION
Pedestrians	Individuals who walk for transportation, recreation, or commuting purposes. Typical facilities used are sidewalks, crosswalks, and other pedestrian-friendly infrastructure that is part of an active transportation network.
Cyclists	Individuals who use bicycles for commuting, errands, fitness, or leisure. They use trails, bike lanes, and bike-sharing infrastructure that are integrated into the network.
People with Mobility Challenges	Individuals who use wheelchairs, mobility scooters, or other assistive devices. They rely on accessible pathways, crosswalks, ramps, and other accommodations to navigate the network safely and efficiently.
Transit Riders	Individuals who use public transit, such as Dallas Area Rapid Transit (DART), and rely on active transportation networks to access transit stops. This includes walking or biking to a bus stop or light rail station.
Parents with Strollers	Parents or caregivers using strollers for young children. They use sidewalks, pedestrian crossings, and other infrastructure designed for safe, fully connected, and easy travel.
Students	School children of Carrollton-Farmers Branch ISD and students at local colleges who walk or bike to school/campus as part of their daily routine. Safe routes for children are a priority in active transportation networks.
Recreational Users	Individuals using the network for outdoor activities, such as jogging, cycling, rollerblading, or other fitness pursuits. These users often take advantage of designated trails, parks, and scenic routes within the active transportation network.

PEDESTRIAN AND BICYCLE CRASH STATISTICS

The Texas Department of Transportation (TxDOT) collects and analyzes crash data submitted by Texas law enforcement officers. This dataset provides insight and highlights key corridors and intersections for improvement. Streets that are characterized by a high frequency of motor vehicle crashes, high severity of motor vehicle crashes, or both are generally unsafe environments for pedestrian and bicycle travel.

Between January 2019 and December 2024, a total of 5,412 vehicular crashes were reported along roadways in Farmers Branch, including on the highways around/through Farmers Branch. **Figure 1** shows the distribution of severity of vehicular crashes in Farmers Branch through a five-year timeframe. Approximately 2% of all the crashes had a crash severity of K (Fatal) or A (Suspected Serious Injury).

Figure 1. Farmers Branch Vehicular Crash Severity (2019-2024)



In the same time period, there were 83 reported vehicular crashes involving bicyclists and/or pedestrians in Farmers Branch. **Figure 2** shows the yearly pedestrian and bicycle crashes. **Figure 3** shows the top three corridors with the highest combined pedestrian and bicycle crashes in the City. A map illustrating the locations of the bicycle- and pedestrian-involved crashes is shown on **Figure 4**.

Figure 2. Farmers Branch Pedestrian and Bicycle Crashes By Year (2019-2024)

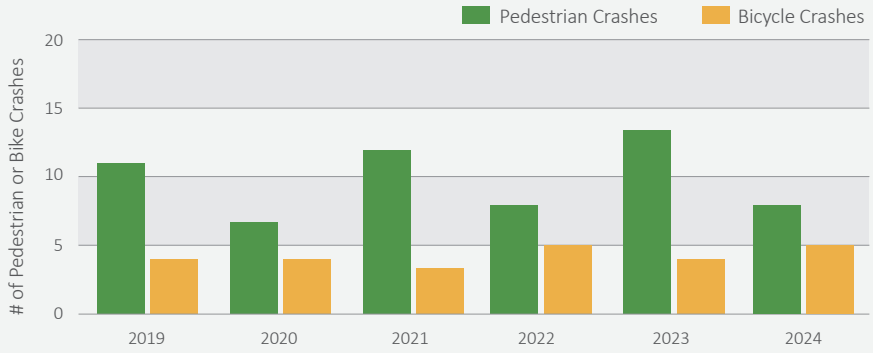


Figure 3. Farmers Branch Highest Pedestrian And Bicycle Crash Corridors (2019-2024)

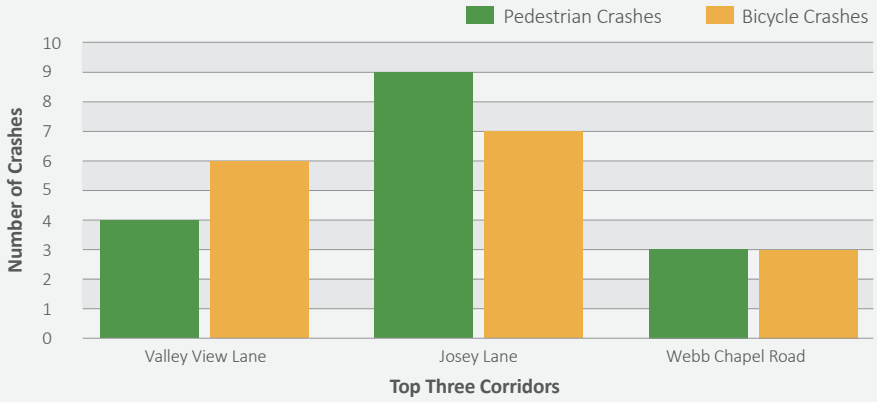
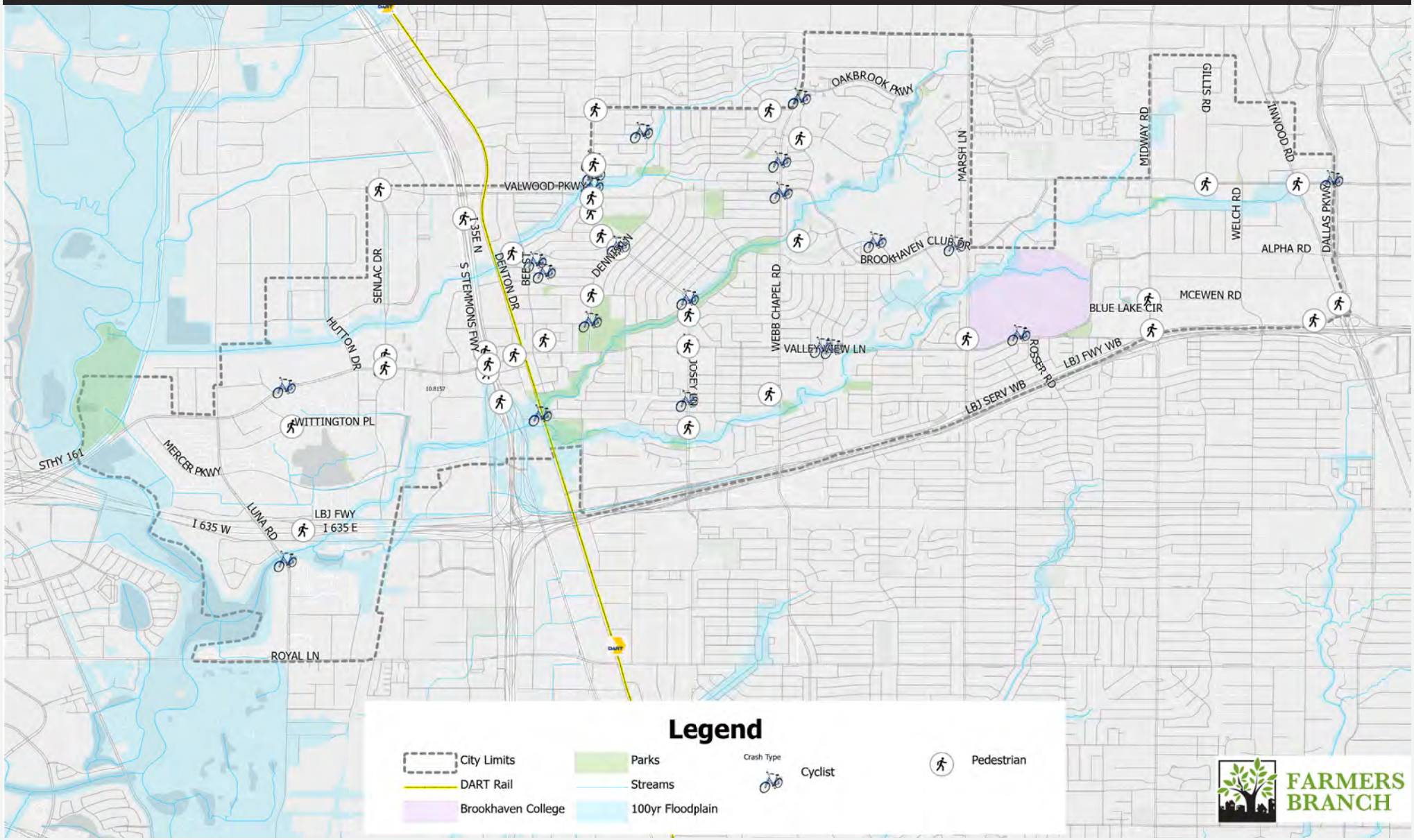


Figure 4. Farmers Branch Pedestrian And Bicycle Crash Map (2019-2024)



CHAPTER 2

CHAPTER 2

IMPLEMENTATION

Chapter 2: Implementation

Project Prioritization

- Active Transportation Network
- Pedestrian Network

Program and Policies

PROJECT PRIORITIZATION

To begin the process of prioritizing active transportation projects, the project team collaborated with City staff to discuss the key priorities of the Active Transportation Plan. These include Comfort, Connectivity, Safety, Transportation Choices, and Costs/Grant Funding Potential, and reflect the City's needs and community feedback. Input gathered during the April 17th, 2024 public meeting and online survey played a significant role in determining the relative scoring of each criterion. See **Appendix 1** for more information on the Public Engagement Process.

Each proposed active transportation facility was evaluated using the weighted scoring system, based on these key elements. The table below highlights the evaluation criteria, descriptions, and their respective weights.

BIKEWAY NETWORK EVALUATION CRITERIA		
CRITERIA	DESCRIPTION	WEIGHT
Safety	Does the corridor have a history of pedestrian and/or bicycle related crashes?	30%
Connectivity	Does the corridor provide connectivity to existing active transportation facilities, destinations, and other municipality facilities?	25%
Comfort	Does the corridor improve the level of comfort for all ages and abilities?	15%
Transportation Choices	Does the corridor provide a facility for more than just one user?	15%
Cost and Grant Funding Potential	Can the project be implemented in a timely manner and what manner of funding (local or statewide/federal funding) can be used?	15%

The top-scoring active transportation facilities—including shared-use paths, trails, on-street bike lanes, and bicycle boulevards—were placed in the near-term recommendations (targeting implementation within 5 years). Facilities requiring additional planning or funding were categorized as long-term (6+ years) projects.

The following sections outline the prioritized active transportation projects by type, ensuring a phased approach that balances immediate needs with long-term infrastructure goals. By focusing on safety, comfort, and connectivity, these projects aim to build a seamless, equitable, and efficient active transportation network for Farmers Branch.

Active Transportation Network

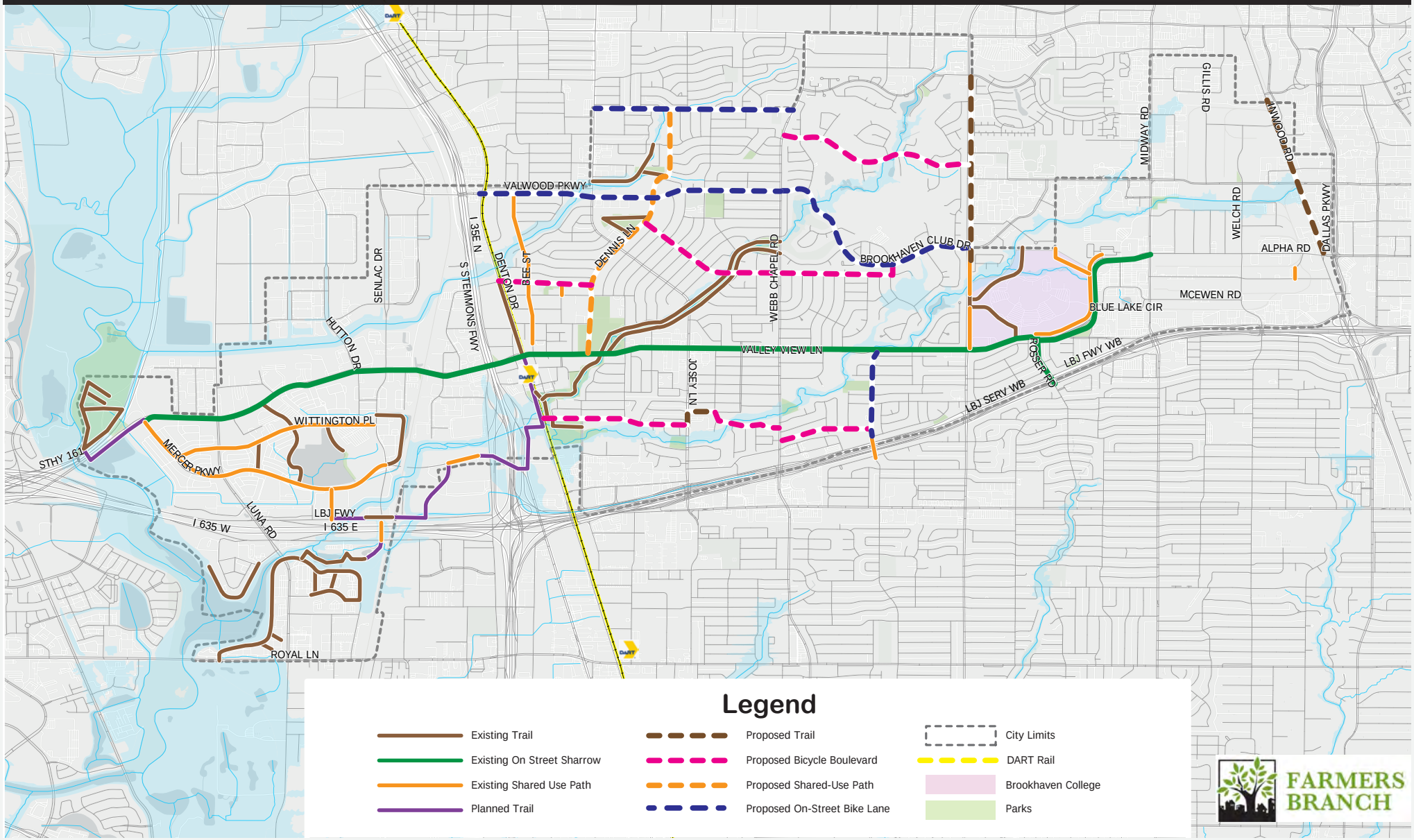
Several key corridors were identified as near-term priority projects. The near-term priority projects consist of bike lanes, bicycle boulevard (shared-lane facilities, signage, and traffic calming) corridors, and shared-use paths which are intended to fill in some critical missing links in the network early on. The projects identified as near-term priority are intended to be implemented within five years and will establish a baseline level of connectivity. Projects not identified as near-term priority are to be built out later.

The near-term priority active transportation projects are presented in table below and in **Figure 5**.

NEAR-TERM RECOMMENDATIONS (WITHIN 5 YEARS)			
CRITERIA	DESCRIPTION	WEIGHT	LENGTH (MI)
Pebble Beach Drive	Webb Chapel Road to Marsh Lane	Bicycle Boulevard	1.09
Farmers Branch Lane	Denton Drive to Josey Lane	Bicycle Boulevard	0.78
Longmeade Drive	Dennis Lane to Golfing Green Drive	Bicycle Boulevard	1.52
Squire Place	Denton Drive to Dennis Lane	Bicycle Boulevard	0.51
Veronica Road	Janie Stark School to Webb Chapel Road	Bicycle Boulevard	0.37
Myra Lane	Webb Chapel Road to Templeton Trail	Bicycle Boulevard	0.49
Brookhaven Club Drive	Webb Chapel Road to Marsh Lane	On-Street Facility	1.32

NEAR-TERM RECOMMENDATIONS (WITHIN 5 YEARS)			
CRITERIA	DESCRIPTION	WEIGHT	LENGTH (MI)
Valwood Parkway	Denton Drive to Webb Chapel Road	On-Street Facility	1.61
Fyke Road	Josey Lane to Webb Chapel Road	On-Street Facility	1.05
Templeton Trail	Valley View Lane to Joe Ratcliff Walkway	On-Street Facility	0.57
Dennis Lane	Valley View Lane to Fyke Road	Shared-Use Path	1.70
Janie Stark School	Josey Lane to Veronica Road	Trail	0.15
Marsh Lane	Beltway Drive to Brookhaven Club Drive	Trail	1.10
Inwood Road	Landmark Place to Alpha Road	Trail	1.07

Figure 5. Near-Term (0-5 Years) Bicycle Network

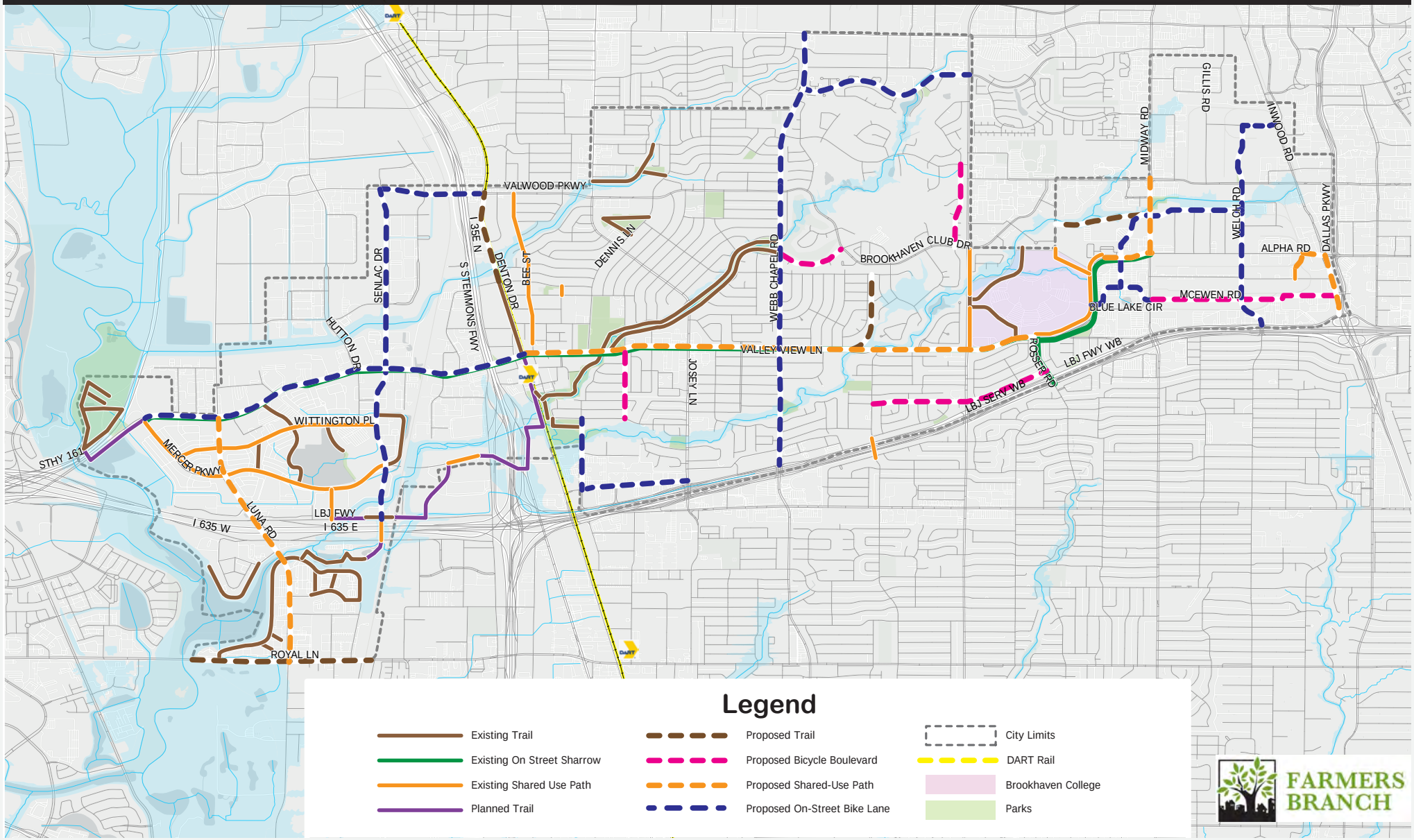


After implementing the near-term priority projects, the work is not finished. A fully connected network takes time and patience. These projects are phased for implementation beyond six years, allowing the City to study the corridors in more detail, pursue funding opportunities, coordinate with regional partners, and address evolving community needs. **Figure 6** presents the long-term recommendations, showcasing the network's growth and connectivity across all council districts.

LONG-TERM RECOMMENDATIONS (6+ YEARS)			
CORRIDOR	LIMITS	PROPOSED FACILITY TYPE	LENGTH (MI)
Tom Field Road	Farmers Branch Lane to Valley View Lane	Bicycle Boulevard	0.44
Golfing Green Drive	Webb Chapel Road to Brookhaven Club Drive	Bicycle Boulevard	0.42
Ridgeoak Way	Templeton Trail to Rosser Road	Bicycle Boulevard	0.99
McEwen Road	Midway Road to Inwood Road	Bicycle Boulevard	1.04
Southern Pines Drive	Brookhaven Club Drive to Pebble Beach Drive	Bicycle Boulevard	0.54
Webb Chapel Road	Valwood Parkway to Belt Line Road	On-Street Facility	1.03
Valley View Lane	Mercer Parkway to Denton Drive	On-Street Facility	2.14
Sigma Road	McEwen Road to Welch Road	On-Street Facility	1.06
Welch Road	Inwood Road to I-635	On-Street Facility	1.52
Ford Road	Farmers Branch Lane to Villa Creek Drive	On-Street Facility	0.47
Senlac Drive	Westside Art Trail to Valley View Lane	On-Street Facility	1.00
Oakbrook Parkway	Webb Chapel Road to Marsh Lane	On-Street Facility	0.98

LONG-TERM RECOMMENDATIONS (6+ YEARS)			
CORRIDOR	LIMITS	PROPOSED FACILITY TYPE	LENGTH (MI)
McEwen Road	Alpha Road to Midway Road	On-Street Facility	0.45
Senlac Drive	Valley View Lane to Valwood Parkway	On-Street Facility	1.16
Webb Chapel Road	I-635 to Valwood Parkway	On-Street Facility	1.75
Valwood Parkway	Senlac Drive to Denton Drive	On-Street Facility	0.64
Villa Creek Drive	Ford Road to Josey Lane Josey Lane	On-Street Facility	0.58
Inwood Road	Alpha Road to I-635	Shared-Use Path	0.44
Luna Road	Royal Lane to Valley View Lane	Shared-Use Path	2.02
Alpha Road	New Castle Drive to Midway Road	Shared-Use Path	0.29
Midway Road	Alpha Road to Spring Valley Road	Shared-Use Path	0.48
Valley View Lane	Denton Drive to Rosser Road	Shared-Use Path	2.79
Cambridge Concourse/ Alpha	Inwood Road to Simonton Road	Shared-Use Path	0.21
Denton Drive	Squire Place to Valwood Parkway	Trail	0.48
Oncor Easement Trail	Landmark Place to Alpha Road	Trail	0.53

Figure 6. Long-Term (6+ Years) Bicycle Network



Pedestrian Network

Based on the project team's evaluation and feedback from the public and committees, the pedestrian network in Farmers Branch faces two main challenges:

1. Continuity – Sidewalk gaps that disrupt walkability and connectivity.

2. ADA Compliance – Inadequate accessibility for people with disabilities, including missing or outdated curb ramps.

Currently, there is a dedicated funding source set aside for ADA related improvements. This funding is designated to address individual spot improvements throughout the City, but an ADA Transition Plan has not been performed. In addition, there is not a specified funding source to address sidewalk gaps. Based on these observations, the project team identified the following as the top priority investments in the pedestrian network:

1. Complete an ADA Transition Plan.

2. Set aside a dedicated funding source for pedestrian facility improvements.

3. Make improvements to the pedestrian network using the toolkit in the **Appendix 2.**

PROGRAMS AND POLICIES

In addition to investing in new facilities and maintenance, the successful implementation of the plan will require complimentary programs and policies which can help to create an all-around better experience for pedestrians and bicyclists in Farmers Branch. Examples of programs and policies are presented in the table on the next page.

Similar to the bike and pedestrian projects, high priority programs and policies anticipated to have the greatest immediate impact have been identified. It is recommended to implement these in the near-term time frame in order to act as catalysts to other programs and policy changes.

The priority programs and policies are shown in bold.

POLICIES, PLANS, AND PROGRAMS	
Adopt a Local Complete Streets Policy	Complete Streets policies establish a process which requires planning and designing for all roadway users, including pedestrians, bicyclists, transit users, and motorists. A local Complete Streets policy would supplement TxDOT's Complete Streets policy and be specifically applicable to City-owned streets.
Perform an ADA Transition Plan	Conducting an inventory of all existing sidewalks can lead to improvements in safety, walkability, and convenience. Establishing a uniform inventory can also help to ensure uniform physical characteristics (pavement markings, slopes, compliances, etc.).
Establish a Local Safe Routes to School Program	Safe Routes to School programs promote safe walking and bicycling to and from schools to improve the health and well-being of school children. Resources and guidance are provided for project applicants through TxDOT's Transportation Alternatives Program (TAP).
Establish a Citywide Traffic Calming Manual	Traffic calming manuals provide staff with tools to retrofit streets with physical and visual features that reduce travel speeds. These retrofits, in turn, make streets safer and more comfortable environments for bicyclists and pedestrians.
Develop Standard Details for Bicycle Facility Pavement Markings and Signage	Having a standard for bicycle facility pavement markings and signage will ensure that the bicycle network is uniform and continuous throughout the City. The development of a Bicycle Signage Plan will allow for standard signage and wayfinding, making it easier for bicyclists to follow bicycle routes.
MAINTENANCE	
Update Curb Ramps to Meet ADA	Curb ramps that are up to current ADA standards are necessary to fully meet the needs of people with disabilities. Compliant curb ramps also assist people traveling with strollers, carts, bicycles, and other wheeled items. Best practices call for one curb ramp in each direction of travel designed for the specifics of the location.
Regularly Update Crosswalks and Add New Crosswalks.	While crosswalks do not need to be striped to be legal, striped crosswalks serve two important purposes, especially when combined with other crossing treatments. They show pedestrians where to cross and tell motorists to expect pedestrians. Keeping crosswalk markings fresh makes them visible during the day and night, so annual maintenance is important. High visibility striping is a best practice across streets with higher traffic volumes and speeds.
Develop a Pedestrian and Bicycle Facility Maintenance Program	A bicycle and pedestrian facility maintenance program can help keep an inventory of bicycle and pedestrian facilities and their conditions, enabling the prioritization and implementation of facility maintenance. Maintenance cycles and triggers should be based on the impact of surfaces and debris on bicyclists and pedestrians, rather than thresholds used for motor vehicle travel lanes.

MODIFICATION TO OTHER PLANS	
Adopt Thoroughfare Cross Sections with Bicycle Facilities	In addition to a Complete Streets policy, having standard cross sections, which include bicycle facilities, can greatly increase the completeness and connectivity of the bicycle network.
Evaluate and Identify Funding Sources	Evaluating and identifying potential funding sources, such as federal and state grants, is a critical step toward feasibly implementing new pedestrian and bicycle facilities.
Regularly Update Local Street Design Standards to Reflect National Best Practices	Local street design standards dictate how roadways can be built according to the local Complete Streets policy. Road design guidelines often control the inclusion and design of bicycle infrastructure.
Identify and Prioritize Locations for Bicycle Rack Installation.	Properly installed and conveniently located bicycle racks encourage bicyclists to park their bicycles in secure and convenient locations. Adequate bicycle parking also reduces the likelihood of damage that may result from locking bicycles to trees, sign posts, or other objects.
Implement Bicycle Parking Requirement Within Zoning Code	Implementing a bicycle parking requirement within the zoning code will help to ensure that bicyclists have a safe place to store their bikes when they reach their destination.

CULTURE	
Create a Bicycle and Pedestrian Advisory Commission Including a City Staff Representative	A Bicycle and Pedestrian Advisory Commission consists of volunteers who provide guidance and leadership concerning bicycle and pedestrian issues to City staff.
Plan and Execute Open Streets Events	Open streets events temporarily close streets to vehicular traffic, allowing the street to be used for a variety of pedestrian, bicyclist, and recreation activities. These events build community while celebrating the use of non-motorized transportations.

CULTURE (CONTINUED)	
Support International Walk to School Day (October) and National Bike to School Day (May)	These events are used as springboards for getting more students to walk and bike to school. They also help gain support from policy and decision makers about safer and more complete infrastructure.
Distribute Bike Lights, Helmets, and Bells	Bike lights, helmets, and bells are important features of safe bicycling. Distributing safety equipment will promote responsible bicycling behavior and create safer conditions for both bicyclists and motorists sharing the roadways.
Conduct Regular Bicycle and Pedestrian Counts	Regular bicycle and pedestrian counts can guide planning and funding decisions. Counts can also be used to quantify the benefits of investments in bicycle and pedestrian infrastructure. The challenge is to conduct counts in a way that supports increases in walking and biking, especially roadway crossings. For example, identifying locations where pedestrians and bicyclists are crossing without visible crossing facilities is one way to know where bicycle and pedestrian infrastructure is needed.
Create a Vision Zero Plan	Actively promoting the principles of Complete Streets and active transportation can be done as part of a broader effort to strive to accomplish the goal of Vision Zero, which is to have no serious injuries or fatalities involving road traffic.

CHAPTER 3

CHAPTER 3

EXISTING CONDITIONS

Farmers Branch is an "inner-ring" suburb in the Dallas-Fort Worth Metroplex. The City of Farmers Branch is estimated to be home to over 36,000 people, according to the U.S. Census Bureau. Farmers Branch is also home to Dallas College Brookhaven Campus, which enrolls approximately 13,000 students per semester.

The development of the Farmers Branch Active Transportation Plan began with an assessment of the city's current conditions, including demographics, prominent destinations, existing street and active transportation network, and pedestrian and bicycle crash data. This analysis indentifies where pedestrian and bicycle infrastructure improvements are most needed. By integrating public feedback, crash data, network assessments, and building on existing plans ,like the 2015 Trail Master Plan, this plan identified opportunities to create a safer, more accessible, and connected active transportation network for all residents and visitors of Farmers Branch. Other maps such as 2022 ADT traffic volumes from TxDOT's statewide planning map, 2022 roadway volume to capacity (v/c) ratio, 2042 ADT traffic volumes from TxDOT's statewide planning map, 2042 roadway volume to capacity (v/c) ratio, and existing bicycle level of traffic stress can be found in **Appendix 3**.

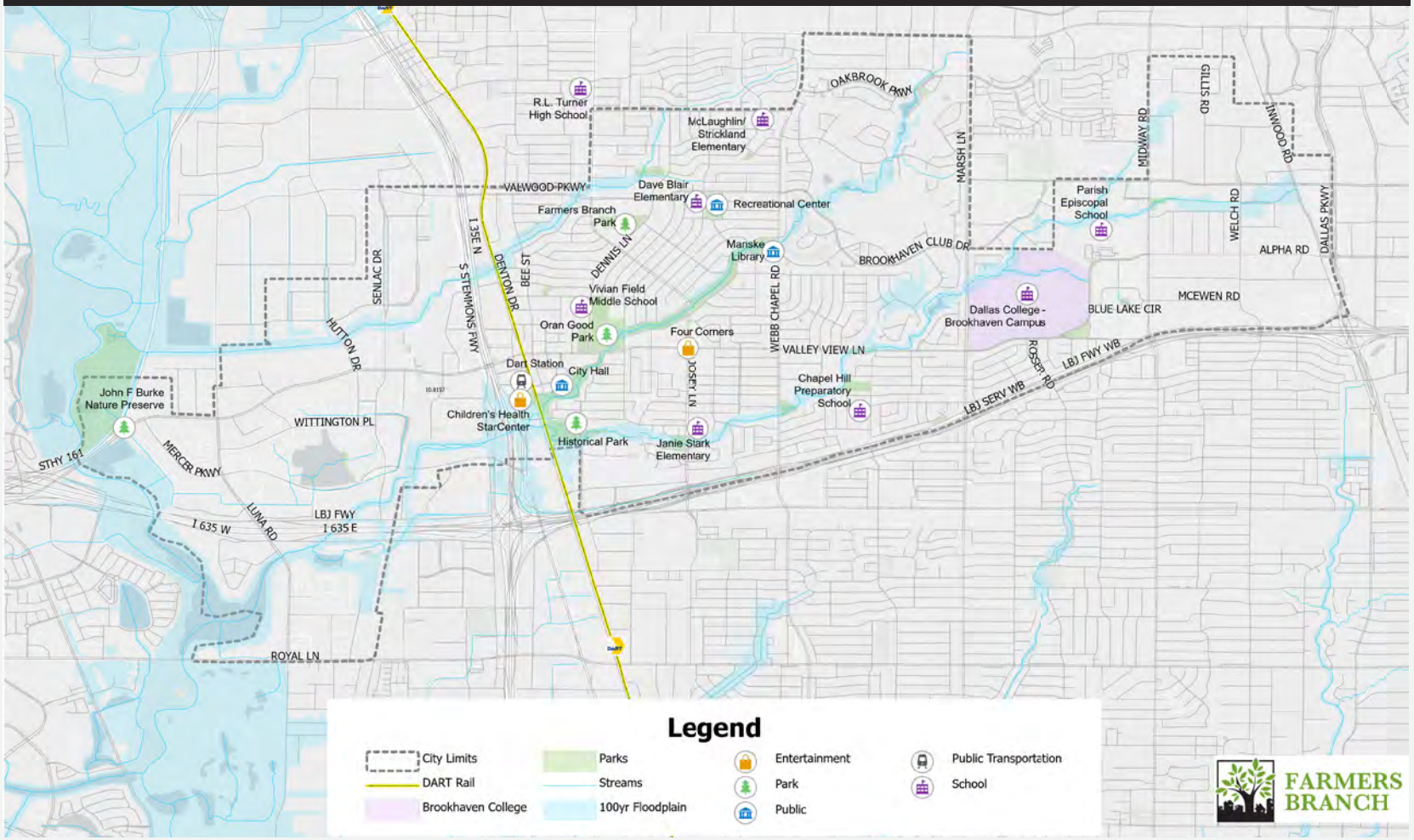
Chapter 3: Existing Conditions

Destinations
Street Network
Existing Pedestrian Network
Existing Bicycle Infrastructure and Routes
Demographics
Previous Planning Efforts

DESTINATIONS

Understanding where people live, work, and play is critical to identifying priority areas for active transportation improvements. Developing a community-wide plan for improving bikeability and walkability requires the consideration of accessibility and connectivity to key destination, including major employers, schools, parks, greenways, and other retail centers such as downtown and grocery stores. These destinations are shown in **Figure 7**.

Figure 7. Farmers Branch Destinations



STREET NETWORK

As described, in the recently adopted Comprehensive Plan, the primary patterns of regional traffic in and out of the city are in the north-south direction. Valley View Lane acts as the primary east-west spine through the city and has relatively low traffic volumes. The other arterials in Farmers Branch are generally built with four to six lanes, most have sidewalk gaps or other pedestrian barriers, no dedicated bicycle facilities, and are generally high speed. This makes crossing arterials as a pedestrian or cyclist in Farmers Branch difficult.

Public input and street assessments reveal that the primary barriers to active transportation in Farmers Branch include:

- High-speed vehicle traffic, which deters walking and cycling.
- Sidewalk gaps in the collector street network, which limit local connectivity.
- IH-35E, which divides parts of the city and complicates pedestrian and bicycle access.
- Poor pavement conditions and difficult crossings on key thoroughfares.
- Discontinuous pedestrian facilities and sidewalk gaps along major and minor roadways discourage walking.
- Lack of bicycle facilities or shared-use paths exist, especially on arterials.
- Safety concerns, such as high-speed traffic and limited crossing opportunities, make walking and cycling feel unsafe.

The Farmers Branch Comprehensive Plan outlined five transportation strategies to improve pedestrian and bicycle mobility:

Livable Street Retrofits: Repurpose public right-of-way to include active transportation facilities while maintaining traffic flow.

Neighborhood Safety Improvement Program: Implement targeted, small-scale projects like traffic calming, to address safety concerns.

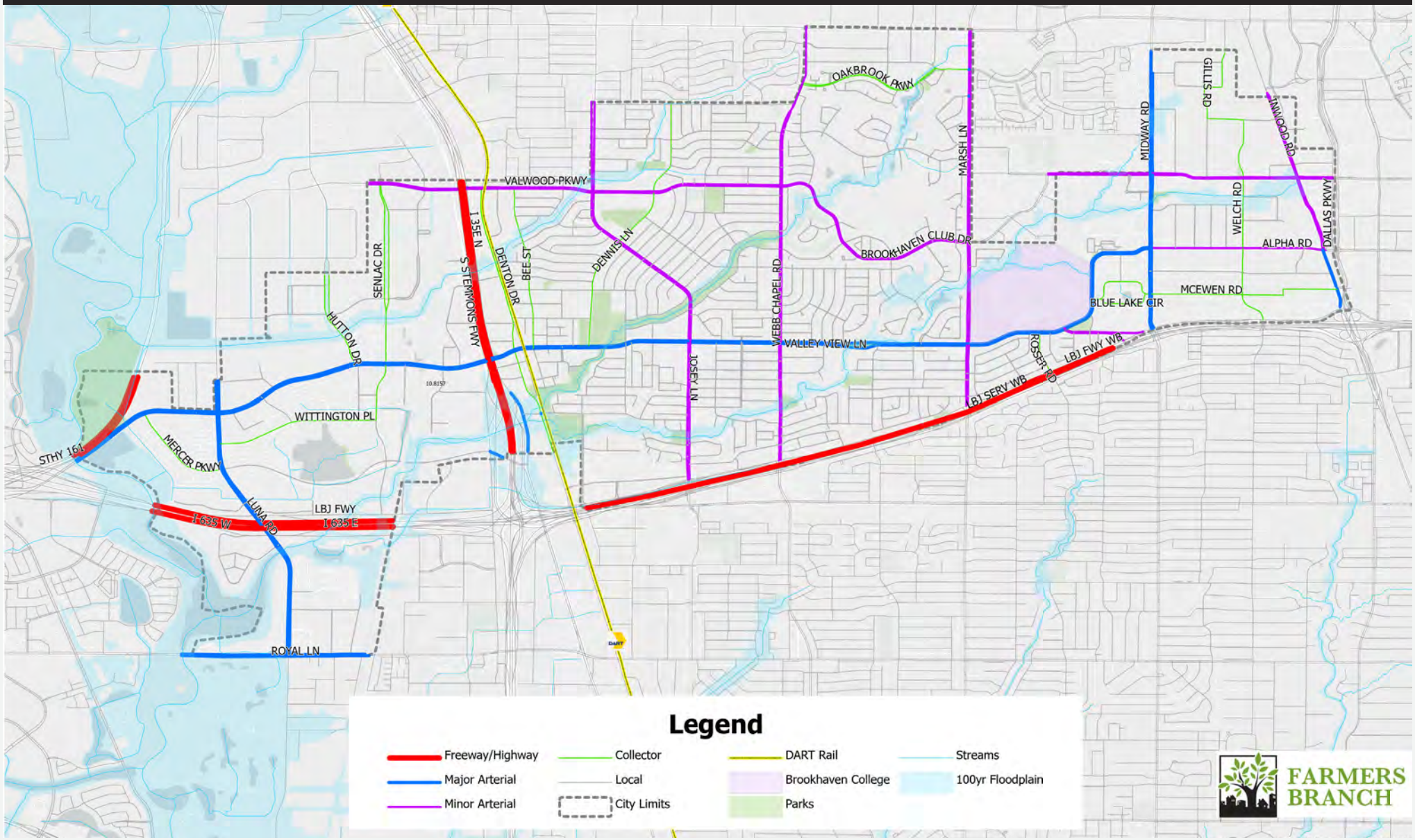
Safe Streets Campaigns: Collaborate with residents and community groups to raise awareness about roadway safety.

Trail and Greenway Priority Investments: Enhance trail connectivity and expand greenways to integrate active transportation facilities.

Sidewalk Gap Infill: Prioritize filling sidewalk gaps, particularly near schools, transit stops, parks, and employment hubs.

By implementing these strategies and addressing physical barriers, the City can improve active transportation connectivity, safety, and accessibility for all users. **Figure 8** shows the existing street network.

Figure 8. Farmers Branch Street Network



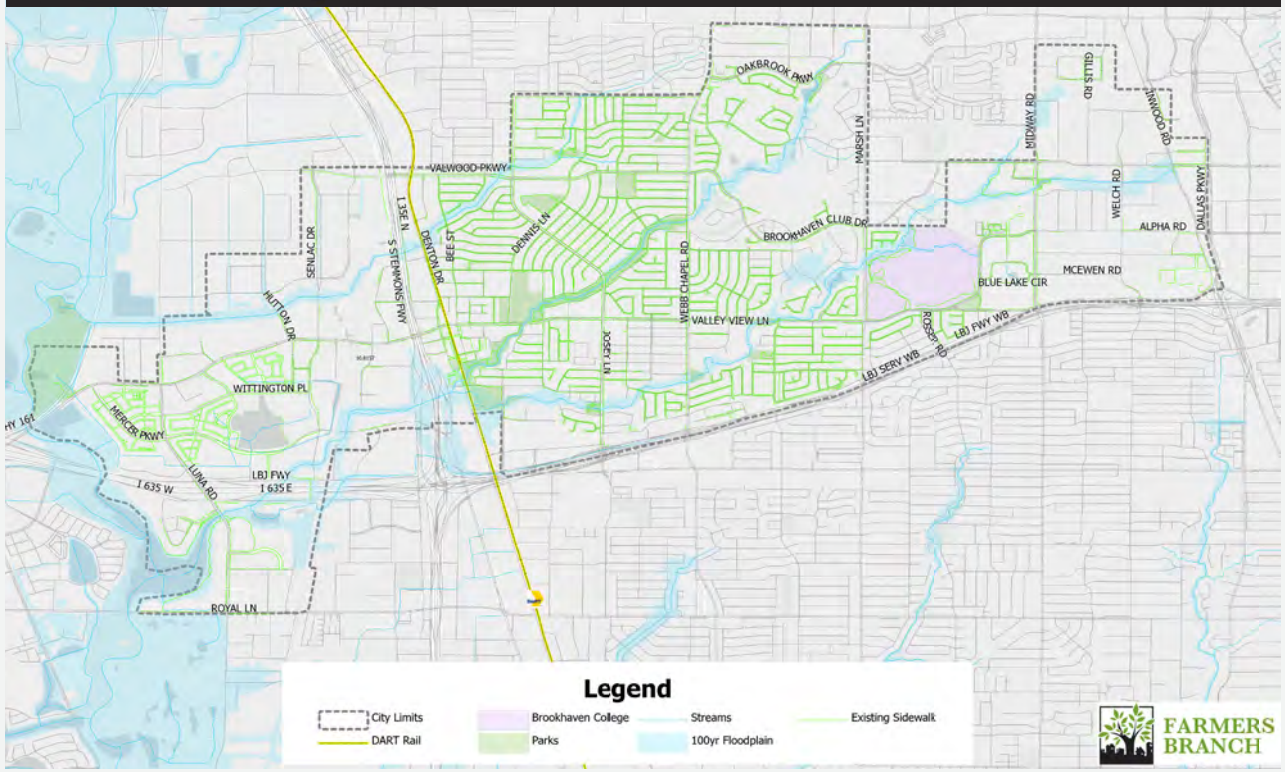
EXISTING PEDESTRIAN NETWORK

Farmers Branch has an extensive pedestrian network; however several challenges hinder it's effectiveness and accessibility. Issues such as deteriorating sidewalks, gaps in connectivity, non-compliance with ADA requirements, missing curb ramps, and insufficient pedestrian crossings persist throughout the City.

Major thoroughfares such as Valley View Lane, Midway Road, Josey Lane and many others serve as the backbone of the transportation system. They often feature wide six-lane roads and large intersections which create barriers for pedestrians. The gaps in sidewalks along these thoroughfares, along with limited designated pedestrian crossings, make it difficult to travel between neighborhoods.

Community feedback, gathered through observations and surveys, consistently highlights concerns regarding the lack of connectivity and safe crossings, making it challenging to navigate the City without reliance on a car. This sentiment highlights the community desire for strategic improvements to the pedestrian infrastructure. **Figure 9** shows the existing pedestrian network for Farmers Branch.

Figure 9. Existing Pedestrian Network



EXISTING BICYCLE INFRASTRUCTURE AND ROUTES

Farmers Branch's bicycle facility network is composed of facilities within and adjacent to the roadways. Primarily in the City of Farmers Branch, the bicycle network is made up of trails and shared-use paths. Shared-use paths are off-street facilities shared by bicyclists and pedestrians. Farmers Branch has two on-street bicycle facilities (Valley View Lane between Mercer Parkway and Midway Road and Rosser Road between Valley View Lane and IH-635). These facilities are shared facilities that require bicyclists and motorists to share the street space. These types of facilities are informally known as "sharrows".

As of 2024, there are no dedicated on-street bicycle facilities or bicycle boulevards in Farmers Branch. Dedicated bicycle facilities provide exclusive travel space for bicyclists, either with striped buffers or vertical elements to improve safety and comfort.

The existing bicycle infrastructure is presented in **Figure 10**.

Valley View Lane Shared Lane Markings

Planned Facilities

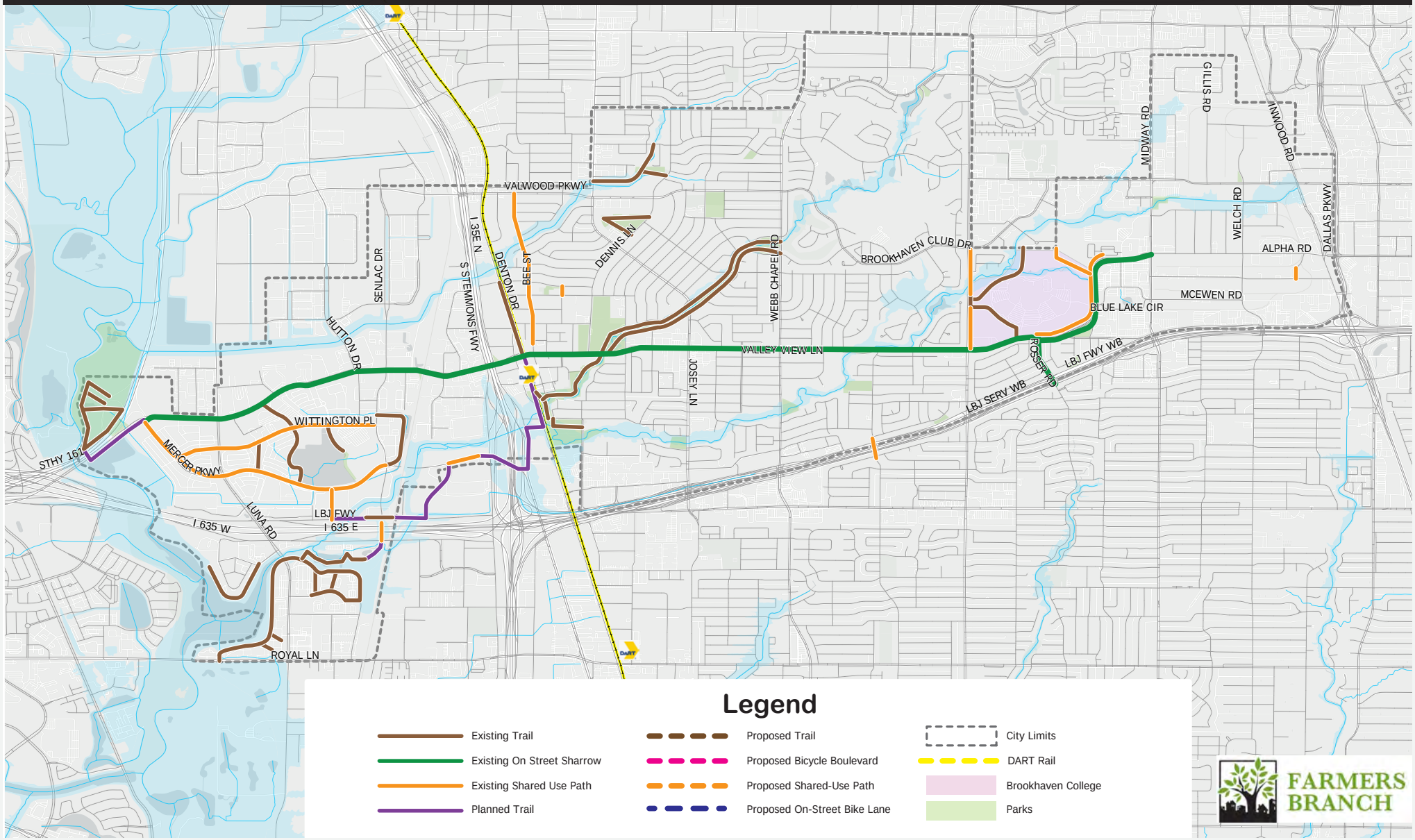
Farmers Branch has several planned bicycle and shared-use path projects aimed at addressing gaps and improving connectivity across the city:

Westside Art Trail: To overcome the connectivity barrier created by IH-35E, the City is developing the first phase of this trail. It will provide a critical link between the west and central parts of Farmers Branch, improving regional connectivity.

Rawhide Creek Trail: This popular trail system runs along Rawhide Creek, connecting Tom Field Road to Webb Chapel Road. Plans are underway to widen the existing 8-foot trail to 12-feet to accommodate increased usage and enhance user experience.

Inwood Road Trail: The proposed project will construct a 12-foot wide trail along Inwood Road from Landmark Place to Alpha Road. The proposed project may also include a rectangular rapid flashing beacon crossing across International Parkway, a pedestrian hybrid beacon crossing across Inwood Road at Stanford Road, and the proposed trail will connect into the Town of Addison who are currently in design phase of an on-street bicycle facility along Landmark Place.

Figure 10. Farmers Branch Existing Bicycle Network



DEMOGRAPHICS

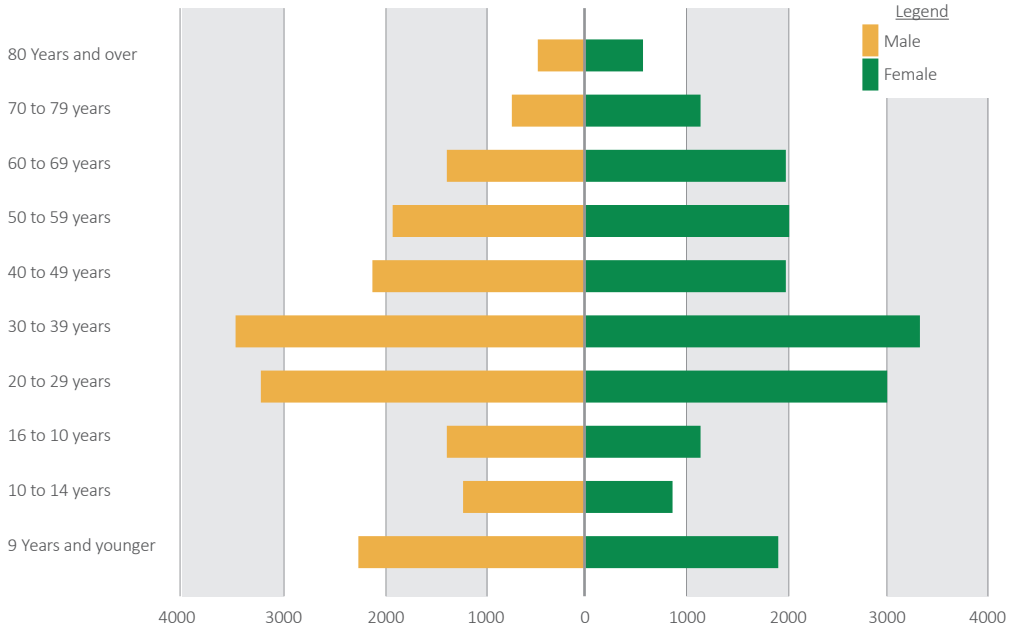
One of the goals of developing an Active Transportation Plan is to create a bicycle and pedestrian network which serves people of all ages and abilities and connects people from all parts of the city to their destinations, including low-income areas where motor vehicle ownership is less prevalent.

Citywide approximately 11% of people are below the poverty line, underlining the importance of a well-connected, safe, and reliable active transportation network for those who may depend on walking and biking to access jobs, schools, healthcare, and essential services. The figures below show the demographic makeup of the residents of Farmers Branch. This information provides valuable insight into the various user groups that will utilize the active transportation network.

Figure 11 illustrates the age and sex distribution of Farmers Branch residents, reflecting the diverse population that active transportation facilities must accommodate, from young families to older adults

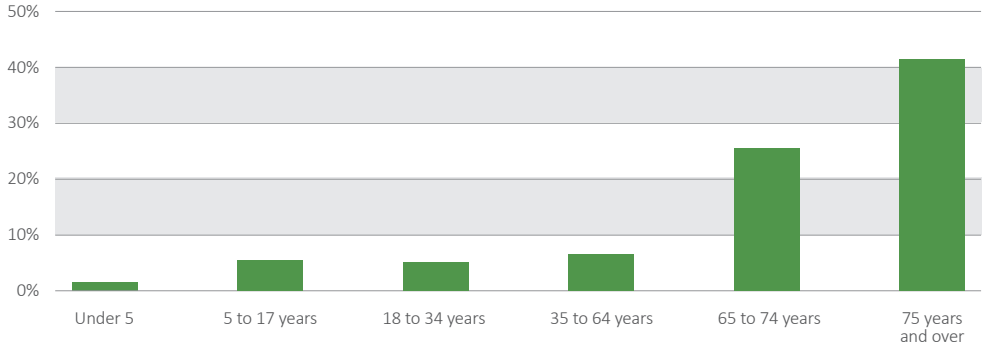
Figure 12 shows the percentage of residents with a disability by age in Farmers Branch. The highest percentage of people with a disability are those 75 years or older. This highlights the importance of having a network of pedestrian facilities that are not only connected but compliant with ADA requirements, so maneuvering around Farmers Branch is safer and more inclusive.

Figure 11. Farmers Branch Age and Sex

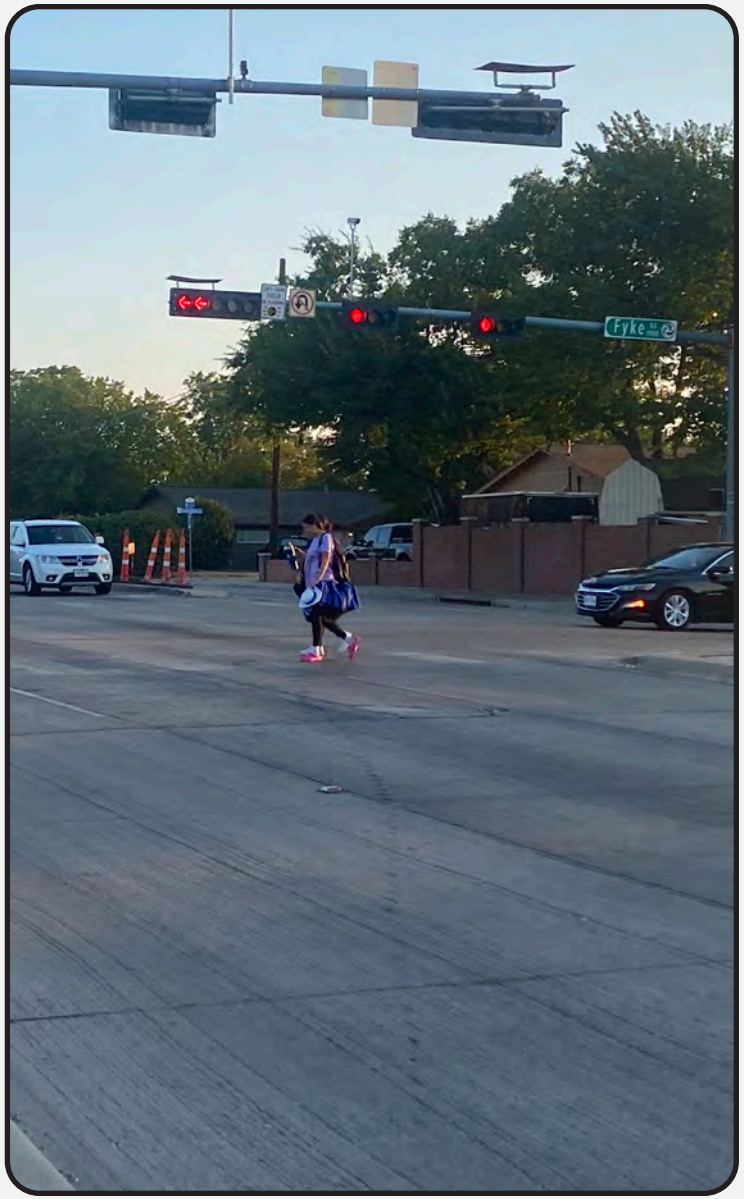


Source: US Census Bureau

Figure 12. Percentage of Residents by Age With a Disability



Source: US Census Bureau



PREVIOUS PLANNING EFFORTS

The Active Transportation Plan is intended to build upon the foundation of past transportation planning efforts in Farmers Branch and the surrounding region. The Farmers Branch 2045 Comprehensive Plan emphasizes the city's commitment to enhancing pedestrian mobility and safety. Key strategies include:

Sidewalk Gap Infill: Addressing missing sidewalk segments, particularly along major corridors and near key destinations, to ensure continuous pathways for pedestrians.

Livable Street Retrofits: Repurposing existing roadways to accommodate all users by incorporating wider sidewalks, pedestrian crossings, and traffic calming measures to create a more pedestrian-friendly environment.

Neighborhood Safety Improvement Program: Implementing targeted interventions, such as enhanced lighting, signage, and crosswalks, to improve safety within residential areas and along school routes.

The latest planning effort for pederstrians and bicycles was the 2015 Trail Master Plan. The Trail Master Plan further supports these initiatives by proposing a network of "linear parks" that function as both recreational amenities and vital connectors between neighborhoods, schools, parks, and commercial areas.

Past projects, such as the Station Area Sidewalks near the Farmers Branch DART station, exemplify efforts to enhance pedestrian infrastructure. These improvements include the construction of sidewalks, landscaping, and pedestrian amenities designed to create a more inviting and accessible environment, thereby encouraging walking as a viable mode of transportation.

By continuing to address existing deficiencies and implementing the strategies outlined in the Comprehensive Plan and Trail Master Plan, Farmers Branch is poised to develop a more connected, safe, and accessible pedestrian network that meets the needs of all residents and visitors.

CHAPTER 4

CHAPTER 4

ACTIVE TRANSPORATION PLAN

The Farmers Branch Active Transportation Plan lays the groundwork for a safer, more connected, and equitable transportation system for bicyclists and pedestrians. By building on existing infrastructure and past planning efforts, this plan prioritizes filling critical gaps, addressing safety concerns, and enhancing connectivity across Farmers Branch. It ensures that all users—regardless of age, ability, or travel purpose—can confidently and comfortably walk, bike, and access key destinations such as schools, parks, transit stops, and employment centers.

Through thoughtful design and data-driven decision-making, the plan integrates innovative facility types and national best practices to support active transportation habits. From safer intersections and continuous sidewalks to separated bike lanes and shared-use paths, the vision is to create a comprehensive network that promotes healthier lifestyles, reduces vehicle dependency, and contributes to a more vibrant and livable Farmers Branch.

Chapter 4: Active Transportation Plan

Pedestrian Focus Area

Why Plan for the Pedestrians

- Discontinuous Sidewalk
- Infrequent or No Safe Crossings
- High Vehicular Speeds
- Dangerous intersections
- Lack of Shade and Comfort Facilities

Bicycle Network

How to Choose Bicycle Facility Types

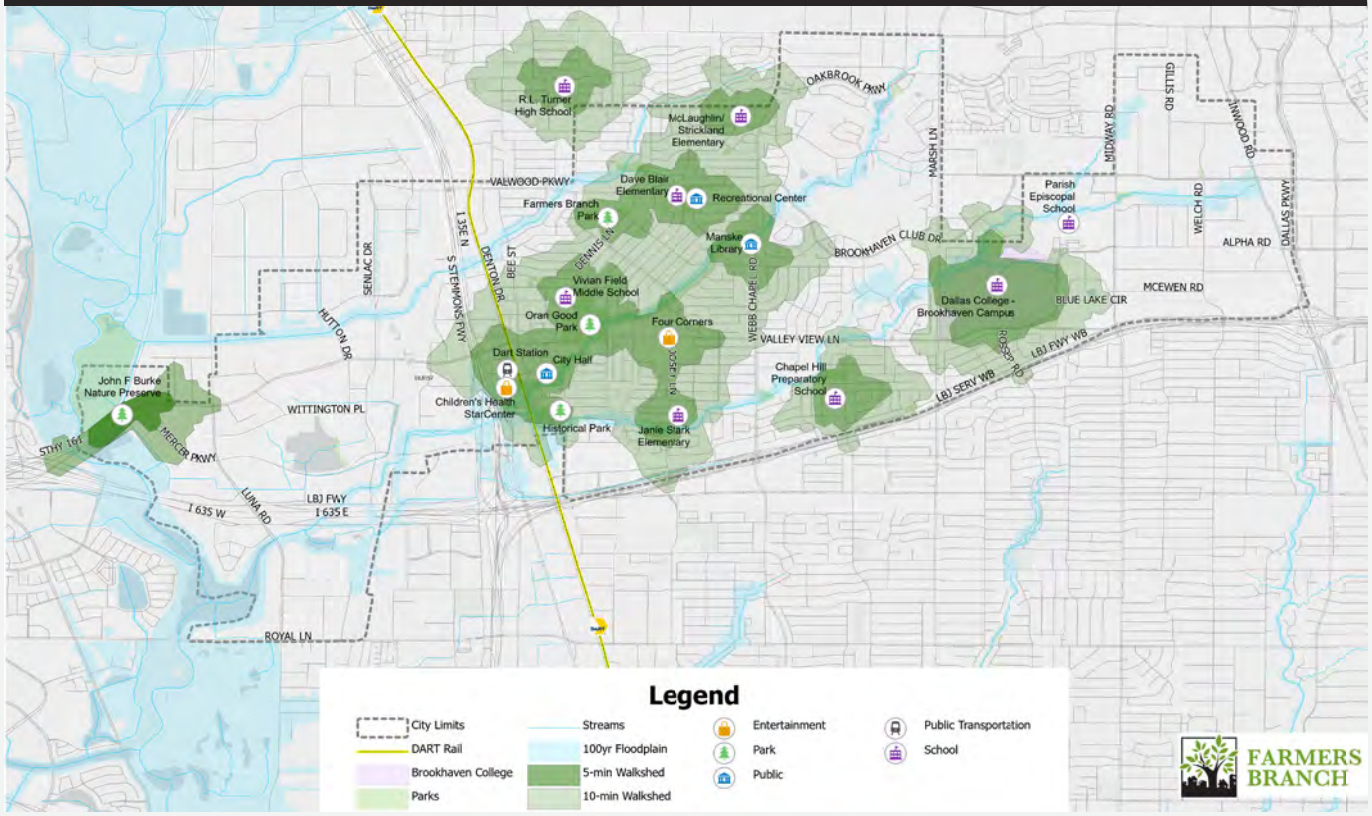
Corridor Studies

PEDESTRIAN FOCUS AREA

Developing a comprehensive pedestrian network for Farmers Branch begins with understanding the City's unique needs and focusing on areas where improvements are most impactful. Farmers Branch has already evaluated its sidewalk network to identify existing gaps and opportunities. However, to ensure resources are directed effectively, the City should prioritize addressing these gaps in high-pedestrian-demand areas, particularly near schools, transit stops, parks, popular destination locations, and elderly communities.

Figure 13 shows the result of the data-driven prioritization. The map shows the destinations around Farmers Branch that drive pedestrian activity and the 5- and 10-minute walksheds that correlate to those destinations. Due to the city's size, the walkshed encompasses a large portion of the city. Focus areas such as Downtown Farmers Branch, Four Corners, and the Recreation Center should be the top priorities for improving the pedestrian network.

Figure 13. Pedestrian Walkshed Prioritization



WHY PLAN FOR PEDESTRIANS?

Pedestrians are the most vulnerable users and as such should be a top priority. During most trips, all travelers become pedestrians for at least a short distance. Whether it's walking to the parking lot, bus stop, school, work, restaurant, or taking a stroll with family members. However, the pedestrian network, which includes sidewalks, ramps near intersections, and pedestrian crossing signals, can make the pedestrian experience either pleasant or uncomfortable. A pedestrian network that makes walking uncomfortable will decrease the likelihood that people will walk.

BENEFIT	DESCRIPTION
Economy	A well-connected network of sidewalks and shared-use paths improves access to essential destinations (work, school, retail, and entertainment) which supports economic growth, increased property values, and local vitality.
Environment	Active transportation includes zero-emission modes like walking and biking, reducing motor vehicle emissions, improving air quality, and contributing to a healthier environment.
Health	Accessibility to pedestrian facilities encourage more physical activity, improving mental health and overall quality of life.
Comfort	A thoughtfully designed-interconnected network throughout the community encourages users of all ages and abilities to use active transportation facilities by providing a low-stress, safe experience.
Equitable Transportation Access	Active transportation provides individuals with affordable transportation options to safely and conveniently connect to essential destinations, including public transit, at low or no cost per trip.

USING THE PEDESTRIAN TOOLBOX: RESPONDING TO PEDESTRIAN NEEDS

Developing a well-connected and safe pedestrian network in Farmers Branch requires a tailored approach that addresses the city's unique context, prioritizes safety, and meets the diverse mobility needs of its residents. Effective pedestrian planning involves identifying and resolving critical gaps and barriers that discourage walking, ensuring that improvements promote accessibility and connectivity.

Using insights from community surveys and public feedback, this section identifies key pedestrian challenges specific to Farmers Branch and applies strategies from the toolbox elements outlined in **Appendix 2**. These strategies align with national best practices from organizations such as the FHWA and NACTO, providing actionable solutions to create a pedestrian network that supports comfort, equity, and safety for all.

These common concerns are:

- Discontinuous Sidewalk
- Infrequent or No Safe Crossings
- High Vehicular Speeds
- Dangerous Intersections
- Lack of Shade and Comfort Facilities

Discontinuous Sidewalk

Concern: Sidewalks end abruptly, forcing pedestrians to walk in the street or seek alternate routes.

A continuous pedestrian network means that a pedestrian walking can expect to find sidewalks and crosswalks along their entire route without having to cross the street or travel on a different, parallel street. Sidewalk gaps and sparsely equipped pedestrian crossings affect mobility choices, even for short trips such as walking to a bus stop, school, or grocery store.

DISCONTINUOUS SIDEWALK IMPLEMENTATION TOOLBOX COUNTERMEASURES

- **Curb Ramps:** Install ADA-compliant curb ramps at intersections and gaps to ensure accessibility for all users.
- **Marked Crosswalks:** Use high-visibility markings to create safer connections where sidewalks are incomplete.

DISCONTINUOUS SIDEWALK IMPLEMENTATION BEST PRACTICE STRATEGIES

- **Sidewalk Inventory and Gap Analysis:** Refer to the sidewalk map in this plan to identify gaps near areas of high pedestrian activity, locations of missing or substandard sidewalks and prioritize improvements based on proximity to schools, transit stops, and parks.
- **Complete Streets Approach:** Adopt a Complete Streets policy to ensure all new roadway projects include pedestrian accommodations, such as sidewalks and crossings.
- **Funding and Partnerships:** Pursue funding from state or federal (e.g., TxDOT TAP) programs and engage private developers to contribute to pedestrian infrastructure improvements.
- **Community Engagement:** Conduct walking audits and collaborate with residents to identify high-priority gaps and ensure that proposed solutions address their needs.

Infrequent or No Safe Crossings

Concern: Inability to cross the street safely.

Safe crossings are most effective when placed at frequent enough intervals to allow direct routes and reduce pedestrian trip lengths to desired destinations. A safe crossing can be achieved by installing additional signage or signalization that create an identified space for pedestrians to utilize.

INFREQUENT OR NO SAFE CROSSINGS IMPLEMENTATION TOOLBOX COUNTERMEASURES

The following table describes Pedestrian Toolbox countermeasures for infrequent or no safe crossings and when they should be used. Marked Crosswalks: Use high-visibility markings to create safer connections where sidewalks are incomplete.

PEDESTRIAN TOOLBOX ELEMENT	MID-BLOCK	INTERSECTION	CONSIDERATIONS
Marked Crosswalk	x	x	High visibility crosswalk markings are a best practice for visibility to pedestrians, bicyclists, and motorists, especially along thoroughfares.
			Mid-block crossings are needed for bus stops that are greater than 200’ from an intersection.
Curb Ramps	x	x	One curb ramp for each pedestrian path of travel is preferred over a fan or diagonal curb ramp that is often used at intersection corners.
			Curb ramps should be wide enough to accommodate people traveling in both directions, including people using mobility devices such as a wheelchair.
Pedestrian Lighting	x	x	Street lights should well-illuminate the pedestrian crossing
Pedestrian Signals	x	x	Any unsignalized designated crossings of roadways with five or fewer lanes (RRFB).
			High volume pedestrian and bicycle crossings along priority pedestrian/bicycle routes (RRFB).
	x		Any unsignalized designated crossings of roadways with seven or more lanes (PHB).
			The MUTCD recommends minimum volumes of 20 pedestrians or bicyclists an hour for major arterial crossings (PHB).

PEDESTRIAN TOOLBOX ELEMENT	MID-BLOCK	INTERSECTION	CONSIDERATIONS
Right Turn on Red Restrictions		x	Areas with high levels of walking and bicycling, or with pedestrians who walk slower, such as downtown or at a college campus.
Leading Pedestrian Intervals (LPI)		x	At intersections with high volumes of pedestrians and conflicting turning vehicles. Locations with large numbers of pedestrians who walk slower such as near schools and senior living areas.

Roadway Configuration	Speed Limit								
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
2 lanes*	❶ 2 3 4 5 6	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼	❶ 3 4 5 6	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼	❶ 3 4 5 6 7	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼
3 lanes with raised median*	❶ 2 3 4 5	❶ ❸ 5 7	❶ ❸ 5 ❼	❶ 3 4 5 7	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 4 5 7	❶ ❸ 5 ❼	❶ ❸ 5 ❼
3 lanes w/o raised median†	❶ 2 3 4 5 6 7	❶ ❸ 5 6 7	❶ ❸ 5 6 ❼	❶ 3 4 5 6 7	❶ ❸ 5 6 ❼	❶ ❸ 5 6 ❼	❶ ❸ 4 5 6 7	❶ ❸ 5 6 ❼	❶ ❸ 5 6 ❼
4+ lanes with raised median‡	❶ ❸ 5	❶ ❸ 5 7	❶ ❸ 5 ❼	❶ ❸ 5 7	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 5 ❼	❶ ❸ 5 ❼
4+ lanes w/o raised median‡	❶ ❸ 5 6 7 8	5 ❻ 7 8	5 ❻ ❼ 8	5 ❻ 7 8	5 ❻ ❼ 8	5 ❻ ❼ 8	5 ❻ ❼ 8	5 ❻ ❼ 8	5 ❻ ❼ 8

*One lane in each direction †One lane in each direction with two-way left-turn lane ‡Two or more lanes in each direction

Given the set of conditions in a cell,

- **O** Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- **#** Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

1 High-visibility crosswalk markings, parking restriction on crosswalk approach, adequate nighttime lighting levels
2 Raised crosswalk
3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4 In-Street Pedestrian Crossing sign
5 Curb extension
6 Pedestrian refuge island
7 Pedestrian Hybrid Beacon
8 Road Diet

This table was developed using information from: Zegeer, C. V., Stewart, J. R., Huang, H. H., Lagerwey, P. A., Feaganes, J., & Campbell, B. J. (2005). Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines (No. FHWA-HRT-04-100); Manual on Uniform Traffic Control Devices, 2009 Edition, Chapter 4F. Pedestrian Hybrid Beacons; the Crash Modification Factors (CMF) Clearinghouse website (http://www.cmfclearinghouse.org); and the Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE) website (http://www.pedbikesafe.org/PEDSAFE/).

FHWA offers the table below as a guide for when to use the toolbox elements described above, based upon the number of travel lanes, vehicle speeds, and number of daily vehicles.

INFREQUENT OR NO SAFE CROSSINGS IMPLEMENTATION TOOLBOX COUNTERMEASURES

- **Increase Crossing Frequency:** Establishing enough pedestrian crossings increases the likelihood that people use the crossing instead of choosing a location where the risk of conflicts with motor vehicles may be high. This includes crossings at corners and mid-block crossings, as appropriate. When block lengths are long, such as greater than a quarter mile, mid-block crossings help facilitate pedestrian access. The NACTO Urban Streets Design Guidelines recommend that crosswalks be "determined according to the pedestrian network, built environment, and observed desired lines". In general, if it takes a person more than three minutes to walk to a crosswalk, wait to cross the street, and then resume his or her journey, he or she may decide to cross along a more direct, but unsafe or unprotected, route.
- **Adopt Complete Streets Policies:** Establish a Complete Streets policy to ensure all roadway improvement projects include pedestrian crossings. Prioritize crossing enhancements at intersections and along high-demand corridors to improve connectivity and safety.
- **Traffic Calming Measures:** Use raised bulb-outs, medians, and roadway narrowing to slow vehicle speeds and create safer crossings. Incorporate these features in areas with high traffic volumes, particularly near schools and transit stops.
- **Design Crosswalks for Safety:** Define crosswalks at intersections as extensions of sidewalks or shoulders, ensuring mid-block crosswalks are marked per FHWA standards. Use high-visibility crosswalk markings and ADA-compliant curb ramps to enhance pedestrian safety and accessibility. Incorporate appropriate crossing signals, such as RRFBs or Pedestrian Hybrid Beacons (HAWKs), based on roadway characteristics like speed, volume, and pedestrian demand. Countdown indicators and accessible signal options improve crossing predictability and usability for all pedestrians.
- **Leverage Land Use Context:** Prioritize crossings near schools, senior centers, transit stops, and parks to address the needs of vulnerable users. Design crossings to minimize exposure time and enhance comfort for slower-walking pedestrians with features such as pedestrian refuge islands and shorter crossing distances.
- **Implement Traffic Calming Measures**: Use raised bulb-outs, medians, and roadway narrowing to slow vehicle speeds and improve pedestrian safety near crossings. Target these measures in areas with high traffic volumes, such as near schools or busy commercial corridors.

High Vehicular Speeds

Concern: Motorists are traveling too fast.

Vehicular speeds affect safety and comfort for all travelers along roadways in Farmers Branch, especially pedestrians. The Pedestrian Toolbox includes elements to both reduce vehicular speeds along the road and at intersections. The key to reducing speeds is increasing friction through traffic calming and streetside design. Incorporating streetside elements can cause motorists to slow down, mitigating the effect of speed in an auto-pedestrian crash.

HIGH VEHICULAR SPEEDS IMPLEMENTATION TOOLBOX COUNTERMEASURES

The following table describes Pedestrian Toolbox countermeasures for high vehicular speeds and when they should be used.

PEDESTRIAN TOOLBOX ELEMENT	TO SLOW SPEEDS	TO MITIGATE THE EFFECT OF SPEED	CONSIDERATIONS
Traffic Calming	x		Medians and curbside extensions that change the path of travel
			Raised crosswalks or intersections
			Street trees or other visual or tangible ways to narrow the field of vision
			Gateway treatments such as traffic circles (defined in the Pedestrian Toolbox) with civic elements
			Bus shelters provide a more comfortable environment for riders and can be part of an overall streetside design.

HIGH VEHICULAR SPEEDS IMPLEMENTATION BEST PRACTICE STRATEGIES

The following table describes Pedestrian Toolbox countermeasures for high vehicular speeds and when they should be used.

- **Traffic Calming Program:** Encourage use of Farmers Branch's established Traffic Calming Petition Program, which addresses speeding and cut-through traffic in residential and commercial areas. Through neighborhood workshops, speed studies, and collaboration with residents, the program implements proven measures like speed humps and speed strips to reduce vehicular speeds while maintaining safety and emergency response access.
- **Design Streets for Target Speeds:** Align roadway design with a target speed of 25–30 M in areas with high pedestrian activity. Use design features such as narrower lanes, reduced corner radii, and traffic calming measures to naturally regulate driver speeds.
- **Community Engagement and Education:** Collaborate with neighborhood associations, citizen groups, and local businesses through the existing petition process to identify priority areas for speed management. Educate residents and drivers on the benefits of traffic calming for pedestrian safety and community well-being.
- **Crash and Speed Data:** Use crash data identified in this report to target high-risk locations. Focus investments in areas that meet criteria such as high traffic volumes, speeding prevalence, and proximity to pedestrian generators like schools and transit stops.

Dangerous Intersections

Concern: Feeling uncomfortable crossing at intersections

While pedestrians are especially at risk of being hit by a motorist making a left turn across a crosswalk, they are also at risk of being hit by motorists turning right on a red light. Techniques to reduce crash risks include reducing crossing distances, slowing motor vehicle speeds, and prohibiting motor vehicles from traveling across crosswalks when pedestrians are present.

DANGEROUS INTERSECTIONS IMPLEMENTATION COUNTERMEASURES

The following table describes Pedestrian Toolbox treatment elements for dangerous intersections and when they should be used.

PEDESTRIAN TOOLBOX ELEMENT	TO SLOW SPEEDS	TO REDUCE EXPOSURE TIME	CONSIDERATIONS
Shade	x	x	Shorter pedestrian crossing distances result from: • Reducing the curb radii • Extending the curb through a bulb-out • Installing a median half-way across a long crossing
			Curb extensions (bulb-outs) can help define on-street parking
			• Tight corner radii can accommodate larger vehicles with: • Truck aprons • Bike lanes (especially with buffers)
Street Furniture		x	To be considered where there are large numbers of pedestrians or near schools where children cross
			Can be implemented throughout the day or during peak hours only
			Can be combined with a leading pedestrian interval
			Permissive turns can be leading (i.e., occurring before the walk phase begins) or lagging (i.e., occurring after the walk phase ends).

DANGEROUS INTERSECTIONS IMPLEMENTATION BEST PRACTICE STRATEGIES

Redesign Intersections: To enhance pedestrian safety, redesign intersections with tighter curb radii and curb extensions (bulb-outs) to reduce crossing distances and slow-turning vehicles. NACTO recommends minimizing corner radii to create compact intersections with safe turning speeds. Design intersections with the smallest radii that accommodate the appropriate design vehicle, ensuring larger vehicles can navigate turns without compromising pedestrian safety.

Design Streets for Target Speeds: Align roadway design with a target speed of 20–30 mph in areas with high pedestrian activity. Use design features such as narrower lanes, reduced corner radii, and traffic calming measures to naturally regulate driver speeds.

Community Engagement and Education: Collaborate with neighborhood associations, citizen groups, and local businesses through the existing petition process to identify priority areas for speed management. Educate residents and drivers on the benefits of traffic calming for pedestrian safety and community well-being.

Crash and Speed Data: Use crash data identified in this report to target high-risk locations. Focus investments in areas that meet criteria such as high traffic volumes, speeding prevalence, and proximity to pedestrian generators like schools and transit stops.

Lack of Shade and Comfort Facilities

Concern: It's too hot to walk during Texas summers.

The City of Farmers Branch, known as the "City in a Park," has embraced a green-forward approach to its trail system, but opportunities exist to expand comfort amenities along key pedestrian corridors. The Trail Master Plan outlines strategies to enhance the user experience by incorporating shade structures, tree canopies, and rest areas into the design of trails and pedestrian paths. These features improve usability year-round and encourage walking as a viable mobility option.

LACK OF SHADE AND COMFORT FACILITIES IMPLEMENTATION COUNTERMEASURES

The following table describes Pedestrian Toolbox lack of shade and comfort facilities treatment elements and when they should be used.

PEDESTRIAN TOOLBOX ELEMENT	TO PROVIDE SHADE	TO ENHANCE COMFORT	CONSIDERATIONS
Shade	x	x	Select tree species suitable for the local climate to provide natural shade and aesthetic value. Ensure adequate space for root growth and consider maintenance requirements.
			Install canopies, awnings, or pergolas in areas with high pedestrian traffic. These structures offer immediate shade and can be designed to complement the urban landscape.
Street Furniture		x	Provide benches, seating areas, and waste receptacles to enhance pedestrian comfort. Place furniture in shaded areas to maximize usability.
Water Features		x	Incorporate elements, like fountains or misting stations, to cool the environment and create pleasant microclimates. Ensure safety and maintenance considerations are addressed.
Landscaping	x	x	Use shrubs, planters, and ground cover to create visually appealing and comfortable pedestrian environments. Landscaping can also contribute to shade and cooling effects.

LACK OF SHADE AND COMFORT FACILITIES IMPLEMENTATION BEST PRACTICE STRATEGIES

- **Strategic Shade Planting:** Enhance tree canopies along trail corridors and sidewalks to provide natural cooling and enhance the city's green aesthetics. As noted in the Trail Master Plan, areas like Rawhide Park and Brookhaven College can benefit from additional landscaping to improve pedestrian comfort.
- **Comfort Amenities at Trailheads:** Expand trailheads to include shaded seating, water fountains, and restrooms. The Trail Master Plan already identifies key trailhead locations like the Historical Park and John Burke Nature Preserve, which could serve as models for enhancing shade and comfort features citywide.
- **Public-Private Partnerships:** Collaborate with developers to integrate shade structures and benches into streetscape designs in mixed-use areas like Mercer Crossing. These partnerships can align with Farmers Branch's goal of creating a pedestrian-friendly urban environment.
- **Comprehensive Streetscape Design:** Adopt a consistent approach to streetscape design that integrates shade and comfort facilities. This includes coordinated planning of street trees, shade structures, street furniture, and landscaping to create cohesive and comfortable pedestrian environments. These designs not only improve comfort but also enhance the overall aesthetic and functionality of public spaces.

BICYCLE NETWORK

Just as a well-designed pedestrian network supports comfortable walking, a connected bicycle network encourages safe and convenient biking across all ages and abilities. The goal of this plan is to establish a network that is continuous, complete, and connected. This can be achieved by implementing a future network that provides a convenient and comfortable trip from a bicyclist's origin to their destination, free of gaps or unfinished segments. To achieve this goal, the plan focuses on the following key design considerations:

- Designing for all ages and abilities by providing mostly dedicated and separated bicycle facilities
- Creating improved connections past the barriers of Farmers Branch (IH-35 and Valley View Lane)
- Planning future infrastructure that accommodates bicycles and pedestrians without the need to retrofit

The Bicycle Network for Farmers Branch is presented in **Figure 14.**

HOW TO CHOOSE BICYCLE FACILITY TYPES

Selecting the appropriate bicycle facility requires careful consideration of roadway characteristics, safety, and user experience. Factors to consider include, but are not limited to, the road's functional classification, traffic volume, and presence of driveways, on-street parking, and the surrounding land-use context. The goal is to balance safety, comfort, and accessibility while encouraging bicycle use for riders of all ages and abilities.

- **High Speed, High Volumes:** Separated bicycle facilities, such as protected bike lanes or shared-use paths, are best suited for roads with high traffic volumes and speeds over 35 mph to minimize conflicts and enhance user comfort.
- **Moderate Speed and Traffic Volumes:** For roadways with speed limits between 25–35 mph and moderate traffic volumes, dedicated bike lanes or buffered bike lanes provide a safe and efficient option for cyclists.
- **Low-Speed, Low-Volume Streets:** On streets with speeds below 25 mph and minimal traffic, shared facilities, such as bicycle boulevards, may be used.

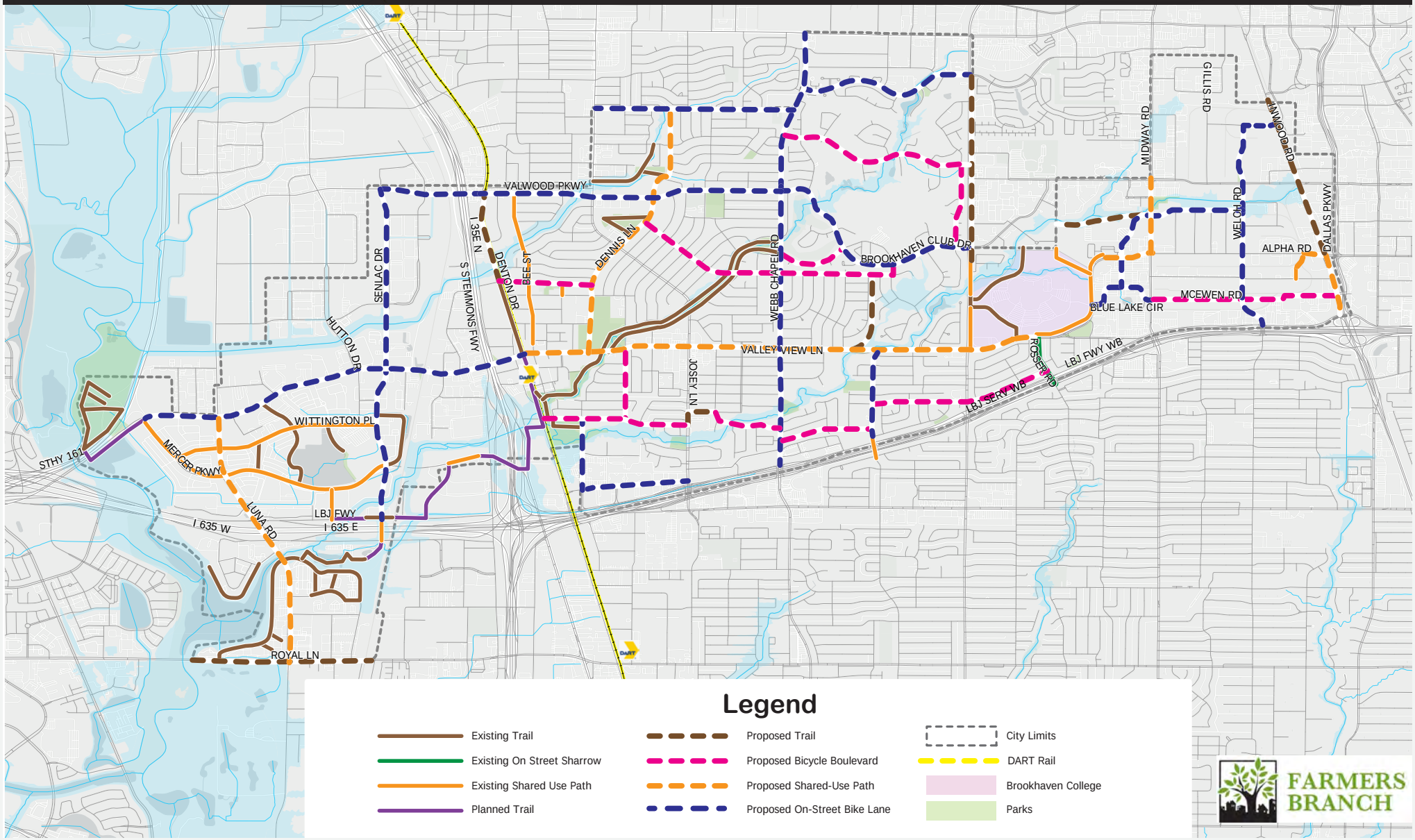
Rawhide Creek Trail

PRELIMINARY COST

The table below outlines planning-level cost estimates for implementing bicycle facilities. While actual costs may vary based on design and construction specifics, these figures help identify budget needs for long-term bicycle infrastructure investments. These cost estimates underscore the importance of dedicated funding and the potential to integrate bicycle facility improvements with other planned roadway projects, maximizing best-use of public funds.

BICYCLE FACILITY	IMPROVEMENTS	PLANNING LEVEL COST (PER MILE)
Bicycle Boulevard	Signing and Markings	$10,000 - $60,000
Bike Lane	Signing, markings, and/or vertical elements	$50,000 - $800,000
Shared-Use Path/ Trails	8-12' concrete facility	$1,500,000 - $2,000,000

Figure 14. Proposed Bicycle Network

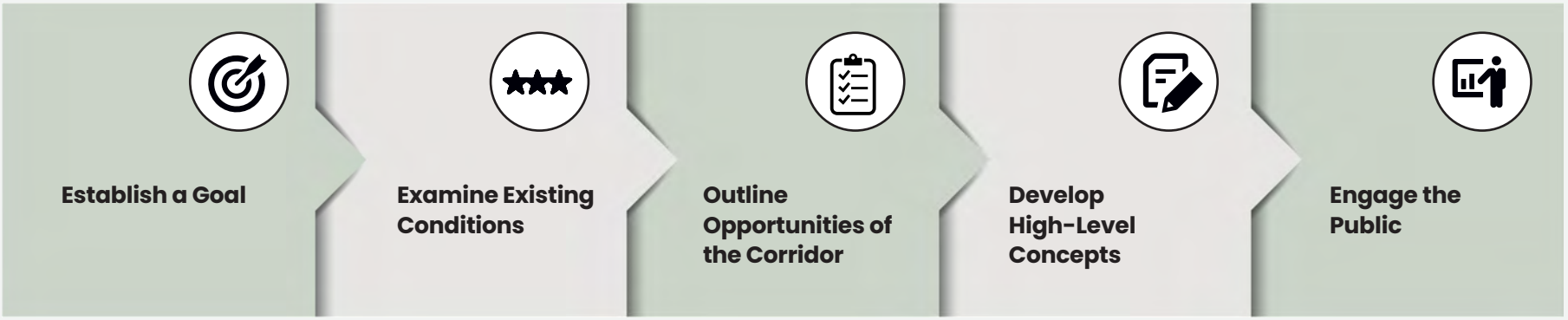


CORRIDOR STUDIES

Corridor studies can be a great tool to use when there is uncertainty of how the corridor will operate or whether a corridor is fit for other elements, such as bicycle facilities or intersection modifications. A corridor study can be broken down into five elements: establish a goal, examine existing conditions, outline the opportunities of the corridor, develop high-level concepts, and engage the public.

Corridor Study Process

For existing roadways that need to be retrofitted to provide enhanced walkability or bikeability, the following process is recommended:



Establish a Goal

The fundamental first step to any project is establishing its goal. The goal of the project will shape the outcome and define the success of the result. By establishing the goal of the study from the beginning, a unified vision of success can be shared and promoted by transportation officials, key stakeholders, and the public.

Examine Existing Conditions

A corridor study should begin with an evaluation of existing conditions. This may include the following elements:

- Number of lanes
- Speed limit
- Traffic volumes
- Distance between crossings
- Streetside conditions (sidewalks, sidewalk buffers, shade)
- Bus routes
- Traffic analysis (intersection delays and travel times)
- Driveway density
- ADA compliance of existing structures
- Location of utility poles, drainage elements, and other obstructions
- Existing crossing opportunities

Outline Opportunities of the Corridor

After performing an existing conditions evaluation, opportunities for improvements can be considered based on the existing constraints. These opportunities may include:

1. Current traffic volumes indicate a feasibility for a lane reduction
2. Available streetside width for sidewalks, shared-use paths, sidewalk buffers, or other streetside design elements
3. Existing pedestrian desire aligns with where a Pedestrian Hybrid Beacon, RRFB, or unsignalized crossing could be implemented (adjacent to schools, parks, and other public facilities.)
4. Opportunity to upgrade bus stops to bus shelters or improve access to bus stops/shelters
5. Inclusion of bicycle facilities.

Develop High-Level Concepts

Upon identifying a viable candidate corridor for pedestrian and bicycle improvements and exploring existing opportunities, various concepts can be developed. These concepts can help both the public and stakeholders envision potential improvements and drive the decision-making process.

Engage the Public

Since corridor improvements have the potential to significantly impact business owners and residents, getting input and involvement from the public and stakeholders is key. A multi-format approach is usually best in this case. This may include:

- Letters
- Public meetings
- Email blasts
- Social media
- Project website

CHAPTER 5

CHAPTER 5

FUNDING OPTIONS

The purpose of this section is to provide funding information for the City and help develop a funding strategy for bicycling and walking infrastructure and programs. This section begins the process of identifying funding options and opportunities as resources for the strategy.

Funding that is available for pedestrian or bicycle projects can be categorized based on the project phase, the target user, and the funder. Each project phase can be funded separately and from diverse sources. For example, a project is often identified initially during a planning process such as the one resulting in this Plan. As priority projects progress through implementation, there are funding opportunities for design phases and construction. Project location also affects which funding programs to target, such as roadway, bridges, intersections, trails, and wayside facilities.

Funding from Farmers Branch's Capital Improvement Plan (CIP) should be considered early in the process, as this funding typically has fewer restrictions than federal or state funding. Federal and state grant programs are available, as well. These projects usually require local matching funds from between 20% to 50%, depending on the specific source and other eligibility factors. The table below outlines key funding opportunities commonly used for bicycle and pedestrian projects, including their match requirements and eligible activities.

FUNDING OPPORTUNITY	AGENCY	LOCAL MATCH	DESCRIPTION
Safe Streets and Roads for All (SS4A)	USDOT	20%	SS4A is broken into two funding buckets. One, Planning and Demonstration, covers the development of a Comprehensive Safety Action Plan (CSAP), another plan that supports the CSAP (such as an ADA Transition Plan), or the deployment of temporary measures to support the CSAP (such as lane restriping). The other bucket is for Implementation funding, which covers the implementation of the safety strategies identified in the CSAP.
Highway Safety Improvement Program (HSIP)	TxDOT	10%	HSIP invests in construction and operational safety improvements for locations both on and off the state highway system. Typical improvements include traffic signal improvements, sidewalks, signage and pavement markings, and signal detection upgrades.
Better Utilizing Investments to Leverage Development (BUILD)	USDOT	20%	BUILD is a highly competitive funding opportunity that invests in planning or construction of surface transportation infrastructure projects that improve safety; environmental sustainability; quality of life; mobility and community connectivity; economic competitiveness, including tourism; state of good repair; partnership and collaboration; and innovation.
Transportation Set-Aside (TA)	TxDOT NCTCOG	20%	TxDOT and NCTCOG fund projects that focus on bike and pedestrian facilities through the TA program. It is broken into four funding buckets —community-based and large-scale activities, which includes engineering and construction funds; network enhancements, which includes quick installation projects with limited construction; and non-infrastructure activities, which encompasses planning documents and design up to 30%
Active Transportation InfrastructureInvestment Program (ATIIP)	USDOT (Through FHWA)	20%	Provides funds to plan, design, and construct projects that provide safe and connected active transportation infrastructure in an active transportation network or active transportation spine
Recreational Trails	Texas Parks and Wildlife Department	20%	Invests in motorized and non-motorized recreational trail projects, such as the construction of new recreational trails, to improve existing trails, develop trailheads or trailside facilities, and acquire trail corridors.
Reconnecting Communities Program (RCP)	USDOT	20-50%	Supports planning and construction grants to restore community connectivity through removal, retrofit, mitigation, or replacement of transportation infrastructure facilities.
Transportation Infrastructure Finance and Innovation Act (TIFIA)	USDOT	51%	Loan opportunity that funds 49% of costs for projects with a minimum project cost of $10 million. Project eligible for funding can be bike and pedestrian facilities that connect to and are within 0.5-mile of a transit facility. This can be used to increase access and mobility for users.

ACKNOWLEDGMENTS

A special thank you goes to everyone who participated in the planning process for the Farmers Branch Active Transportation Plan. This plan was made possible by the contributions of the residents, City Council Members, stakeholder committees, and City staff.

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FARMERS BRANCH

FARMERS BRANCH

APPENDIX

APPENDIX 1: PUBLIC + STAKEHOLDER ENAGEMENT
APPENDIX 2: BICYCLE AND PEDESTRIAN FACILITY TOOLBOX
APPENDIX 3: ADDITIONAL EXISTING CONDITIONS MAPS

APPENDIX 1

APPENDIX

PUBLIC AND STAKEHOLDER ENGAGEMENT

To help guide the plan, a public meeting was held to better understand the public's experiences walking and biking in Farmers Branch, and receive feedback on the projects they felt would be most beneficial. The public engagement process took several different forms throughout the project. These included both online and in-person opportunities to provide feedback.

Appendix 1: Public Stakeholder Engagment

Goals of Public Engagement Plan
Stakeholder Committee Meetings
Online Survey
Public Meeting

GOALS OF PUBLIC ENGAGEMENT PLAN

- Create public awareness of the Active Transportation Plan and facilitate active and collaborative participation by the public
- Maintain an open and transparent process throughout the engagement effort
- Provide project information to the public in a clear and easy to access format
- Use public input and comments in the development and refinement of the Plan
- Inform and engage a broad range of stakeholders in the process
- Develop a process with convenient, accessible, and exciting opportunities to get involved
- Streamline the public engagement and input collection efforts

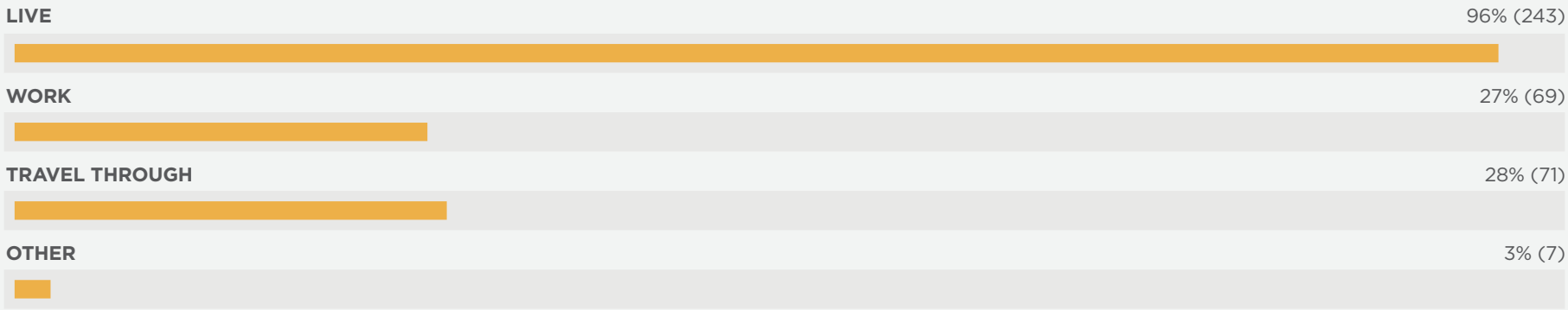
STAKEHOLDER COMMITTEE MEETINGS

- The Stakeholder Committee included representation from the following entities:
- Sustainability Committee
- Parks and Recreation Committee
- Planning and Zoning Commission

ONLINE SURVEY

The project team developed an online survey to extend its reach and gather additional input from members of the public who could not attend the public meeting. The survey consisted of five brief sections which asked questions on demographics, connection to Farmers Branch, active transportation habits, prioritization and preferences, and strengths and challenges of active transportation in Farmers Branch. A graph representing the responses is presented in **Figure 15**.

Figure 15. Connection to Farmers Branch



The team also wanted to gain a better understanding of how often the respondents bike or walk in Farmers Branch. The results for bicyclists are shown in **Figure 16** and the results for pedestrians are provided in **Figure 17**. Based on these results, the majority of respondents walk more often than bike in Farmers Branch.

Figure 16. How Often Do You Bike In Farmers Branch

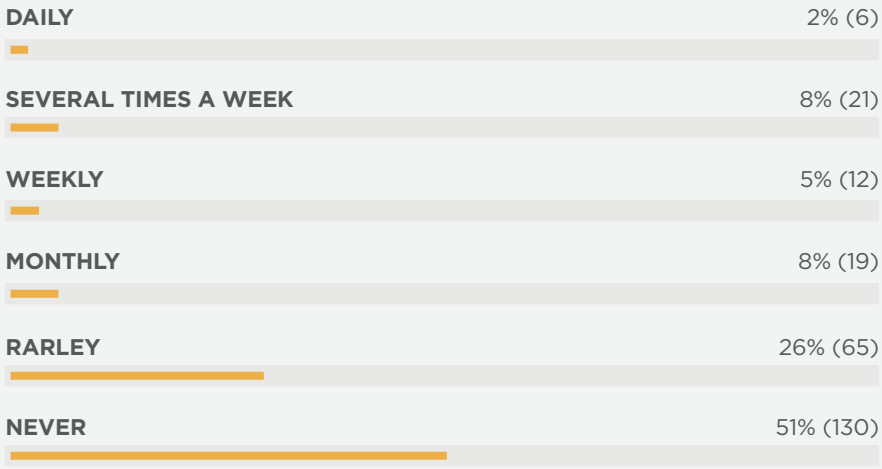
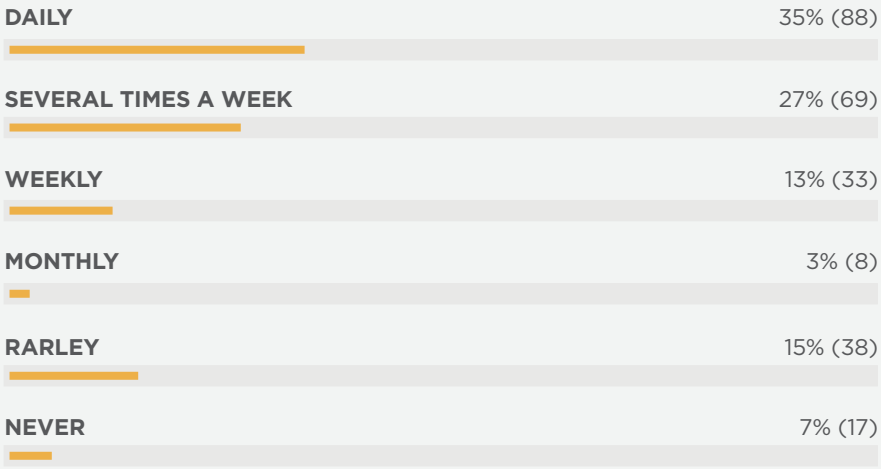


Figure 17. How Often Do You Walk In Farmers Branch



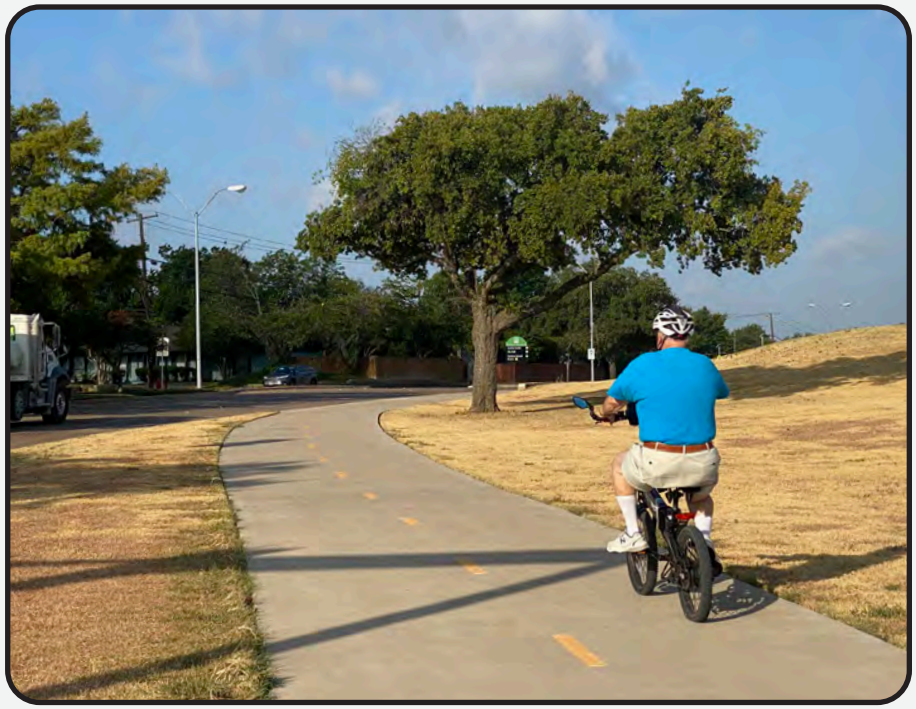
For insights into factors that would encourage increased biking and walking, respondents were asked to identify specific improvements that would motivate them to choose these modes of transportation more frequently. In response to the question "What types of facilities would encourage you to walk or bike more? The three most common answers were:

- Sidewalk Improvements
- Traffic Calming Measures
- Pedestrian/Bike Bridges or Underpass

In response to the question "What is the biggest strength related to walking and biking in Farmers Branch?" the most common answers were:

- The ability to safely bike or walk from residence around the city so they don't have to get into a car and travel to a park or trail.
- There are a lot of parks and trails that are interconnected
- The sidewalk connectivity to areas near the library, City Hall, and the Historical Park.

In response to the question "What is the biggest challenge related to walking and biking in Farmers Branch?" the most common answers were:



Lack of Connectivity - Respondents often mentioned the fragmented nature of existing trails and sidewalks, which makes it difficult to navigate the city safely and efficiently without a car.

Inadequate Infrastructure - Many highlighted missing or damaged sidewalks, lack of dedicated bike lanes, and insufficient lighting as major barriers to walking and biking.

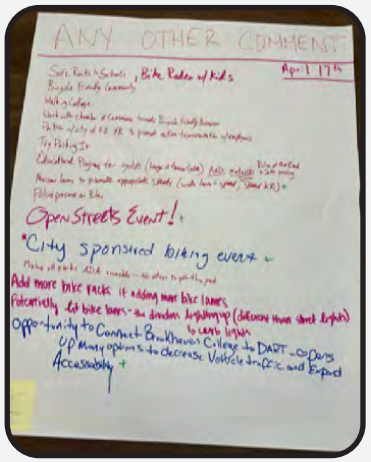
Traffic and Speeding - High traffic volumes and speeding vehicles, especially on major roads like Josey Lane, Valley View Lane, and Webb Chapel Road, were commonly cited as safety hazards.

PUBLIC MEETING

The project team held a public meeting on April 17, 2024, to gather feedback from the public on their experiences walking and biking in Farmers Branch, and identify priorities for future projects, programs, and policies.

April 17, 2024

The April 17th meeting consisted of three feedback stations designed to encourage meaningful participation:



1. **Goals and Priorities** – residents were able to read the six goals of the Active Transportation Plan (comfort, connectivity, safety, culture, transportation choices, and funding sources) and place a colored sticker on a board to rank their priorities.
2. **Level of Facility Comfort** – residents were able to read the different type of bicycle facilities and give their input on level of comfort riding on the facility.
3. **Map of the Proposed Bicycle Facilities** – residents provided feedback on a map on the different routes.

The strongest points of feedback received at the three stations and in the discussion during the April 17th public meeting are presented below:

- The importance of improving sidewalk connectivity and filling gaps in the pedestrian network.
- A strong desire for safer crossings, traffic calming measures, and protected bike facilities to enhance comfort and safety.
- Support for prioritizing projects near schools, parks, and key destinations to better serve all ages and abilities.

APPENDIX 2

APPENDIX 2

PEDESTRIAN AND BICYCLE FACILITY TOOLBOX

The Pedestrian and Bicycle Facility Toolbox serves as a guide for implementing the Farmers Branch Active Transportation Plan. It introduces innovative bicycle and pedestrian facilities, many of which are not currently included in the City of Farmers Branch's design standards and specifications. This toolbox is a resource for City staff, providing clear direction on selecting and designing facilities that align with best practices to improve safety, comfort, and connectivity for all users. Each roadway has unique characteristics, and this toolbox helps to identify appropriate bicycle and pedestrian solutions based on adjacent land use context, functional classification, vehicular travel speed, and existing or expected bicycle use and pedestrian demand.

The pedestrian and bicycle improvement types and design guidance in this chapter are consistent with national design standards. The following design manuals should be referenced for additional guidance:

- American Association of State Highway and Transportation Officials (AASHTO)
- Federal Highway Administration Guide for the Development of Bicycle Facilities (5th Edition, 2024)
- Federal Highway Administration (FHWA) Manual on Uniform Traffic Control Devices (MUTCD) 11th Edition
- TxDOT Roadway Design Manual
- National Association of City Transportation Officials (NACTO) Urban Bikeway Design Guide

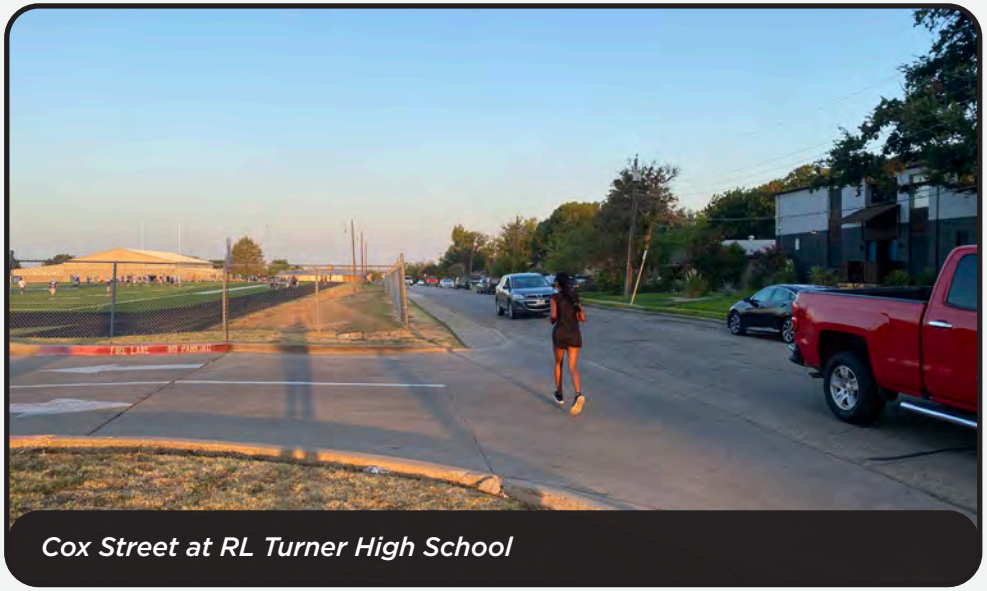
Appendix 2: Pedestrian and Bicycle Facility Toolbox

Pedestrian Toolbox
Bicycle Toolbox

PEDESTRIAN TOOLBOX

The pedestrian facilities covered in this toolbox include:

- Traffic Calming
- Marked Crosswalks
- Curbs Ramps and Detectable Warning Surfaces
- Rectangular Rapid Flashing Beacons
- Pedestrian Hybrid Beacons
- Pedestrian Lighting
- Shade
- Leading Pedestrian Intervals
- Right Turn on Red Restrictions
- Raised Bulb-Outs



Cox Street at RL Turner High School

Dennis Lane Sidewalk at Vivian Field Middle School

TRAFFIC CALMING

Definition: Traffic calming is a way to promote responsible motorist behavior through street design, without relying on traffic control devices such as signals, signs or police enforcement. If implemented correctly, these design strategies can reduce traffic speeds, the number and severity of crashes, and noise level. Successful implementation often involves local neighborhood participation to best identify issues and explain the intent of the new design. The new street design should be predictable and easy to understand by drivers and other road users. A variety of techniques may be used together and are often most effective when combined and spaced appropriately throughout an entire roadway length. For more information, refer to the U.S. Traffic Calming Manual.

Typical Use: Traffic calming measures are typically most appropriate in neighborhood or mixed-use settings where there is a high demand for bicycle and pedestrian activity. Traffic calming measures are most common along collector roadways but can be applied to arterial roadways with lower target speeds.

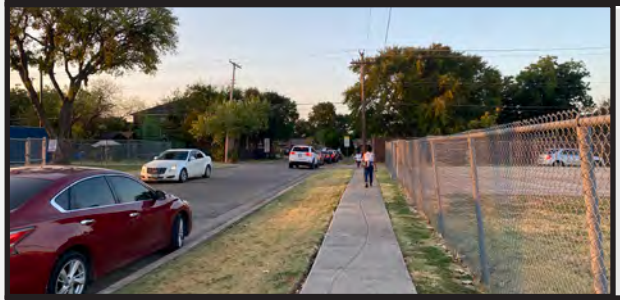
Design Guidance: Examples of traffic calming devices are described below.

SPEED HUMPS

Source: FHWA

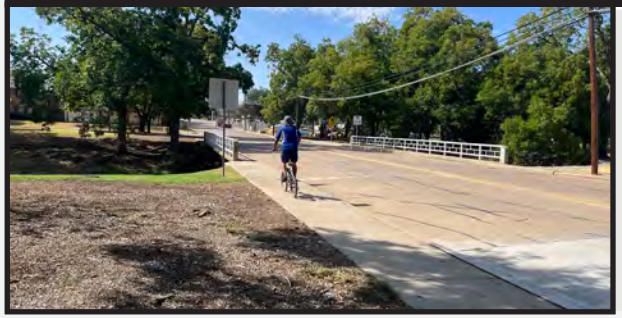
Speed humps are 3-4 inches high and 12-14 feet long. They should be no more than 500 feet apart or between slow points where the desired 85th percentile operating speed is between 25-30 mph.

SKINNY STREETS



Skinny streets are narrow residential streets that require low motor vehicle speeds and accommodate travel in a bi-directional lane. On-street parking should be prohibited within 20 to 50 feet of the right-hand side of intersections to accommodate turning movements and increase visibility

SPEED TABLES



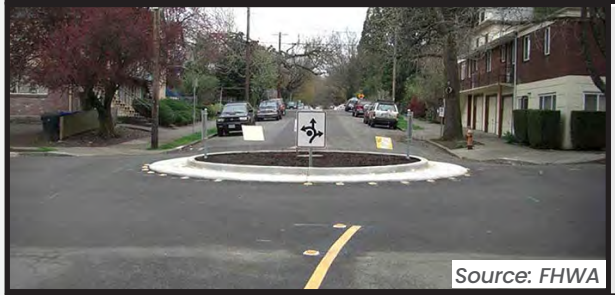
Speed tables are longer than speed humps and flat-topped, 3-3.5inches high, and 22 feet long. They can be used on transit and emergency response routes.

CHICANES

Source: FHWA

Chicanes are a series of raised or delineated curb extensions, edge islands, or parking bays on alternating sides of a street forming an S-shaped travel way. Curb extensions and edge islands should be tapered at 45 degrees. Edge lines should be marked to designate the travel lane

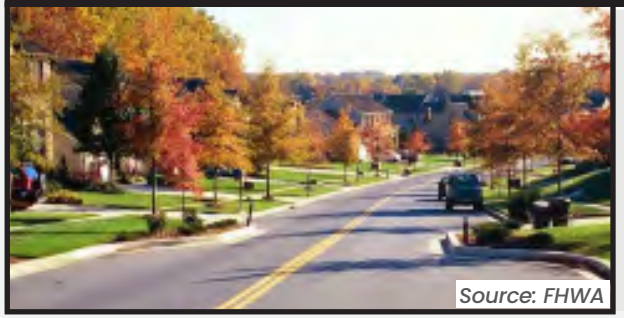
NEIGHBORHOOD TRAFFIC CIRCLES



Source: FHWA

These are raised or delineated islands placed at intersections that reduce vehicle speeds by narrowing turning radii, narrowing the travel lane, and, if planted, obscure the visual corridor along the roadway.

PINCHPOINTS



Source: FHWA

A pinchpoint includes curb extensions or edge islands placed on either side of the street to narrow the center of the lane so that two drivers have difficulty passing through simultaneously. Pinchpoints should only be used where traffic speeds are already low. Pinchpoints should provide a clear two-way travel path of less than 18 feet (12 feet recommended)

MARKED CROSSWALKS

Definition: Legal crosswalks exist at all locations where sidewalks meet the roadway, regardless of whether pavement markings are present. Drivers are legally required to yield to pedestrians at intersections, even when there are no pavement markings. There are many different styles of crosswalk striping and some are more effective than others. Ladder and continental striping patterns are more visible to drivers. Decorative crosswalks with textured pavement and high visibility striping can also be used where applicable. In addition to pavement markings, crosswalks may include signals or beacons, warning signs, raised platforms, and pedestrian countdown signals. Creating frequent, safe pedestrian crossings is a best practice, especially in urban and suburban areas.

Typical Use: On streets with moderate traffic volume (>3000 ADT) and speeds (>20 MPH). On all legs of intersections in school zones, parks, plazas, senior centers, transit stops, hospitals, campuses, and major public buildings, crosswalks should be implemented regardless of traffic conditions.

Design Guidance: Design crosswalks with a minimum width of 10 feet, or the width of the approaching sidewalk if it is greater. Stripe stop lines at stop-controlled and signalized intersections no less than 4 feet and no more than 30 feet from the edge of crosswalks. Orient crosswalks perpendicular to streets to minimize crossing distances and limit the time that pedestrians are exposed. Border decorative crosswalk treatments with thermoplastic edge striping to increase visibility.

CURB RAMPS AND DETECTABLE WARNING SURFACES

Definition: The transition for pedestrians from the sidewalk to the street is provided by a curb ramp. The design of curb ramps is critical for all pedestrians, particularly for people with disabilities. ADA standards require all pedestrian crossings be accessible to people with disabilities by providing curb ramps at intersections and mid-block crossings, as well as other locations where pedestrians can be expected to cross the street. Detectable warning surfaces are a warning for pedestrians with low or no vision that they are entering a street crossing. Comprised of truncated domes and produced in colors that contrast the sidewalk or curb ramp in which they are placed, detectable warning surfaces function like a pedestrian stop line, alerting persons with vision disabilities to the presence of the street or other vehicular travel way.

Typical Use: Curb ramps and detectable warning surfaces should be used at all intersections or roadways where pedestrians cross the street. Detectable warning surfaces should also be used when crossing another mode such as bike lanes or railroad crossings.

Design Guidance: Install detectable warning surfaces on all new curb ramps to alert pedestrians to the sidewalk and street edge. Maximum slope of the curb ramps shall not exceed 1:12 (8.33%). If flares are included, the maximum slope of side flares should be 1:10 (10%). Maximum cross-slope is 2%. Install one curb ramp for each pedestrian path of travel, also called directional ramps.

RECTANGULAR RAPID FLASHING BEACON

Definition: At some uncontrolled crossings, particularly those with four or more lanes, it can be difficult to achieve compliance with laws that require motorists to yield to pedestrians. Vehicle speeds and poor pedestrian visibility combine to create conditions in which very few drivers are compelled to yield. One type of device proven to be successful in improving yielding compliance at these locations is the Rectangular Rapid Flash Beacon (RRFB). When present, pedestrians activate a bright flashing beacon, which is combined with a pedestrian crossing sign.

Typical Use: Mid-block, with or without a striped crosswalk. RRFB's are usually implemented at a high-volume pedestrian and bicycle crossings but may also be considered for priority bicycle route crossings such as routes to schools, multifamily housing, employment centers or shopping, and locations where multi-use trails cross at mid-block locations.

Design Guidance: Install on both sides of the roadway at the edge of the crosswalk. If there is a pedestrian refuge or other type of median, an additional beacon should be installed in the median. Use in conjunction with advanced stop bars and signs.

PEDESTRIAN HYBRID BEACON

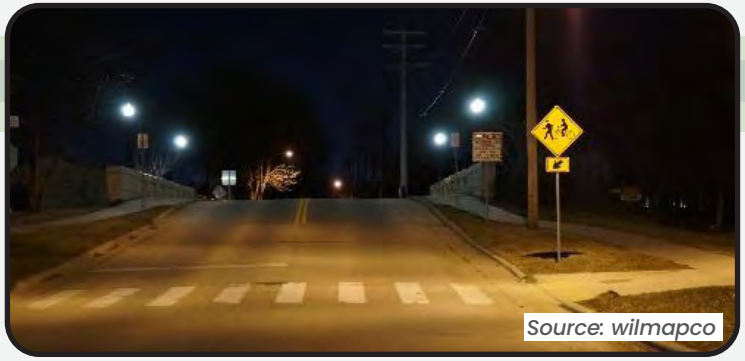
Source: FHWA

Definition: Pedestrian hybrid beacons are a type of signal that allows pedestrians and bicyclists to stop traffic to cross high-volume streets. This type of signal may be used in lieu of a full signal that meets any of the traffic signal control warrants in the MUTCD. It may also be used at locations which do not meet traffic signal warrants but where assistance is needed for pedestrians or bicyclists to cross a high-volume street.

Typical Use: Logical crossing locations at high-speed multi-lane roadways. Any unsignalized designated crossings of roadways with six or more lanes.

Design Guidance: At all crossings in pedestrian and bicycle networks and for path crossings if other engineering measures are found inadequate to create safe crossings. Use push button actuators (respond immediately) in convenient locations for all users and abide by other ADA standards. Use passive signal activation, such as video or infrared detection.

PEDESTRIAN LIGHTING


Source: wilmapco

Definition: Street and pedestrian lighting allows people to quickly and easily identify objects during low light or night time, resulting in a safer environment. Pedestrian lighting is a crucial element in providing a safe multi-modal environment and ensures that a pedestrian environment is used frequently and safely, resulting in a safer and healthier community.

Typical Use: At intersections and pedestrian crossings, or along pathways and trails, where pedestrians are present.

Design Guidance: Place lighting on the near side of curb ramps at intersections to illuminate the side of pedestrians facing approaching vehicles. Always provide lighting in underpasses and under bridges where pedestrians may be present. If unable to provide continuous lighting on trails and off-street facilities, prioritize lighting at roadway crossings, trail heads and rest stops.

SHADE (THERMAL COMFORT)

Definition: In hot climates, high temperatures are a challenge to walkability and can cause adverse health reactions for some. Providing shade along sidewalks and other areas frequented by pedestrians creates a visually attractive environment that encourages walking and greatly increases comfort during summer months.

Typical Use: Along sidewalks, trails, and parks

Design Guidance: Use existing and proposed structures, trees, and other vertical elements during site design. Encourage retail shops, office buildings, and larger multi-unit residential buildings to provide protective awnings to create shade in pedestrian zones. Where unable to provide continuous shade along walking corridors, place elements that provide shade in gathering spaces or at intervals to avoid long exposure to direct sunlight.

LEADING PEDESTRIAN INTERVAL

Definition: The Leading Pedestrian Interval (LPI) is a technique used to allow pedestrians to enter the intersection prior to vehicular traffic. Between three to seven seconds of additional walk time is added to the start of the pedestrian phase, which the red phase vehicular traffic remains in place. With this additional time, pedestrians travel far enough to establish their position ahead of the turning traffic before the turning traffic is released.

Typical Use: At intersections with high volumes of pedestrians and conflicting turning vehicles.

Design Guidance: Give pedestrians a minimum head start of 3-7 seconds, depending on the total crossing distance. Pairing LPIs with other pedestrian treatments, such as bulb-outs, increases their effectiveness at intersections.

RIGHT TURN ON RED RESTRICTION

Definition: Minimizing conflicts between motor vehicle and pedestrian movements is one of the primary challenges for traffic signal design. Motorists making a right turn on red are typically intent on looking for traffic to their left and therefore are unaware of pedestrians crossing in the crosswalk. Restricting right turns on red is a low cost and simple method to improve safety and comfort for pedestrians during the crossing phase. This can be accomplished by adding the appropriate "NO TURN ON RED" sign or using more effective measures. These measures include adding a red ball symbol in the center of the sign or providing a red turn arrow in addition to the sign.

Typical Use: In areas with high levels of walking and bicycling.

Design Guidance: Pair "NO TURN ON RED" signs with LPIs to reduce conflicts during the permissive phase for turning vehicles. Use a variable sign that turns on and off for locations where limiting right turns on red is only necessary for certain times of the day.

RAISED BULB-OUTS

Definition: Raised bulb-outs, also known as curb extensions, are created by extending the sidewalk at corners or mid-block. Curb extensions are intended to increase safety, improve visibility at crossing locations, calm traffic, and provide extra space along sidewalks for users and amenities, such as street furniture, benches, plantings, and trees. In addition to shortening crossing distances, curb extensions can be used to change the geometry of intersections resulting in smaller corner radii and slowing turning motor vehicles at intersections.

Typical Use: At intersections with high volumes of pedestrian traffic, near schools, unsignalized crossings, or where street parking already exists.

Design Guidance: The minimum length of a bulb-out is the width of the crosswalk, allowing the curvature of the bulb-out to start after the crosswalk to deter parking. The length of a curb extension can vary depending on the intended use (i.e., transit stop waiting areas). Bulb-outs extend approximately the width of a parked car (or about 7-8' from the curb). A safe width for motor vehicle and bicycle travel lanes should be maintained.

BICYCLE TOOLBOX

The bicycle facilities covered in this toolbox include:

- Bike Lanes
  - Buffered Bike Lanes
  - Separated Bike Lanes
- Bicycle Boulevards
- Shared-Use Paths/Trails
- Bicycle Parking
- Intersection Treatment

BIKE LANES

Definition: Bike lanes designate exclusive space for bicyclists. They can be designated into either buffered or separated bike lanes. Buffered bike lanes are separated from the adjacent motor vehicle lane or parking lane by a striped buffer area that may include chevrons, diagonal lines, or wide pavement marking stripes. Separated bike lanes are physically separated from adjacent motor vehicle traffic, typically by elements such as continuous raised medians, flexible posts, intermittent concrete curbing, or parked vehicles.

Typical Use: Buffered bike lanes are appropriate for roadways with lower volumes and lower speeds (< 35 mph). Separated bike lanes are appropriate for roadways with higher volumes and speeds (> 35 mph). The inclusion of buffered or separated bike lanes can be best accomplished as part of retrofits of existing roadways with more travel lanes than needed.

Design Guidance: The desired bike lane width adjacent to a curb is 6 feet, which allows sufficient space for bicyclist to avoid conflicts such as wide gutters. The minimum bike lane width of 5 feet is acceptable. The maximum width should not exceed 7 feet, so the lane is not mistaken as a travel lane. Standard (MUTCD) bike lane symbols (spaced on periodic intervals to remind motorist of the presence of the bike lane) and signage should be used to inform bicyclists and motorists of the nature of the bike lane.

BICYCLE BOULEVARDS

Definition: Bicycle boulevards are low-stress bike facilities that are primarily located on low-volume, low-speed local streets. These streets can be designated as bicycle boulevards with route signage and pavement markings to designate shared-use of the travel lanes. Traffic calming measures may also be used to increase the comfort level for bicyclists. Bicycle boulevards should not be used as a substitute for bike lanes when space permits.

Typical Use: Bicycle boulevard lanes are appropriate for roadways with low volumes and lower speeds (25-30 mph). The inclusion of Bicycle boulevards can help fill gap or transition between bike facilities.

Design Guidance: The street should be labeled as a bicycle boulevard with street signage, shared lane markings, and wayfinding signs. Turns should have the use of signs or markings indicating the direction of the route. Speed management strategies, such as reduced speed limits or vertical/horizontal deflection, are recommended to reduce vehicle speeds closer to bicycle speeds.

SHARED-USE PATHS/TRAILS

Definition: Shared-use paths function most like paved trails. They are physically separated from vehicular traffic, either by a landscape buffer or barrier. Shared-use paths typically follow the alignment of the roadway corridors, while trails may veer and follow a stream or a lake. The paths are designed for two-way travel in which the facility will also include other users such as pedestrians, skaters/skateboarders, or scooters.

Typical Use: Shared-use paths are typically used along roadways with higher speeds where an on-street facility does not provide a safety for bicyclists due to constraints in pavement width or physical constraints. Shared-use paths tend to attract a wider variety of bicycle rider skills and ages due to the increased separation from vehicular traffic.

Design Guidance: The minimum paved width for a shared-use path is 10 feet. In constrained areas or when low bicycle traffic is expected, a reduced width of 8 feet may be used. The minimum recommended distance between a shared-use path and adjacent roadway edge is 5 feet. A barrier should be provided where the separation is less than 5 feet. Appropriate signage and markings should be included at each driveway and street intersection to alert motorists of bicycle travel. Providing a LPI at intersection crossings may be appropriate to accommodate higher levels of path use.

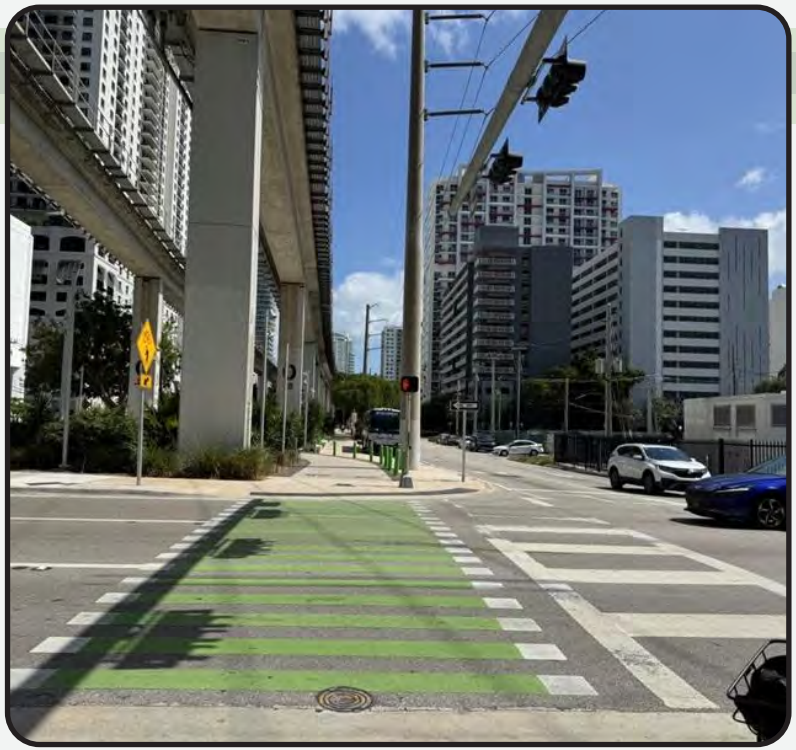
BICYCLE PARKING

Definition: The availability and location of bicycle parking is essential to a successful multi-modal transportation system. Leaving a bicycle unattended can easily result in damage or theft. The availability of bike racks that are conveniently located and function well makes the overall experience of bicycling more enjoyable. Cities can plan for and install bike parking in various ways, including the installation of racks at public buildings and in the public right-of-way near popular destinations.

Typical Use: Parking should be easily accessible from the street and protected from motor vehicles. Racks should be installed in an area visible to passers-by to enhance security and comfort of use. Parking should not block access to buildings. Parking locations for longer periods of time should be in a covered area, if practical.

Design Guidance: Racks should support a bicycle upright by its frame in two places. Racks should allow the frame and one or both wheels to be secured to the rack. Racks should be spaced appropriately from curbs, building walls, and other racks to allow ease of access and use of both sides of the rack. On-street parking spaces may be used as a bike parking corral, which can accommodate more bikes.

INTERSECTION TREATMENTS



Definition: Bicycle facilities at intersections should be given extra consideration given the turning movements conflicts with motor vehicles. When bicycle intersection treatments are implemented appropriately, both motorists and bicyclists should be able to clearly understand how to navigate through facility transitions and intersection turning movements. Intersection improvements may include elements such as pavement markings, pavement color, medians, and signage.

Typical Use: Bicycle facilities should avoid being abruptly ended prior to an intersection. Intersection treatments should be routinely maintained since the visibility of markings and signage enhances their effectiveness and rider safety.

Design Guidance: Intersection crossing markings may be used to help guide bicyclists on a safe path through intersections and across driveways. Both shared lanes and bicycle lanes may be marked through an intersection with dotted lines. Crossing markings should match the width of the bike lane. Bike symbols or colored pavement may be included with the dotted lines to increase visibility. Bike boxes may be used at signalized intersections to designate an area for bicyclists to wait ahead of traffic during red signal phases. Bike boxes are typically 10 -16 feet deep and stop lines should be used to indicate where motor vehicles should stop during a red signal. A "NO TURN ON RED" sign should be used with bike boxes to prevent vehicles from entering the bike box area. Bike boxes may be appropriate at intersections of major roadways where a separate right-turn lane is not present. Positioning bicycles ahead of traffic can reduce "right-hook" conflicts of turning vehicles. A "two-stage turn box" may be used to turn left at multi-lane roadways. Two-stage turn boxes provide a space for bicyclists to make a left turn across an intersection with multiple lanes. The box should be placed in a protected area, typically between the bike lane and the pedestrian crossing. It may also be placed within the sidewalk space to allow turns at mid-block locations. Colored pavement should be used in the box to increase visibility of the space. Median refuge islands allow bicyclists to cross a two-way street one direction at a time. The desirable width of a median refuge is 10 feet or greater, with an area large enough to accommodate two-way bicycle travel. This treatment is recommended where bikeways cross streets with higher volumes and higher speeds, particularly at unsignalized intersections. Median refuge islands may be used to connect routes at an off-set intersection.

APPENDIX 3

ADDITIONAL EXISTING CONDITIONS MAPS

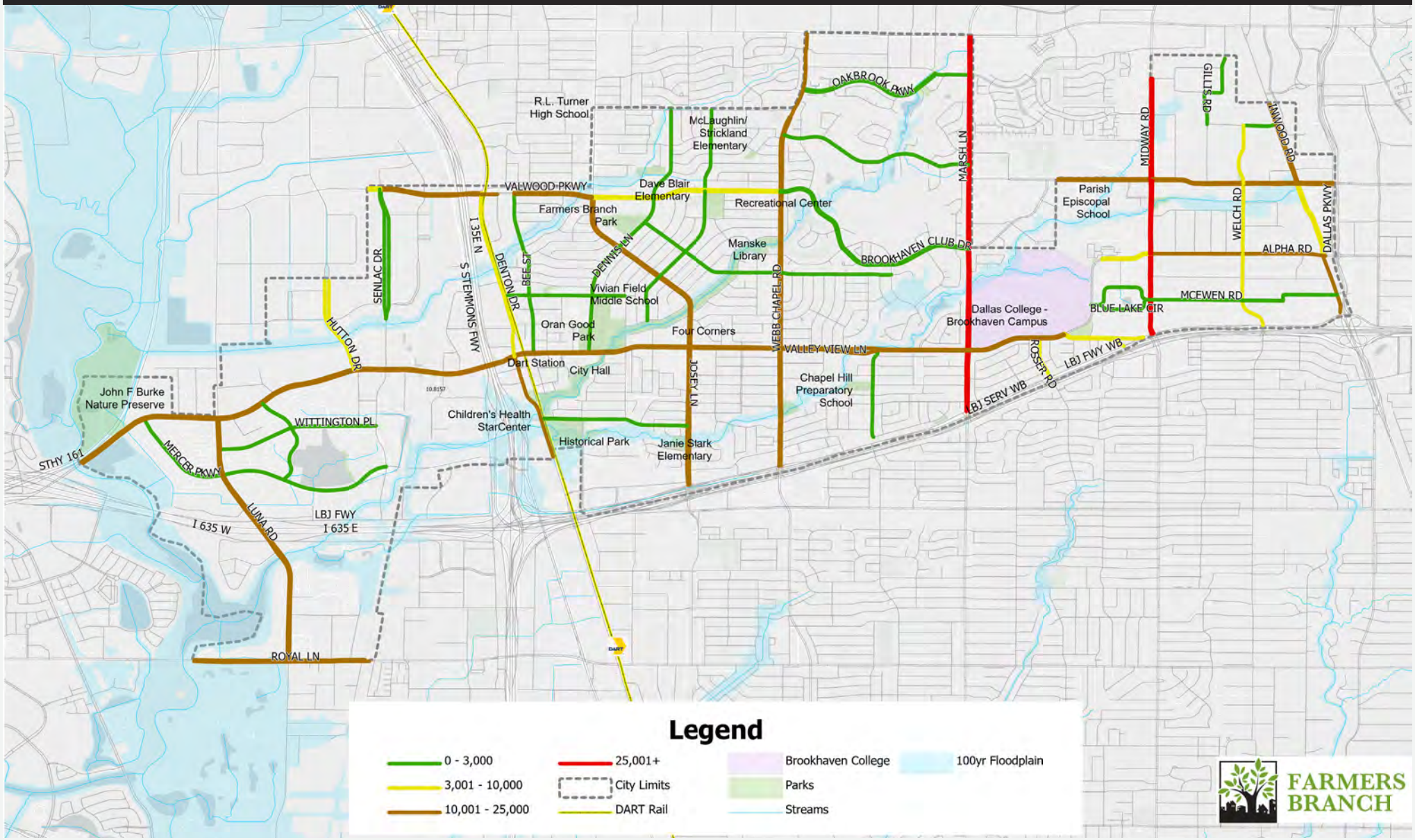
Bicycle Level of Traffic Stress is defined in the table below.

CLASSIFICATION	DEFINITION
BLTS 1	Represents little traffic stress and requires less attention, so is suitable for all cyclists. This includes children that are trained to safely cross intersections alone and supervising riding parents of younger children. Traffic speeds are low and there is no more than one lane in each direction. Typical locations include residential local streets and separated bike paths/cycle tracks.
BLTS 2	Represents little traffic stress, but requires more attention than young children would be expected to deal with, so is suitable for teen and adult cyclists with adequate bike handling skills. Traffic speeds are slightly higher but speed differentials are still low and roadways can be up to three lanes wide for both directions. Typical locations include collector-level streets with bike lanes or a central business district.
BLTS 3	Represents moderate stress and is suitable for most observant adult cyclists. Traffic speeds are moderate but can be on roadways up to five lanes wide in both directions. Typical locations include low-speed arterials with bike lanes or moderate speed non-multilane roadways.
BLTS 4	Represents high stress and suitable for experienced and skilled cyclists. Traffic speeds are moderate to high and can be on roadways from two to over five lanes wide for both directions. Typical locations include high-speed or multilane roadways with narrow or no bike lanes.

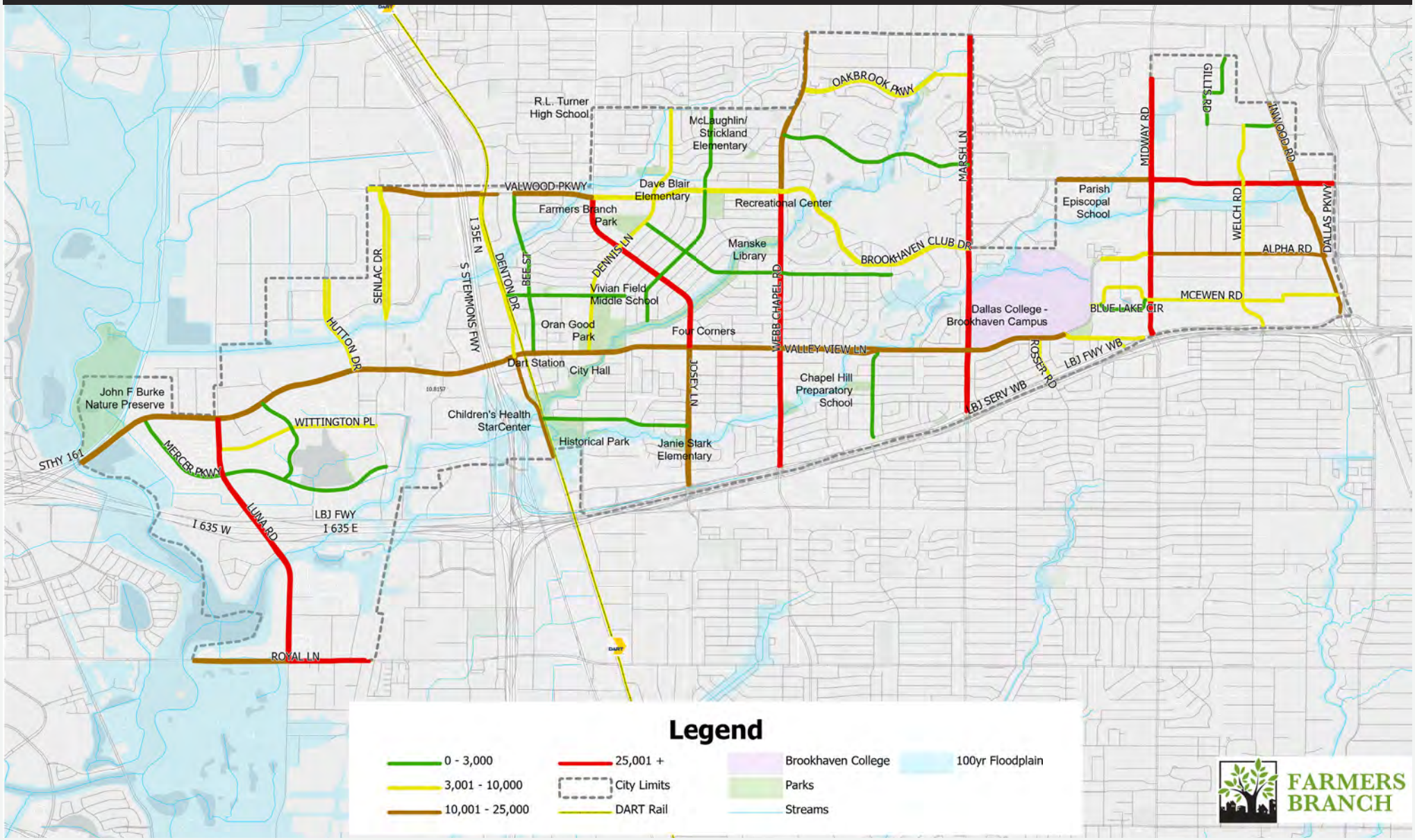
Appendix 3: Additional Existing Conditions Maps

2022 and 2042 AADT TxDOT Traffic Volumes
2022 and 2042 Roadway Volume to Capacity Ratio
Bicycle Level of Traffic Stress (BLTS)

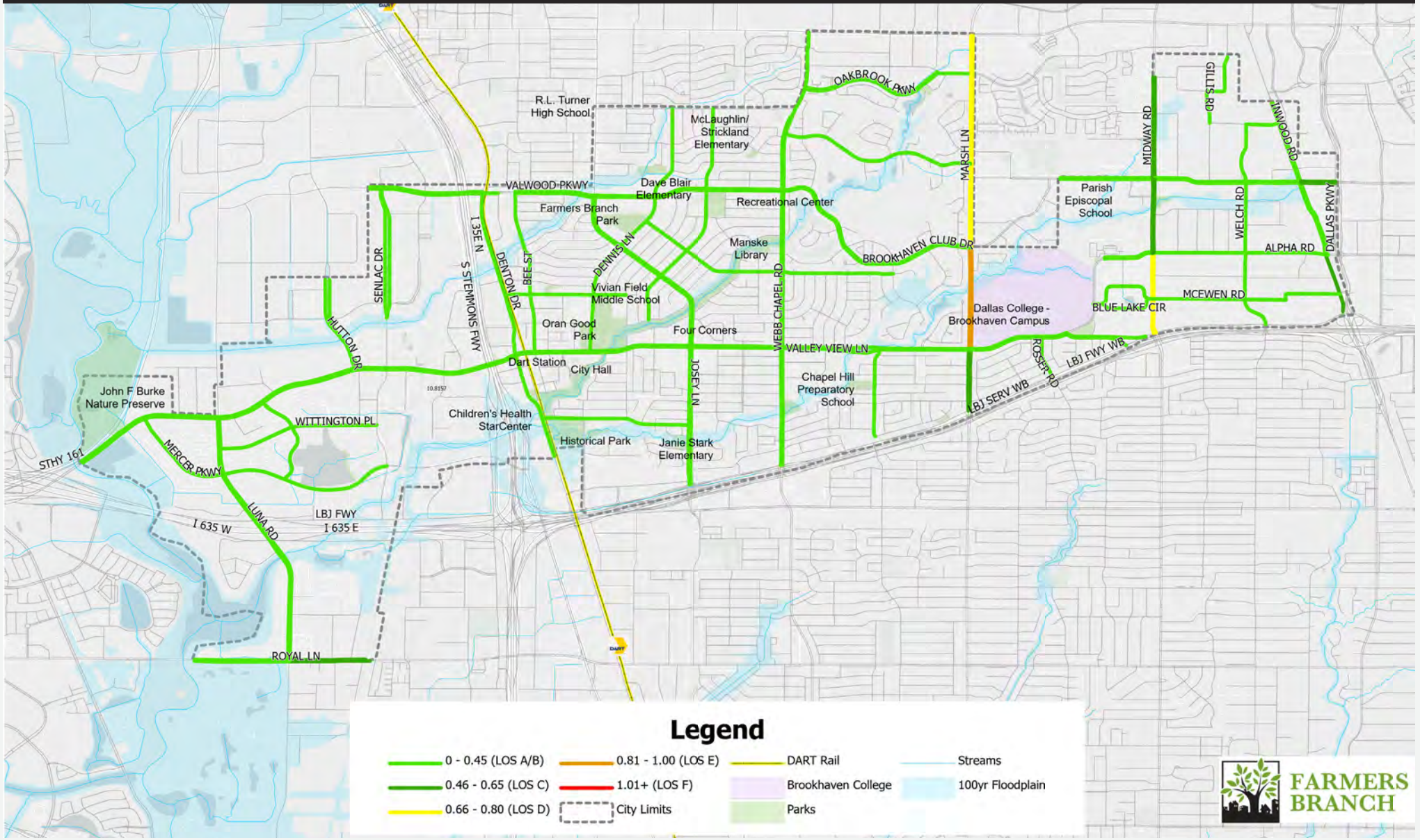
2022 Annual Average Daily Traffic (AADT) - Source: TxDOT Statewide Planning Map



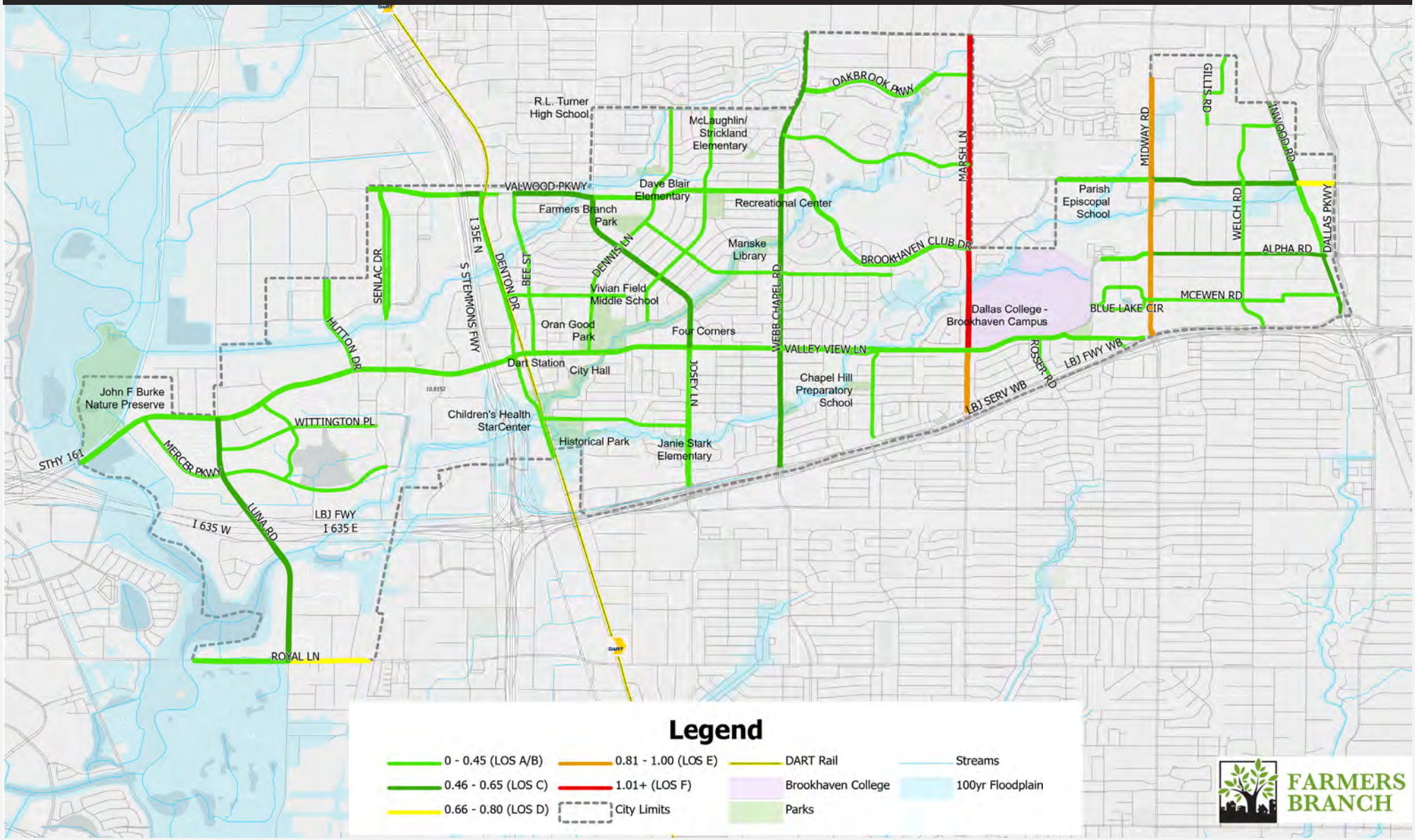
2042 Annual Average Daily Traffic (AADT) - Source: TxDOT Statewide Planning Map



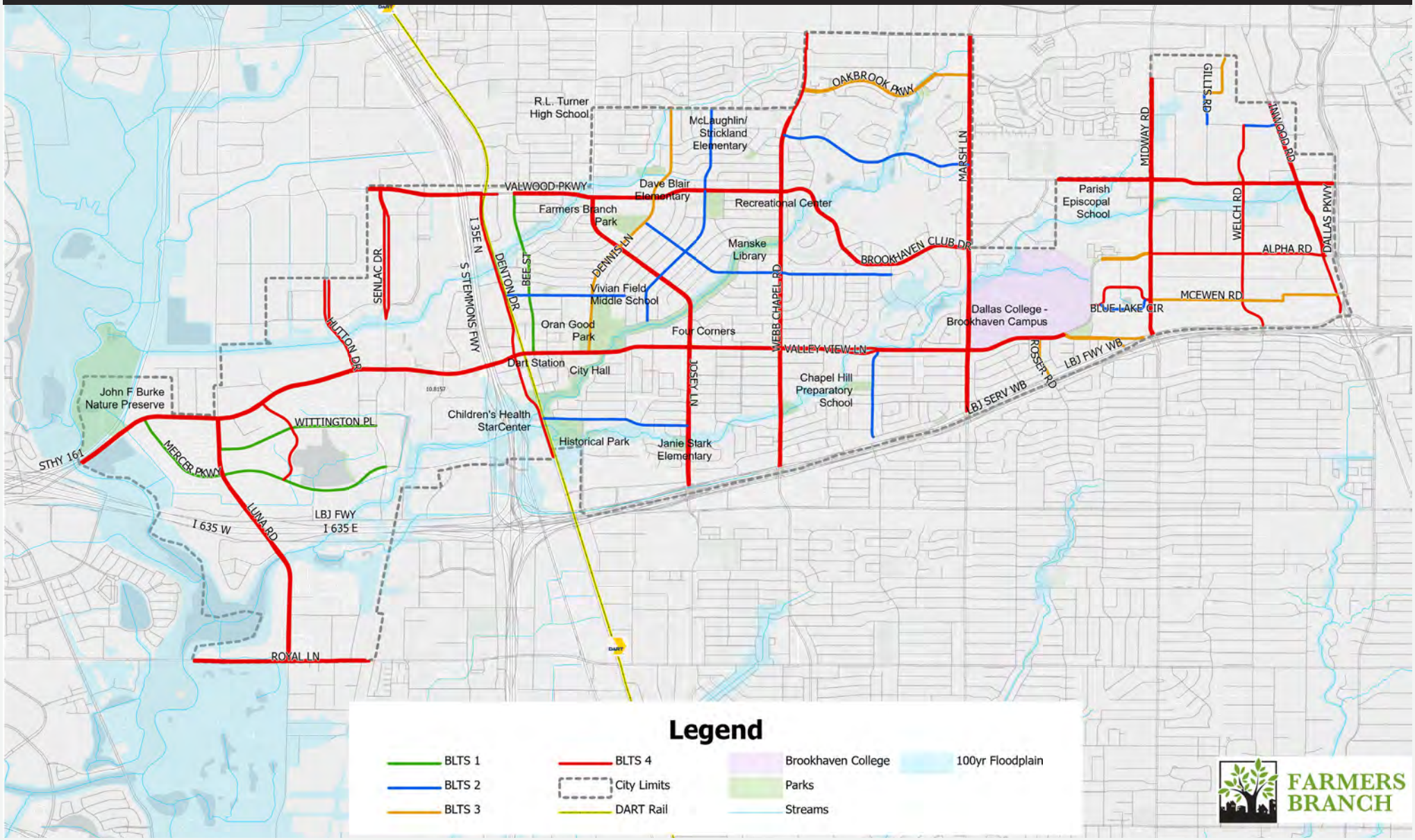
2022 Roadway Volume to Capacity Ratio



2042 Roadway Volume to Capacity Ratio



Bicycle Level of Traffic Stress (BLTS)



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