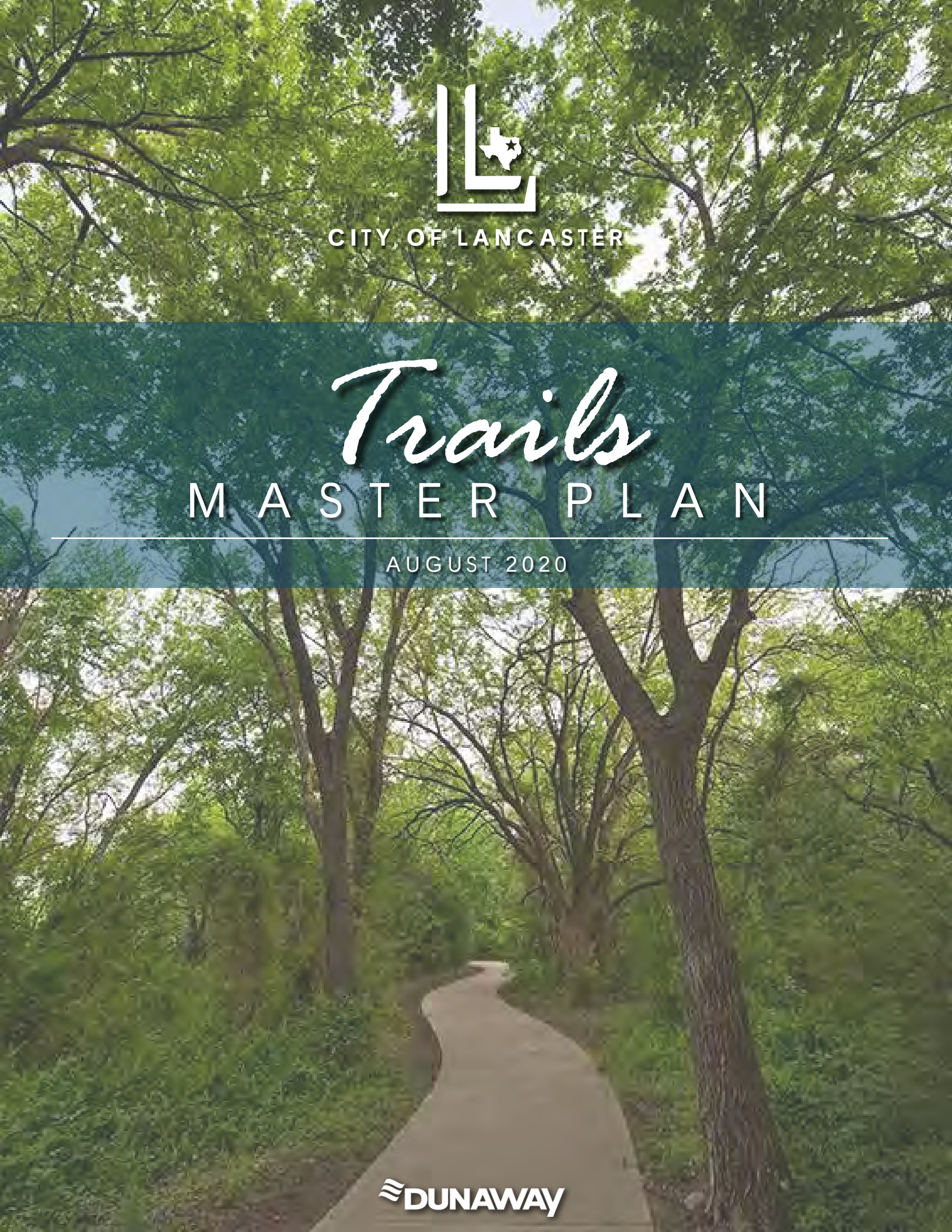


CITY OF LANCASTER

Trails MASTER PLAN

AUGUST 2020

DUNAWAY

TABLE OF CONTENTS

3 ACKNOWLEDGMENTS

4 EXECUTIVE SUMMARY

9 PLANNING PROCESS OVERVIEW

11 PHASE 1 - ANALYSIS

31 PHASE 2 - PLANNING

40 PHASE 3 - RECOMMENDATIONS

68 IMPLEMENTATION

77 CONCLUSION

79 REFERENCES

Acknowledgments

Several members of the Lancaster community provided ongoing support to the Dunaway Team throughout the Master Planning process. A special thanks to the following who participated:

CITY COUNCIL

CLYDE C. HAIRSTON
Mayor

RACHEAL HILL
Mayor Pro Tem

DERRICK D. ROBINSON
Deputy Mayor Pro Tem

CAROL STRAIN-BURK
District 1

STANLEY JAGLOWSKI
District 2

MARCO MEJIA
District 3

NINA MORRIS
District 6

CITY STAFF

OPAL MAULDIN-JONES
City Manager

FABRICE KABONA
Assistant City Manager

SEAN JOHNSON
Managing Director

MICHAEL RASCO
Assistant Director

VICKI COLEMAN
Development Services Director

BESTER MUNYARADZI
Senior Planner

EMMA CHETUYA
Planner

KEY CONTRIBUTORS

KEVIN KOKES
NCTCOG

GABRIEL ORTIZ
NCTCOG

JOHN PAULUS

KEVIN MONDY

PETRA COVINGTON

SEAN MIXON

MARK POWELL

GRETCHEN WEAVER

JAMES THOMAS

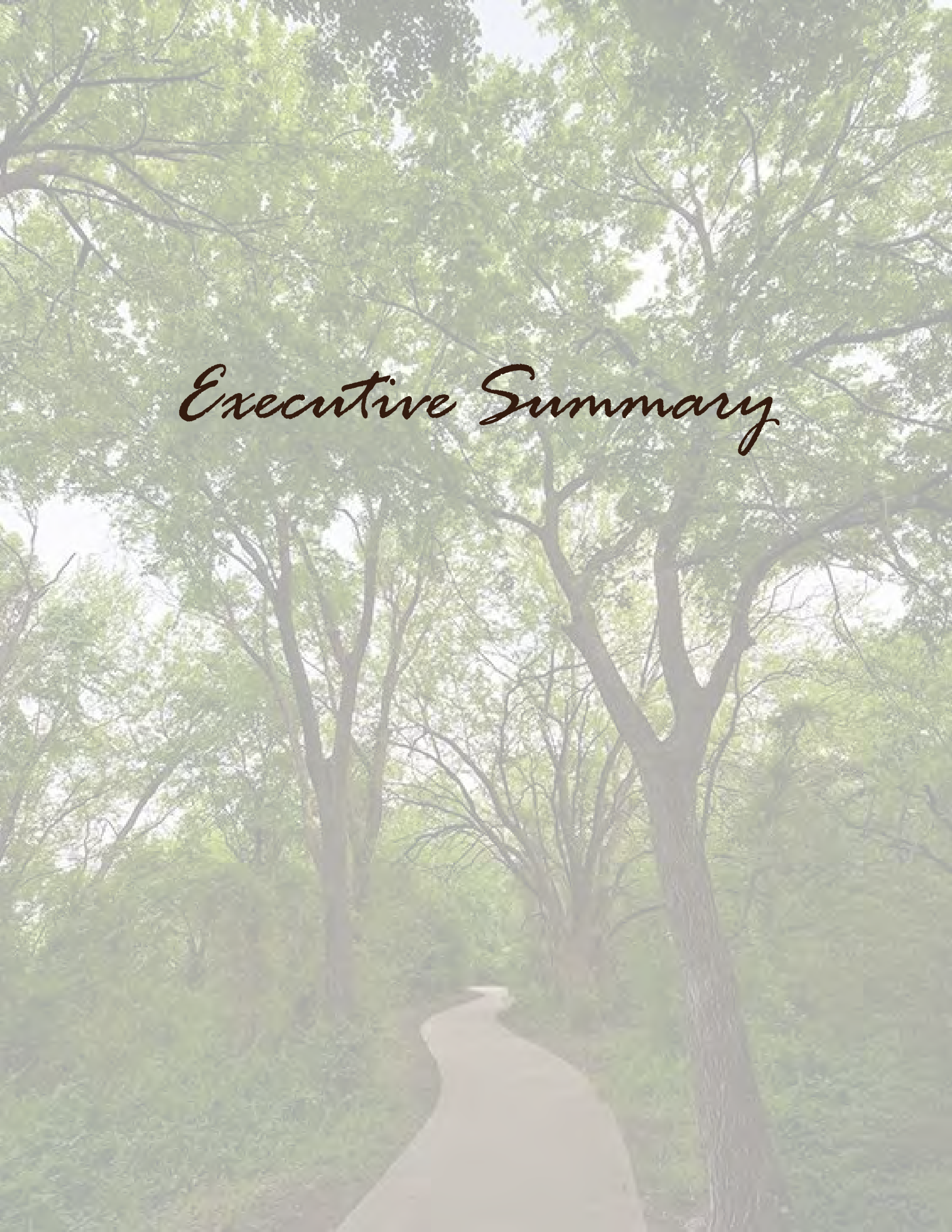
DUNAWAY TEAM

PHILIP NEELEY, ASLA
Project Director

ELIZABETH McILRATH, ASLA
Project Manager

ANITA BEARD, ASLA
Landscape Architect

KOURTNEY GOMEZ
Graphic Designer



Executive Summary

Executive Summary

Lancaster has a dynamic location in the southwestern portion of Dallas County, which includes excellent freeway access from IH-20, IH-35E, and IH-45. Lancaster is also part of the eleven communities that comprise the Best Southwest Partnership. These key factors have contributed to Lancaster's competitive advantage in attracting residents and businesses to the community. To enhance the sense of community, City leaders realize that a proactive plan for "connecting" their citizens involves both a physical and social dimension. A well-planned trail network can do just that.

With the goal of providing a bicycle and pedestrian-oriented trail network, the City retained the professional planning team from Dunaway Associates. This collaborative team of landscape architects and engineers worked closely with City staff and key contributors to study the feasibility of a city-wide trails master plan. The contributors also included a representative from the North Central Texas Council of Governments (NCTCOG), a leading public agency in planning and implementing trail systems throughout the north Texas region.

The Dunaway team utilized the previous 2006 Trails Master Plan Summary as a starting point for this new study. That plan outlined seven (7) goals and opportunities, including such items as regional trail connections, community linkages, and trail amenities. Those goals were the basis for planning a high-level trail system that would cover the entire City. The Dunaway team expanded upon that by outlining a well-conceived hierarchy of trail connections throughout Lancaster.

Planning Process Overview

Throughout the master planning process, the Dunaway team worked closely with City staff, key contributors, and Lancaster citizens. The three (3) major phases included:

Phase 1: Analysis

Documenting existing system, regional planning initiatives, benchmarking other cities, and noting opportunities & constraints

Phase 2: Planning

Identifying opportunity zones, conceptual trail planning, engaging the community, and preliminary trails master plan

Phase 3: Recommendations

Developing a trail hierarchy, final trail network, design standards, and master plan report

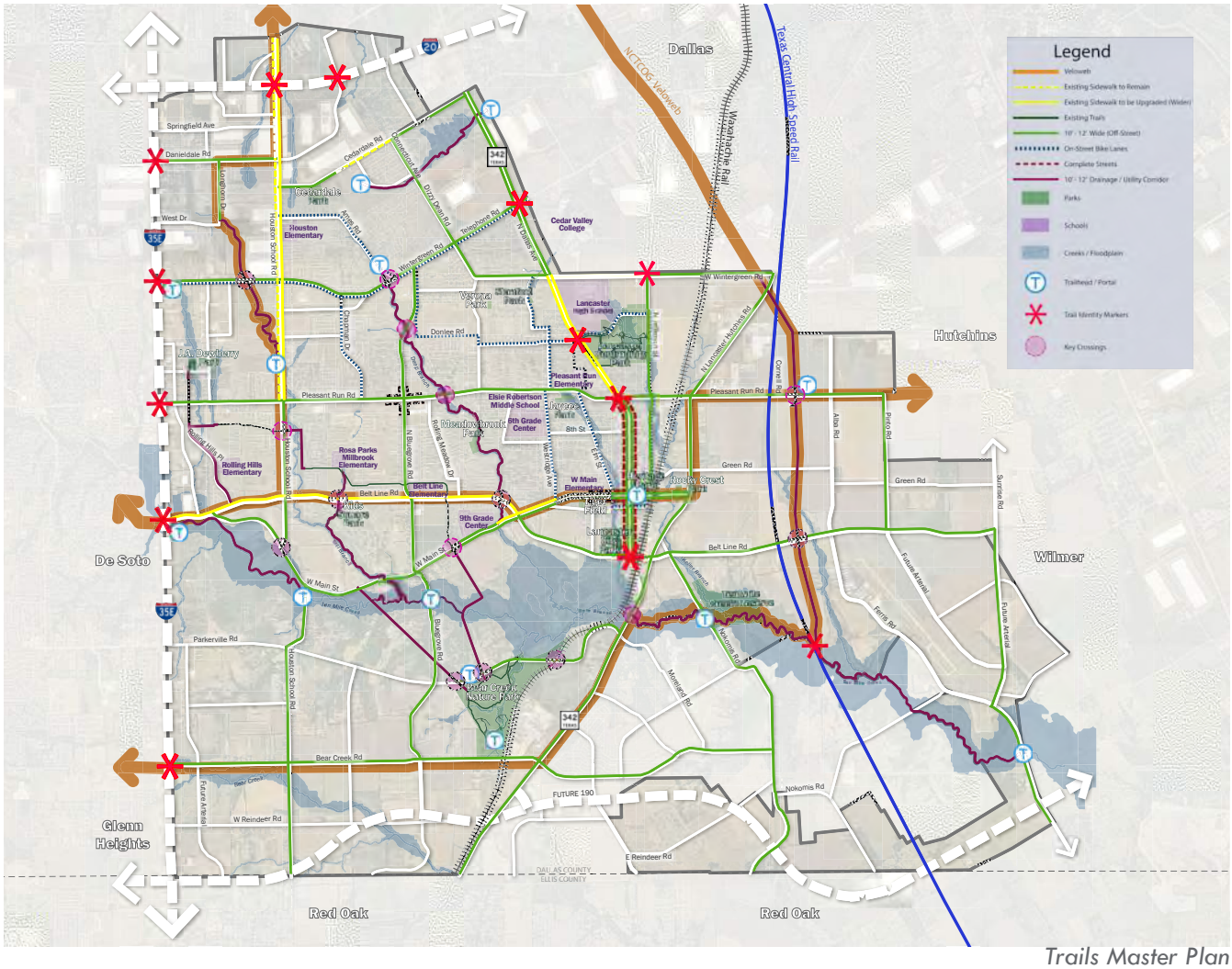
Recommendations

The Master Plan will serve as a guide for future connections to neighborhoods, schools, parks, key destinations, and surrounding communities. The Master Plan also provides a strategic tool that City officials can use to guide the funding and partnerships necessary to implement the trail network. As the plan comes to reality, citizens will be excited to have mobility choices to City destinations as well as further opportunities for outdoor exercise and recreation. This Trails Master Plan organizes the network in three major categories. These include:

Road Network

Drainageways / Corridors

Entries / Identity / Crossings



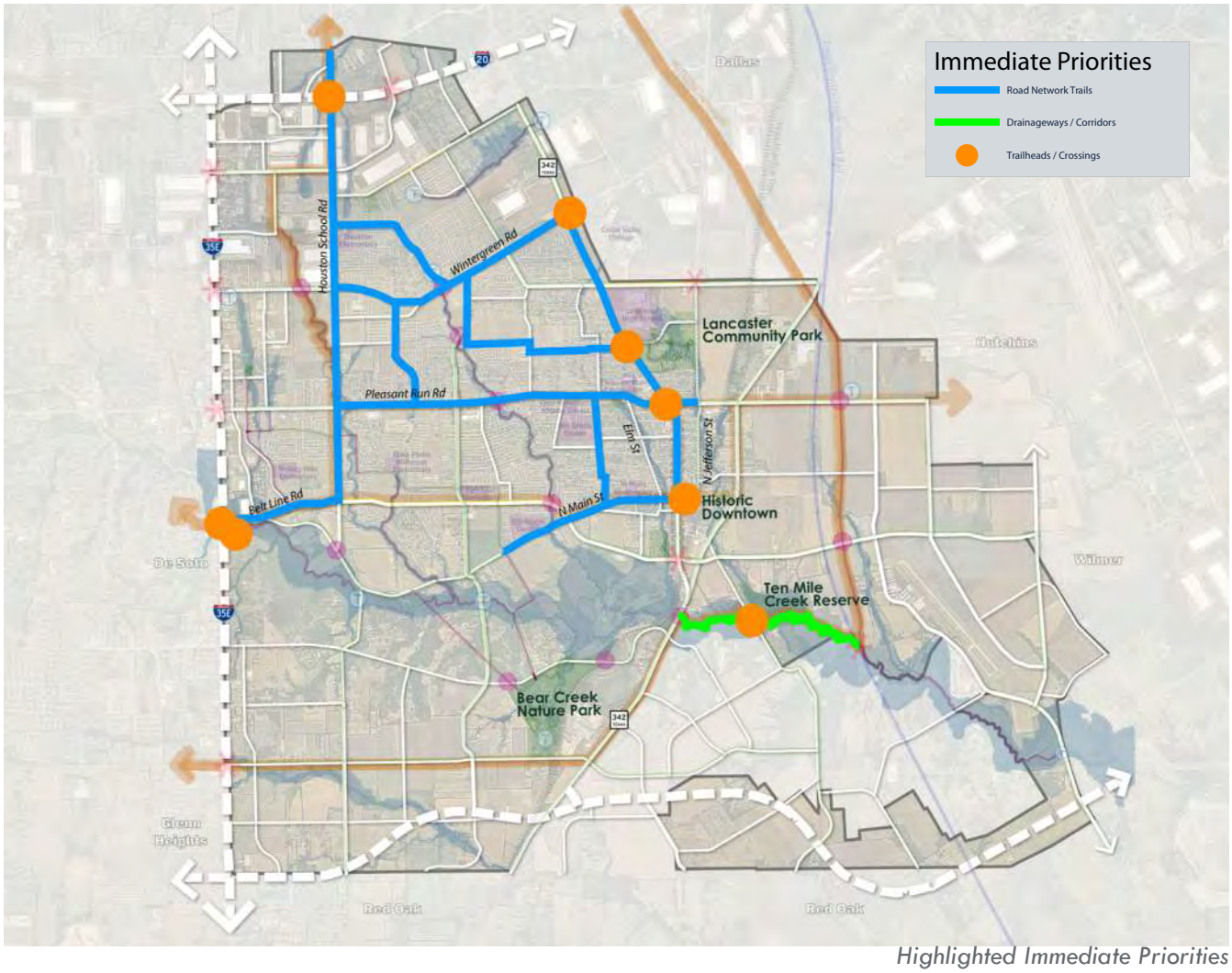
Trails Master Plan

Implementation

This Implementation Plan is outlined into three phases for City leaders to utilize for planning and budgeting. These phases include:

1. ***Immediate Priorities.....(1 to 2 years)***
2. ***Short-Term Priorities.....(3 to 9 years)***
3. ***Future Priorities.....(10+ years)***

The recommendations for each focus area were prioritized into three phases of implementation to allow City leaders to implement trail network improvements over time. The implementation plan also provides an overview of typical trail construction costs for project budgeting purposes. Potential supplemental funding sources were also identified to augment city funding for future projects.



Highlighted Immediate Priorities

Planning Process Overview

PLANNING PROCESS OVERVIEW

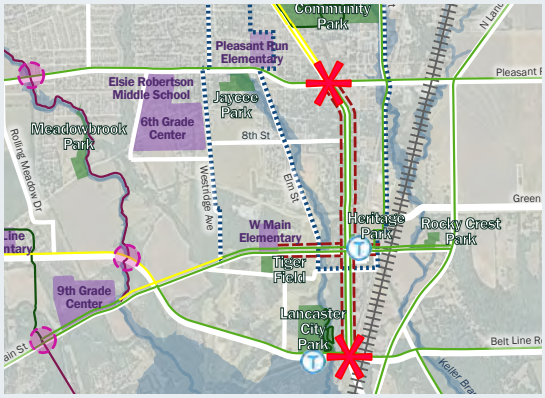
Throughout the master planning process, the Team worked closely with City staff and leaders to examine opportunities to create the vibrant, connected trail network desired by Lancaster. During the planning process, development of this trail network plan was achieved using a three-phase approach, as follows:

Phase 1 - Analysis

- Project Initiation
- Data Gathering & Inventory
- Site Review / Existing Conditions
- Opportunities & Considerations
- Benchmark Tour

Phase 2 - Planning

- Objective Zones
- Concept Trail Plan
- Community Involvement
- Preliminary Trail Master Plan



Phase 3 - Recommendations

- Road Network
- Drainageways / Corridors
- Entries / Identity / Crossings
- Final Trail Master Plan
- Implementation

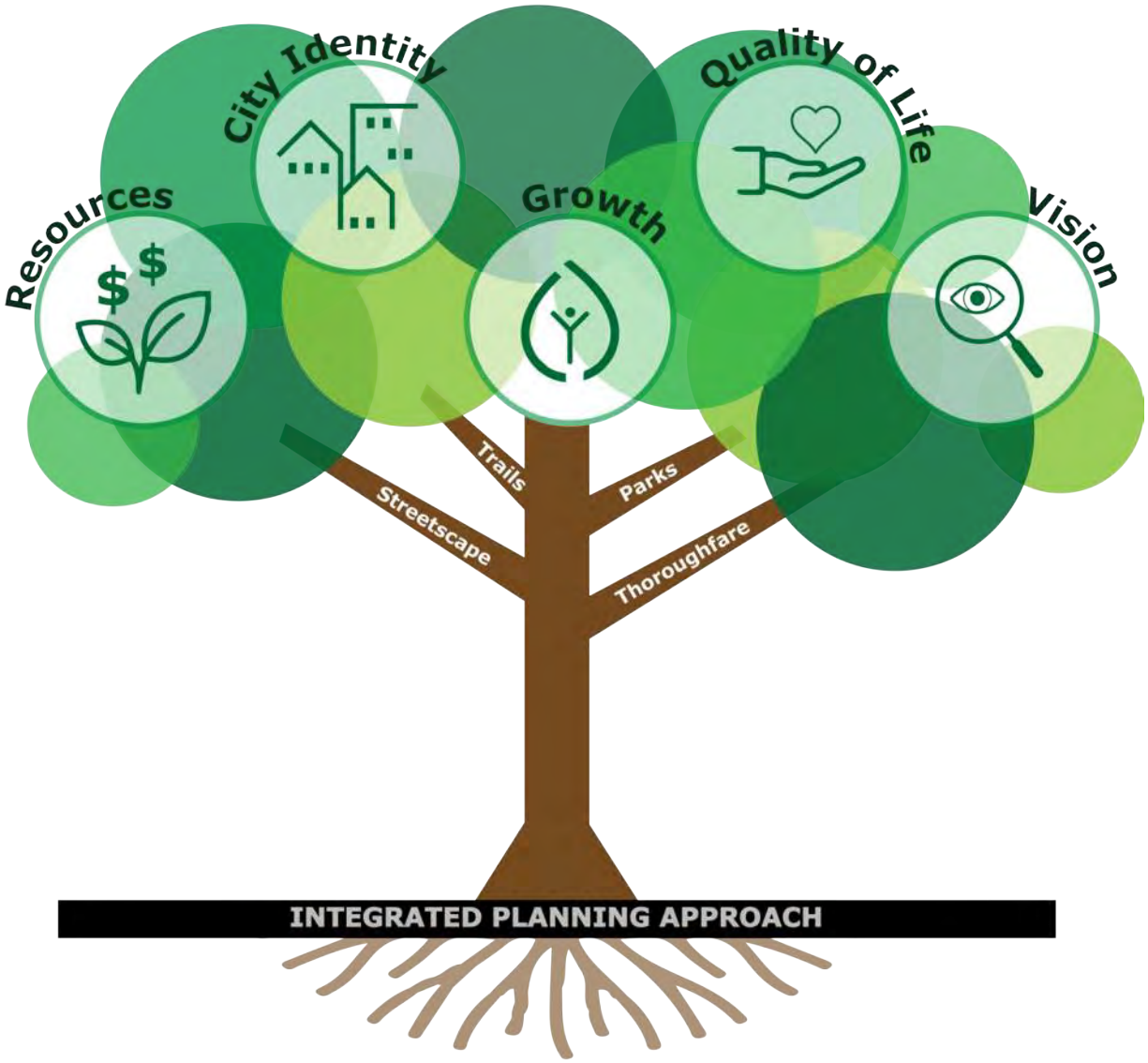
Phase 1 - Analysis

Phase 1 - Analysis

Dunaway's first phase was a critical step in building the foundation for planning the proposed trail system master plan. In this investigatory phase the Team evaluated the existing system, gathered existing and proposed data, analyzed local and regional planning documents, toured benchmark systems throughout North Texas, and provided initial thoughts on opportunities and constraints. This section documents the steps taken in the Analysis phase of the planning process.

Project Initiation

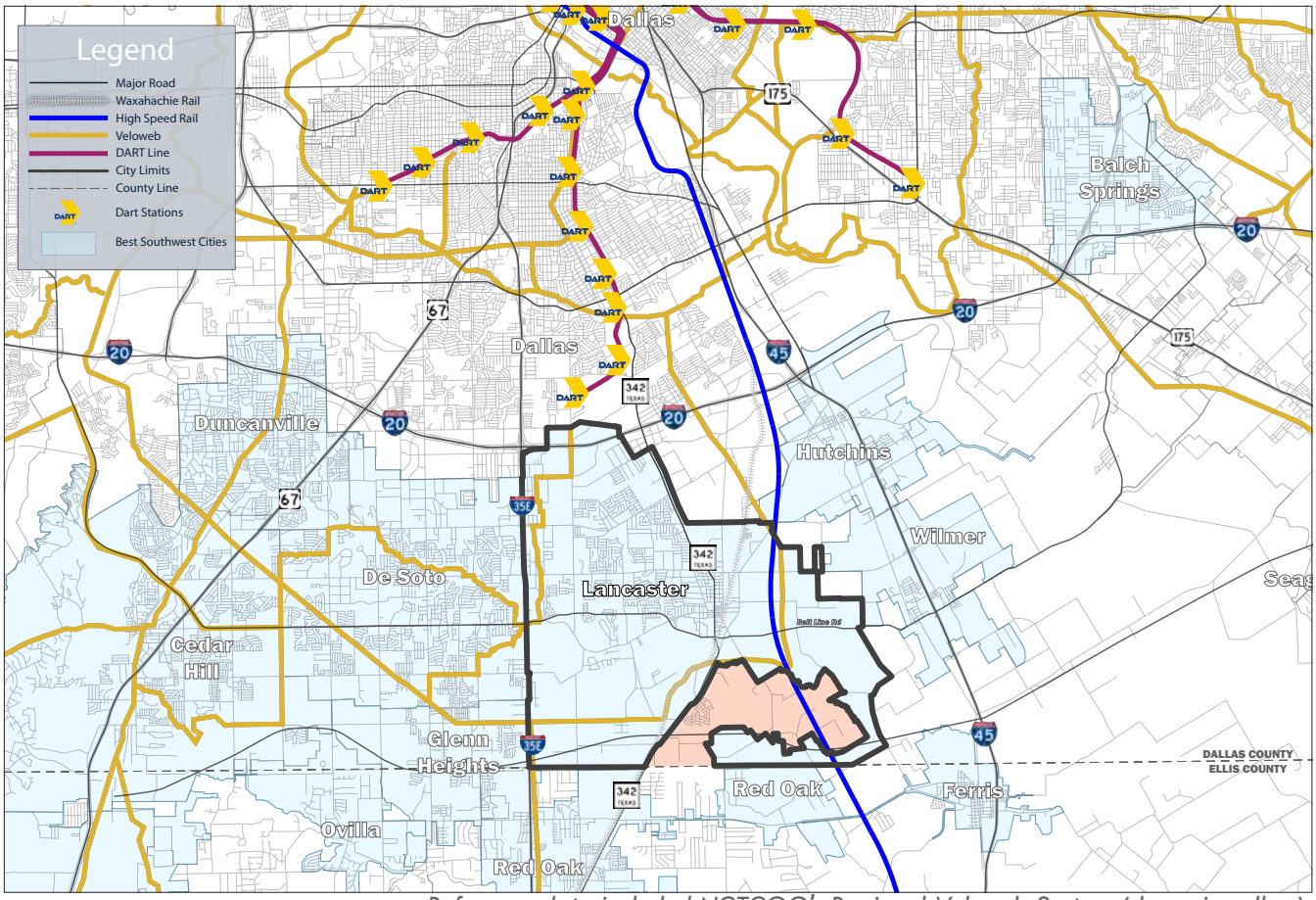
Dunaway team members attended a kick-off meeting with City representatives and key contributors to communicate the overall planning process as well as listen to their goals for the trails master plan. The representatives expressed an overall desire to create a safe, well-connected trail network for both pedestrians & bicyclists to use in connecting neighborhoods, schools, the Historic District and adjacent communities. It was also important to coordinate with the City's ongoing studies for the Thoroughfare Plan, Parks Recreation & Open Space Master Plan and Streetscape Master Plan.



Data Gathering & Inventory

Dunaway compiled digital information from the City and regional agencies to build a base map for documenting existing conditions. The layers of data gathered included aerial photographs, parks, schools, commercial and residential parcels, ETJ's (Extra-Territorial Jurisdictions), freeways and internal roadways, DART light rail line, Texas Central High Speed Rail and BNSF railroad, drainageways and creeks, floodplains, city limits, existing on/off street trails, and proposed developments. Each piece of data was digitally complied using GIS and CAD software to create a database for planning efforts. This information was beneficial for the Master Plan as well as in future planning efforts and sharing with other agencies as necessary to promote regional connectivity. From these data, the team prepared an overall base map of existing conditions.

For regional context, North Central Texas Council of Governments (NCTCOG) Mobility 2045 Plan, DART's Transit System Plan, and Texas Central's High Speed Rail documents were reviewed for trail related information and connection opportunities. Critical to NCTCOG's Mobility 2045 Plan is the Regional Veloweb System (pictured below). The "Veloweb" is defined by NCTCOG as a network of off-street shared-use paths designed for multi-use purposes by bicyclists, pedestrians, and other non-motorized forms of transportation. The Veloweb serves as the regional expressway network for active transportation and it extends the reach of the region's roadway and passenger rail transit network for non-motorized transportation. Analyzing these data along with the local planning documents allowed for key connections or constraints to become apparent and considered in the planning phase.



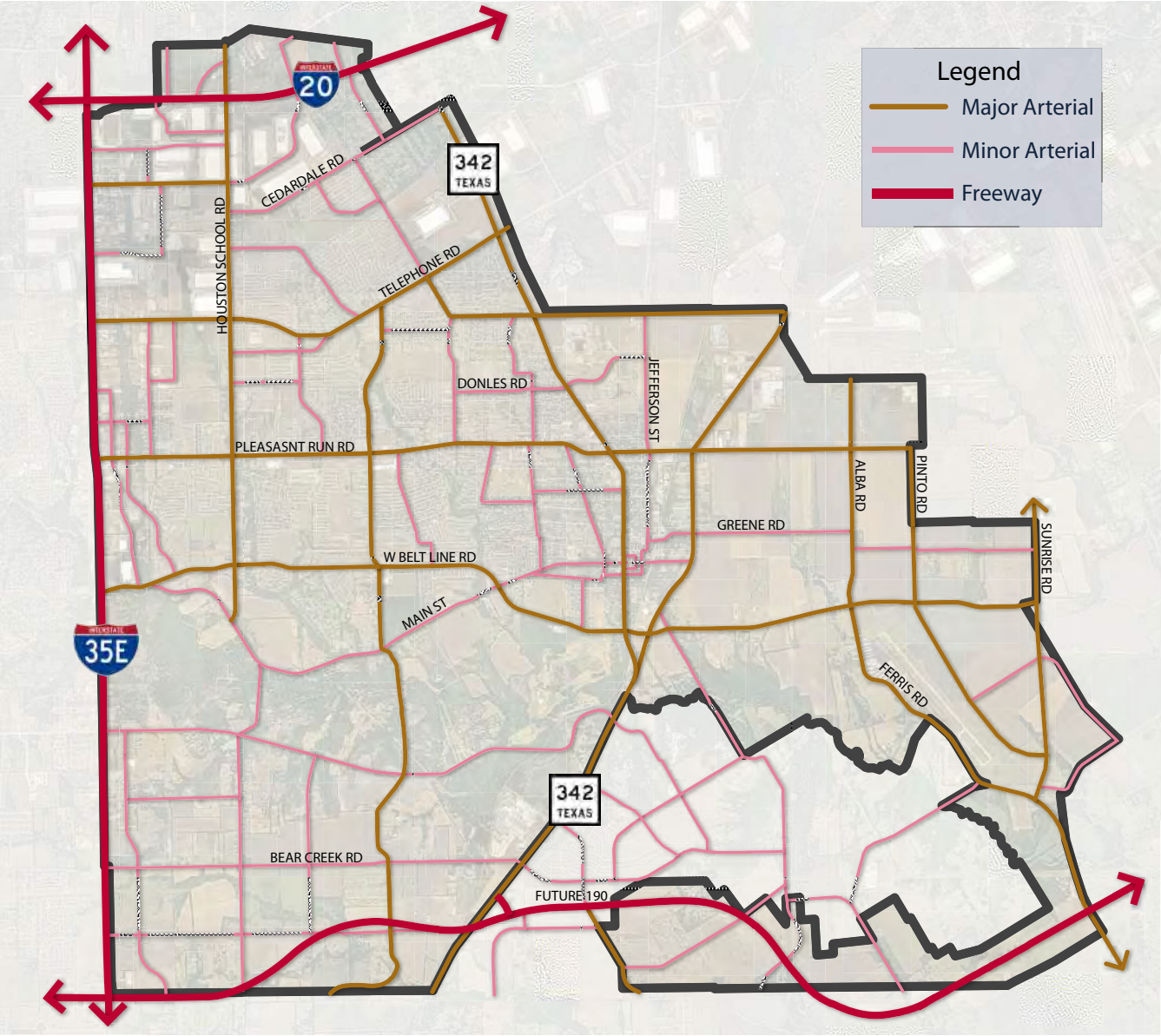
Reference data included NCTCOG's Regional Veloweb System (shown in yellow).

Thoroughfare Plan

To work with the City's ongoing Thoroughfare Plan Update already underway, the Dunaway team carefully reviewed the planned roadway network for Lancaster. For purposes of this master plan, existing and proposed roadways were summarized into a hierarchy of (3) roadway types. These include the following (graphic below):

1) ***Freeways - interstate highways (proposed & existing);***
2) ***Major Arterials - divided or undivided arterials (4 to 6 lanes); and,***
3) ***Minor Arterials - divided or undivided arterials and collectors (2 to 4 lanes)***

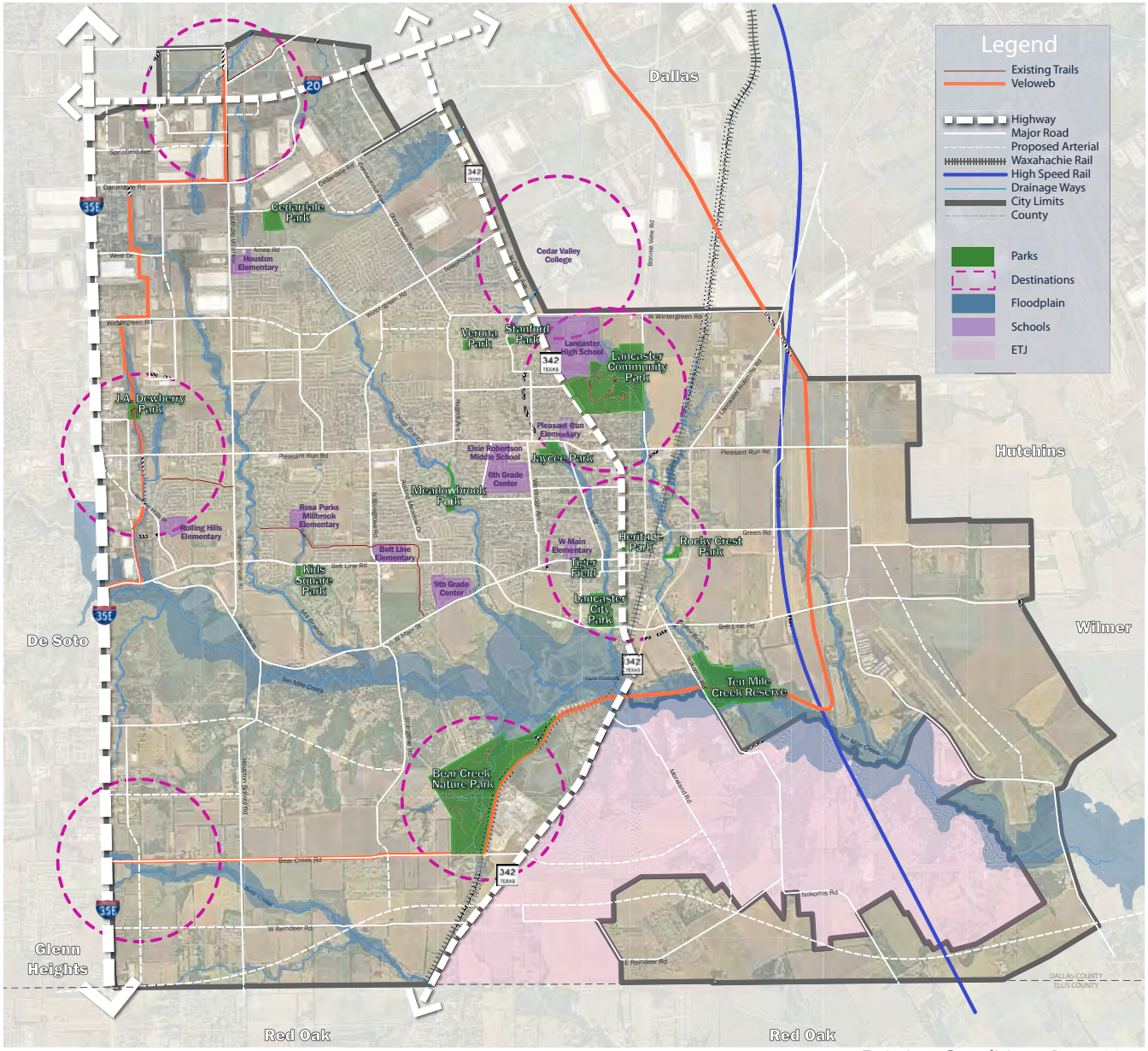
Future trail initiatives can work in tandem with these roadway corridors to maximize the range of pedestrian connections throughout Lancaster. This strategic approach will allow new roadway construction to include associated trail improvements, maximizing the financial investment by the City or private developers.



Hierarchy of Roadway Types from Thoroughfare Plan Update

Site Review / Existing Conditions

An important step in the analysis phase included a city-wide tour attended by Dunaway, City representatives, and key contributors. The tour allowed the group to visually evaluate and document current conditions of the existing trail system, as well as distinct zones for the overall master plan. The driving tour allowed the team to become familiar with the overall trail system, areas of interest throughout the City, and allowed high level input from City representatives and key contributors. The team documented the tour using digital photography and recorded observations regarding key aspects of the existing trail system. The graphic below includes, Veloweb, railways, thoroughfares, city parks, existing trails, schools, drainageways, and 1/2 mile radius markers to key destinations throughout Lancaster.



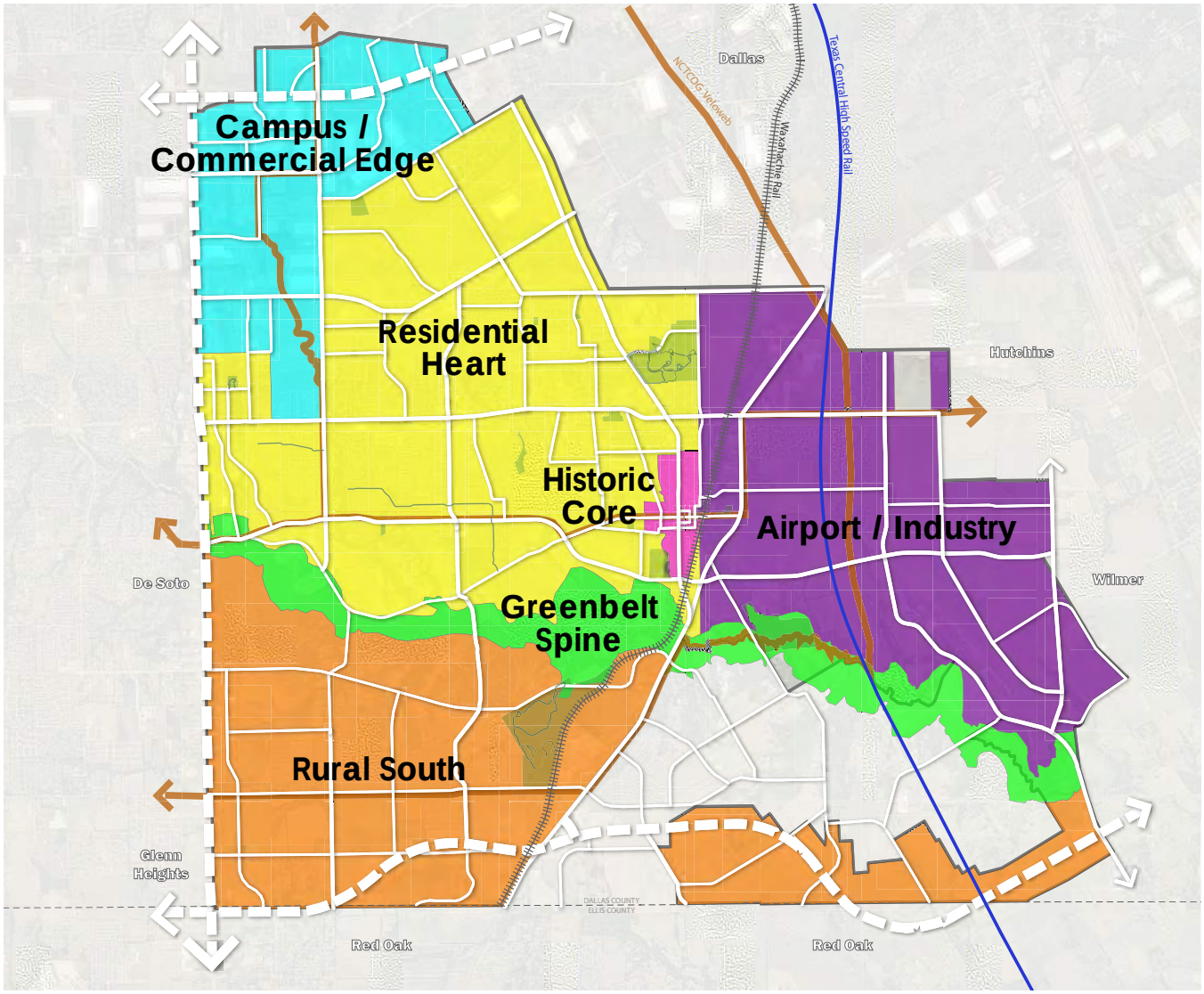
Existing Conditions Base Map

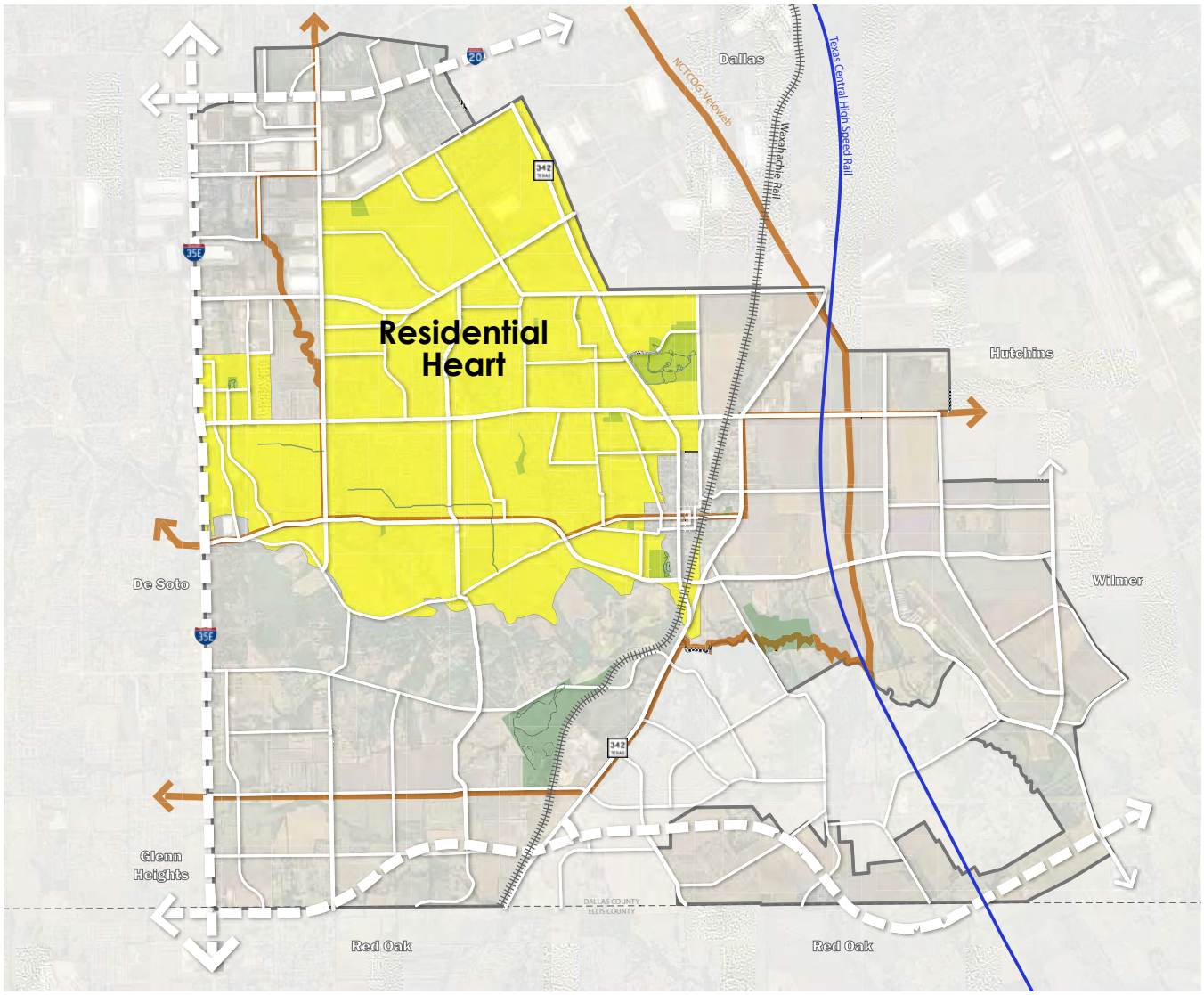
Opportunities & Considerations

In evaluating the City for trail planning possibilities, the Dunaway team organized the analysis according to a series of "Character Zones" which became apparent in the analysis phase. These zones are currently home to a variety of activities, each with unique opportunities for mobility and pedestrian connections. The six (6) Character Zones (illustrated below) include:

- ***Residential Heart***
- ***Campus / Commercial Edge***
- ***Historic Core***
- ***Greenbelt Spine***
- ***Rural South***
- ***Airport / Industry***

The following pages are intended to describe key opportunities for trail connection in each "Character Zone" of Lancaster. Existing photos are also included to depict the general character of each zone.





Residential Heart

This zone represents a variety of interconnected neighborhoods where the majority of residents live, attend school, shop, worship, and enjoy localized recreation.

Key Opportunities

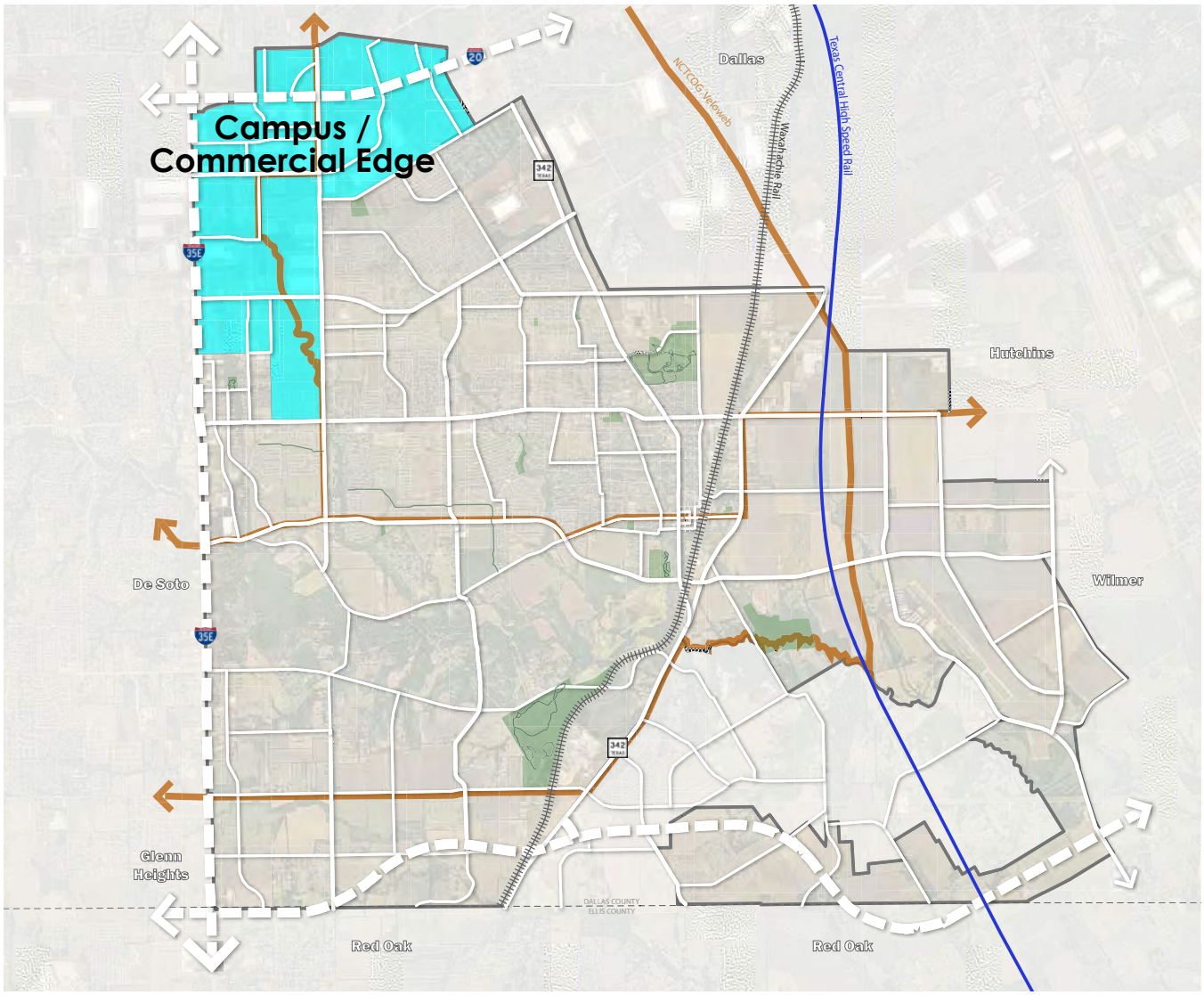
- Use on-street and parkway trail connections for neighborhoods, parks, and schools
- Utilize drainageways to connect residents to Ten Mile Creek Greenbelt
- Expand trail network within utility corridors

Residential Heart - Destinations

Residential Heart - Open Roadway Drainage

Residential Heart - Creek Crossing

Residential Heart - Existing Trail



Campus / Commercial Edge

This zone includes thriving businesses and industry with large commercial tenants and daily operations.

Key Opportunities

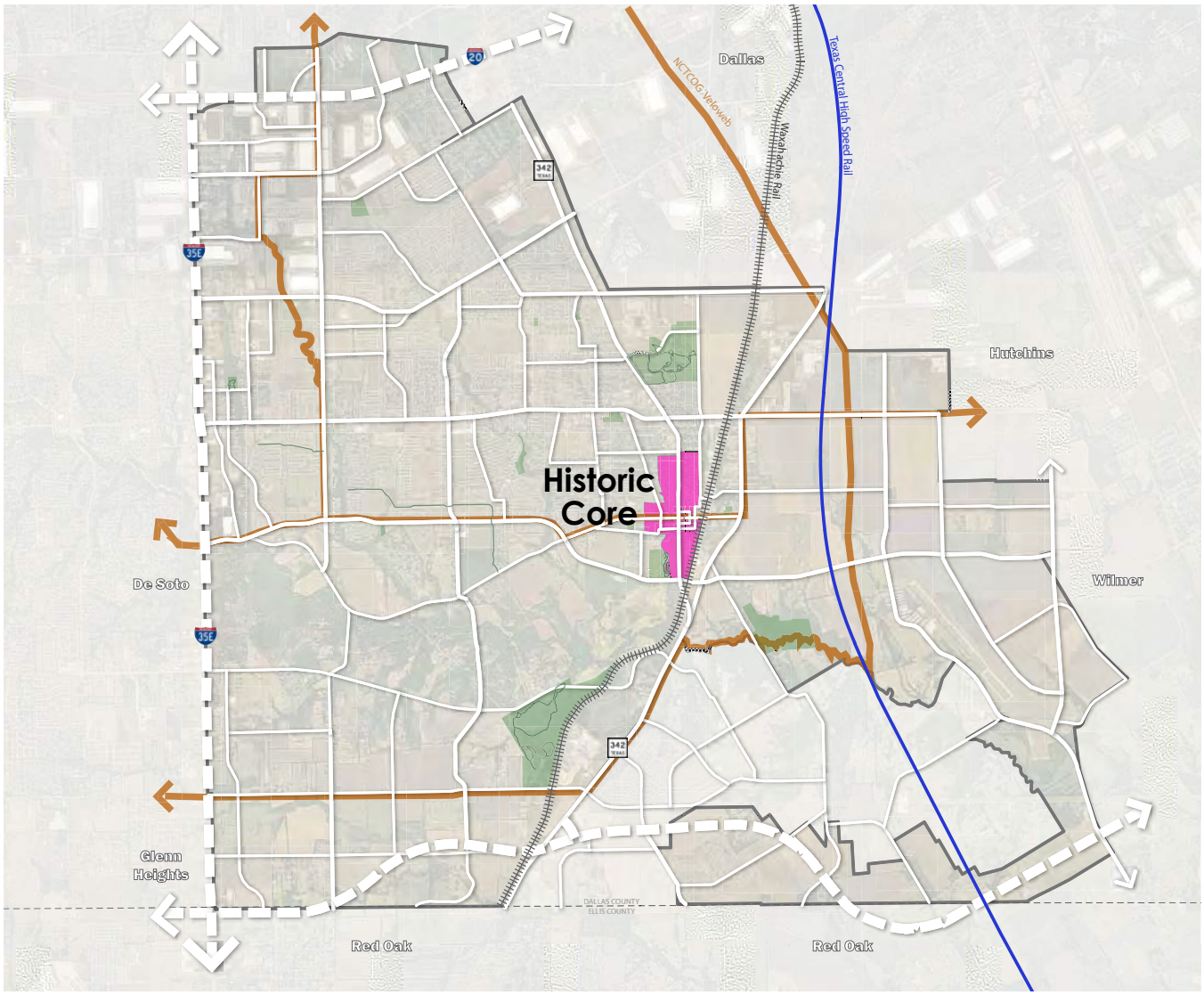
- Establish City identity and regional gateways at high-visibility points
- Utilize strategic parkway trail connections within existing right-of-ways

Campus/Commercial Edge - Existing Sidewalks

Campus/Commercial Edge - Roadway Improvements

Campus/Commercial Edge - Adjacent Cities

Campus/Commercial Edge - City Identity & Gateways



Historic Core

This zone is recognized by citizens as the economic and government center of the City. The downtown setting retains a mix of retail activities and historic structures that give an authentic sense of place.

Key Opportunities

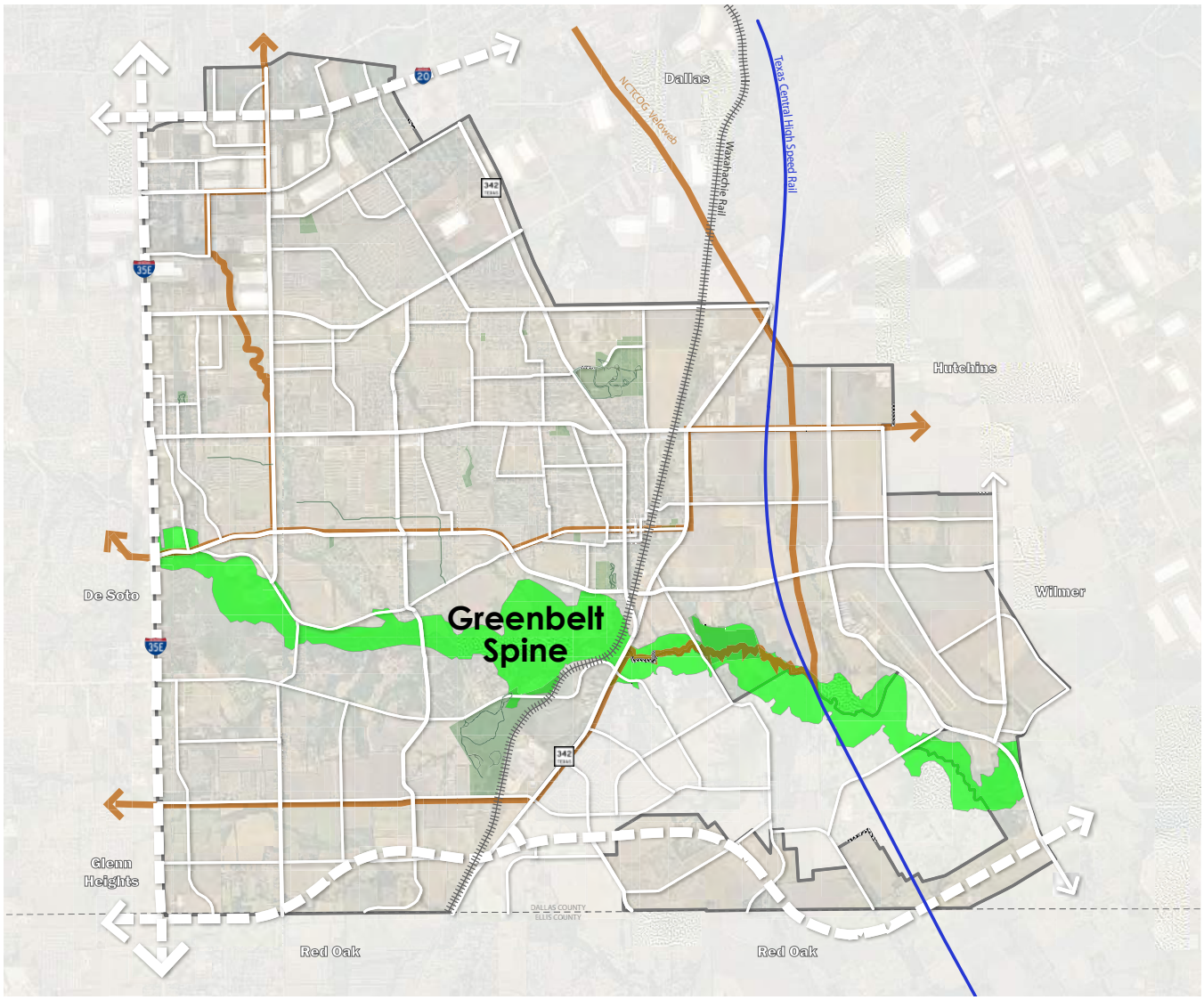
- Create a defined overall circulation network for pedestrians, bicycles, vehicles, and transit
- Coordinate multi-objective infrastructure improvements for roads, utilities, and streetscapes
- Connect existing residential to the SH 342 corridor and Ten Mile Creek greenbelt

Historic Core - Visitor Destinations

Historic Core - Multi-Modal Transportation Needs

Historic Core - Civic Gathering Spaces

Historic Core - Retail Destinations



Greenbelt Spine

This zone features the magnificent natural drainage corridor along Ten Mile Creek, with mature trees and scenic lookouts.

Key Opportunities

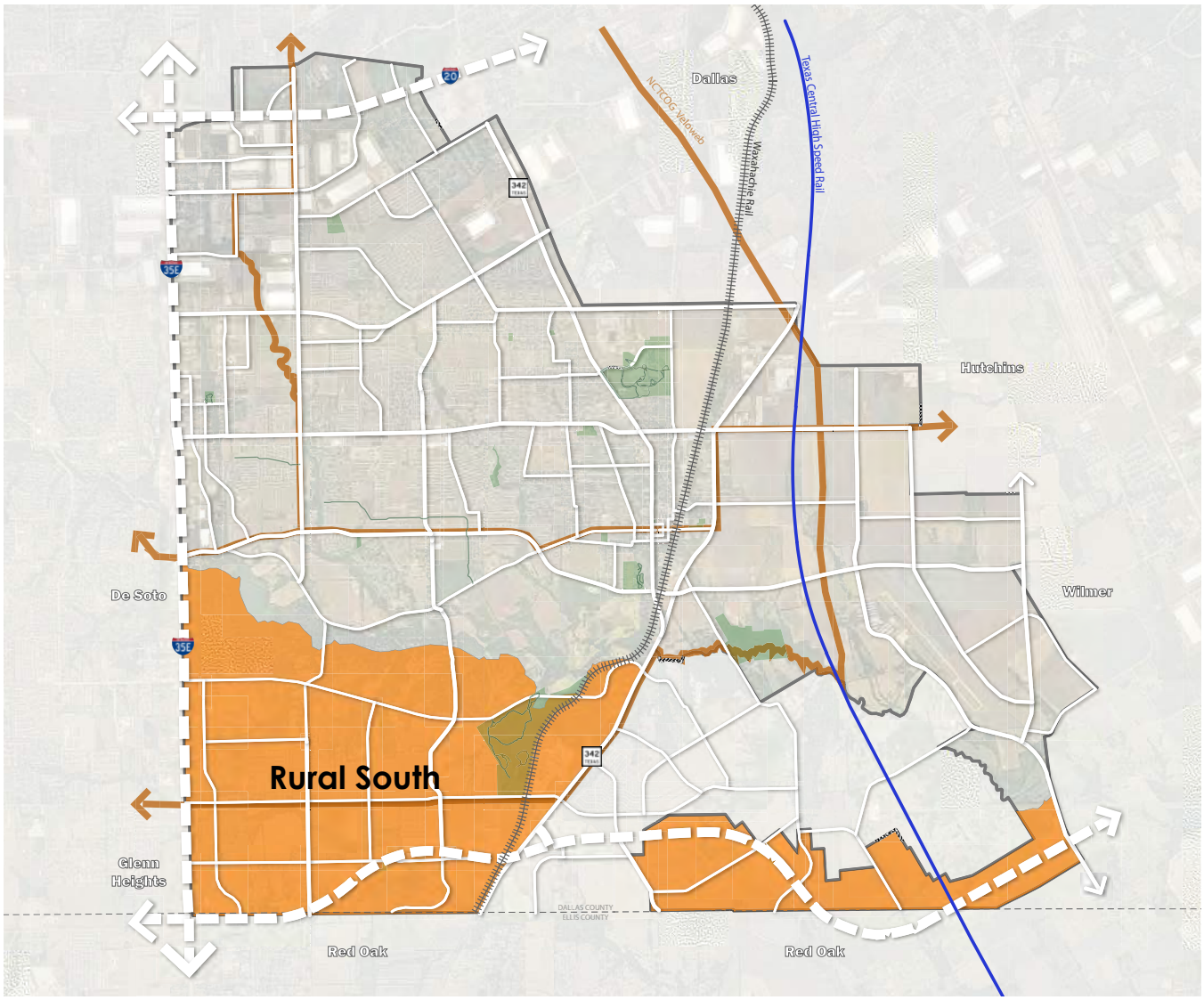
- Create a signature greenbelt / ecotourism trail network
- Provide veloweb connections within the broader network
- Identify portals and gateways into Lancaster

Greenbelt Spine - Existing Nature Paths

Greenbelt Spine - Destination Trails

Greenbelt Spine - Ecotourism Destinations

Greenbelt Spine - Roadway Trails



Rural South

This zone is largely privately owned or undeveloped at this time but will likely experience new growth in the coming years.

Key Opportunities

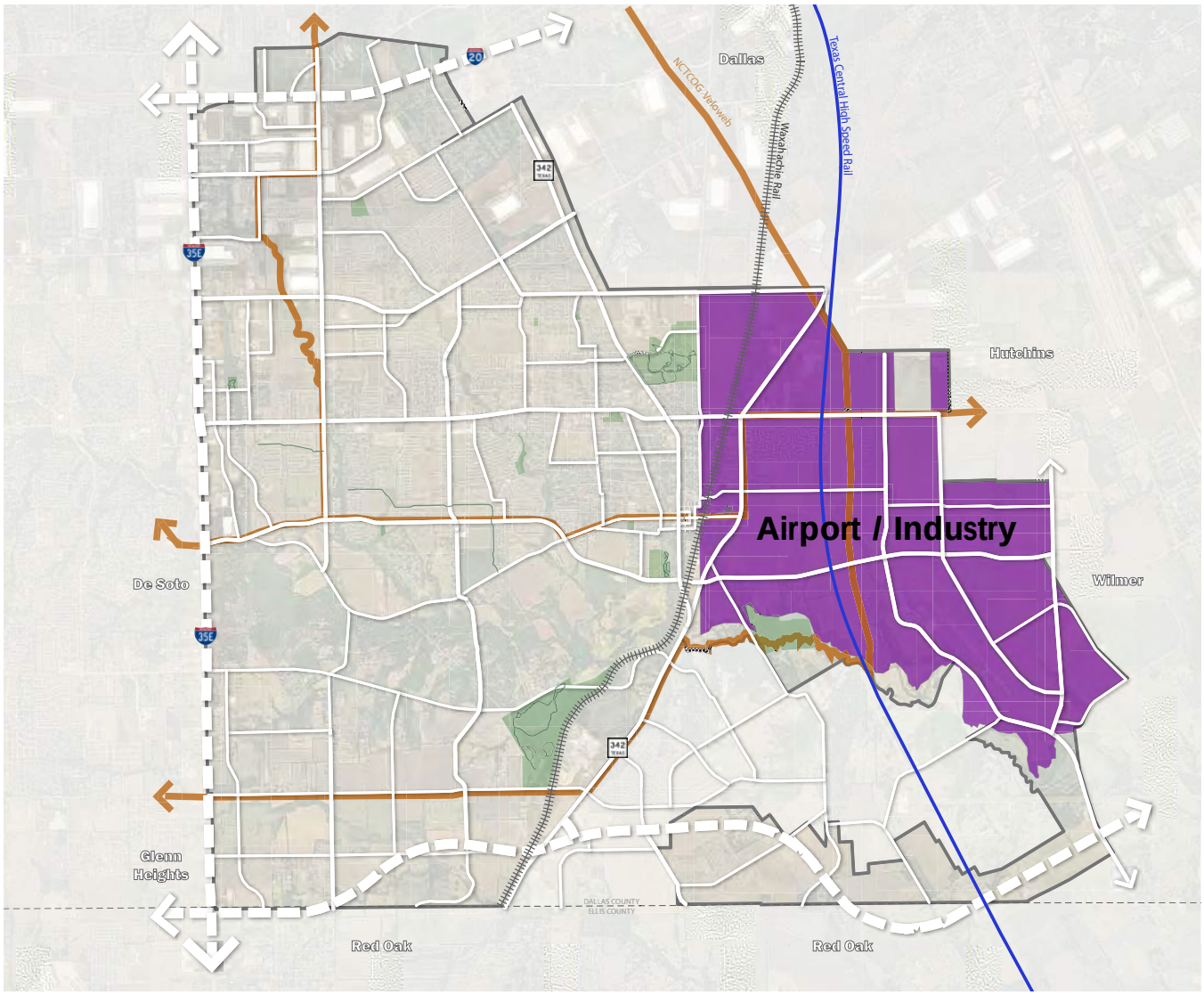
- Establish trail requirement policies for future development of residential, retail, other
- Selectively utilize drainage corridors for trail extensions
- Integrate future DART portal / identity

Rural South - Preserved Open Space

Rural South - Freeway Visibility

Rural South - Roadway Improvements

Rural South - Growing Residential



Airport / Industry

This zone has limited development today but has great potential for future development that corresponds to expanded transportation activities.

Key Opportunities

- Consider future connections to regional and statewide transportation network (i.e. proximity to DART, Waxahachie Rail, Texas Central High Speed Rail)
- Coordinate future veloweb intersections and connection

Airport/Industry - Lancaster Airport

Airport/Industry - Roadways & Utility Corridors

Airport/Industry - Drainageways

Airport/Industry - Railway Corridors

Benchmark Tour

To gain insight from other established trail systems in the North Texas region, the Dunaway team conducted a Benchmark Tour with City staff and key contributors. The team selected peer cities that have implemented trail networks and supporting infrastructure relevant to Lancaster's own opportunities. The tour allowed for the group to view and discuss potential solutions for Lancaster's future trail network. Cities visited and their relevance to development of an expanded trail system in Lancaster are documented below:

City of Richardson

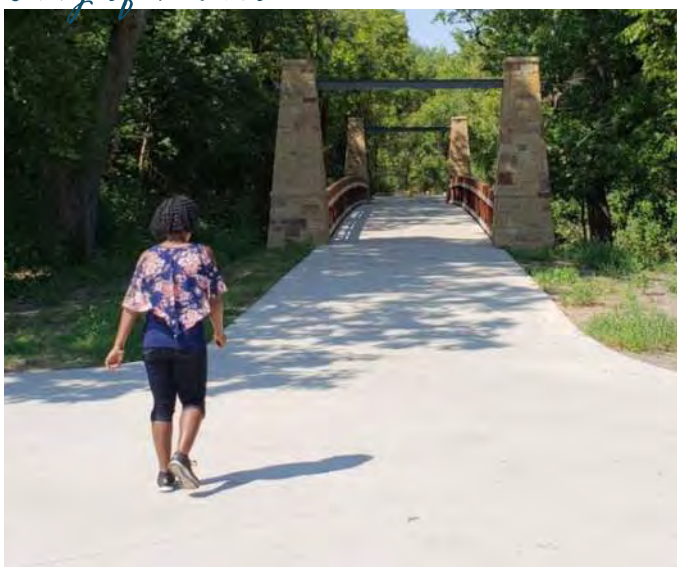
Locations:

- Duck Creek Linear Park
- Renner Road Trails

Relevance:

- Hierarchy of Bike Lanes on Variety of Roadways
- Shared-Use Connectors to Neighborhoods, Parks & Schools
- Utilize Drainageways & Underpass Connections
- Maximum Use of Utility Easements
- Strong Architectural Identity / Branding
- Regional Connections to Neighboring Cities
- DART Rail Corridor

City of Plano



Locations:

- Oak Point Park & Nature Preserve
- Bluebonnet Trail

Relevance:

- Complex System of On-Street & Off-Street Trails
- Extensive Greenbelt Trail Network along Rowlett Creek
- Eco-Tourism Destinations & Opportunities / Revenue Generation
- Maximum Use of Utility Easements
- Well Utilized R.O.W.s/Parkways as Trail Corridors
- Historic Downtown w/DART Station & Heritage Park

City of Coppell

Locations:

- Andrew Brown Park (West)
- Andrew Brown Park (East)

Relevance:

- Signature Park Destination
- Hierarchy of Trails (Widths, Surfacing, etc)
- Internal Park Loops & Neighborhood Connections
- Variety of Crossings
  - At-Grade Crosswalks
  - Roadway Underpass
  - Creeks / Drainageways

City of Grand Prairie

Locations:

- Good Link Trail
- CP Waggoner Park
- Mike Lewis Park

Relevance:

- Linear Connector Between Two Major Parks
- Complex Inter-Agency Coordination
- Signature Crossings & Overlooks
- Consistent Architectural Theming
- Extensive Trailhead Amenities
  - Accessible Parking
  - Seating & Shelters
  - Restrooms & Drinking Fountains
  - Play Areas

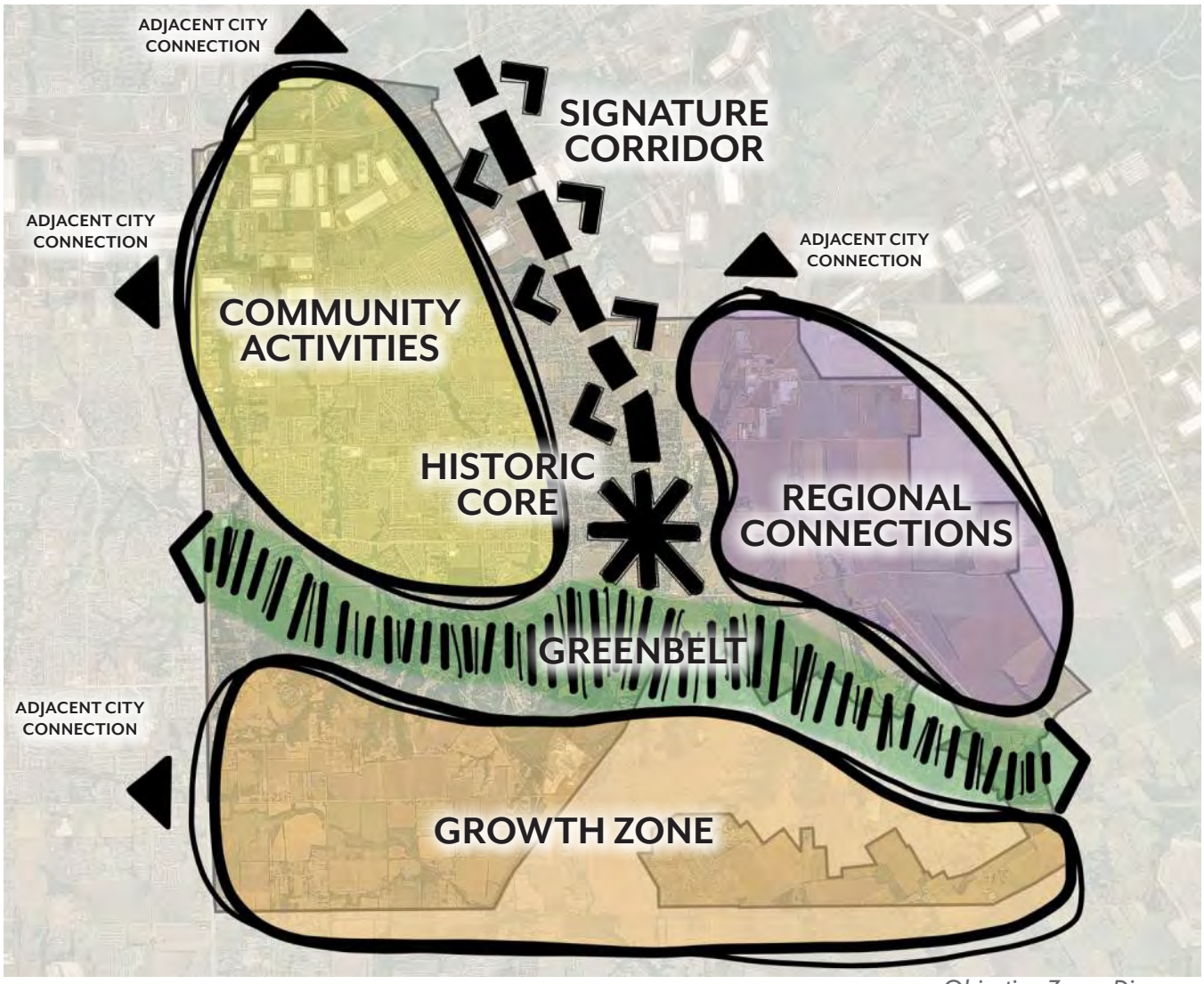
Phase 2 - Planning

Phase 2 - Planning

Equipped with information gathered during the analysis phase, the Dunaway team proceeded into the planning phase of the Trails Master Plan. These steps included outlining plan objectives for specific sectors of Lancaster, development of a Conceptual Trail Network Plan, and review meetings with City leaders and Lancaster citizens.

Objectives

The Dunaway team first established a series of objectives the plan should address to take advantage of identified trail development opportunities. The diagram below organizes the city into five Objective Zones. Each of these represent a diversity of needs regarding community activities, land uses, growth dynamics, infrastructure expansion and natural resources. These objectives directed development of a Conceptual Trail Network Plan, which was then presented to City leaders and to the community for discussion and input. The following pages include a description of each of the Objective Zones and a list of the Primary Objectives the design team incorporated into a Conceptual Trail Network Plan.



Objective Zones Diagram

Community Activities

Surrounded by the intersection of two major interstate freeways, the northwest sector of the city is called home by most Lancaster residents. This is where many families live, send their children to school, shop, play, attend worship, and work. This area of town is also home to a growing Campus District with large industrial hubs, commercial / retail development, an expanding medical district, and the neighboring UNT Dallas campus. This unique mix of mature residential and upwardly trending commercial development requires a strategic approach to connectivity.

Primary Objectives

- Coordinate roadway expansion projects to include trail construction in parkways and within R.O.W.s
- Utilize utility easements and drainage corridors as trail connectors
- Implement select on-street bike routes in neighborhoods with missing sidewalk infrastructure to connect residents and students to the larger parkway trail system
- Ensure every school and park is provided access by trail
- Connect residents to shopping areas
- Consider regional connections to nearby destinations in adjacent communities (UNT Dallas, DART rail line, DeSoto's Roy Orr Trail, Glenn Heights DART facility, etc.)
- Continue active coordination with NCTCOG on regional Veloweb connection opportunities

Campus Development along Houston School Road

The Greenbelt

Established as one of the most important natural resources in the City of Lancaster, the Ten Mile Creek Greenbelt offers trail and recreation opportunities that could have widespread impacts on the quality of life and economic development in the community. Also located along this greenbelt are two dedicated nature areas: Bear Creek Nature Park on the west side of SH 342, and Ten Mile Creek Preserve to the east. Since the natural beauty and recreational value of this greenbelt is currently inaccessible (except by taking a car to one of the preserves), a focus of the Master Plan is to safely connect Lancaster residents to this beautiful resource. The Greenbelt will also have a unique ability to draw visitors from outside Lancaster to a variety of ecotourism destinations including birding trails, wildlife education, adventure courses, organized campouts, field trips, special rentals, team building retreats, and group events.

Primary Objectives

- Maximize access to the greenbelt through open utility corridors and drainageways
- Provide access to potential ecotourism destinations without overburdening natural resources
- Utilize select roadway/parkway segment connections for trail access into Greenbelt
- Add city identity at trailheads and portals into the network
- Continue active coordination with NCTCOG on regional Veloweb connection opportunities

Bear Creek Nature Park Trails

Signature Corridor

While the prominent frontage of IH-35 and IH-20 serve to anchor the edge of Lancaster, the SH- 342 / Dallas Avenue corridor serves as the primary artery into the heart of Lancaster. Whether approaching Lancaster from the north or south, passengers experience several of the signature amenities that make people proud to call Lancaster home. This includes Lancaster High School, Community Park, and the Historic District and square. This corridor presents a strategic opportunity to promote an image in Lancaster where connectivity, wellness, and greenspace are highly valued. Reinvestment in this area will likely include expansion of the Historic Square shops, new residential, mixed-use developments, and a light rail station. Stewarding this historic resource will provide the city the opportunity for economic growth, and the creation of a district pedestrian environment.

Primary Objectives

- Utilize existing R.O.W. along SH 342 for new trail development
- Widen existing sidewalks to the appropriate shared-use trail width
- Ensure safe passage across SH 342 connecting the eastern and western sectors of the city
- Promote city identity at key intersections, trailheads and portals
- Plan for growth of Historic District and multi-modal connections
- Implement complete streets design principles in the Historic District

Historic Town Square

Growth Zone

The rural area of the city located south of the Ten Mile Creek Greenbelt is poised for future growth. Wooded tributary corridors and open agricultural land are often inviting to new single-family developments. This character, coupled with the proximity of planned freeway and thoroughfare expansions, may spark significant future growth bringing new residents, businesses and visitors to this sector of town. The city has the opportunity to identify key trail connections and plan for this before the rush of development occurs. This foresight will also position the City to work together with developers to fund and construct trail connections as development occurs.

Primary Objectives

- Utilize the trail master plan for partnerships with developers as growth occurs
- Coordinate roadway expansion projects to include trail construction in parkways and within R.O.W.s
- Use utility easements and drainage corridors as trail connectors
- Provide linkages for current and future residents to Ten Mile Creek Greenbelt
- Consider trail connections through Extra Territorial Jurisdiction (ETJ) Areas
- Continue active coordination with NCTCOG on regional Veloweb connection opportunities

Rural Character of Southern Growth Zone

Regional Connections

Comprised largely of open agricultural land, industrial developments, utility corridors, and the airport, the eastern sector of Lancaster is at a much earlier stage in development than that of the City's west side. However, with rapid expansion of the DFW Metroplex as well as local growth patterns, it is likely this sector of Lancaster will experience significant development in the future. This area has a unique mix of regionally connected transportation types including the Lancaster Regional Airport, a major NCTCOG Veloweb corridor, Dallas-Houston High Speed Rail Alignment, Future Light Rail, and an expanding roadway network through the City's Master Thoroughfare Plan update. These factors present a strategic opportunity for a connected multi-modal transportation network as growth occurs.

Primary Objectives

- Coordinate roadway expansion projects to include trail construction in parkways and within R.O.W.s
- Utilize utility easements and drainage corridors as trail connectors
- Provide linkages for current and future residents to Ten Mile Creek Greenbelt
- Ensure safe passage across SH-342 connecting the eastern and western sectors of the city
- Consider alignment of future high speed rail routing
- Connect to trail systems in adjacent cities as available (Hutchins, Wilmer, Dallas)
- Continue active coordination with NCTCOG on regional Veloweb connection opportunities

East Side Agricultural Land and R.O.W. Zones

Community Involvement

The Dunaway team had the opportunity to interact with City staff, leaders and other contributors at various steps in the master planning process. Early on, the team facilitated a community input meeting to present the analysis findings and opportunity zones throughout Lancaster. Citizen feedback was noted and goals were identified during the meeting. From this, the team moved forward with preparing a Conceptual Trail Network Plan. This Plan was presented in another community meeting which allowed staff and citizens the forum to give feedback on the proposed trail network and hierarchy. Suggestions and comments were recorded and utilized in the development of the Preliminary & Final Trails Master Plan.

Community Input Meeting

Community Meeting Advertisement

Community members review concept graphics

Preliminary Trails Master Plan

To document the planning process and outline recommendations regarding trail planning throughout the City, the team prepared a Preliminary Master Plan report. The report included Design Guidelines illustrating select trail configurations that address trail widths, surfacing, amenities, trailheads, and on-street recommendations. The Preliminary Master Plan report was reviewed by City staff and leaders for revisions prior to final review and plan adoption.

Final Master Plan

The Final Master Plan is intended to be adopted by the Park Board and City Council. City leaders will utilize the plan to guide annual funding initiatives, grant opportunities, and strategic partnerships for successful implementation.

Phase 3 - Recommendations

Phase 3 - Recommendations

The recommendations in this section are the result of incorporating evaluations from the analysis phase, and input from City staff, leaders and citizens in the conceptual planning phase. The following pages provide a description of recommendations and design standards proposed to develop a trail hierarchy that utilizes key connection opportunities in each of the following categories. Recommendations for each of these categories regarding trail location opportunities, general design standards, suggested partnership pursuits, etc. are summarized on the following pages.

Road Network

Parkway Trails

On-Street Bike Lanes

Complete Streets

Drainageways/ Corridors

Creeks

Tributaries

Utility Corridors

Entries / Identity / Crossings

Trailheads

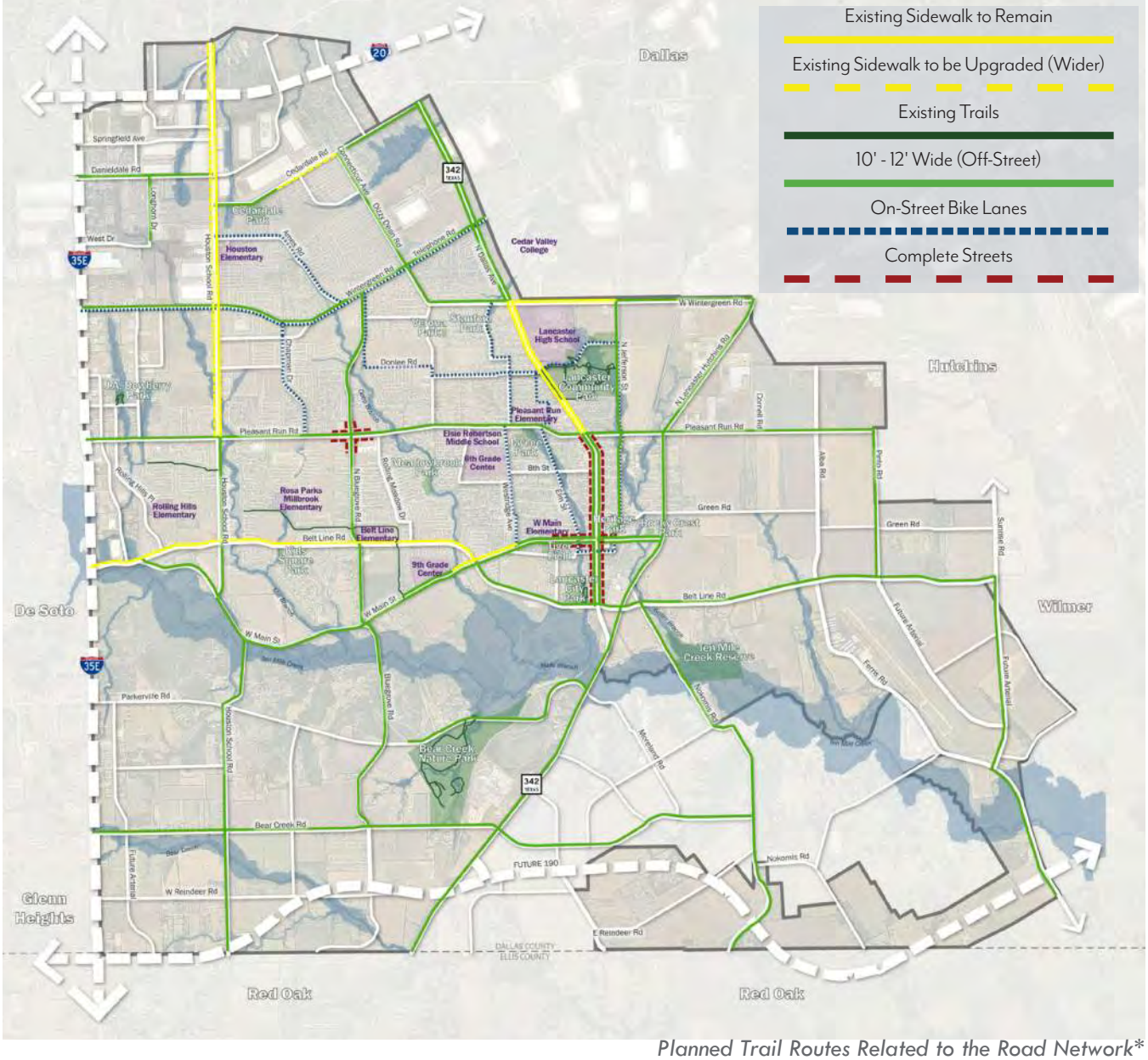
Architectural Identity

Pedestrian Crossings

Road Network

As the population of Lancaster continues to grow, so will the need for a continuously expanding roadway network. Key strategies for development of trails in Lancaster include new parkway trails in right-of-way areas, widening existing sidewalks where appropriate, providing select on-street bike lanes, and incorporating Complete Streets design principles in multi-modal areas like the Historic District.

The graphic below highlights proposed routing for trails in parkways, on-street bicycle lanes, and Complete Street focus areas. * *See page 65 for full Trails Master Plan graphic.*



*Planned Trail Routes Related to the Road Network**

Parkway Trails & Sidewalks

Overview

Development of new or improved roadways, as outlined by the City's recently updated Thoroughfare Master Plan, provide a significant opportunity for trail development in parkways & right-of-way areas throughout Lancaster. To maximize these opportunities, a combined approach is recommended. This includes, a) *constructing full width shared-use trails where open parkways exist and R.O.W. areas will allow;* b) *widening existing narrow sidewalks to full trail width;* and, c) *utilizing existing sidewalks as alternate connectors in select areas.* This approach will create a system of trail routes along roadways in Lancaster that will serve as safe, off-street connections for the overall trail network.

Primary north / south connections:

- *Houston School Road*
- *Bluegrove Road*
- *SH 342 / Dallas Avenue*
- *Lancaster Hutchins Road*

Primary east / west connections:

- *Danieldale Road*
- *Cedardale Road*
- *Wintergreen Road*
- *Telephone Road*
- *Connecticut Avenue*
- *Dizzy Dean Road*
- *Pleasant Run Road*
- *Belt Line Road*
- *W. Main Street*
- *Bear Creek Road*

Other key connections:

- *Parkerville Road*
- *Pinto Road*
- *Nokomis Road*
- *Future Arterial in eastern Lancaster*

Typical Parkway Trail along Roadway

While it is of utmost importance to connect Lancaster citizens to their city, it is also important to consider regional mobility and trail access for visitors to Lancaster. More than one possible route for NCTCOG Veloweb connection is suggested as part of this city-wide trail network. Veloweb connections along major roadways in Lancaster include Belt Line Road, Houston School Road, Pleasant Run Road, Bear Creek Road, and SH 342 / Dallas Avenue (see page 64).

Design Standards

The following outlines a set of general guidelines that can be used in planning and implementing trails in the Parkway & Trails category.

- Where feasible and R.O.W. width is available, trails along roadways should be constructed as wide as possible to accommodate shared-use.

Recommended Trail Widths	
Shared Use Trail in Parkway	10' to 12' (typical)
Widened Sidewalk	10' minimum
Existing Sidewalk	Varies
Designated Veloweb Route	12' minimum

- New trails and existing widened sidewalks should be constructed with a minimum setback from the roadway back-of-curb. A 2' (minimum) to 6' (preferred) width is recommended between back-of-curb and edge of trail / sidewalk to serve as a buffer from adjacent roadway traffic and to provide a sense of safety to trail users.
- Installation of parkway enhancements including street trees, landscape plantings, pedestrian lighting, and other features may be added in these buffer zones where appropriate.
- Where shared-use trails or sidewalks cannot be located away from the roadway curb due to R.O.W. limitations, a colored / textured paving edge should be included in the trail surface to provide users with a visual cue to keep away from the roadway edge.
- Because shared-use trails are intended to accommodate a variety of trail users and often experience high traffic volumes, they should be constructed of durable materials. Highly durable trail materials that are common in the north Texas region include steel reinforced concrete, glass fiber reinforced concrete, and asphalt paving with prepared aggregate base.
- Comply with ADA / TAS Requirements including 5% maximum longitudinal slope + 2% maximum cross slope, and current AASHTO Guidelines including design speeds, minimum alignment radius requirements, minimum clear distance recommendations from edge of trail to nearest vertical obstruction, etc.

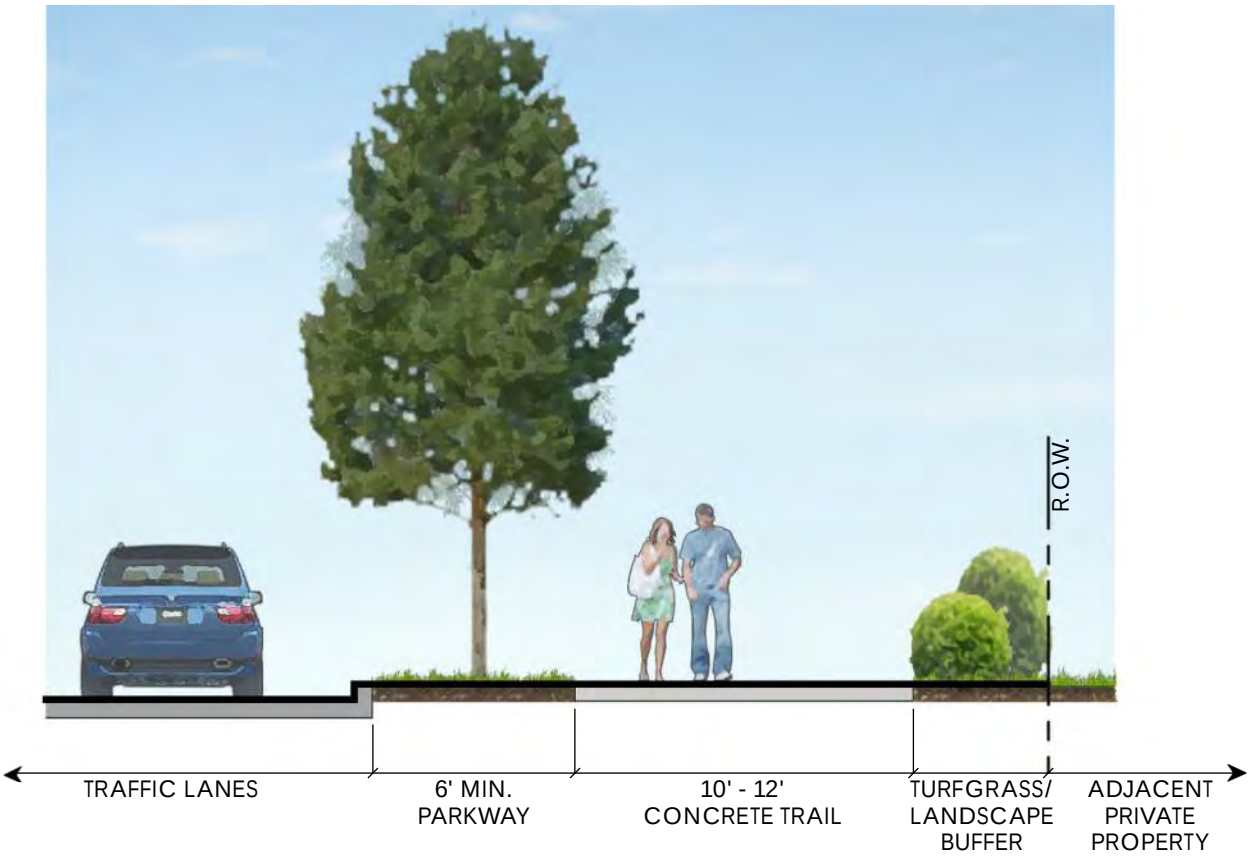


Figure A. Shared Use Trail in Parkway

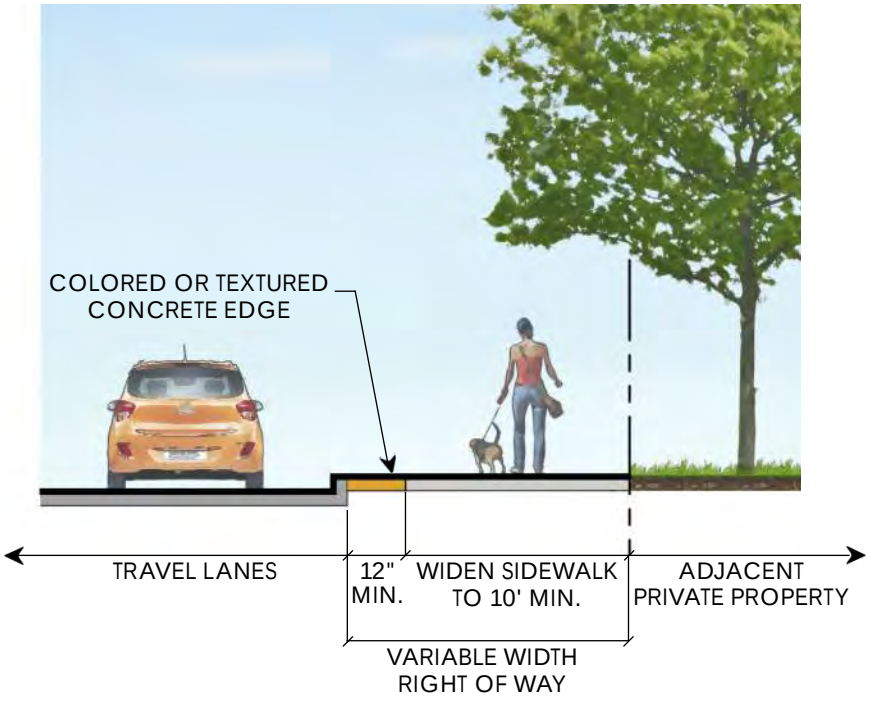


Figure B. Widened Sidewalk at Back of Curb

On-Street Connections

Overview

For the purpose of implementing this master plan, it is preferable to locate shared-use trails behind the roadway curb for safety and to reduce vehicle / pedestrian / cyclist points of conflict. However, on existing roadways where R.O.W. may be in short supply, Lancaster has an opportunity to offer on-street bicycle lanes in strategic locations. The on-street network in this plan was carefully located on streets that experience relatively lower traffic volumes and could serve as connectors for residents from their neighborhoods to schools, parks, shopping, and to key entry points into the shared-use trail network. These select bike lane locations include:

- *Wintergreen Road*
- *Telephone Road*
- *Ames Road*
- *Chapman Drive*
- *Donlee Road*
- *Veterans Memorial Drive*
- *Dewberry Boulevard*
- *Colgate Drive*
- *Arcady Lane*
- *Westridge Avenue*
- *Elm Street*
- *Redbud Lane*
- *State Avenue*
- *2nd Street*
- *Jefferson Street*

Painted Bicycle Lanes

Design Standards

The following outlines a set of general guidelines that can be used in planning & implementing trails in the On-Street Connections category.

- Where road width is available, bike lanes should be constructed with adequate separation / protection between the cyclist and vehicles.

Recommended Bike Lane Widths	
Streets without parallel parking	5' (minimum) to 6' (recommended)
Streets with parallel parking	7' wide (with 3'-4' striped buffer)

- Wherever possible, bike lanes should be located on street sections with smooth surfaces unobstructed by storm grate inlets, utility covers, etc. Where these obstructions exist, the bike lane width may need to be adjusted to allow bicyclists to ride around them.
- Ensure adequate drainage along full length of bike lanes to prevent ponding, accumulation of debris, or other hazardous obstacles.
- Bike lane pavement should be clearly marked to alert motorists of bicycle traffic movement and provide clear direction and wayfinding to bicyclists. General guidelines for pavement marking include but are not limited to:
  - At minimum, bikes lanes should be separated from vehicular traffic by a solid 6-inch white stripe.
  - Where street width will allow, a 3’ to 4’ wide diagonally striped buffer zone should be located between the bike lane and adjacent vehicle travel lane. Where on-street parallel parking is allowable, the buffer zone may be reduced to 3 feet, but bicycle lane width should increase as described above.
  - Optional traffic bumpers may be located at intervals along bike lane striping for an additional measure of separation between the bike lane and vehicle travel lane.
  - At intersections, bike lane striping should not be installed across pedestrian crosswalks and should not continue through intersections.
  - Optional green surface paint may be applied at intersections, key traffic conflict areas or along the full length of bike lanes where on-street parking is not allowed.
  - A city-wide standard of traffic signage meeting MUTCD standards should be incorporated in the installation of bike lanes.

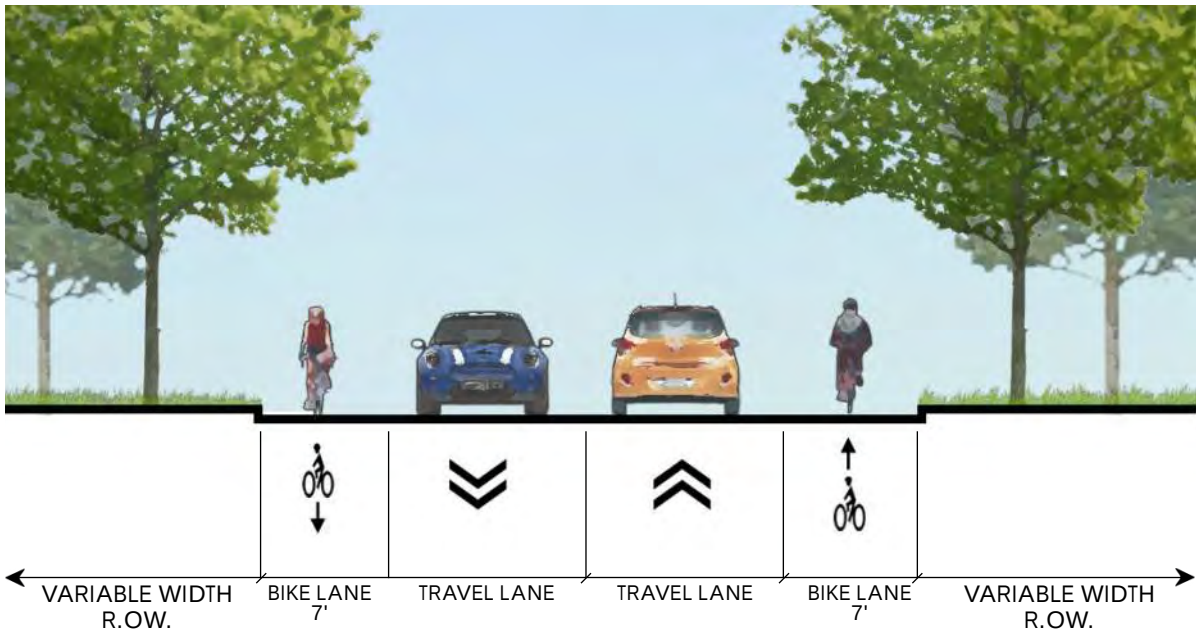


Figure C. Bike Lanes without On-Street Parking

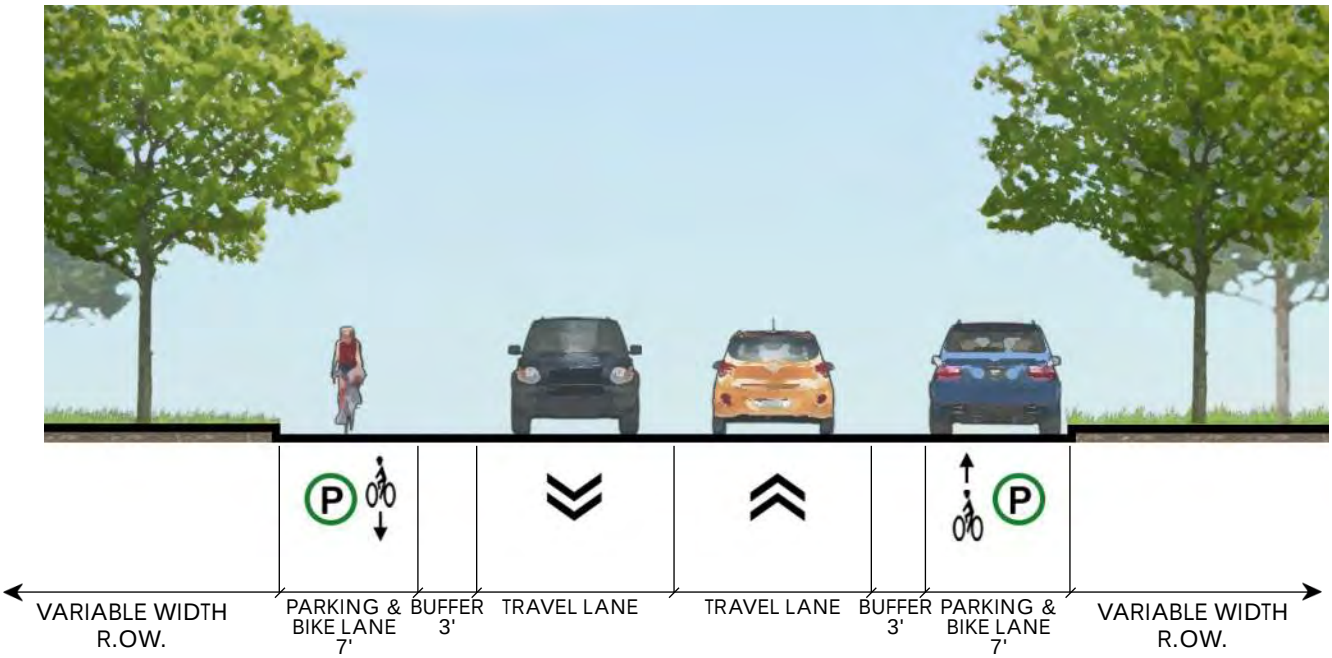


Figure D. Bike Lanes with On-Street Parking

Complete Streets

Overview

Where the trail network intersects with the Historic District and other high-volume shopping areas, it is recommended that "*Complete Streets*" principles are incorporated. Complete Streets are designed street sections that incorporate accommodations for multiple user groups including pedestrians, bicyclists, motorists, mass transit riders, and others. By incorporating design principles that respond to the local context and provide for needs of multiple users, Complete Streets become places where those using differing modes of transportation can easily, safely and comfortably share space along roadways.

As part of this master plan, two key areas are identified as locations for Complete Street design principles to be applied:

- Historic District at Main Street and SH 342 / Dallas Avenue
- Shopping / Retail hub at Bluegrove Road and Pleasant Run Road

Because of their differing densities and uses, each of these areas may look very different from each other in terms of design and layout when a Complete Street approach is applied. However, incorporation of the same design principles will apply.

- Sidewalks and shared-use trails for pedestrians
- Bicycle facilities
- Bus lanes
- Accessible mass transit stops and stations
- Frequently located, safe crossing opportunities
- Pedestrian signals
- Median refuge islands
- Convenient Parking
  (On & Off street, Bulb-outs, etc.)
- Narrower vehicle travel lanes for traffic calming
- Roundabouts where applicable
- Bridges / Crossings

Complete Streets Design

It is important to note that the City of Lancaster is also performing a new Streetscape Master Plan as recommended by their current Comprehensive Plan. This plan will outline specific streetscape treatments regarding city gateways, architectural identity, site furnishings, landscape enhancement, paving standards, lighting, etc. Future trail network development in Complete Street designated areas should coordinate with the guidelines proposed in the Streetscape Master Plan.

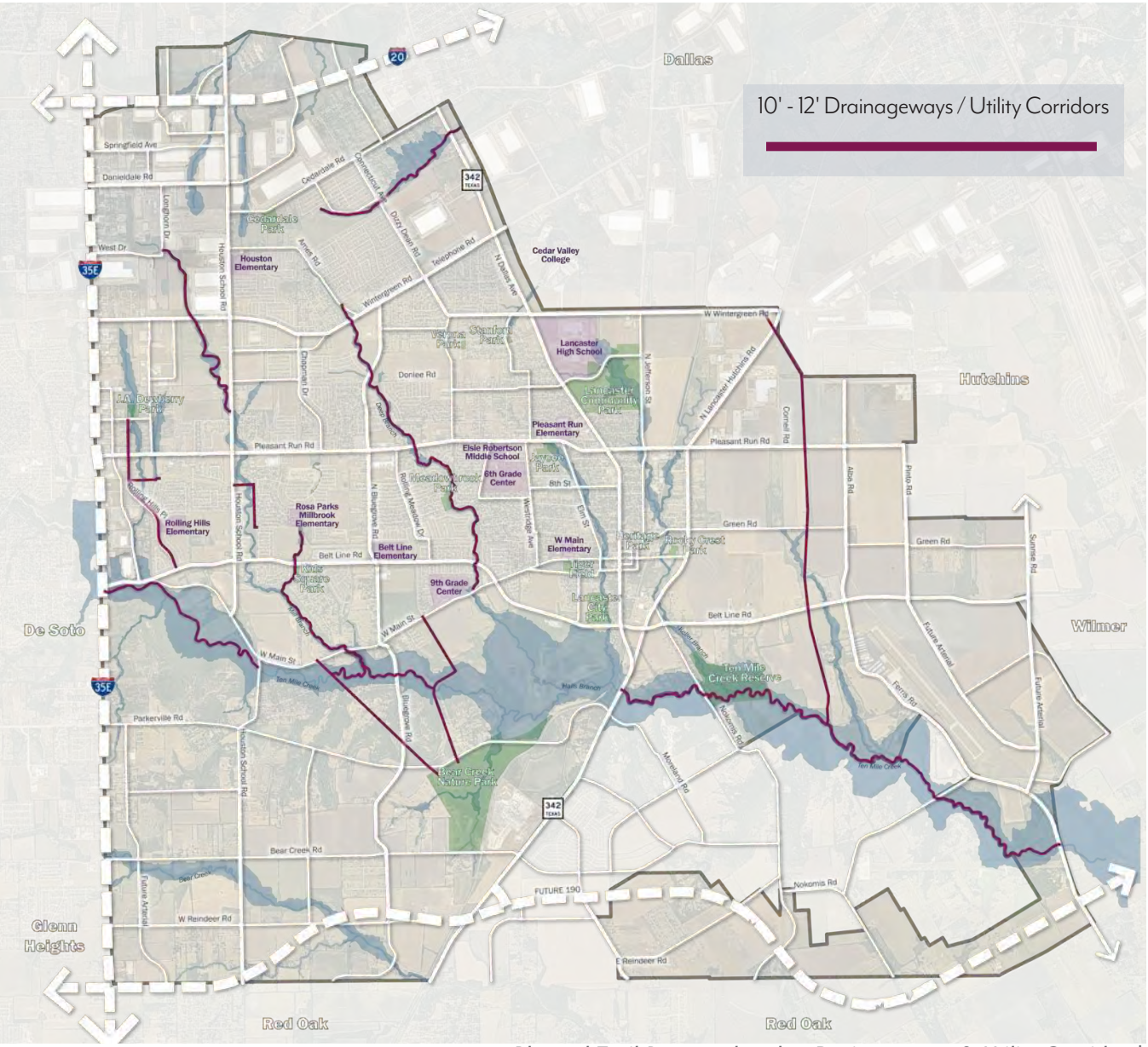
Design Standards

As discussed previously in this section, site specific Complete Streets design guidelines will vary based on context of the surrounding area. For purposes of trail design in these areas, the design standards outlined in this document for parkways, sidewalks, bike lanes and other trail types will apply.

Drainageways / Corridors

Often preserved simply for stormwater conveyance purposes, or set aside as undevelopable land prone to flooding, creeks and drainageways can also become thriving recreational resources when part of a planned trail network. The drainageway corridors in Lancaster consist primarily of the Ten Mile Creek riparian corridor and multiple tributary branches. Lancaster also has a number of overhead and underground utility easements that provide open corridors connecting key destinations throughout the city.

The graphic below highlights proposed routing for trails through drainageways, creeks and utility corridors. * *See page 65 for full Trails Master Plan graphic.*



*Planned Trail Routes related to Drainageways & Utility Corridors**

Creeks & Tributaries

Ten Mile Creek Greenbelt

One of the most valuable natural resources in the City of Lancaster is the beautiful Ten Mile Creek Greenbelt. With its lush vegetation and a wide floodplain largely free of development, this corridor provides several attractive opportunities for access through a connected trail system.

From the west, Ten Mile Creek flows from the City of DeSoto across the entire width of Lancaster and eventually to the Trinity River. While it is most desirable to locate a continuous trail along the entirety of the creek through Lancaster, several issues on the western side of SH 342 prevent this including private property ownership, adjacent parkway trails, and land uses incompatible with public trails. However, from IH-35 to Houston School Road, a new greenbelt trail segment can connect the neighboring Roy Orr Trail (planned extension) to the greenbelt in Lancaster. Trail users will be able to continue east along the Main Street parkway trail to Mill Branch, across Bluegrove Road, and south along the utility easement into Bear Creek Nature Park, the largest of two significant nature destinations located on Ten Mile Creek.

Ten Mile Creek

Bear Creek Nature Park offers an established network of pedestrian and equestrian trails, picnicking, nature play, wildlife viewing and outdoor learning opportunities. It is important to note that this key trail connection will not only serve as welcome green relief for Lancaster, but this access can also serve as an economic driver bringing ecotourism visitors to the city who will also visit local restaurants, shops and other businesses.

From Bear Creek Nature Park, trail users are linked by parkway trail to the main Ten Mile Creek corridor at SH 342, across the Ten Mile Creek Reserve to a major overhead electric utility corridor that runs north/south as part of the NCTCOG Veloweb. The trail continues this route east to the city limits.

Other Creeks & Tributaries

The northwest quadrant of Lancaster is where most of its citizens call home. A goal of Lancaster city leaders and this master plan is to contribute to increasing quality of life for these by providing access to natural resources and recreation opportunities. Connection to the Ten Mile Creek Greenbelt will help accomplish this. Several key drainageways and tributaries are recommended for north/south connectors between neighborhoods, parks, and Ten Mile Creek (including Mill Branch and Deep Branch). These fingers provide direct access from neighborhoods to natural areas and have potential to become destinations within themselves for green respite and safe trail access to the larger trail network.

Design Standards

The following outlines a set of general guidelines that can be used in planning & implementing trails in the creeks & tributaries category.

- Greenway or drainageway trails will likely see periodic flooding as well as heavy use by a variety of users and should be constructed of a durable material at an appropriate width.

	Width	Material
Hard Surface	12' to 14' preferred (10' minimum)	Reinforced Concrete (preferred surface for durability)
Soft Surface*	10' to 12' preferred (8' minimum)	Stabilized Decomposed Granite*
Nature Paths	6' to 8' preferred (6' minimum)	Compacted Earth or Mulch

** with binder agent and geogrid where applicable*

- Trails should be routed close enough to the creek for an enhanced user experience & visual interaction with water where appropriate, and away from sharp waterway bends or highly erosive creek bank areas.
- In heavily wooded areas, the trail corridor should be wide enough to include the width of the trail surface plus at least 10' to 15' of cleared understory brush on each side for visibility / sense of safety. The clear trail corridor should be large enough to allow vehicular access for ease of routine maintenance and emergency access. Accommodations may need to be provided for all-terrain utility vehicles, light duty maintenance trucks, emergency vehicles, brush trucks, etc., as required by the City of Lancaster.
- Comply with ADA / TAS Requirements including 5% maximum longitudinal slope + 2% maximum cross slope, and current AASHTO Guidelines including design speeds, minimum alignment radius requirements, minimum clear distance recommendations from edge of trail to nearest vertical obstruction, etc.

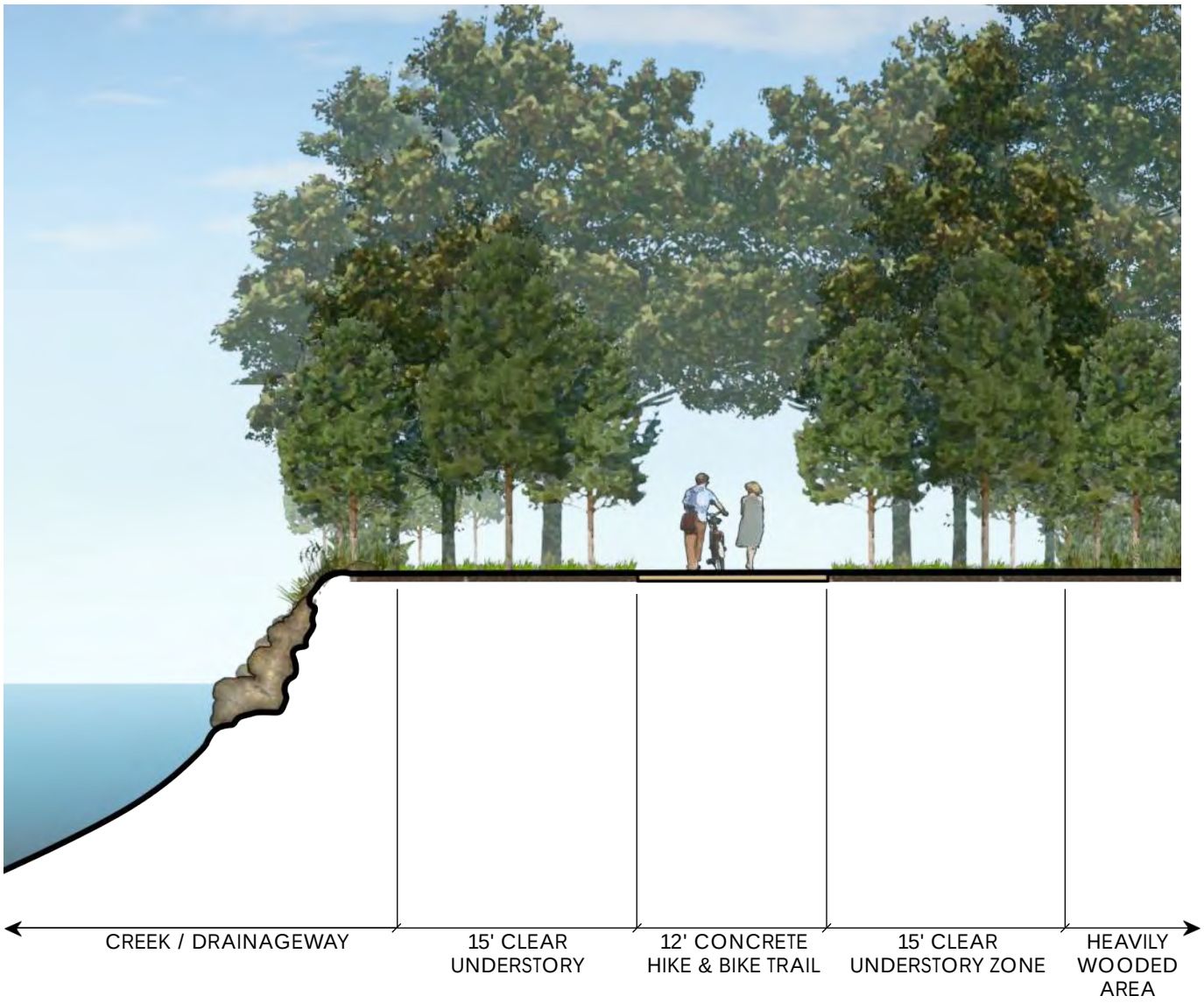


Figure E. Trail Through Heavily Wooded Creek Corridor

Utility Corridors

Overview

While creeks and drainageways in Lancaster provide a rich natural resource, various utility corridors can also play a key role in trail connections throughout the city. The city's trail system is already utilizing select overhead electric transmission corridors for key trail connections between neighborhoods, schools and parks.

On the west side of Lancaster, a priority focus for trail construction should be to complete utility corridor linkages from Rolling Hills Place to existing trails, from Houston School road to existing trails near Rosa Parks Millbrook Elementary School, and across Main Street into the Bear Creek Nature Park. A key utility R.O.W. connection opportunity also lies from Main Street south, across Bluegrove Road into the Bear Creek Nature Park. The Trinity River Authority (TRA) is also reworking underground utility easements in the Belt Line Road / Main Street / Rolling Hills Place area. As space allows, this utility corridor may provide opportunity for trail development.

On the east side of Lancaster, regionally connected veloweb trails can follow the extensive overhead transmission line corridor that runs north/south from the Ten Mile Creek Greenbelt to the northern Lancaster City Limits.

Design Standards

The following outlines a set of general guidelines that can be used in planning & implementing trails in the utility corridor category.

- Trail design should follow principles outlined in the current Hike and Bike Trail Guidelines as provided by Oncor, or other guidelines set forth by the appropriate utility owner, such as, the Trinity River Authority (TRA), etc. These principals typically include, but are not limited to:
  - One side of the transmission line R.O.W. must remain open throughout the trail to allow maintenance and operations access (typical 15' min width for vehicular access)
  - Maximum concrete trail width is 12 feet
  - Divided concrete trails are not allowed
  - Bollards will typically be required at road crossings
  - Minimize changes to existing grade, elevation and contours within the R.O.W.
  - Any excavation requires written consent from Oncor
  - Minor grade changes will be permitted to comply with ADA requirements
- Other restrictions regarding trail amenities (site furnishings, rest areas, landscaping, etc.) must adhere to guidelines set forth by the R.O.W. Owner. When in proximity to Oncor Transmission Towers, these will include height and other restrictions in the Structure Zone, Sag Zone, and Visual Interest Zone. When in proximity to underground utilities, these will include trail alignment over utility alignment, depth of trail, grading restrictions, etc.

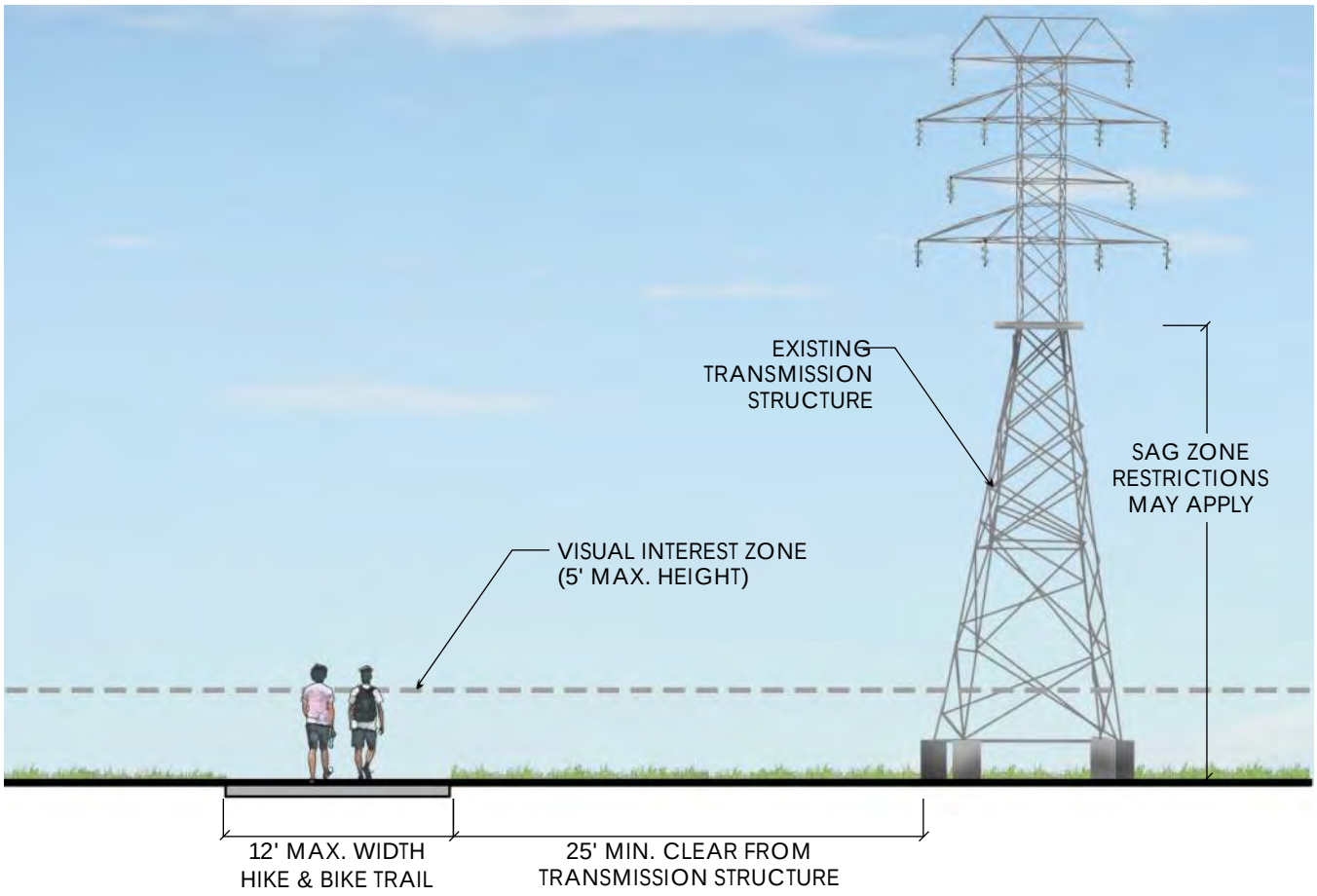
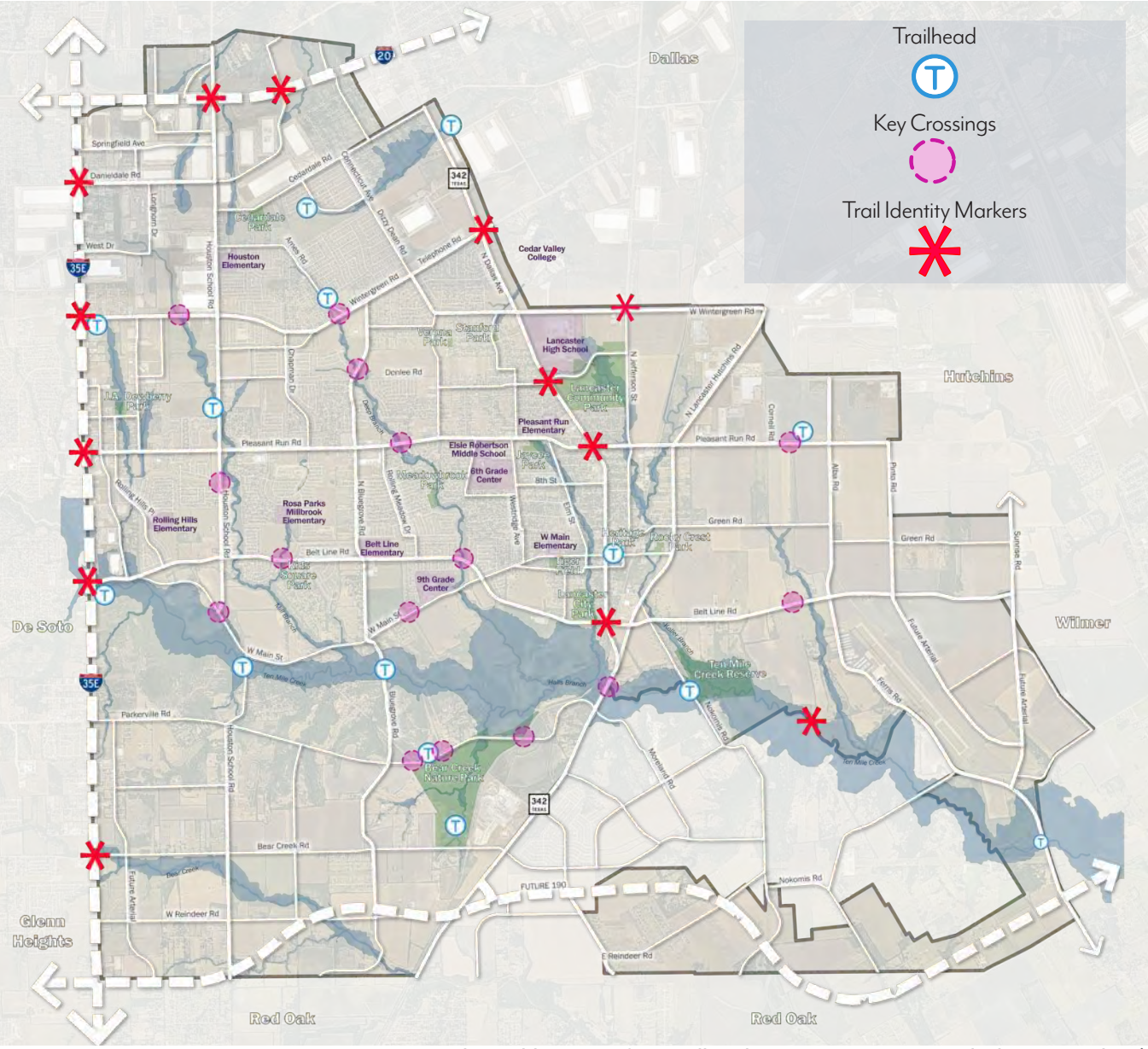


Figure F. Hike & Bike Trail in Utility Corridor with Transmission Lines

Entries / Identity / Crossings

Part of developing a successful trail network includes more than constructing miles of trail. Designed amenities including trailhead entry points, various crossings, and unified architectural branding can make for a memorable recreation experience that can add to an improved image for Lancaster citizens and visitors using the trail system.

The graphic below highlights proposed locations for Trailheads, Key Crossings, and Trail Identity Markers in the broader Lancaster trail network. * *See page 65 for full Trails Master Plan graphic.*



*Planned locations for Trailheads, Key Crossings & Trail Identity Markers**

Trailheads / Entries

Overview

Trailheads in the planned trail network will serve an important function as entry points into the broader trail system, rest stops, and wayfinding / orientation hubs for many trail users. Key trailhead locations include:

- *IH-35 @ Belt Line Road*
- *Ten Mile Creek @ Houston School Road*
- *Ten Mile Creek @ Bluegrove Road*
- *Bear Creek Nature Park*
- *IH-35 @ Wintergreen Road*
- *Creek / Drainageway @ Houston School Road*
- *Ames Road @ Wintergreen Road*
- *Creek / Drainageway @ Boardwalk Street*
- *SH 342 @ Creek / Drainageway*
- *Historic Downtown Square*
- *Ten Mile Creek Reserve*
- *Pleasant Run Road @ Oncor Utility Easement (Veloweb)*
- *Ten Mile Creek @ Ferris Road*

Trailhead with Wayfinding, Trail Identity Markers & Other Amenities

Design Standards

Primary trailheads provide arrival, access and orientation for users to various segments of the trail system while Secondary trailheads typically serve as wayfinding hubs and rest stops. Designed elements in both trailhead types should follow a consistent architectural theme that is adopted throughout the trail network of Lancaster.

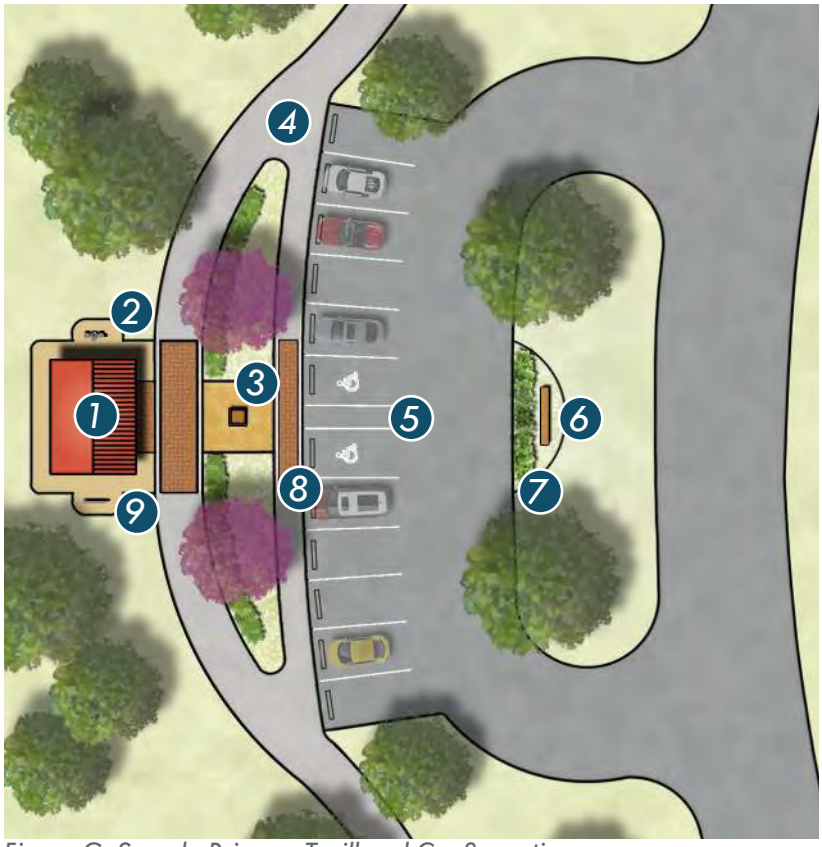
Primary trailheads are often larger in size, and may include a combination the following elements:

- Parking (10 spaces minimum)
- Shade pavilion(s)
- Restroom facilities
- Bicycle racks
- Drinking fountains
- Seating areas
- Information kiosks
- Wayfinding signage
- Trail Identity Markers
- Security Lighting
- Emergency Call Boxes
- Interpretive Signage
- Decorative Paving
- Public Art

Primary Trailhead with Public Art

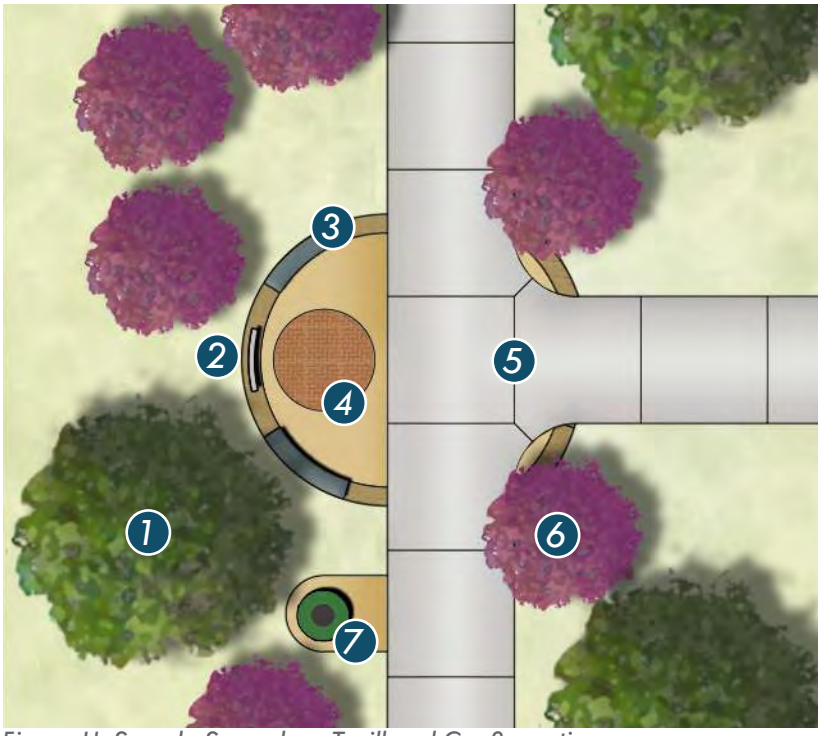
- Secondary trailheads are often smaller in size and may include a combination of the following elements:
  - Wayfinding Signage
  - Seating Areas
  - Litter Receptacles
  - Shade Trees

Secondary Trailhead with Wayfinding & Seating



1. Shade Pavilion with Seating
2. Drinking Fountain
3. Wayfinding Signage / Kiosk
4. Trail Access
5. Parking (Minimum 10 Spaces)
6. Trail System Identity Signage
7. Ornamental Plantings
8. Enhanced Paving
9. Bike Rack

Figure G. Sample Primary Trailhead Configuration



1. Shade Trees
2. Wayfinding Signage
3. Seating
4. Enhanced Paving
5. Trail Intersection
6. Ornamental Trees
7. Litter Receptacle

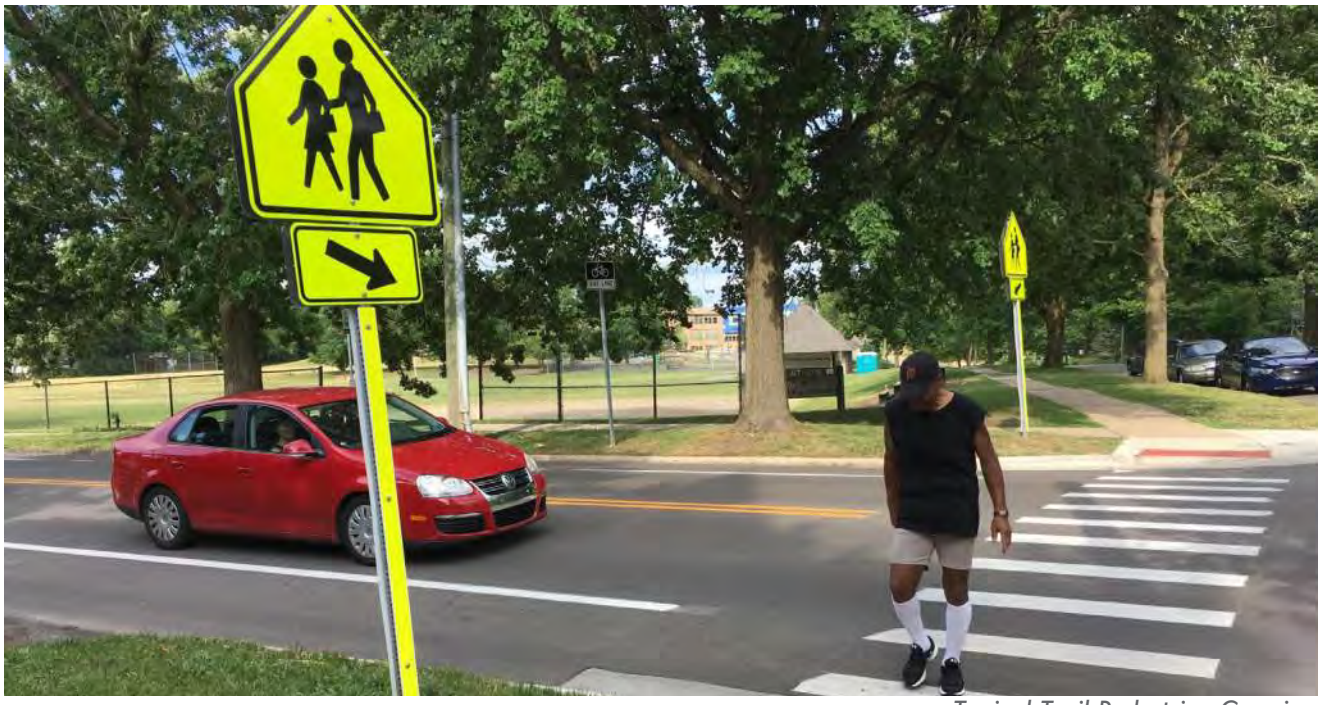
Figure H. Sample Secondary Trailhead Configuration

Key Crossings

Overview

As part of developing trails in Lancaster will come the issue of providing safe crossings where trails intersect with roadways or railroads. With much of the trail network planned for roadway-related development, many trail crossings will benefit from using existing traffic signals as safe crossing points. Where these do not occur, the installation of underbridge crossings are preferred to avoid conflicts between trail users and motorized vehicles. However, in multiple locations, these crossing conditions are not available, and at-grade crossing treatments (signalized or unsignalized) will be applied. Key crossing locations in the trail network include but are not limited to:

- *Houston School Road @ W. Main Street*
- *Belt Line Road @ Kids Square Park*
- *W. Main Street @ Pleasant Run Hike & Bike Trail*
- *W. Main Street @ Mill Branch*
- *Parkerville Road @ Utility Easements into Bear Creek Nature Park*
- *Parkerville Road @ Railroad*
- *Houston School Road @ Pleasant Run Hike & Bike Trail*
- *Deep Branch @ Wintergreen Road*
- *Deep Branch @ Pleasant Run Road*
- *Deep Branch @ Belt Line Road*
- *Deep Branch @ Bluegrove Road*
- *Creek / Drainageway @ Wintergreen Road*
- *SH 342 @ Ten Mile Creek*
- *Pleasant Run Road @ Oncor Utility Easement (Veloweb)*
- *Belt Line Road @ Oncor Utility Easement (Veloweb)*



Typical Trail Pedestrian Crossing

Design Standards

These recommendations include general design considerations for trail crossings at roadways and railroads in the planned network.

Underbridge Crossings

- These crossings are located where appropriate clearances, visibility and coordination with owning agencies (TxDOT, railroads, etc.) appear feasible. In the condition where height clearance of 8' to 10' can be achieved, underbridge crossings should be considered before at-grade crossings. Typical safety measures to be incorporated when designing underbridge crossings include:
  - Security lighting
  - Overhead clearance height signage
  - Speed limit signage
  - Guardrails (where edge drop-off exceeds 30 inches)

Underbridge Crossing

Unsignalized At-Grade Crossings

- These crossings occur at lower traffic volume crossings of the trail and roadway. At minimum, these crossings should include the following safety measures:
  - Painted Crosswalk Striping in Roadway
  - Barrier Free Ramps with Detectable Warning Strips
  - Traffic Signage alerting vehicles to presence of pedestrians

Where feasible, enhanced paving should be included in a "Z" configuration that encourages pedestrians to look both ways before crossing the street.

Pedestrian Crossing with "Z" Configuration

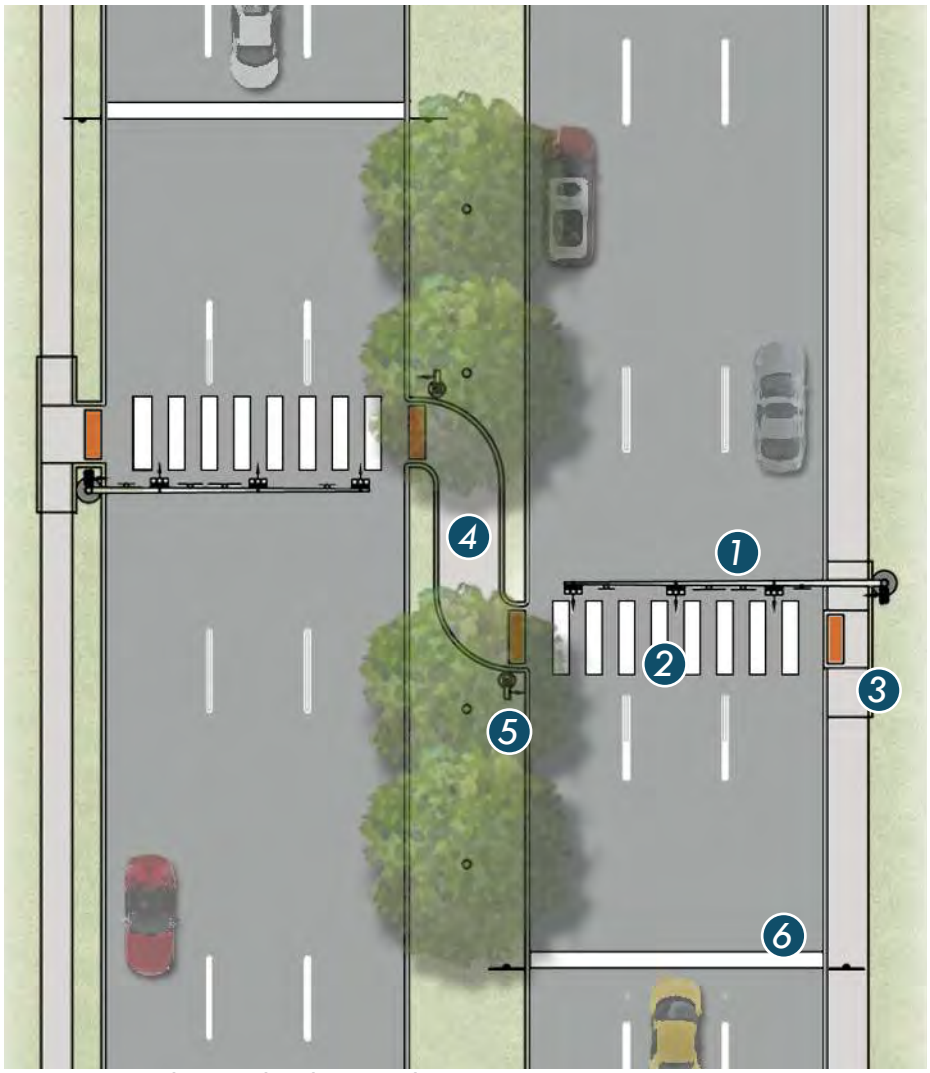
Signalized At-Grade Crossings

- These crossings occur at higher traffic volume crossings of the trail and roadway. Where possible, signalized crossings are recommended to be installed using HAWK signals (High-Intensity Activated Crosswalk), a pedestrian-operated traffic signal used to stop traffic at pedestrian crossings only when needed. Other common signalized crossing types include lighted traffic signage and crosswalks with lighted traffic buttons. Additional safety measures include:
  - Painted Crosswalk Markings
  - Barrier Free Ramps with Detectable Warning Strips
  - "Z" Crossing Configuration
  - Stop Bar Markings
  - Various Traffic Signage

Signalized Crossing - Lighted Sign

Signalized Crossing - Lighted Crosswalk

Signalized Crossing - HAWK Signal



1. HAWK Signal
2. Crosswalk Markings
3. Accessible Ramps
4. "Z" Configuration
5. Pedestrian Signal
6. Stop Bar Marking

Figure I. Sample Signalized At-Grade Crossing Configuration

Trail Identity Markers

Overview

These recommendations locate several key entry points for visitors into the planned trail network. Placed along the city limits and at regional trail connection points, these locations represent prime intersections / opportunities for Lancaster to brand itself and express its identity as a community to visitors. Key opportunities for locating Trail Identity Markers include:

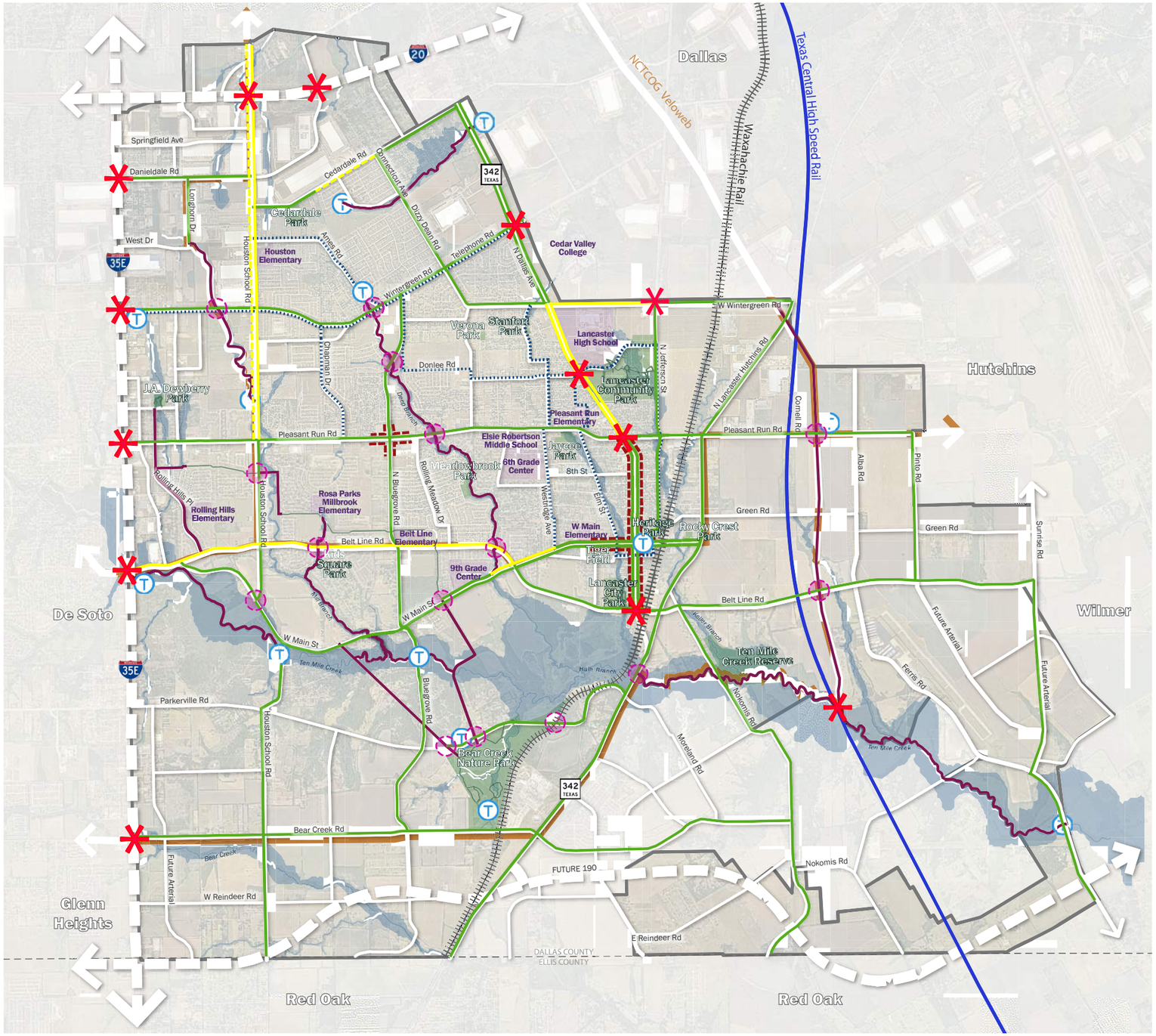
- *IH-35 @ Bear Creek Road*
- *IH-35 @ Belt Line Road*
- *IH-35 @ Pleasant Run Road*
- *IH-35 @ Wintergreen Road*
- *IH-35 @ Danieldale Road*
- *IH-20 @ Houston School Road*
- *IH-20 @ Danieldale Road*
- *SH 342 @ Telephone Road*
- *SH 342 @ Community Park*
- *SH 342 @ Pleasant Run Road*
- *SH 342 @ Belt Line Road*
- *W. Wintergreen Road @ N. Jefferson Street*
- *Ten Mile Creek @ Oncor Utility Easement (Veloweb)*

Monument Marker along Trail

Design Standards

City leaders have been pursuing a unified branding program for all of Lancaster. This effort is part of another study underway at this time for a Streetscape Master Plan. That effort is identifying architectural materials, monument signage, and gateways that will all work in tandem to brand the City. As part of this hierarchy, trail identity markers can become another component of these features and will follow the same architectural design.

Trail Gateway with City Identity



Final Trails Master Plan

When combined, the Road Network, Drainageways / Corridors, and Trailheads / Crossings / Identity layers create a citywide approach to interconnected trail development in Lancaster. The Final Trails Master Plan graphic illustrates the full hierarchy of off-street and off-street solutions with opportunities to establish a distinct image for the Lancaster Trail Network.

Legend

- Veloweb
- Existing Sidewalk to Remain
- Existing Sidewalk to be Upgraded (Wider)
- Existing Trails
- 10' - 12' Wide (Off-Street)
- On-Street Bike Lanes
- Complete Streets
- 10' - 12' Drainage / Utility Corridor
- Parks
- Schools
- Creeks / Floodplain
- Trailhead / Portal
- Trail Identity Markers
- Key Crossings

Other Recommendations

Trail User Safety & Signage

A highly active trail system will offer inviting health & wellness opportunities for all age groups in the community. As trail development continues in Lancaster, the trails will host an increasing volume of walkers, joggers, bicyclists, skaters, and others. With this in mind, safety of these users becomes a critical component in the planning of any trail network.

While trails which are used frequently can help provide a measure of safety, they can also present potential for inter-user conflicts. Posting trail etiquette signage at trailheads and strategic locations along the trail system can help curtail some of these conflicts before they occur. It will be important for the city to develop a list of trail rules that address issues custom to the Lancaster Trail Network.

Some examples of trail etiquette / rules include:

- *Be courteous to other trail users at all times;*
- *Keep to the right, except when passing;*
- *Always pass on the left, and give clear audible warning when passing slower traffic;*
- *Avoid congregating on the trail or walking more than two abreast;*
- *Bicyclists should keep speed under 15 mph at all times, and should slow down in congested conditions, reduced visibility, or other hazardous conditions; and*
- *Pet owners should keep dogs on a leash at all times and remove pet waste from the trail.*

In addition to trail etiquette and courtesy, is the topic of trail user security. To maximize speed for emergency responders to access victims of medical emergency, crime, or other conflict on trails, a growing number of metropolitan cities are adopting GPS-based, emergency locater systems along major trails. It is recommended that the City of Lancaster incorporate such a system when implementing this trail network plan. At a minimum, sign posts with a location identifier should be placed every 1/8 mile to 1/4 mile to ensure trail users are never far from an emergency marker. Each sign should be GPS located and integrated into the city's 911 system. Other security devices that may be implemented where appropriate include security lighting at trailheads or other high-volume areas, emergency call boxes, or surveillance cameras.

GPS-Based Emergency Location Sign

Just as user security is a critical component to any trail system, other items such as wayfinding, warning and regulatory signs are also important components. Wayfinding

signage should be incorporated at trailheads and key intersections throughout the trail system to provide users information and length of route segment. Warning signs should be used only where special regulations apply, at specific times only, or where hazards are not self-evident. The use of warning signs should be kept to a minimum so to not lose effectiveness of the message.

Wayfinding Sign

Trail Rest Stops

As project budgets allow, rest stops placed at regular intervals throughout the trail network will be an important amenity to a successful trail system.

On high traffic trails, rest stops should be placed at intervals of ⅓ mile to ½ mile. On trails with potentially lower volumes of use and more remote sections, rest stops may be placed at intervals of ¾ mile to 1 mile.

These stopping points may be comprised of a variety of amenities for the trail user. Each stop may include seating only (for example, 1 to 2 benches or a picnic table). They may also include a drinking fountain, trash receptacle, and/or interpretive and wayfinding signage, as appropriate to the character of each area.

Like the trail identity markers and intersections described in this plan, amenities included in each rest stop should be designed to appear as part of a family of architectural elements that are consistent throughout the trail system.

Trail Rest Stop

Implementation

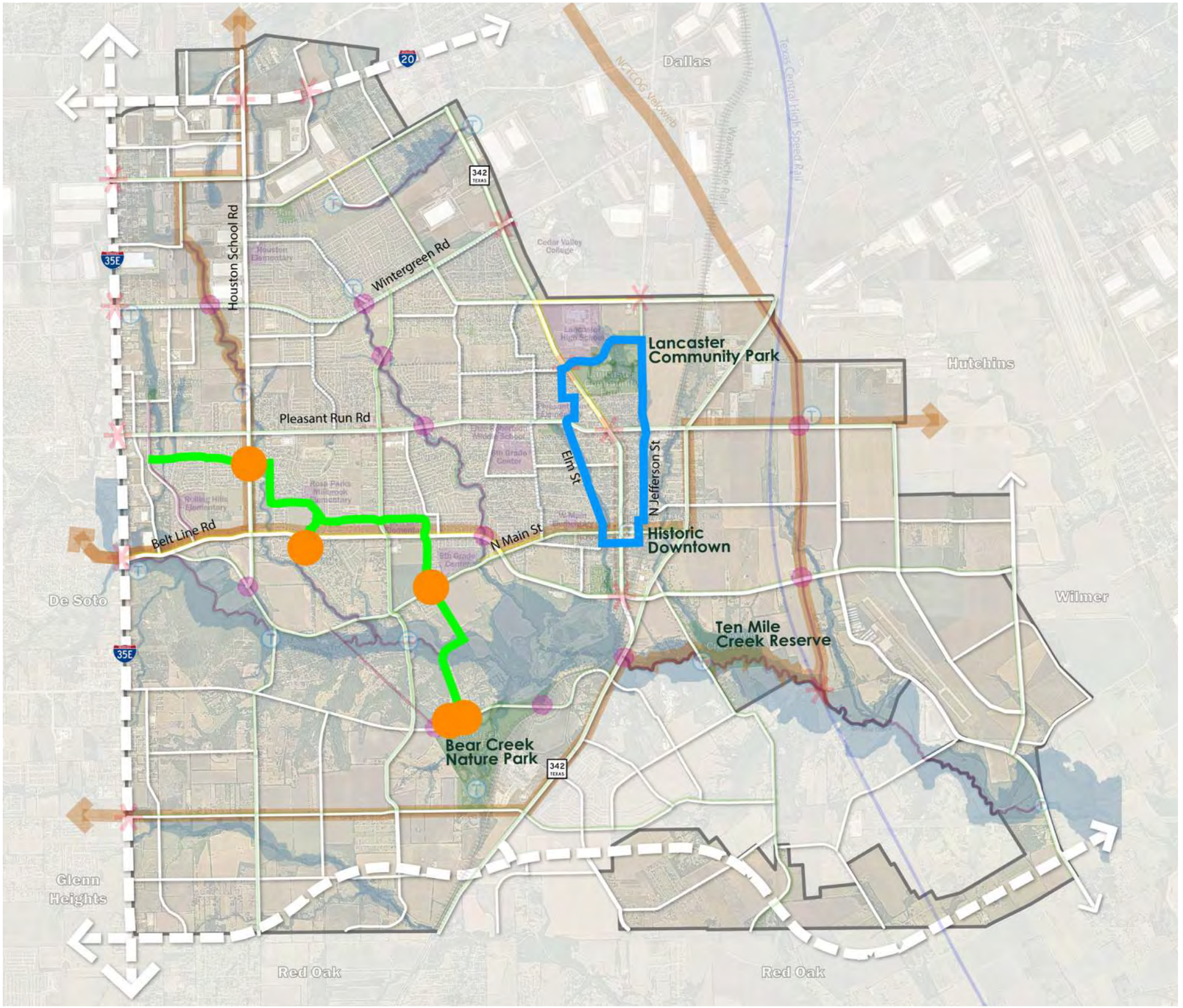
Implementation

A vital component of this plan is the outline of a phasing direction for City leaders to utilize in planning and budgeting for its implementation. The previous recommendations for each focus area have been prioritized into immediate, short-term, and future implementation goals. This section also summarizes probable costs of trail construction and identifies potential funding sources to supplement city capital dollars.

Immediate Priorities (1 to 2 years)

If implemented within the first year or two after master plan adoption, certain portions of the trail network would provide strategic connections that will greatly increase the impact the trail network has for Lancaster citizens and visitors. The following segments have been identified as strategic for immediate implementation. Associated trailheads, trail identity opportunities, and crossing locations have also been identified. See next page for a graphic illustrating the locations of these segments.

Location	Classification	Approx. Length
ROAD NETWORK		
On-Street Bike Lanes creating a loop around the Historic District including Elm Street, Veterans Memorial Parkway, N. Jefferson Street, 2nd Street, N. State Avenue, and Redbud Lane	Bike Lanes	22,000 lf
DRAINAGEWAYS / CORRIDORS		
Complete the Pleasant Run Trail segments from Rolling Hills Place east along the Oncor Utility Easement, connecting across Houston School Road to W. Main Street; includes new trail from existing Pleasant Run Trail south along Mill Branch to Belt Line Road	Drainage / Utility Corridor	5,400 lf
New trail continuing the existing Pleasant Run Hike & Bike Trail south at Belt Line Road along the Oncor Utility Easement to the Bear Creek Nature Park	Utility Corridor	6,500 lf
ENTRIES / IDENTITY / CROSSINGS		
New at-grade crossing at Pleasant Run Hike & Bike Trail & Houston School Road	Key Crossing	—
New at-grade crossing at Mill Branch & Belt Line Road	Key Crossing	—
New at-grade crossing at the existing Pleasant Run Hike & Bike Trail & W. Main Street	Key Crossing	—
New trailhead and at-grade crossing at the Oncor Utility Easement &Ten Mile Road (Bear Creek Nature Park)	Trailhead / Portal	—
OTHER IMMEDIATE PRIORITIES		
Site Furnishings or Rest Stop Amenities at various existing trail locations	—	—
Trail User Signage (Wayfinding, Emergency GPS Locations, etc.)	—	—
Soft Surface Trails / Nature paths at Bear Creek Nature Park or Ten Mile Creek Reserve	—	—



Immediate Priorities

Road Network Trails

Drainageways / Corridors

Trailheads / Crossings

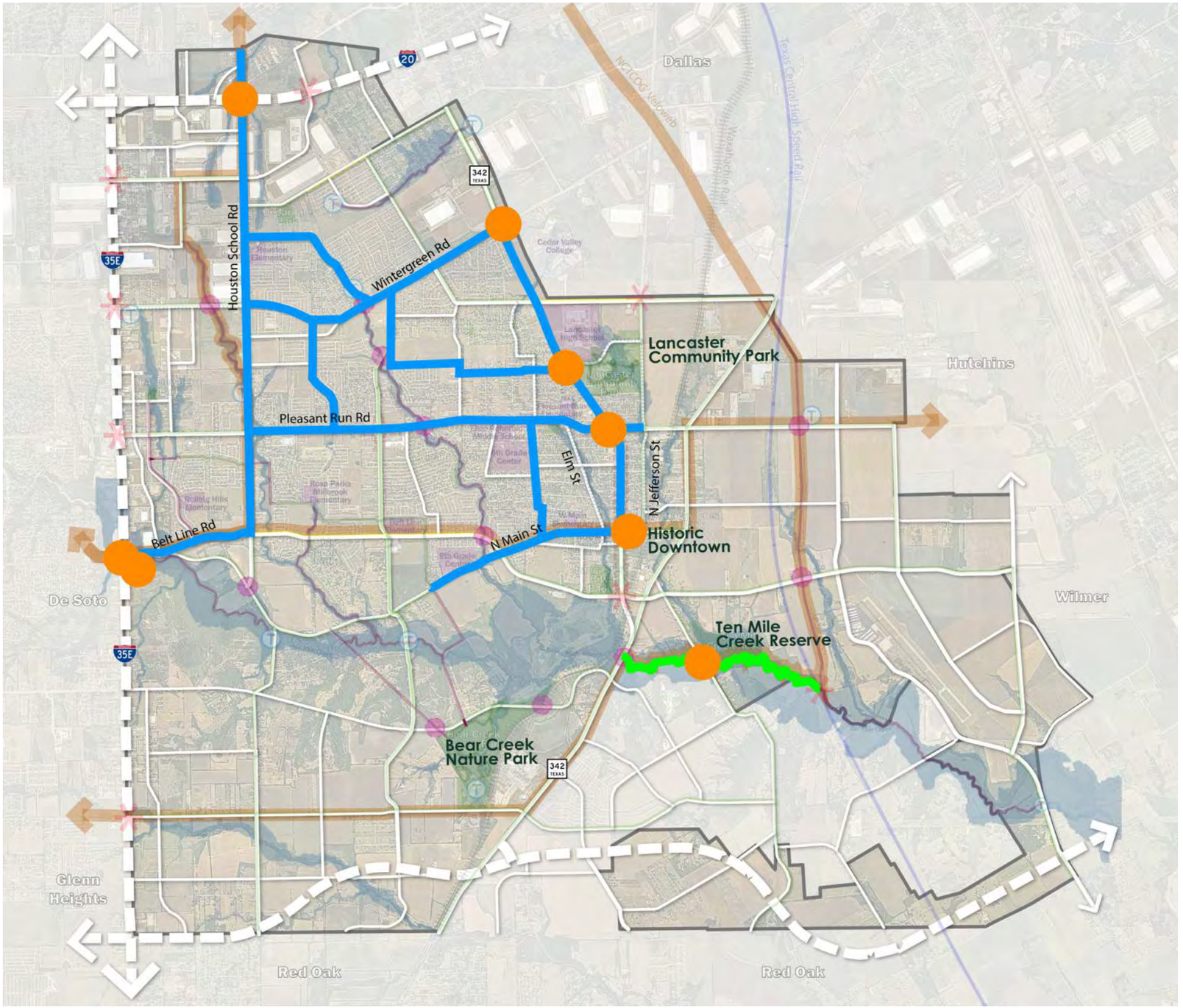
Immediate Priorities (1 to 2 years)

Focus Area	Classification	Locations	Estimated Length	Surface	Budget
ROAD NETWORK					
	Bike Lanes	• Along Elm Street from Redbud Lane to Main Street • Along Elm Street from Main Street to Pleasant Run • Along W. Park Place Drive from Pleasant Run to Carol Ave • Along Carol Ave from W. Park Place Drive to Arbor Lane • Along Arbor Lane from Carol Ave to N. Elm Street • Along N. Elm Street from Arbor Lane to Donlee Road • Along Donlee Road / Veterans Memorial Pkwy to N. Jefferson Street • Along N. Jefferson Street from Veterans Memorial Pkwy to Pleasant Run • Along N. Jefferson Street from Pleasant Run to 2nd Street • Along 2nd Street from N. Jefferson Street to State Ave • Along State Ave from 2nd Street to Redbud Lane • Along Redbud Lane from State Ave to Elm Street	• 450 lf • 4,800 lf • 300 lf • 850 lf • 500 lf • 1,200 lf • 3,850 lf • 3,600 lf • 3,800 lf • 200 lf • 950 lf • 1,500 lf	• Striping	• $ 8 / lf
DRAINAGEWAYS / CORRIDORS					
	Drainage / Utility Corridor	• Along Oncor Utility Easement from Rolling Hills Place to existing Pleasant Run Trail • Along Oncor Utility Easement from Houston School Rd to existing Pleasant Run Trail • Along Mill Branch from existing Pleasant Run Trail (near Rosa Parks-Millbrook Elementary School) to Belt Line Rd (near Kids Square Park) • Along Oncor Utility Easement from Main Street to Bear Creek Nature Park	• 1,300 lf • 2,650 lf • 1,450 lf • 6500 lf	• Concrete • Crushed Stone	• $ 6 / sq. ft. • $ 5 / sq. ft.
ENTRIES / IDENTITY / CROSSINGS					
	Key Crossings / Trailhead	• New at-grade crossing at the Oncor Utility Easement & Ten Mile Road • New trailhead at the Oncor Utility Easement & Ten Mile Road	• N/A	• Concrete • Enhanced Concrete • Unit Pavers	• $ 6 / sq. ft. • $ 8 - $ 10 / sq. ft. • $ 8 / sq. ft.
OTHER IMMEDIATE PRIORITIES					
	Site Furnishings / Signage	• TBD by Staff	• N/A	• N/A	• Varies

Short-Term Priorities (3 to 9 years)

Strategic trail segments in the short-term that provide connectivity between neighborhoods, parks, schools and other destinations are listed below. Associated trailheads, trail identity opportunities, and crossing locations have also been identified. See next page for a graphic illustrating the locations of these segments.

Location	Classification	Approx. Length
ROAD NETWORK		
On-Street Bike Lanes connecting neighborhoods to parkway trails including Westridge Avenue, Donlee Road, Chapman Drive, Wintergreen / Telephone Road, and Ames Road	Bike Lanes	37,000 lf
New parkway trails along SH 342 / Dallas Avenue from the Historic Downtown to Community Park	Parkway	8,600 lf
Widened sidewalks and new parkway trail along Houston School Road from Belt Line Road to the north city limits of Lancaster (City of Dallas)	Widened Sidewalk & Parkway	20,000 lf
Widened sidewalks along Belt Line Road from Houston School Road to the western city limits of Lancaster (City of DeSoto)	Widened Sidewalk	5,200 lf
New Parkway trails along Pleasant Run Road from Houston School Road to SH 342 / Dallas Avenue	Parkway	1,700 lf
Widened sidewalks and new parkway trails along SH 342 / Dallas Avenue from Community Park to Telephone Road	Sidewalk & Parkway	18,800 lf
New parkway trails along Telephone Road / Wintergreen Road from Houston School Road to SH 342 / Dallas Avenue	Parkway	11,500 lf
Widened sidewalks and new parkway trails along W. Main Street from the existing Pleasant Run Trail to the Historic Downtown	Widened Sidewalk & Parkway	16,550 lf
DRAINAGEWAYS / CORRIDORS		
New Trail along Ten Mile Creek from SH 342 to the Ten Mile Reserve, continuing east to the Oncor Utility Easement	Utility Corridor	12,000 lf
ENTRIES / IDENTITY / CROSSINGS		
New trailhead and underbridge crossing at Ten Mile Creek & Nokomis Road (Ten Mile Reserve)	Trailhead / Key Crossing	—
New trailhead at Historic Downtown	Trailhead / Portal	—
New Trail Identity Marker at SH 342 / Dallas Avenue and Pleasant Run Road	Trail Identity Marker	—
New Trail Identity Marker at SH 342 / Dallas Avenue and Veterans Memorial Parkway (Community Park))	Trail Identity Marker	—
New Trail Identity Marker at SH 342 / Dallas Avenue and Telephone Road	Trail Identity Marker	—
New Trail Identity Marker at IH-20 and Houston School Road	Trail Identity Marker	—



Short-Term Priorities

- Road Network Trails
- Drainageways / Corridors
- Trailheads / Crossings

Short-Term Priorities (3 to 9 years)

Focus Area	Classification	Locations	Estimated Length	Surface	Budget
ROAD NETWORK					
	Bike Lanes	• Along Melrose Lane from Main Street to Griffin Street & Westridge Ave • Along Westridge Ave from Griffin Street to Pleasant Run • Along Donlee Rd from Elm Street to Rogers Ave • Along Roger Ave from Donlee Rd to Donlee Rd • Along Donlee Rd from Rogers Ave to Sunny Meadow Rd • Along Sunny Meadow Rd to Wintergreen (future Bluegrove Rd alignment) • Along Chapman Drive from Wintergreen Rd to Pleasant Run Rd • Along Wintergreen Rd from Houston School Rd to Ames Rd • Along Wintergreen Rd from Ames Rd to SH 342 • Along Ames Rd from Houston School Rd to Wintergreen Rd	• 1,250 lf • 3,500 lf • 4,000 lf • 350 lf • 2,700 lf • 3,000 lf • 4,200 lf • 5,600 lf • 6,100 lf • 6,300 lf	• Striping	• $ 8 / lf
	Parkway Trails - Widened Sidewalks	• Along Houston School Road from Northern City Limits to IH–20 • Along Houston School Rd from IH-20 to Wintergreen Rd • Along Houston School Rd from Wintergreen Rd to Pleasant Run Rd • Along Belt Line Rd from Houston School Rd to IH-35 • Along SH 342 from Pleasant Run Rd to W. Wintergreen Rd (east side) • Along SH 342 from Pleasant Run Rd to W. Wintergreen Rd (west side) • Along Main Street from Westridge Ave to the 9th Grade Center Campus (north side)	• 2,050 lf • 8,500 lf • 5,250 lf • 5,200 lf • 6,100 lf • 6,000 lf • 2,750 lf	• Concrete	• $ 6 / sq. ft.
	Parkway Trails - New	• Along Houston School Rd from Pleasant Run R to Belt Line Rd • Along SH 342 from Main Street to Pleasant Run Rd (east side) - COMPLETE STREETS • Along SH 342 from Main Street to Pleasant Run Rd (west side) – COMPLETE STREETS • Along SH 342 from W. Wintergreen Rd to Telephone Rd (east side) • Along SH 342 from W. Wintergreen Rd to Telephone Rd (west side) • Along Wintergreen Rd / Telephone Rd from SH 342 to Houston School Rd • Along Pleasant Run Rd from Houston School Rd to SH 342 - PARTIAL COMPLETE STREETS • Along Pleasant Run Rd from SH 342 to N. Jefferson Street • Along Main Street from SH 342 to Westridge Ave (north side) • Along Main Street from the 9th Grade Center to Existing Pleasant Run Trail (north side) • Along Main Street from SH 342 to Belt Line Rd (south side) • Along Main Street from Belt Line Rd to Oncor Utility Easement (south side)	• 4,200 lf • 4,300 lf • 4,300 lf • 3,350 lf • 3,350 lf • 11,500 lf • 400 lf • 1,300 lf • 3,200 lf • 2,500 lf • 4,900 lf • 3,200 lf	• Concrete	• $ 6 / sq. ft.
DRAINAGEWAYS / CORRIDORS					
	Drainage / Utility Corridor	• Along Ten Mile Creek from SH 342 to Ten Mile Creek Reserve • Along Ten Mile Creek from Ten Mile Creek Reserve to Oncor Utility Easement	• 4,600 lf • 7,400 lf	• Concrete • Crushed Stone	• $ 6 / sq. ft. • $ 5 / sq. ft.
ENTRIES / IDENTITY / CROSSINGS					
	Key Crossings / Trailheads	• New Trailhead at Ten Mile Creek & Nokomis Rd (Ten Mile Creek Reserve) • New Underbridge Crossing at Ten Mile Creek & Nokomis Rd	• N/A	• Concrete • Enhanced Concrete • Unit Pavers	• $ 6 / sq. ft. • $ 8 - $ 10 / sq. ft. • $ 8 / sq. ft.

Future Priorities (10+ years)

Trail segment priorities beyond those listed as initial priorities may be planned as longer-term goals (10 or more years) for trail network development in Lancaster. The order of these future projects will depend on an assortment of variables related to overall development in the city including phasing and implementation of the thoroughfare plan, development patterns / community growth, and the availability of unforeseen funding sources such as grants, partnerships, donations, etc.

Cost of Implementation

The current estimated construction cost for a reinforced concrete trail is approximately $5-$6 per square foot (trail only), or around $316,000 to $380,000 per mile for a 12' wide trail. Depending on the level of recreational elements and amenities added (parking, bridges, rest areas, trailheads, etc.), cost of construction for a complete trail project can reach amounts around $1 million per mile or greater. The cost for constructing a soft surface trail can vary, but for this plan, current costs are estimated at around $4 to $5 per square foot (trail only), or around $170,000 to $215,000 per mile for an 8' wide trail.

When budgeting for trail improvements, other infrastructure expenditures must be considered in addition to baseline trail construction costs. At-grade or underbridge road crossings, creek bridge crossings, and varying levels of trail amenities must also be evaluated. As these costs can vary widely, they have not been estimated as part of this plan.

When budgeting for individual projects, it is recommended that certain soft costs be included in addition to estimated construction costs. They may include, but are not limited to:

a) *Construction Contingency* - Provides a budgetary allowance for incidental or unexpected costs that can arise during the course of construction. A typical allowance for contingency is in the range of 10% to 20% of construction cost.

b) *Owner's Costs* - These costs describe items incidental to construction that are typically the responsibility of the Owner, and can include but are not limited to land costs, geotechnical engineering, accessibility reviews, permitting, inspections, and others. A typical project allowance for Owner's Costs falls in the range of 1.5% to 2% of the total construction cost.

c) *Market Escalation Allowance* - This line item enables the Owner to prepare for potential inflation when developing an overall budget for a project that may not be constructed for a number of years. This allowance fluctuates directly with current market conditions and is difficult to predict. However, a typical placeholder of 3% to 5% of construction costs is widely accepted as a reasonable allowance.

Trail Under Construction

Potential Funding Sources

Once a budget number is reached, it is important for City leaders to consider what strategic funding sources might be available to help the city supplement the cost of trail network expansion. Some of the following sources could be part of the overall implementation plan.

Dallas County

- Open Space / Trail / Preserve Programs

North Central Texas Council of Governments (NCTCOG)

- Transportation Alternatives Set-Aside Program
- Regional Toll Revenue Program

State of Texas

- Texas Parks & Wildlife
  - Outdoor Recreation Grants
  - Recreational Trails Grants
- Texas Department of Transportation (TxDOT)
  - Safe Routes to School Program
  - Transportation Alternatives Program

Federal Transportation Funding Sources

- Highway Bridge Replacement and Rehabilitation Program (via TxDOT)
- Highway Safety Improvement Program (via TxDOT)
- National Highway System (via TxDOT)
- Surface Transportation Program (via TxDOT)
- Federal Transit Administration Programs
- Interstate Maintenance (through TxDOT)

Other Federally Funded Programs including Bicycle and Pedestrian Opportunities

- FWHA Pedestrian and Bicycle Funding Opportunities
- U.S. Department of Housing & Urban Development (CDBG)
- U.S. Army Corps of Engineers (USACE)
- U.S. Department of Interior (USDOI)
- National Park Service's Rivers, Trails & Conservation Assistance
- National Fish & Wildlife Resilient Communities

Miscellaneous Funding Sources

- Land Trusts
- Communities Foundation of Texas
- Meadows Foundation
- Corporate Grants, Partnerships & Sponsorships (REI, etc.)
- Foundation Directory Online
- Private Donations / Partnerships with Volunteer Groups

Conclusion

Conclusion

This Master Plan marks a far-reaching initiative by the City. With a focused commitment to connectivity, Lancaster has taken an important step in creating a city-wide network for trail connections. As various segments of trails are implemented, this overall system has the potential to be one of Lancaster's greatest assets within the community.

Having garnered support from City leaders and citizens, Lancaster is poised to plan and implement creative solutions of key trail segments. Part of this success will be based upon a coordinated effort with other City departments so as to maximize capital investments for public infrastructure. While this Master Plan provides guidance for a network of trails, site-specific alignments should be viewed as flexible to work with the objectives of residents, businesses, and developers. Lancaster City leaders can work towards providing safe, diverse transportation choices that will expand the recreational opportunities for its citizens and visitors alike.

References

Reference Documents

Urban Street Design Guide
National Association of City Transportation Officials (NACTO)

Urban Bikeway Design Guide, 2nd Edition
National Association of City Transportation Officials (NACTO)

Manual on Uniform Traffic Control Devices (MUTCD)
US Department of Transportation Federal Highway Administration

Guide for the Development of Bicycle Facilities
American Association of State Highway and Transportation Officials (AASHTO)

Mobility 2045 Plan
North Central Texas Council of Governments (NCTCOG)