



TRAILS MASTER PLAN

January 2023



Acknowledgments

The City of McKinney provided ongoing support to the Dunaway Team throughout the Master Planning process. A special thanks to the following individuals who participated:

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An aerial photograph of a lush green landscape. In the foreground and middle ground, there is a wide, open field with a mix of green grass and some taller, wild vegetation. A narrow, light-colored path or road winds through the field, curving from the left towards the center. Several small clusters of trees are scattered across the field. In the background, a dense, continuous forest of green trees covers a rising slope. The overall scene is bright and sunny, with clear shadows cast by the trees.

01

PLANNING PROCESS

Planning Process

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



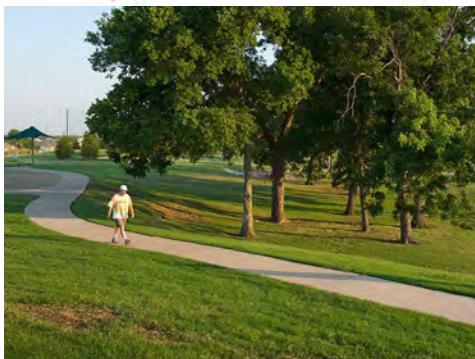
Analysis

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



Planning

- *Concept Trail Plan*
- *Public Engagement*
- *Implementation Strategies*
- *Preliminary Trail Master Plan*

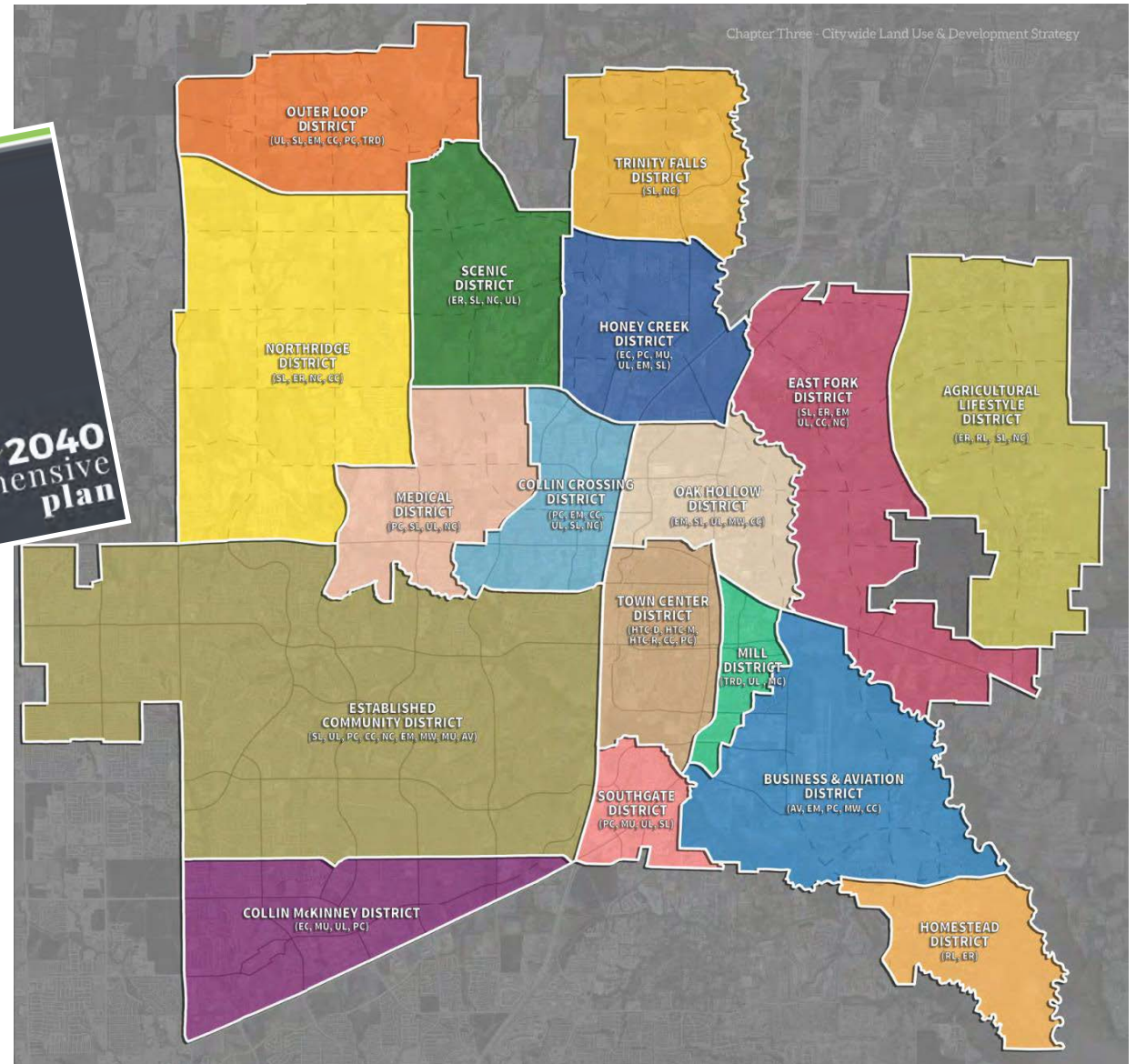


Recommendations

- *Roadside & Parkways*
- *Greenbelts & Parks*
- *On-Street Bike Strategy*
- *Crossings & Trailheads*
- *Portals & Branding*
- *Final Trail Master Plan*
- *Implementation*

ONE MCKINNEY 2040 COMPREHENSIVE PLAN

This Trails Master Plan has been prepared to support the vision for the One McKinney 2040 Comprehensive Plan (Comprehensive Plan). The Comprehensive Plan presents a long-range vision to guide development patterns throughout McKinney. As such, the Comprehensive Plan addresses the unique characteristics present within various sectors of the city and organizes them into distinct districts. This Trails Master Plan dovetails with the Comprehensive Plan through its greenbelt connections, new and renovated parks, natural areas, and recreation centers that support the theme of each district.



2023 PARKS, RECREATION & OPEN SPACE MASTER PLAN

To keep McKinney's park system as one of the city's cornerstones, Dunaway worked with the Parks Department and City Leaders in updating its Parks, Recreation and Open Space Master Plan. The Master Plan will help position the City to be in front of future development, and integrate its great parks system into the fabric of the City. Through balanced parks and open space development, a visionary network of parks, facilities, and natural resources, McKinney will continue to be a premier community in the North Texas region. The key goals of the Master Plan included:

- Identify, maintain and enhance the unique natural features found in and around the City
- Identify the priority needs for additional parks, park land, trails, and recreational facilities
- Evaluate the distribution of existing parks and recreational facilities
- Guide City staff and City leaders in determining appropriate funding levels
- Provide a Master Plan which is consistent with the funding and grant requirements for the Texas Parks and Wildlife Department
- Identify the need for indoor recreation and aquatics

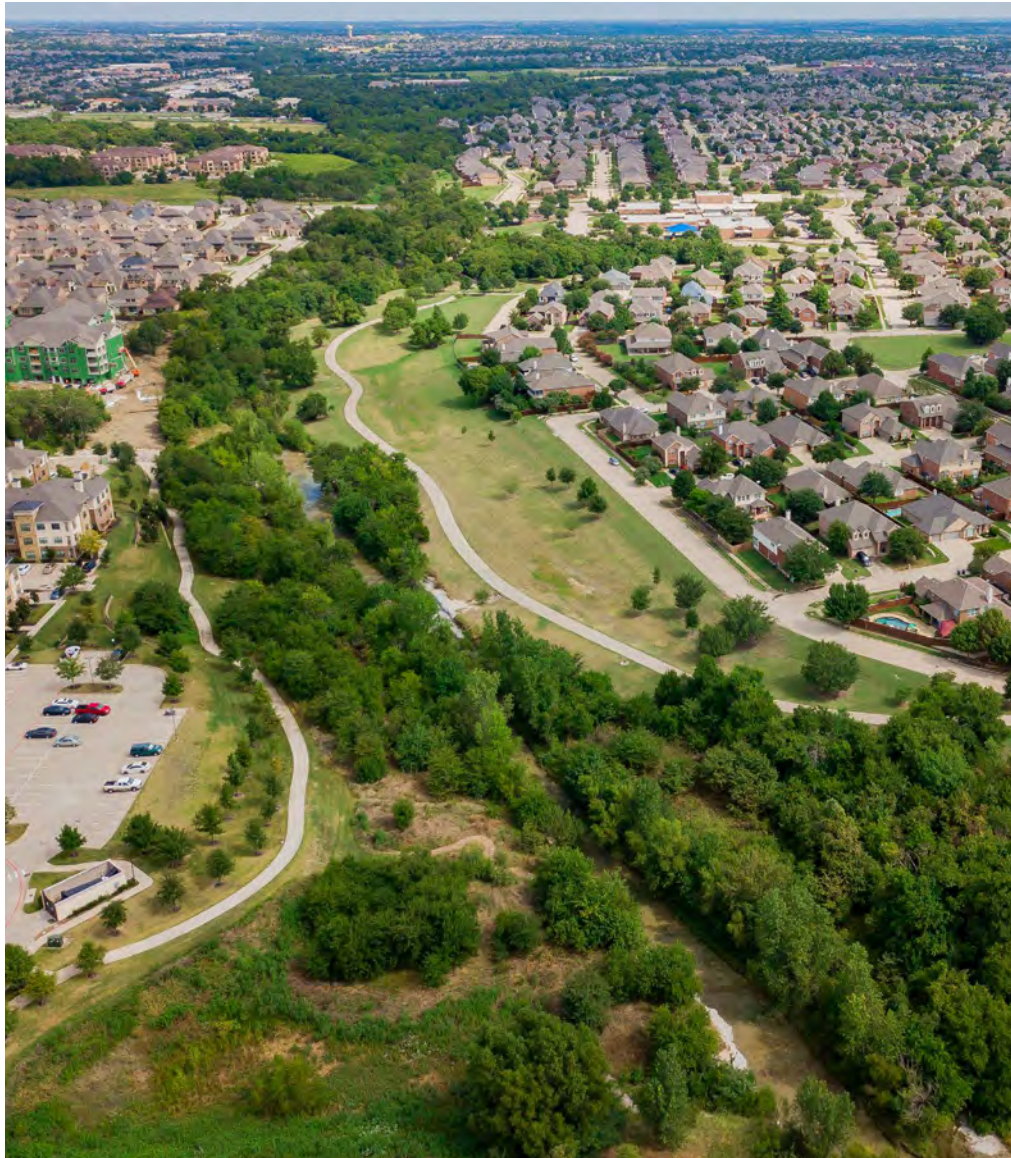


A photograph of a wooden boardwalk or path that curves through a dense, green forest. To the right of the path is a calm body of water, possibly a pond or stream, which reflects the surrounding trees and foliage. The scene is brightly lit, suggesting a sunny day. A large, white, stylized number '02' is overlaid on the right side of the image, with a thin green outline. The number '0' has a small white square in its center, and the number '2' is positioned to its right. The background of the number is the forest scene.

02

ANALYSIS

Analysis



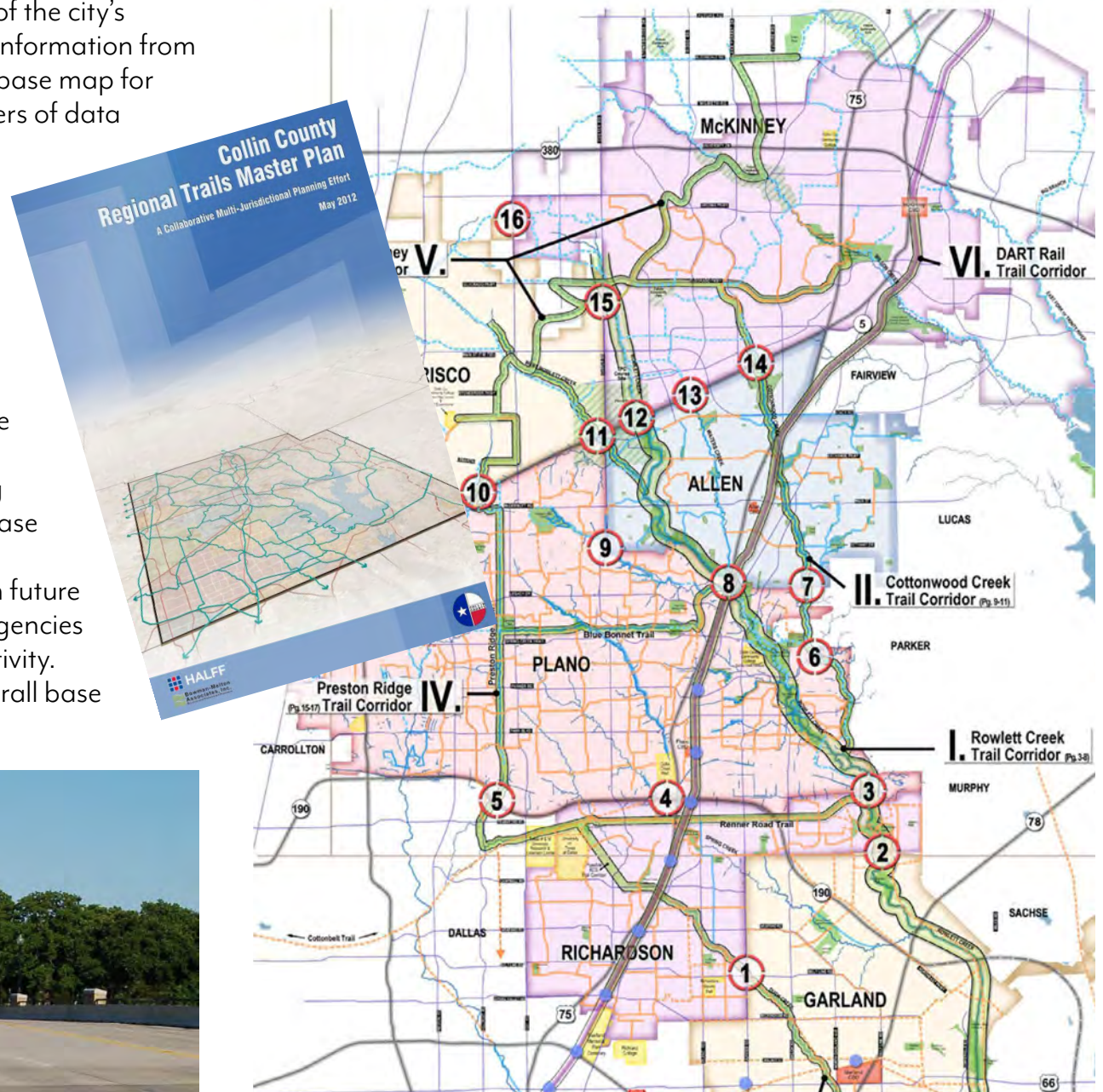
Dunaway's first phase was a critical step in building the foundation for planning the proposed trails plan. In this investigatory phase the Team evaluated the existing system, gathered existing and proposed data, analyzed local and regional planning documents, toured benchmark systems throughout North Texas, and provided initial thoughts on opportunities and constraints impacting future trail development. 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, parks & natural greenbelts, the Historic District, cultural and recreational destinations, and adjacent communities.

DATA GATHERING & INVENTORY

To keep McKinney's parks system as one of the city's cornerstones, 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), roadways, railroads, drainageways and creeks, floodplains, city limits, existing trails, and proposed developments. Trail Corridors identified on the Veloweb and Six Cities Trail Plan Maps were gathered to illustrate regional connectivity and context. Each piece of data was digitally compiled 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 this data, the team prepared an overall base map of existing conditions.



SITE REVIEW / EXISTING CONDITIONS

McKinney has over 78 miles of trails providing residents a variety of mobility and recreation options whether a simple walk to school, an after-dinner loop around the park, a leisurely ride along Wilson Creek, or challenging run on the mountain bike trails at Erwin Park.

Typical 8' to 12' wide concrete trails connect neighborhoods with parks, schools, and cultural destinations. Bike Boulevards designate on-street bike friendly routes increasing mobility choices for many residents.

The Wilson Creek Greenbelt is a hallmark of the McKinney system cutting diagonally across the city from NW to SE connecting multiple parks, schools, and cultural destinations. This six-mile trail corridor is the main trunk of the system with branches into the neighborhoods making this natural corridor accessible to all McKinney residents.

Erwin Park with over 10 miles of mountain bike trails are a regional draw for those seeking a more challenging recreation in a natural setting.

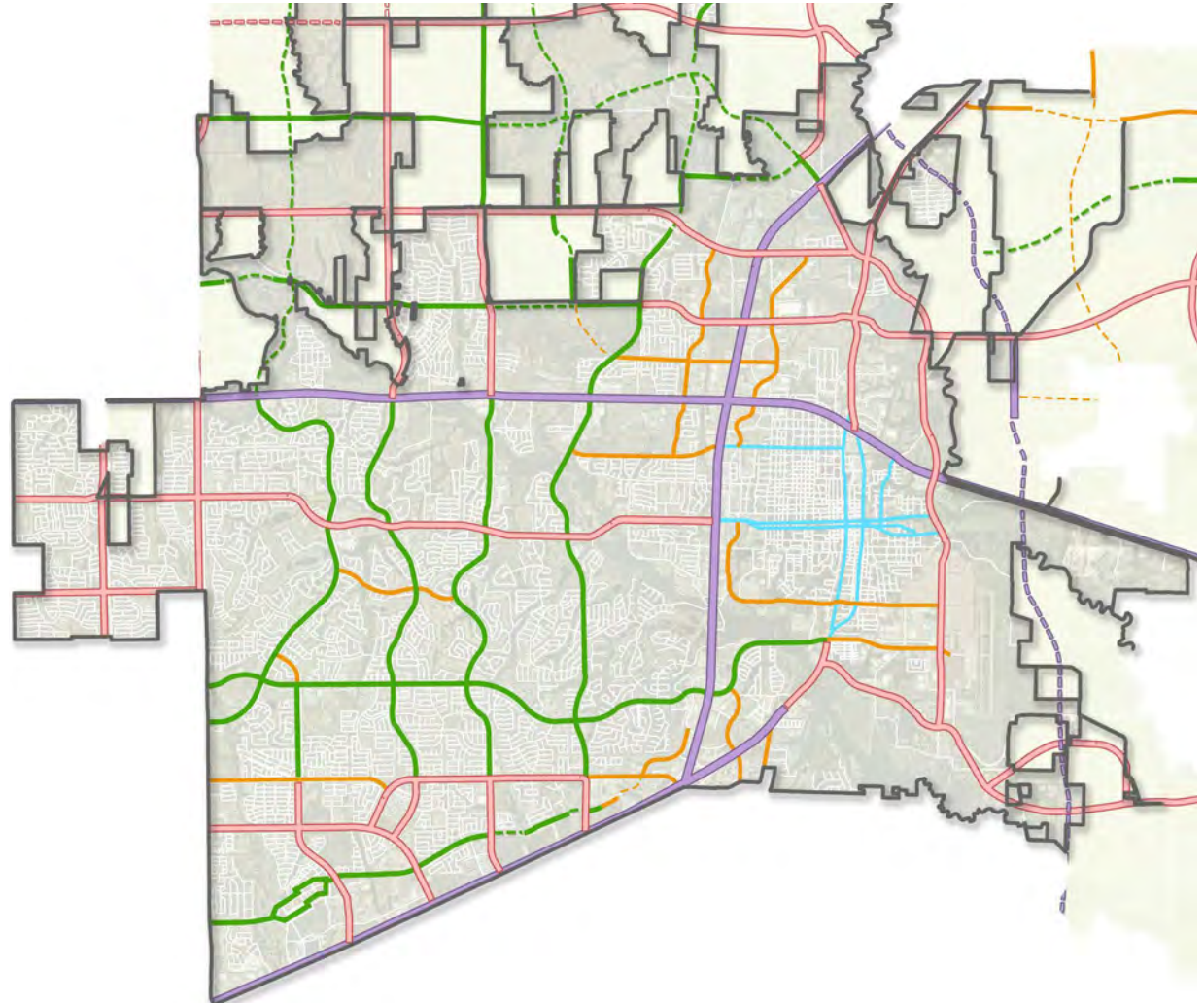


THOROUGHFARE PLAN

To work with the City's Thoroughfare Plan, the Dunaway team carefully reviewed the planned roadway network for McKinney. For purposes of this master plan, existing and proposed roadways were summarized into a hierarchy of (5) roadway types. These include the following (graphic below):

-  **Major Highway/Tollways:**
interstate highways
-  **Major Arterials:**
*divided or undivided arterials
(6 lanes)*
-  **Greenway Arterials:**
*divided or undivided arterials and
collectors (4 to 6 lanes)*
-  **Minor Arterials:**
*divided or undivided arterials and
collectors (3 to 4 lanes)*
-  **Town Thoroughfare:**
*divided or undivided arterials and
collectors (2 lanes)*

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



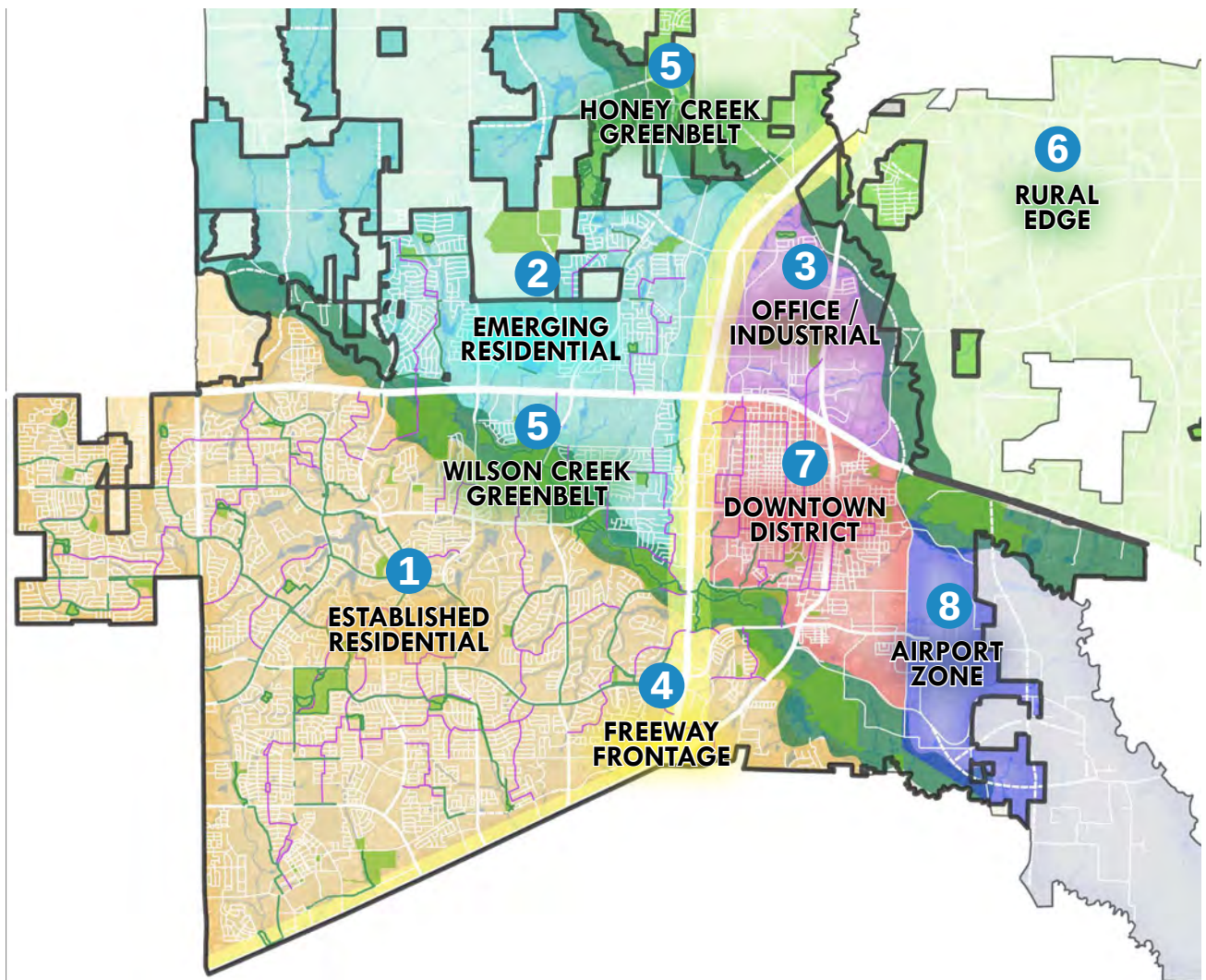
CHARACTER ZONES

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 (8) Character Zones (illustrated below) include:

- 1 *Established Residential*
- 2 *Emerging Residential*
- 3 *Office / Industrial*
- 4 *Freeway Frontage*
- 5 *Greenbelts*
- 6 *Rural Edge*
- 7 *Downtown District*
- 8 *Airport Zone*

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



Established Residential

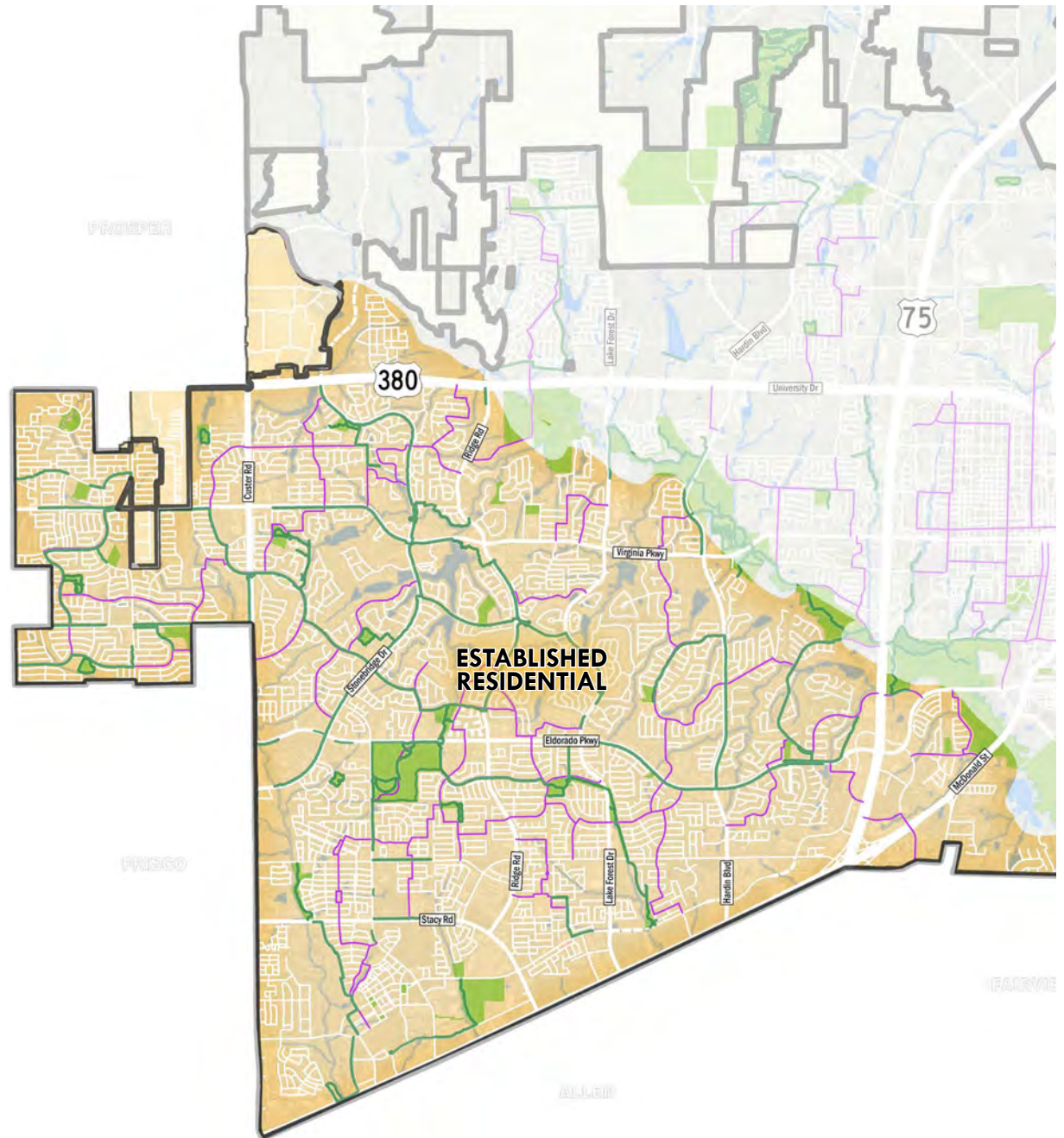
This Zone includes mature residential communities with interconnected trail network and bicycle boulevards linking neighborhoods to the parks and schools and other areas of interest, providing both recreational and transportation opportunities. With a well-connected network this zone generates a large number of recreational bike trips.

Key Opportunities

- Maintain and Extend Mature Network
- Expand South of Silverado Trail
 - Under Street Crossings
 - Drainageways
 - Craig Ranch / Urban Living
- Six Cities/Regional Trail Connections
- Wilson Creek Greenbelt Adjacency



Established Residential Trails in Stonebridge





Trails at Dr. Kenneth Cooper Park



Developer Constructed Trail at Globe Life



New Trail through Gabe Nesbitt



Existing Drainageways



Trail Around Golf Course at Craig Ranch



Terraced Abutment at Silverado

Emerging Residential

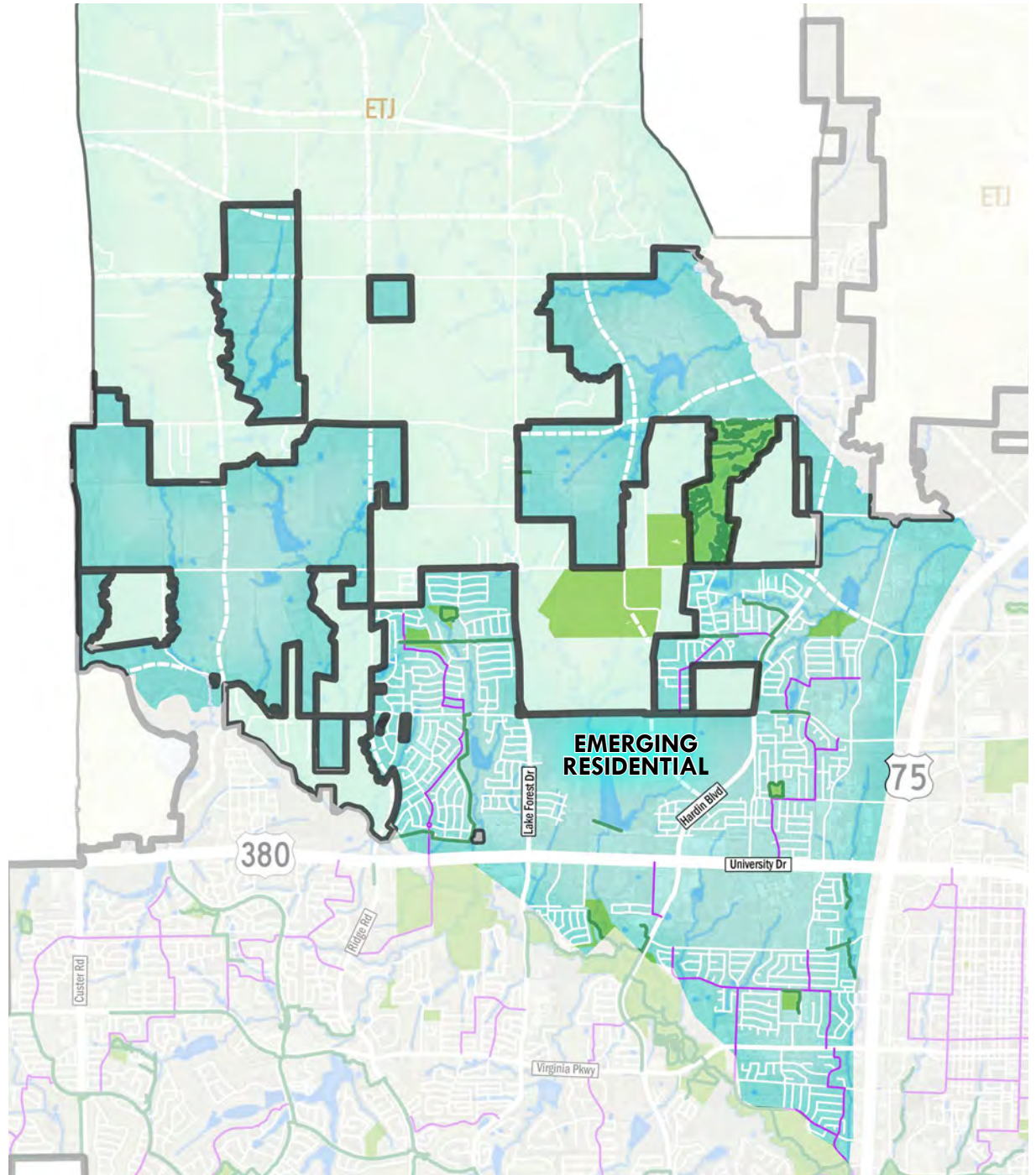
This is a fast-growing mix of new residential communities and commercial properties that have disconnected trail segments that mostly fall within existing roadway ROW's. This zone is situated between both Honey Creek and Wilson Creek. As residential growth continues in this zone so will the need for trails.

Key Opportunities

- Build trails with new development
- Utilize utility corridor for east-west connector
- Incorporate trail infrastructure into 380 bypass
- Establish internal trail loops in new parks and to school sites.



Existing Trail along Hardin





Wilmeth Road ROW



Erwin Park Trail Network



Existing Sidewalk along Hardin



Trail Elements



Neighborhood Streets with Wide ROW



Green Space Link from Bois d'arc to White

Office / Industrial

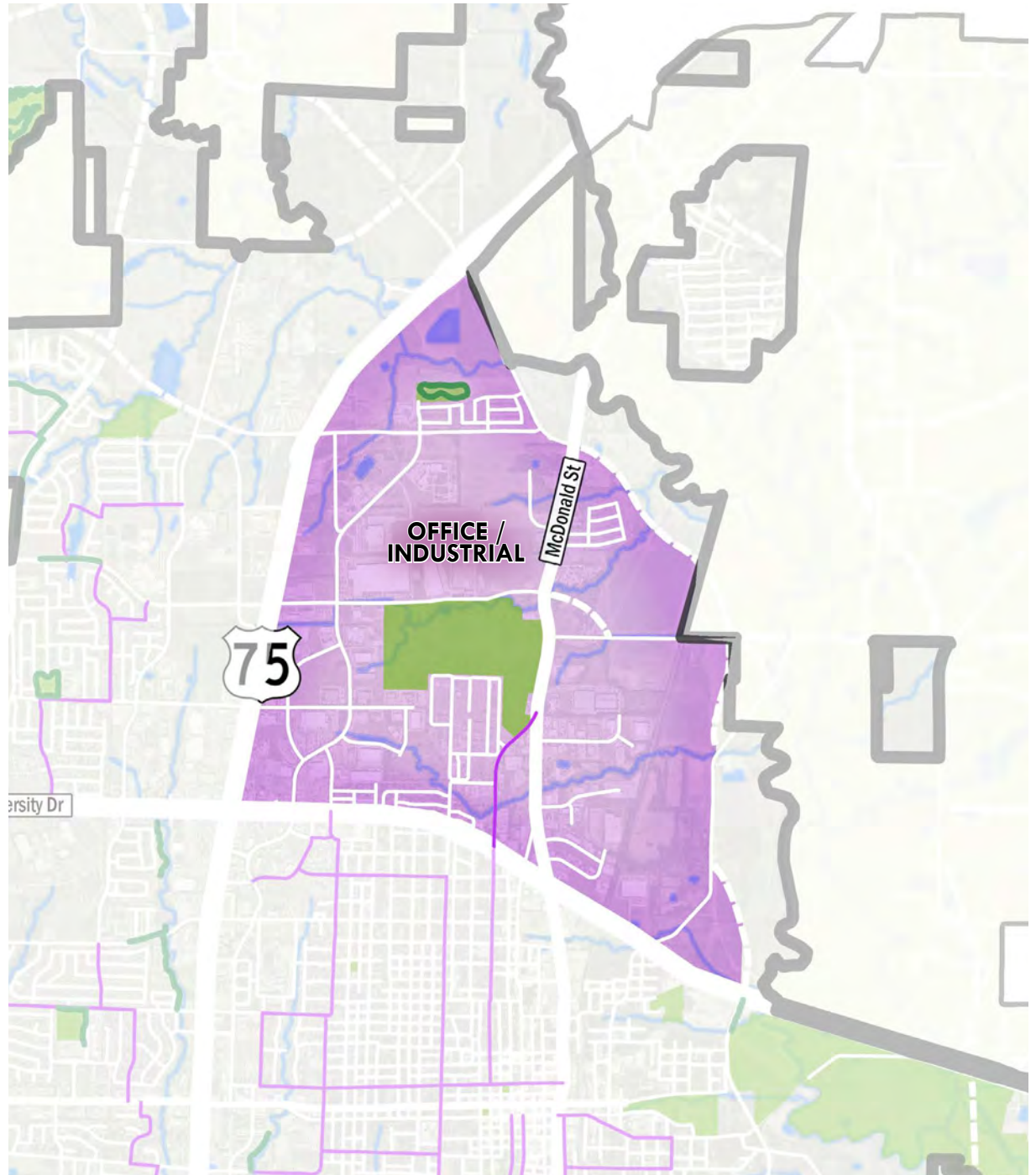
Industrial, office and campus type development patterns of the large properties in this zone are connected by the City's network of arterials and large thoroughfares network of roads with a broad network and large ROW.

Key Opportunities

- Large ROW
- Connect existing segments
- Honey Creek Greenbelt Adjacency



Office / Industrial





Wilmeth Road Westbound



Sidewalk at Redbud Road



Sidewalk Segment on McDonald Road



Wide ROW along McDonald Road

Greenbelts

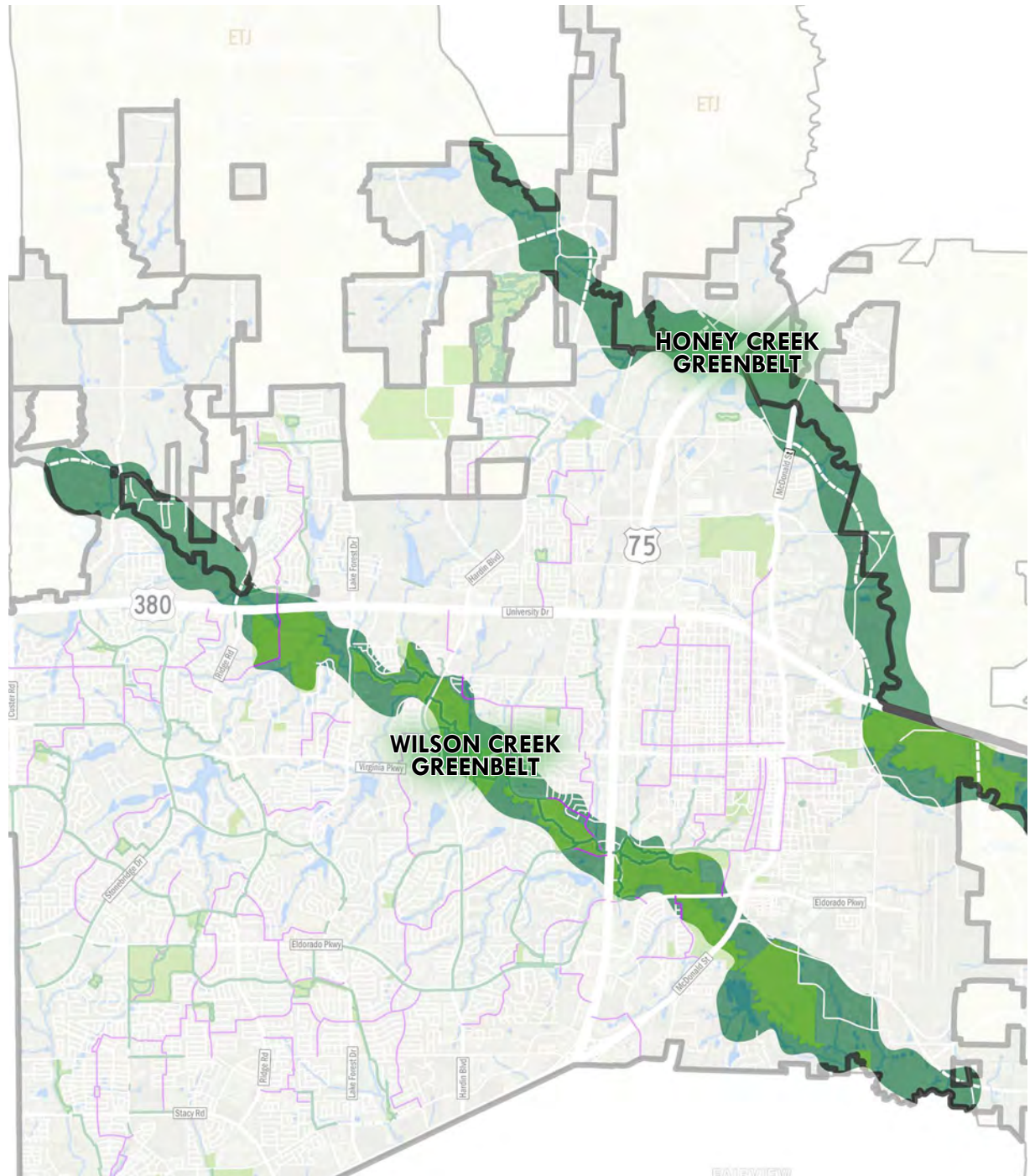
This zone represents the major greenways along Wilson Creek in Central McKinney and Honey Creek in North McKinney. These major greenbelts act as an icon that holds a majority of McKinney's existing parks and trail system.

Key Opportunities

- Development Pockets
 - Strategic Implementation with New Development
 - East / West Connection Follows Thoroughfare Development
 - Greenbelt Adjacency
- Destination Park (Erwin)
 - Variety of Trail Types internal to Park
 - Connect Destination Park to Greenbelt
- Crossings & Connections
 - Hwy 380 AT Grade
 - US 75 Under Bridge
 - Utilize Arterial Extensions



Al Ruschhaupt Soccer Complex





Trails from Towne Lake



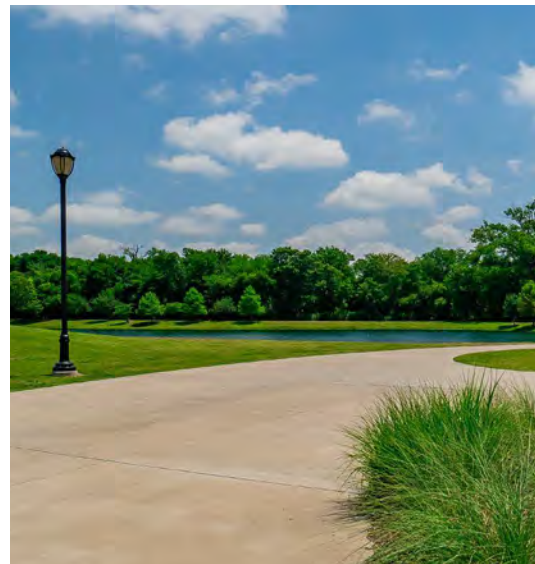
Nature Trail at McKinney Greens



Eldorado Bridge at Wilson Creek



Service Access through Bonnie Wenk



Bonnie Wenk Park



Sidewalk Segment on McDonald Road

Downtown District

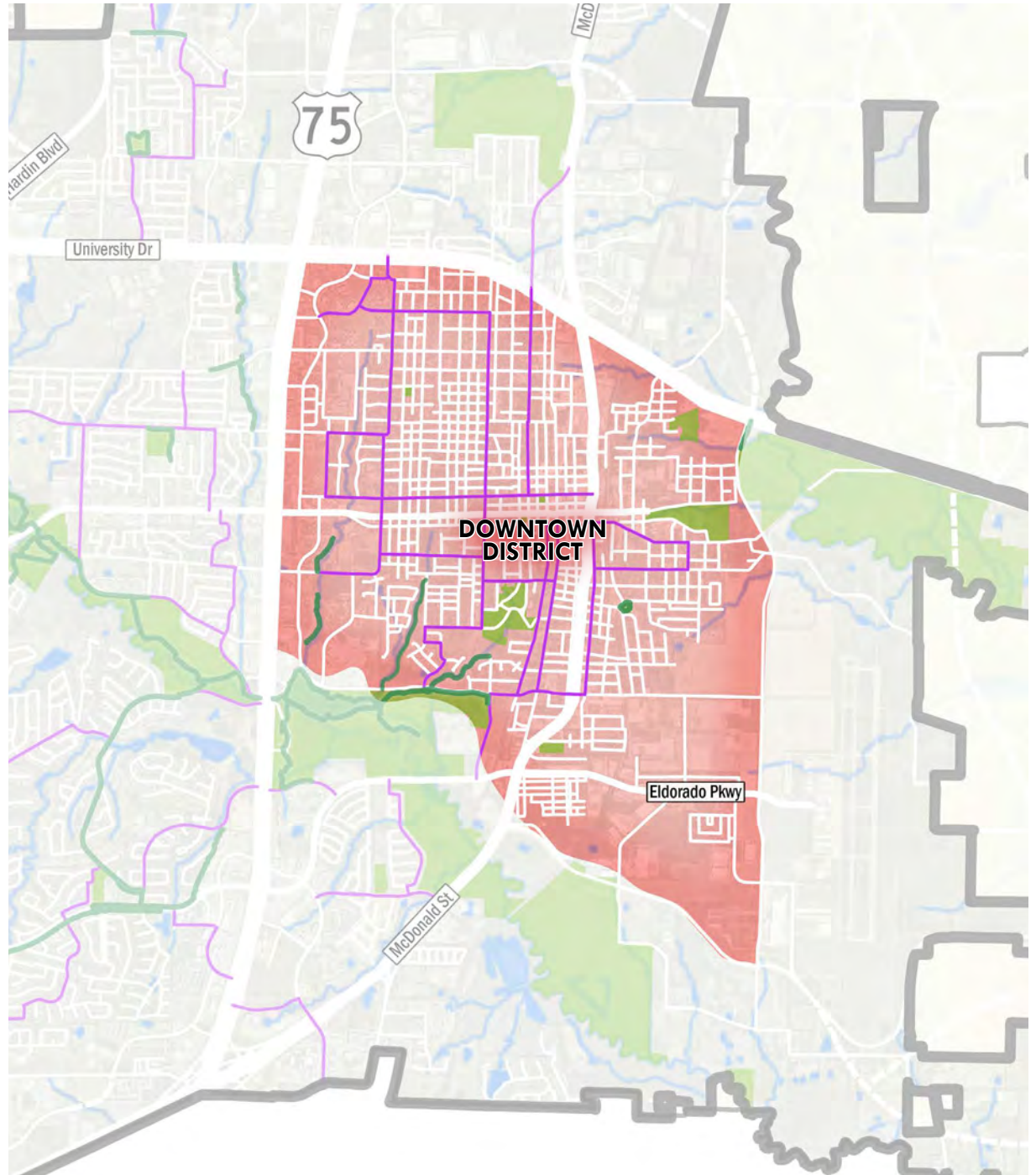
The courthouse, downtown businesses and older residential neighborhoods make this zone the cultural heart of the community. This district includes the traditional town layout with a street grid, sidewalks and neighborhood residences.

Key Opportunities

- Cultural Trails (tourism)
- Greenbelt trail connections
- On-Street infrastructure (striping)



Sharrows on Kentucky Street





Trail from Neighborhood to Towne Lake



Finch Park Trail



Wilson Creek Parkway from Towne Lake



Bike Racks at Glenn Mitchell Memorial Park



Wide Sidewalks



Transmission Lines along Wilson Creek Parkways

Airport Zone

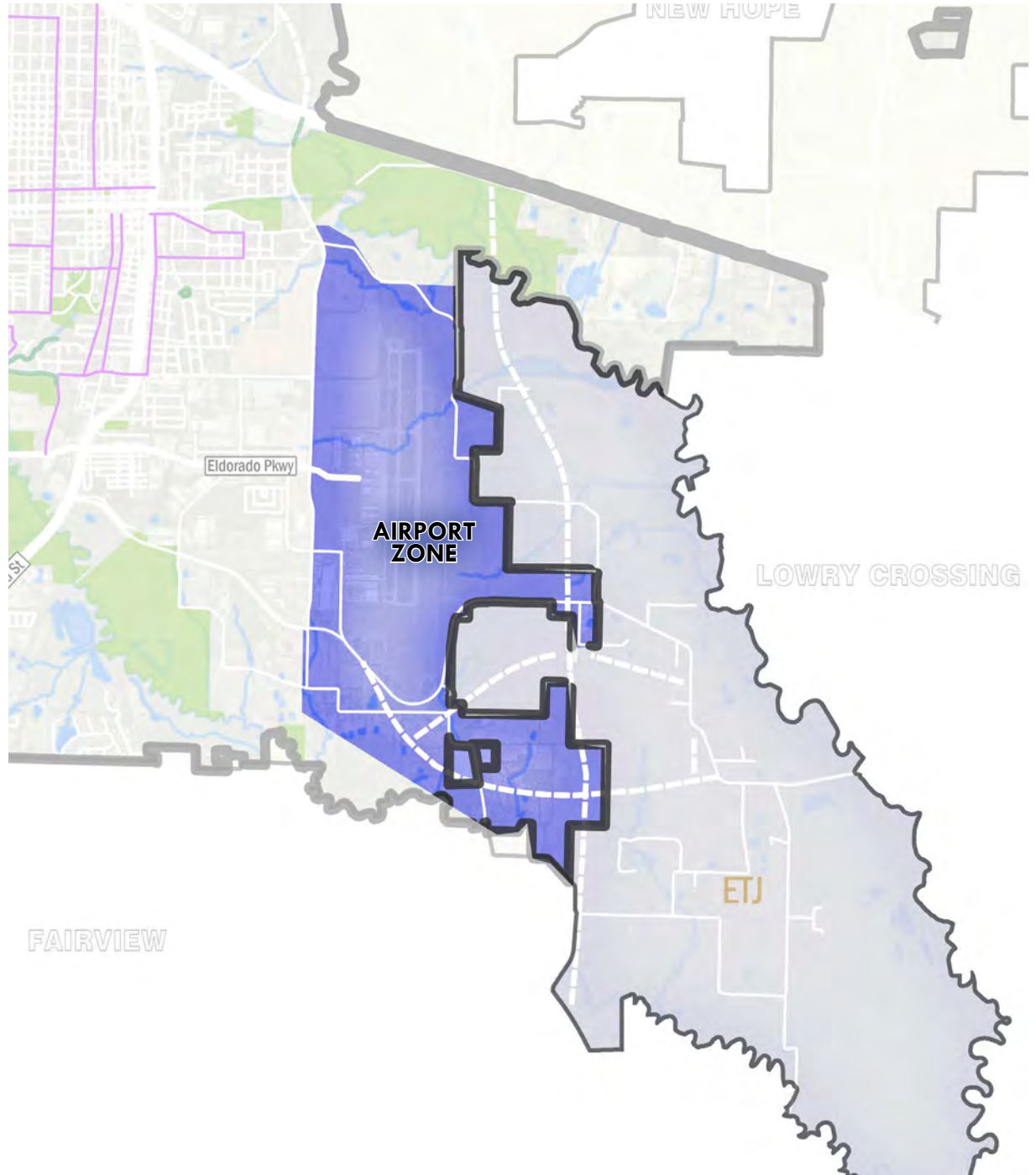
This Zone is adjacent to the Downtown District and spans the area between the two greenbelts in the southeast corner of the City. This zone includes the McKinney National Airport and related industrial business developments.

Key Opportunities

- Future HWY 380 bypass
- Regional Veloweb
- Greenbelt adjacencies



Airport Zone

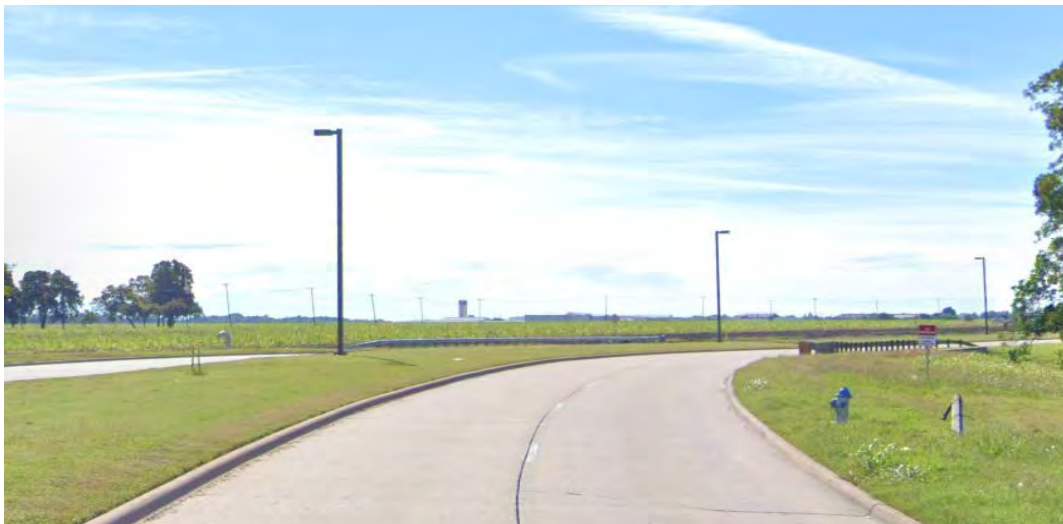




Intersection of Industrial Boulevard & Airport Drive



North of Airport - Enloe Road



Airport Drive looking South



East of Airport - Enloe Road

Rural Edge

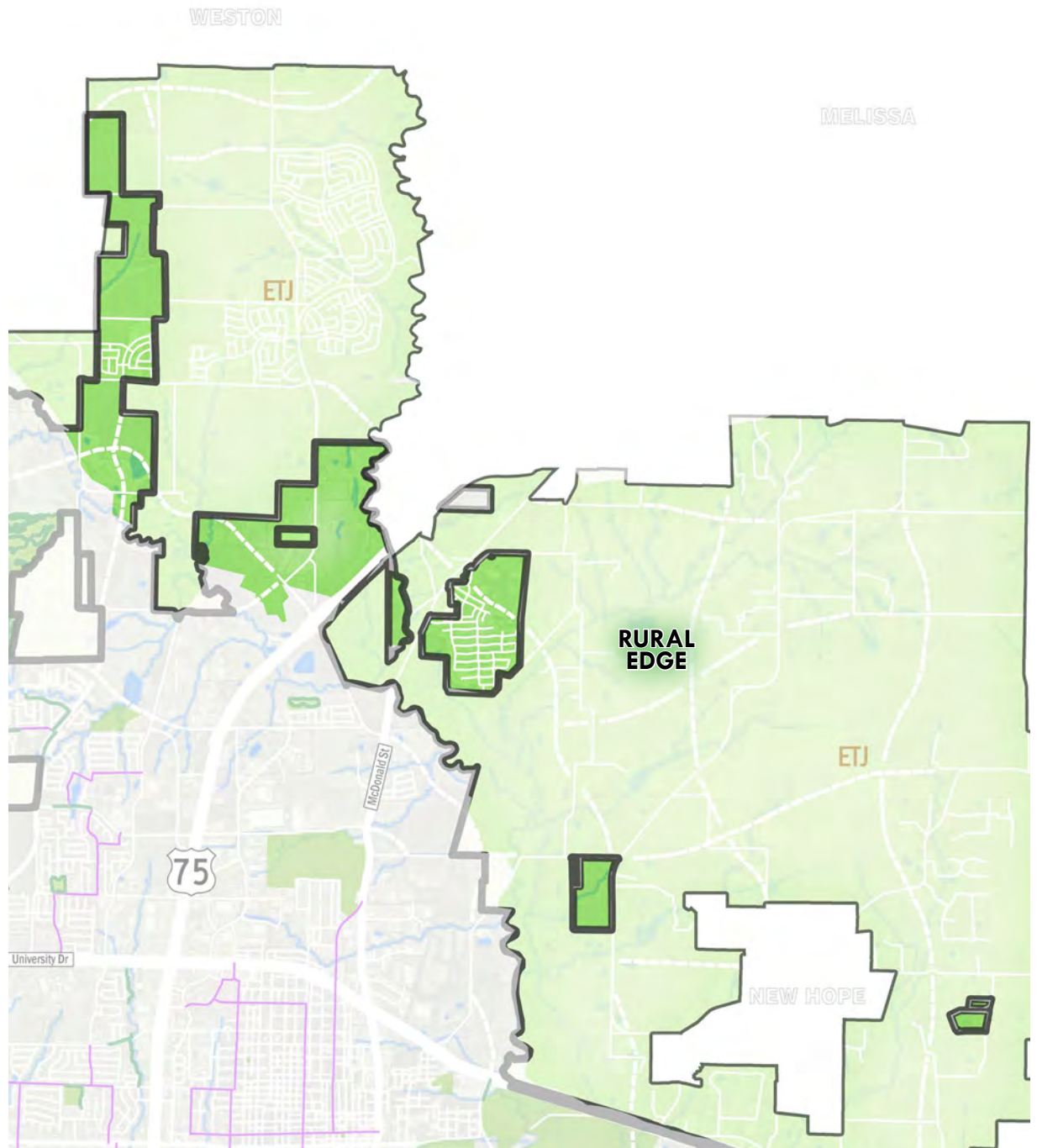
Largely undeveloped tracts of traditionally agricultural lands have low density residential zoning that will maintain the rural character of this zone. Infrastructure and roadway projects will connect this area to the rest of the city and the Honey Creek Greenbelt.

Key Opportunities

- Future Greenway Arterials
- Development Partnership Opportunities
- Honey Creek Greenbelt Adjacency

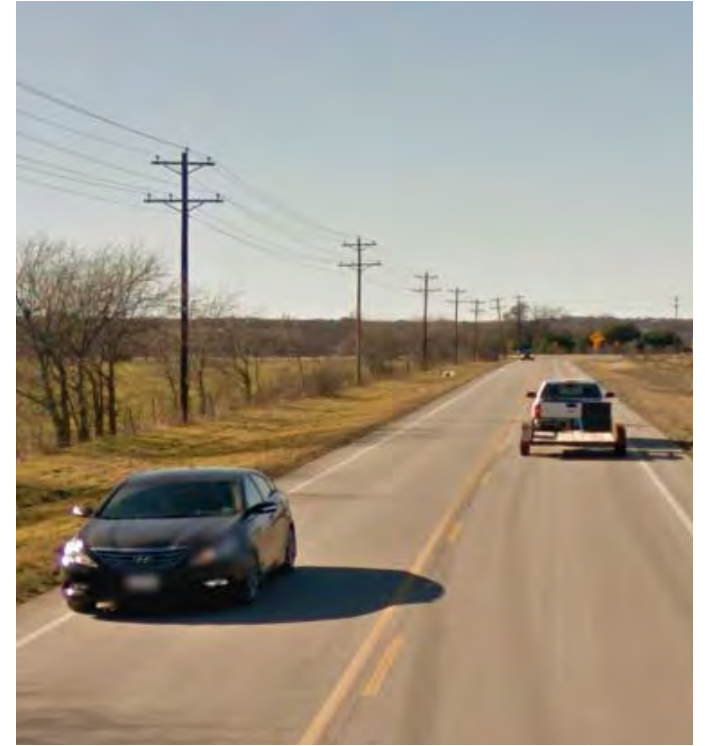


Rural Edge





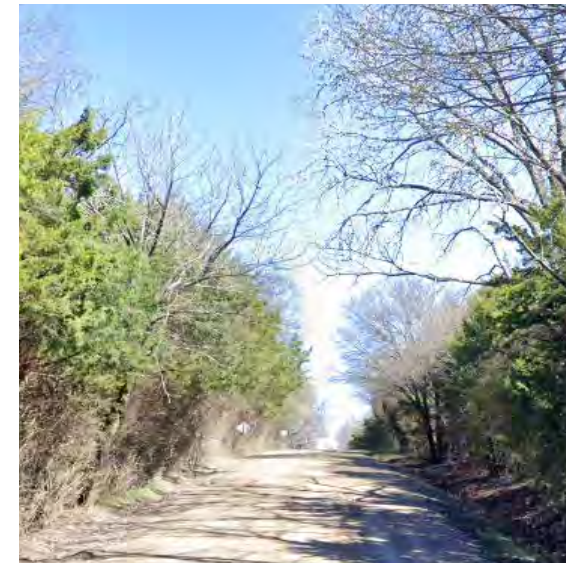
Willow Wood Residential Development



Weston Road / FM 543



Trinity Falls Parkway



County Road 201 / Future Arterial

Freeway Frontage

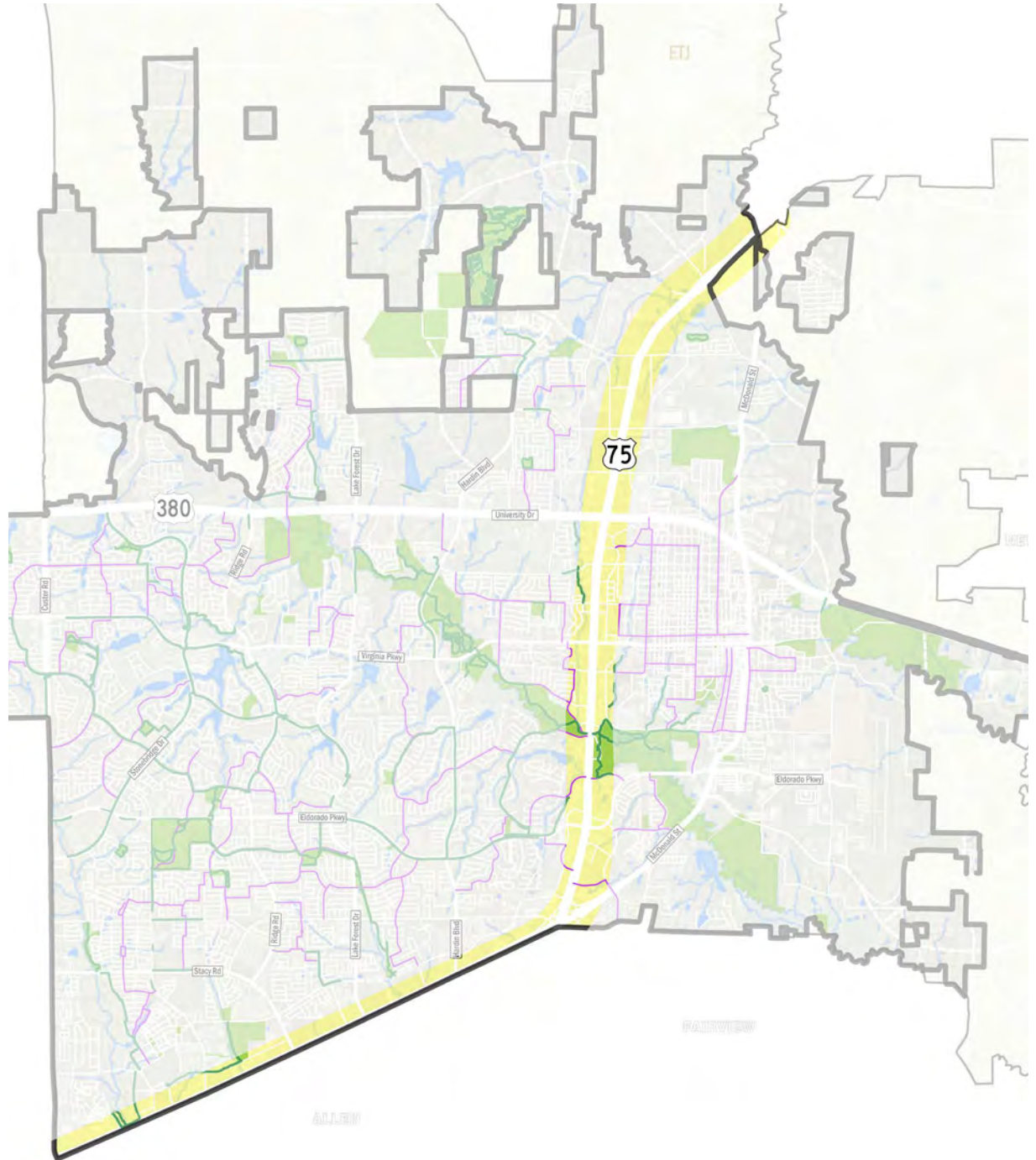
This zone is characterized by highway oriented commercial businesses. This zone presents a barrier for bicycle and pedestrian traffic crossing from east to west.

Key Opportunities

- Grade separated crossing
- Allen & Regional Trail connection
- Parallel trails adjacent to Highway



Trail Adjacent to 121 at Craig Ranch





Wilmeth Road & US 75



US 75 at Wilson Creek Corridor



Drainage Swale Adjacent to 121

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 McKinney's own opportunities. The tour allowed for the group to view and discuss potential solutions for McKinney's future trail network. Cities visited and their relevance to development of an expanded trail system in McKinney are documented below:

City of Fort Worth



Locations:

- Trinity Trails
- Cultural District & Clearfork District

Relevance:

- Extensive trail network along Trinity River (since early 70s)
- Collaboration with multiple agencies
 - City of Fort Worth
 - Tarrant Regional Water District
 - Streams & Valleys
- Key connections to districts / neighborhoods
- Signature bridges & trailheads

City of Arlington



Locations:

- River Legacy Park
- Entertainment District / Johnson Creek

Relevance:

- Key trail segments in unique districts
- Entertainment district / Johnson Creek
 - Trail transitions & underbridge crossings
- Downtown & UTA Campus
 - Levitt pavilion, streetscapes, monuments, branding
- River Legacy Park
 - Beautiful trails in woods along Trinity River (10+ miles)
 - Signature features – bridges, pavilion, monuments

City of Dallas



Locations:

- White Rock Lake Trails
- Katy Trail

Relevance:

- Known for major trail segments throughout City
- White Rock Lake Park
 - Magnificent trail network around lake (10 miles)
 - Historic theme & rich materials
 - Monuments, plazas, trailheads, overlooks, boardwalks, bridges
- Katy Trail
 - Urban/downtown trail corridor along historic railroad
 - Beautiful segments in Reverchon Park & Turtle Creek
 - Lookout points & trailheads

City of Irving



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



03

PLANNING

Planning

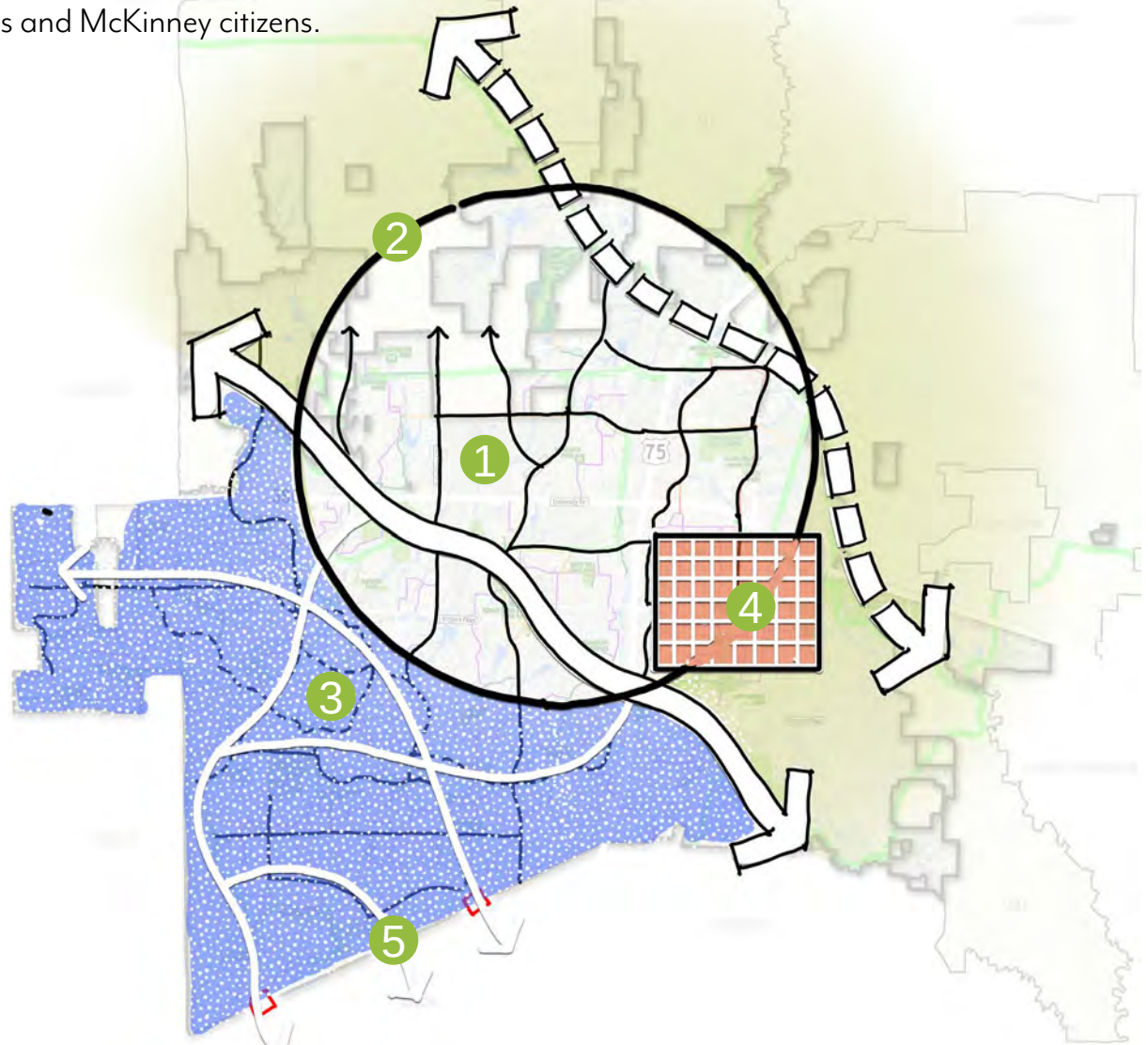
Equipped with information gathered during the analysis phase, the Dunaway team proceeded into the planning phase of the Trails Master Plan. These steps included outlining plan objectives for McKinney, development of a Conceptual Trail Network Plan, and review meetings with City leaders and McKinney citizens.

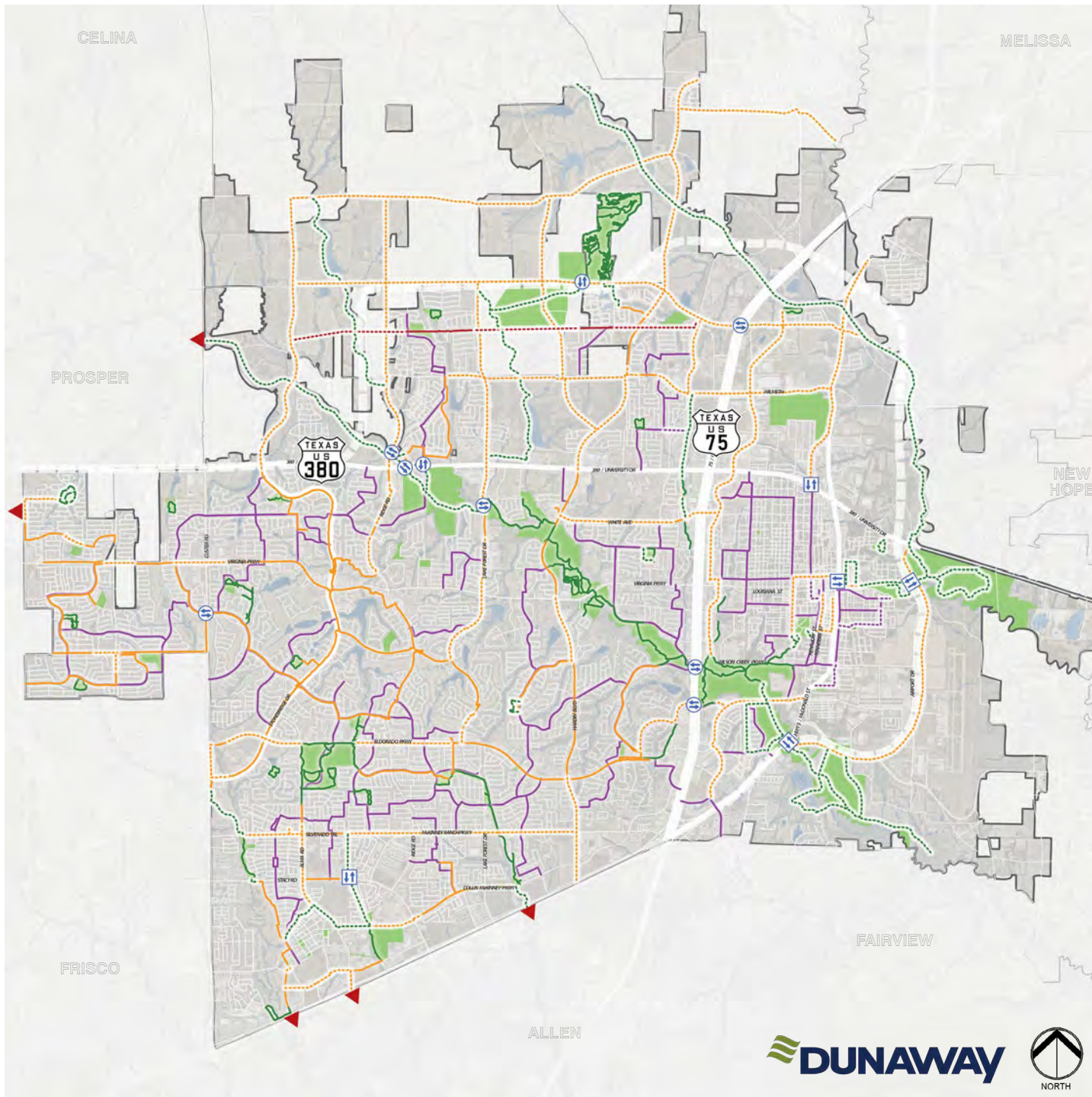
CONCEPT DIAGRAM

Dunaway worked with City staff to develop an intentional strategy that will guide the expansion of McKinney's trail network. The diagram below organizes these growth strategies into five objectives, which reflect the land uses, growth dynamics, infrastructure expansion and natural resources of the City. The objectives illustrated in the concept diagram, and listed below, were presented to City Leaders and the community for discussion and input then used to inform the Trail Network Plan.

Objectives:

- 1 Build the Framework
- 2 City Wide Loop Trail
- 3 Fill the Grid
- 4 Downtown Strategy
- 5 Regional Connectivity





TRAIL NETWORK PLAN

Trails (Existing & Proposed)

-  Parkway Trail
-  Bicycle Boulevard
-  Greenbelt & Park Trail
-  Easement Trail

Crossings & Connections

-  At-Grade Crossing
-  Grade Separated Crossing
-  Regional Connection

1

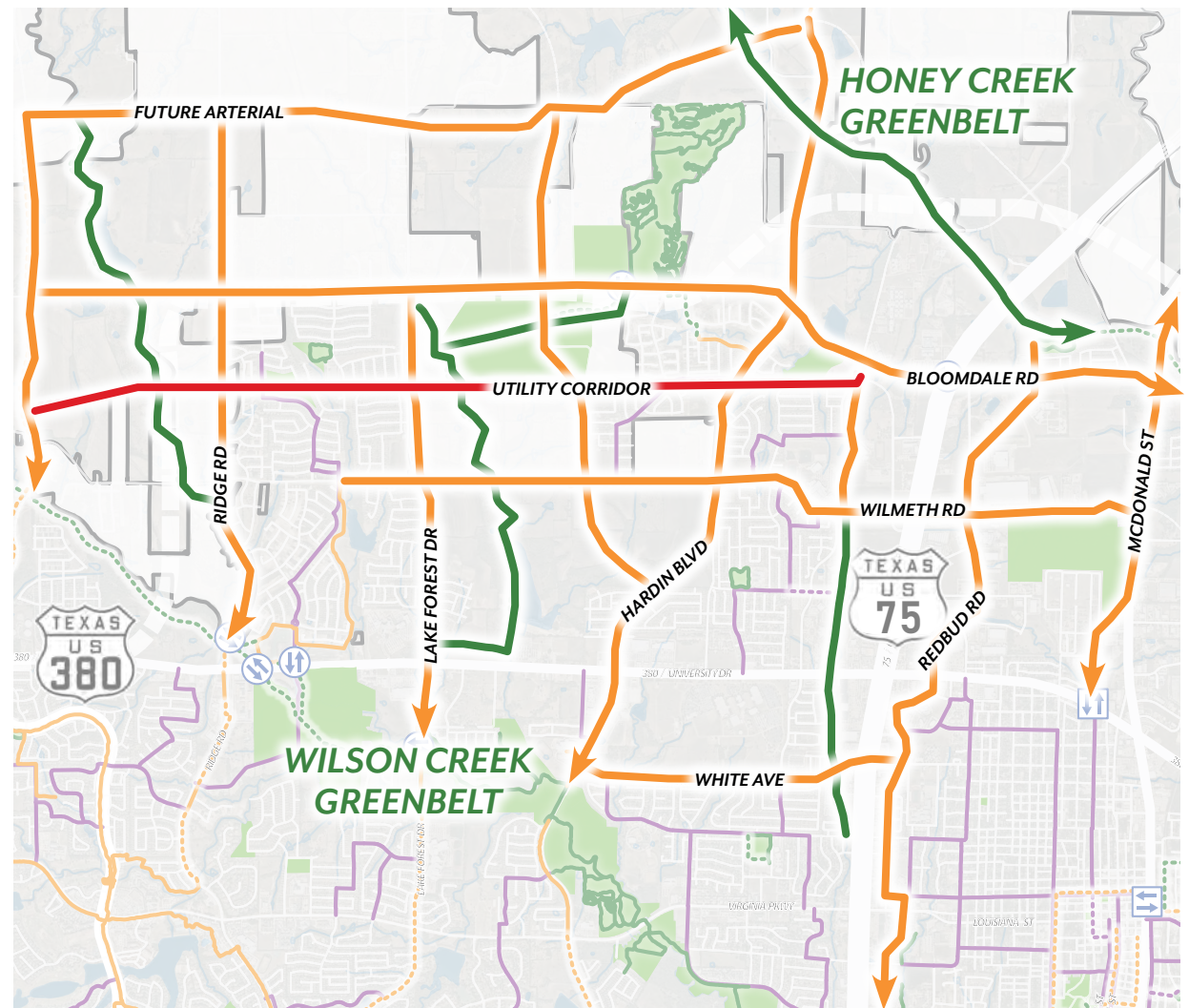
BUILD THE FRAMEWORK

As residential development moves north so does the need for trails. Partnering with developers and constructing strategic segments in utility easements and beside new arterials, will establish a framework for the network in this fast developing area.



Key Segments:

- **North Expansion**
 - Ridge Road, Lake Forest Drive, Hardin Boulevard, Redbud Road
- **East West Connection**
 - Wilmeth Road, Bloomdale Road, White Avenue
- **Utilize Drainageways/ Easements**
 - North from White to Wilmeth
 - East from Ridge to Bloomdale



2

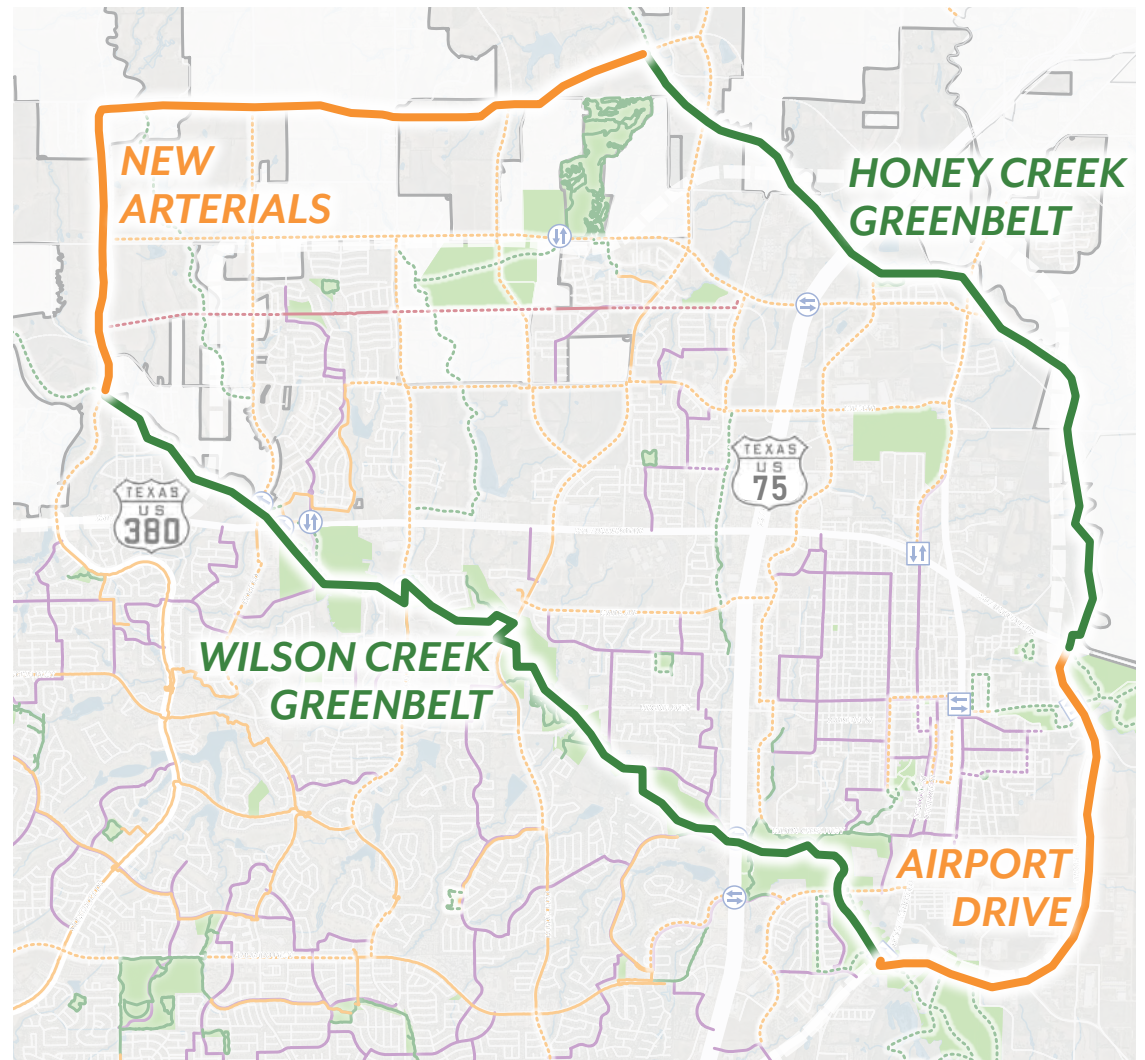
CITY-WIDE LOOP

The loop trail will link many of McKinney's districts and natural areas with a continuous 25 mile trail experience for residents and visitors alike. Existing parks and new trail heads will provide rest points and access to the loop at key locations. This loop will utilize existing trails in both the Wilson Creek & Honey Creek Greenbelts as well as trails adjacent to new greenway arterials identified in the thoroughfare plan.



Key Segments:

- Utilize arterial construction to develop the framework of the system
- Establish method for developing Honey Creek Corridor
- Link Recreational Trails
- Rest Stops at Strategic Locations Around Loop



3

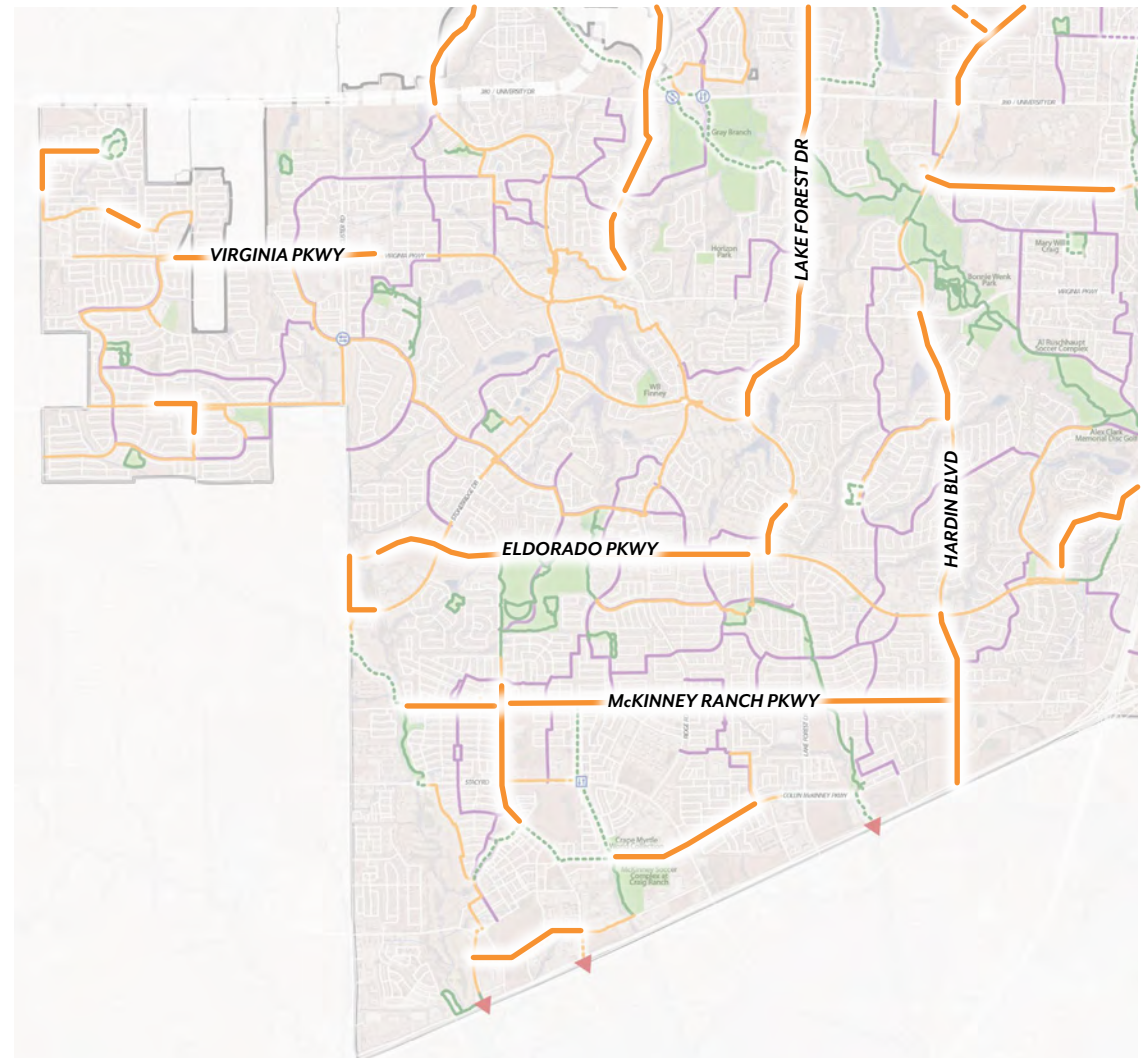
FILL THE GAPS (WEST OF US 75)

The traditional street grid, with bicycle boulevards and sidewalks, provide a high level of connectivity for pedestrians and bicyclists within the neighborhood east of US 75. However, trail links need to be established between existing recreational trails, park lands and cultural destinations to improve access to these amenities.



Key Segments:

- **Extend Network South**
 - Utilize Watters Creek (Silverado Parkway to Collin McKinney Parkway)
 - Silverado East-West Segment
 - Under Bridge Crossings
- **Close gaps in the existing network**
- **Regional Connections**
 - Promote Bike Friendly Streetscapes in Craig Ranch



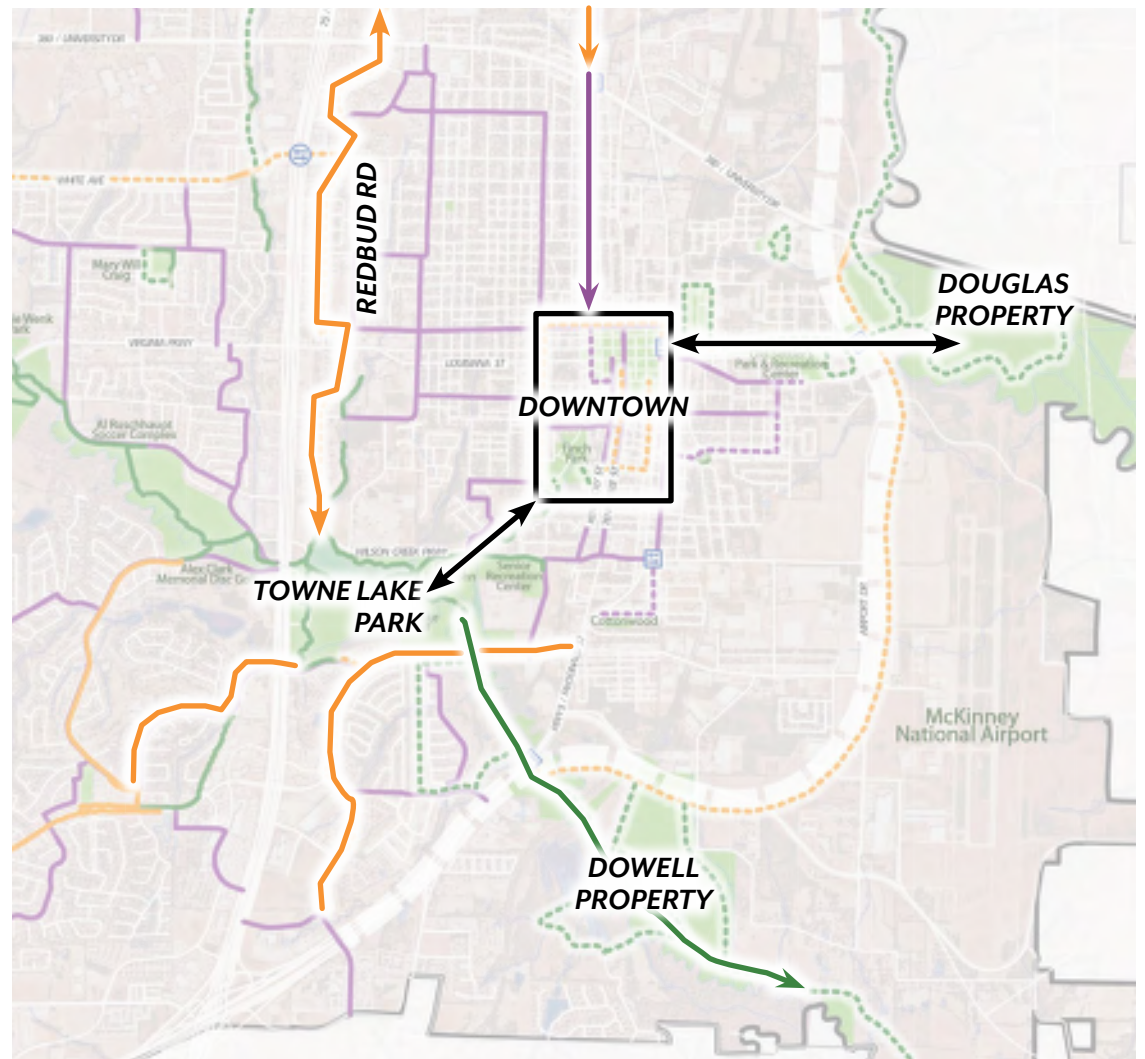
3

FILL THE GAPS (EAST OF US 75)

Neighborhoods east of US 75 were developed on traditional gridded streets, allowing for an extensive bicycle boulevard in this district. The close proximity to signature parks and cultural destinations, like Towne Lake Park, Old Settler's and downtown, however critical trail connections between these destinations need to be established.

Key Segments:

- **Greenbelt Links**
 - To Downtown
 - Airport Drive
- **Accessing Park Properties**
 - Dowell Property
 - Johnson-Bolin Property
 - Nature Trails



4

DOWNTOWN STRATEGY

McKinney's downtown is a vibrant center of activity. The Performing Arts Center, unique businesses, and beautiful neighborhoods make this zone the cultural heart of the community. With an authentic sense of place, the traditional town layout and street grid offer a predominant pedestrian circulation system along sidewalks. The primary objectives for additional connectivity and placemaking throughout the downtown include:



Objectives:

- **A clearly defined trail hierarchy**
 - enhanced streetscapes
 - widened sidewalks
 - upgraded finishes
 - and distinct identity & wayfinding
- **Attracting year-round tourism**
 - identity loop, art & sculptures
 - history & culture
 - and trail stations & kiosks



4

DOWNTOWN STRATEGY (CONT.)

Within the historic core a combination of on-street bicycle boulevards and sidewalk connections will provide bike and pedestrian circulation. Park and Downtown staff should coordinate locations for bike racks, storage facilities, and potential bicycle rental opportunities to promote bicycle tourism and recreation.

Architectural elements such as enhanced pavement, kiosks, low walls, site furnishing that complement the historic area can be utilized to mark entry to the district, rest stops, public art, historical markers or other key point of interest. Maps can be developed to identify destinations and routes that highlight specific educational, cultural, or tourism interests. Examples of successful cultural tourism trails include Boston's Freedom Trail and Raleigh, North Carolina's Urban Trail.



Historical Markers / Public Art



Bicycle Tours

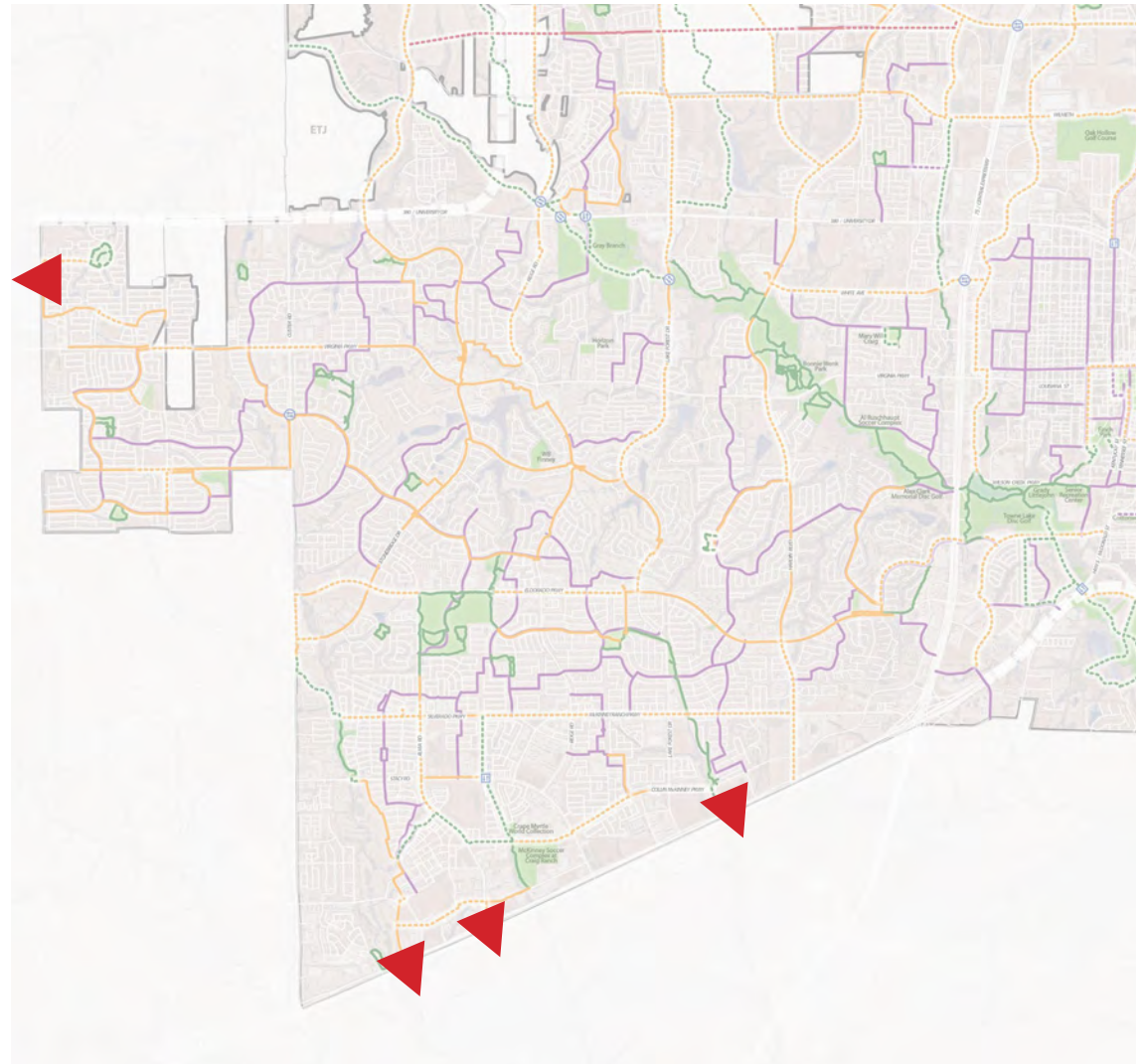


Bike Rentals

5

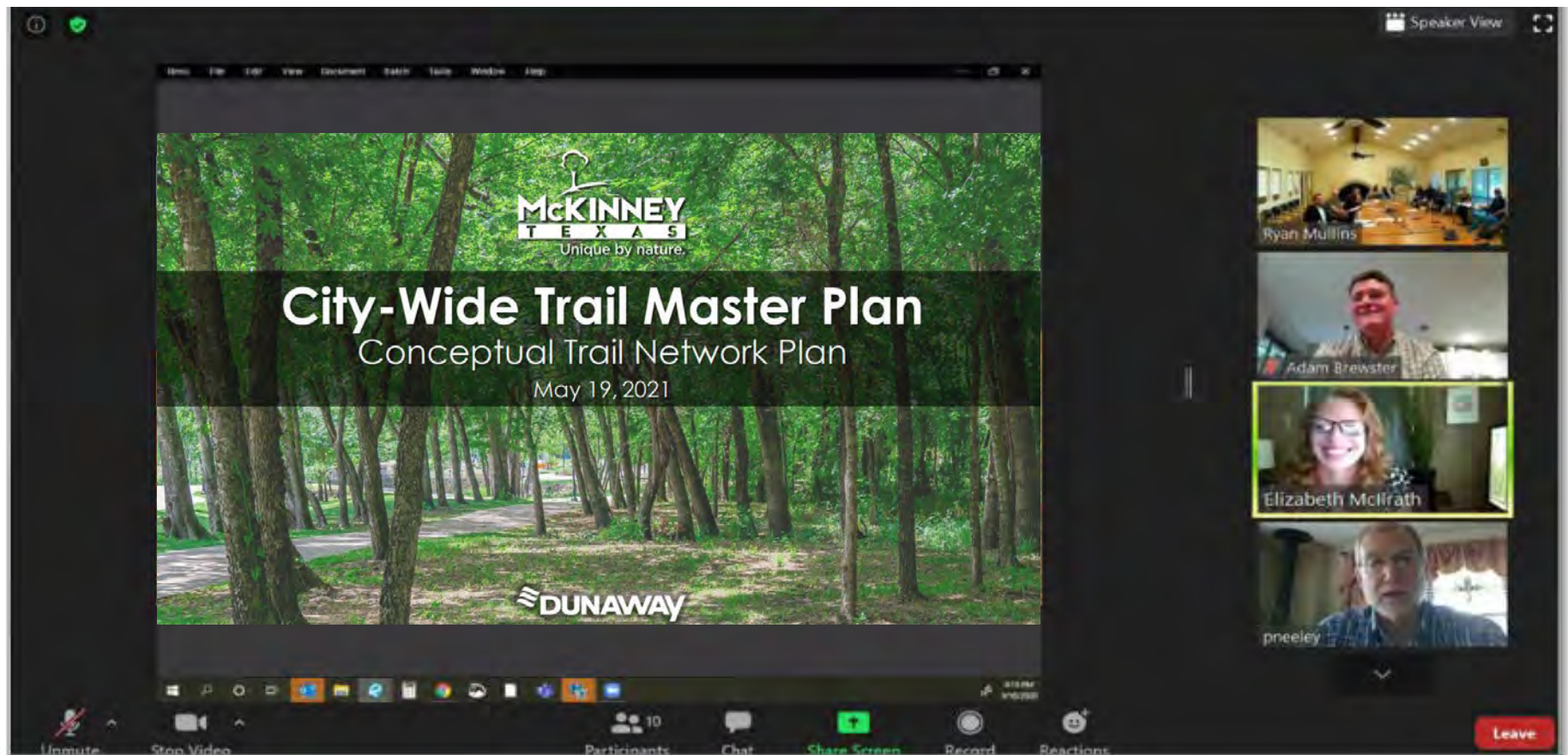
REGIONAL CONNECTIONS

The northern suburbs of DFW is home to an ever expanding network of trails and bicycle infrastructure. The Veloweb and the Six-Cities trail plans are initiatives to improve connectivity between communities in the region. Several of these routes in Frisco and Allen have already been extended to the city limits. Connecting to these trails will expand bicycle and pedestrian mobility for residents and visitors alike

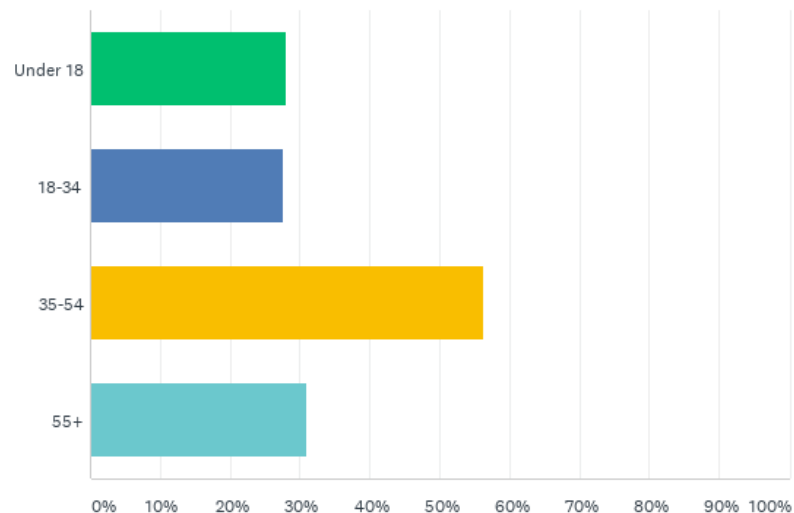


COMMUNITY INVOLVEMENT

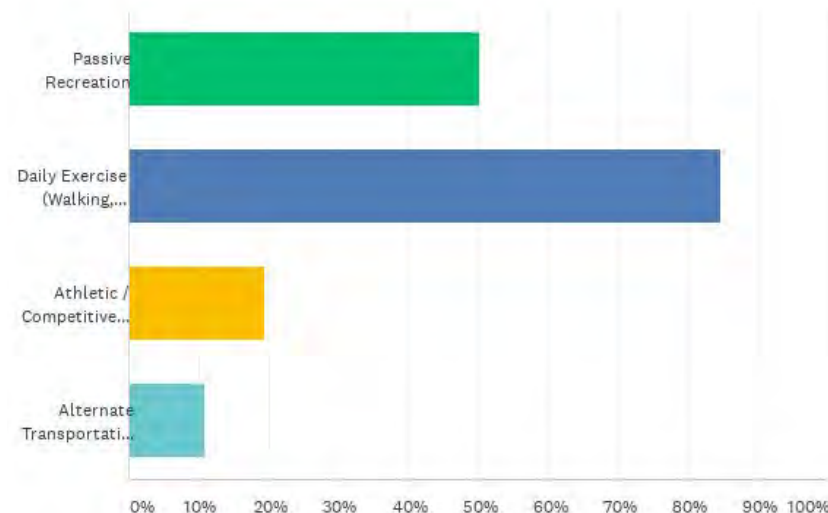
The Dunaway team had the opportunity to interact with City staff, leaders and other contributors at various steps in the master planning process. Early on, the team facilitated a community input meeting to present the analysis findings and opportunity zones throughout McKinney. Citizen feedback was noted 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.



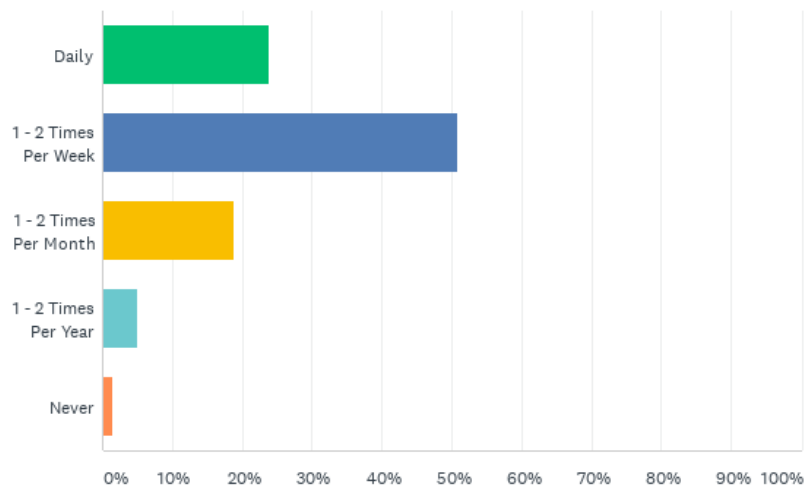
Community Input Meeting



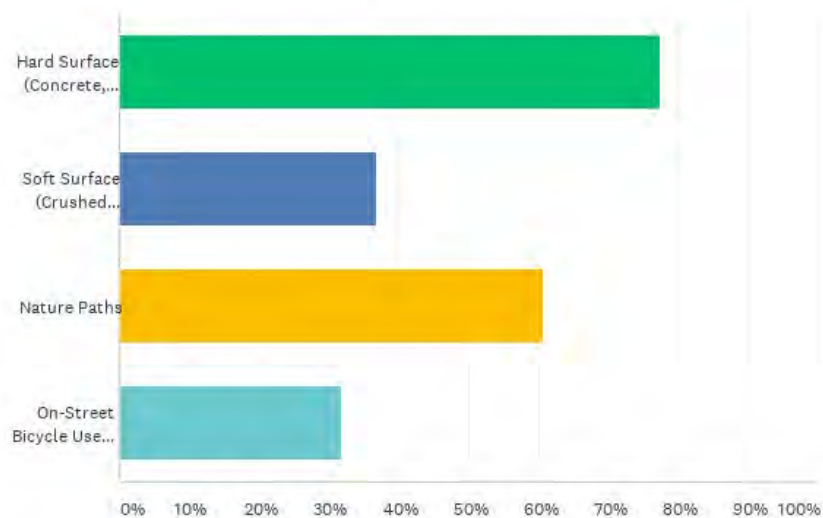
From the survey results, 55% of trail users in McKinney are from the age range of 36 - 54 years old.



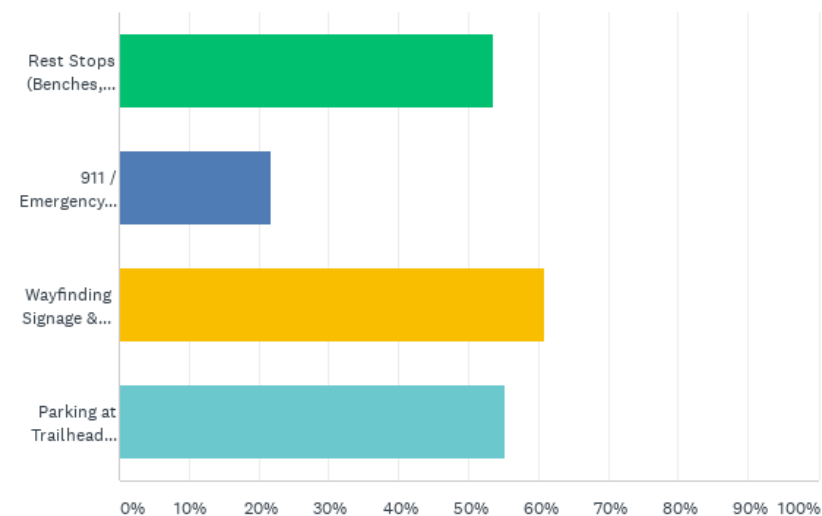
Most trail users in McKinney, approximately 85%, depend on the trail system for daily exercise.



Half of trail users use the trail network in McKinney 1 - 2 times a week.



The two most preferred trail types were hard surface trails, 88% of users, and nature paths, 62% of users.



The trail amenity that was most important to survey takers was wayfinding signage. The second most important trail amenities were rest stops and parking at trailheads.

Those who took the survey were asked to list the improvements that they would like to see in the McKinney Trail System in order for them to use the trail network more often. The most common suggestions are below:

improve Jump line Stations Water fountains town Bike Boulevard safer sections trail network
 around Better drainage paved way system using Also see options east side dirt
 mountain bike walkways bicycle Trees make Eldorado existing signage near tunnels
 along Better connection connectivity access points access hike bike
 roads places parks sidewalks Wider live street concrete
 running easy paths nature connected provide
 trails possible connections currently Better N bike
 Bathroom longer Knowing areas closer home walking major roads
 crossing trail system McKinney Link trails love north interconnected
 mud go trash side d need Plano Allen tracks Easy access Community south hard maps
 city many especially bike lanes Hardin nature trails etc avoid Town Lake shade
 Connected neighborhood clean Erwin Park Bridges great



Trail Loop
4 Mile

04

RECOMMENDATIONS

Recommendations

TRAIL TYPES & STANDARDS



Roadside & Parkways

Located adjacent to arterials and thoroughfares and neighborhood connector roadways, these trails provide separation between trail users and vehicular traffic.



Greenbelts & Parks

Trail segments on park property or within easements and drainageways provide scenic routes with maximum separation from vehicular traffic that limit the interaction between trail users and vehicular traffic.



Bike Boulevards

On-street bike corridors located on low volume streets identify routes, linking neighborhoods and the street trail system to other points of interest.



Crossings & Trailheads

Trail-Street crossings shall be designed to reduce the conflict between trail users and motor vehicle traffic. Trailheads are typically located along signature segments/routes. Trailheads provide opportunities for meet, rest, or to embark on a recreational outing.



Portals & Branding

Monuments, markers and signage shall support a constant City identity and image. Promoting trail tourism and recreational opportunities to residents and visitors alike.

McKinney's trail system is comprised of a hierarchy of trail types and support infrastructure: Roadways & Parkways, Greenbelts & Parks, Bike Boulevards, Crossing & Trailheads, and Portals & Branding. The following pages outline recommendations for each category including trail location opportunities and general design standards.



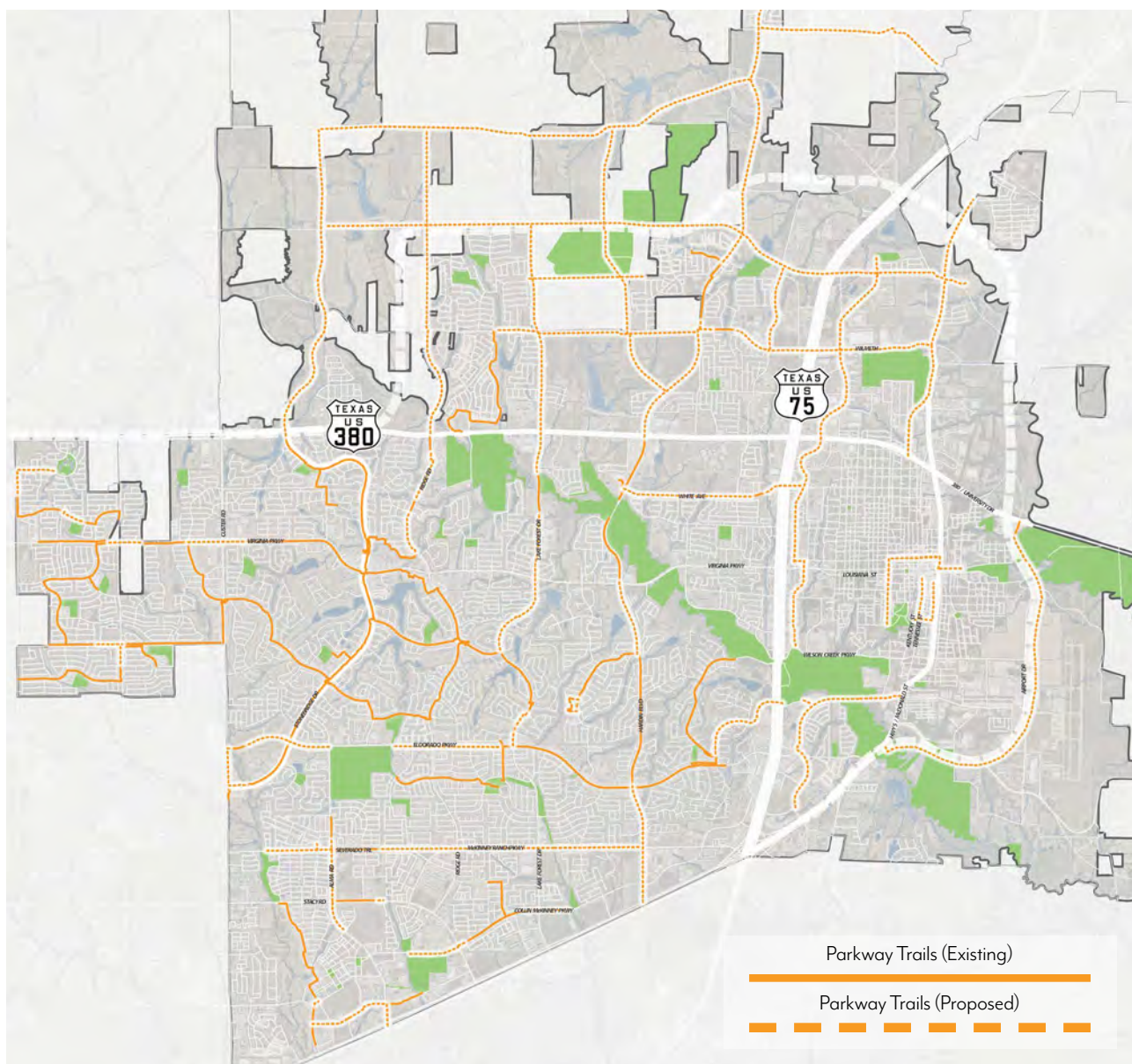


Roadside & Parkways

As McKinney's roadway network continues to expand with development it is important that trail implementation in street ROW also keep pace. Adding trails adjacent to existing roads, widening sidewalks and incorporating new trail facilities along proposed Greenway arterials, neighborhood streets and the future HWY 380 bypass will provide a high level of service and connectivity to McKinney neighborhoods. This graphic illustrates the network of existing and proposed segments of Roadside and Parkway trails.

Key Roadside & Parkway Locations:

- Ridge Rd
- Lake Forest Dr
- Hardin Blvd
- Redbud Rd
- Wilmeth Rd
- Bloomdale Rd
- White Ave
- Airport Drive
- Silverado
- McKinney Ranch Pkwy
- College Dr



Design Standards: Roadside & Parkway

The list below outlines a general set of guidelines that can be used for planning and implementing Roadside & Parkway trails.

- *Roadside Trails (shared use paths) are intended for two-way traffic of bicyclists and pedestrians and shall be designed in accordance with AASHTO Guidelines for Pedestrian and Bicycle Facilities.*
- *Trails shall be constructed of durable materials. Highly durable materials that are common in the north Texas region include steel reinforced concrete, glass fiber reinforced concrete, and asphalt paving with prepared aggregate base.*
- *Where feasible and ROW width is available, trails along roadways should be constructed 12' wide. 8' to 10' wide trails are acceptable for limited trail connections with constrained ROW or obstructions.*
- *New trails shall be constructed with a minimum setback from the roadway back-of-curb of 2' (minimum) to 6' (preferred). Locations where a 2' setback cannot be achieved due to ROW limitations, a colored/textured paving edge shall be included in the trail surface to provide users with a visual cue to keep away from the roadway edge.*
- *Existing sidewalks along trail corridors that are 6' wide or less, shall be widened to the maximum extent practicable and correspond with existing or future connecting trail segment widths.*

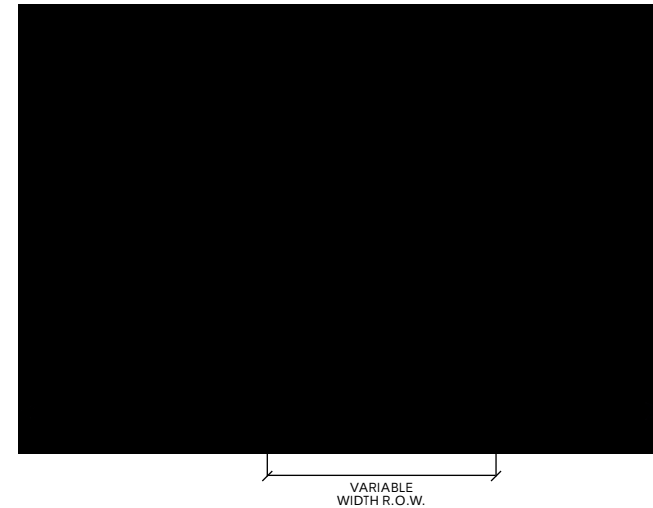


Figure A. Widened Sidewalk at Back of Curb



Figure B. Shared Use Trail in Parkway



Greenbelts & Parks

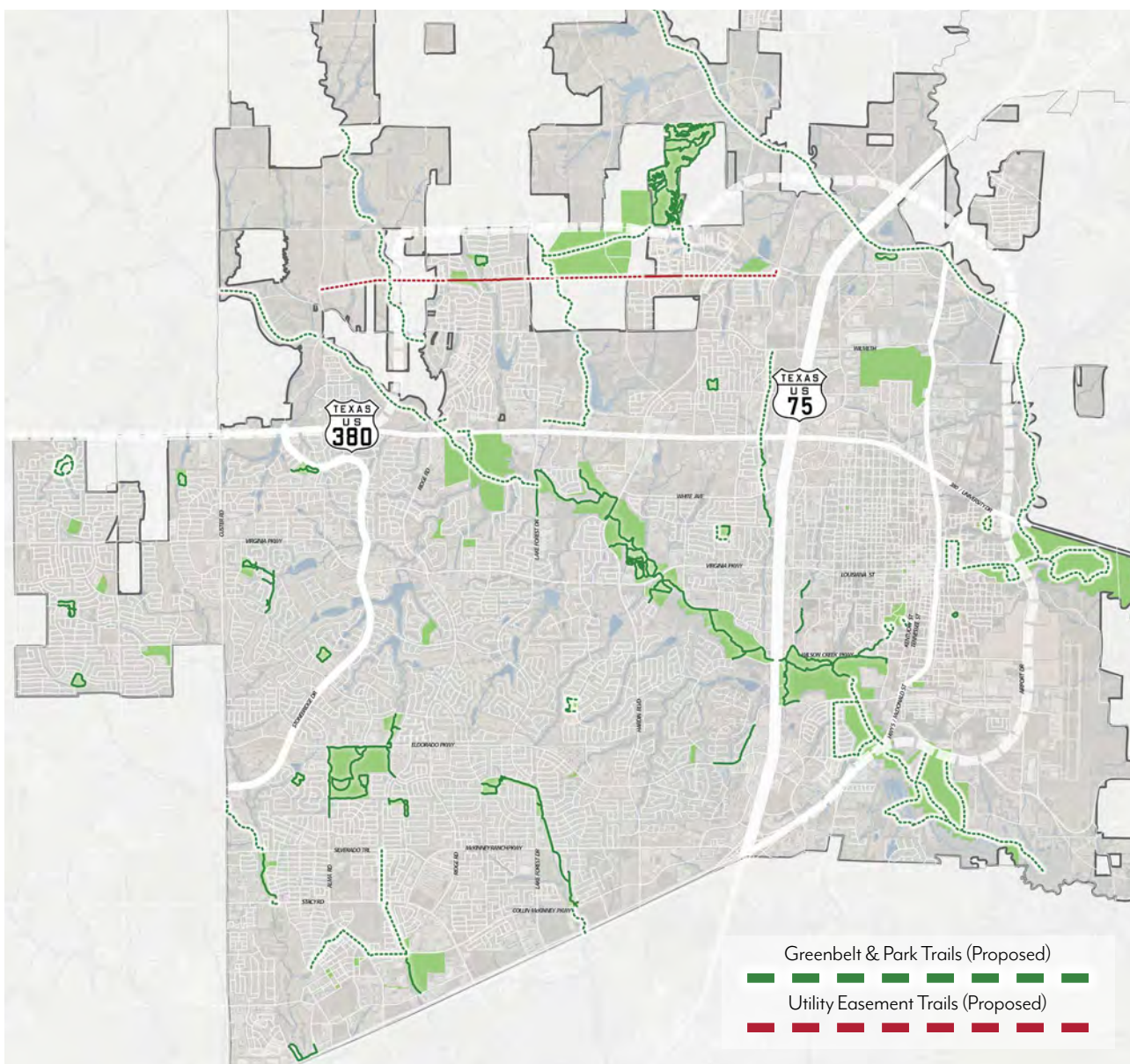
Significant riparian corridors and sensibly designed parks provide McKinney residents access to nature just minutes from most neighborhoods. The Wilson Creek Greenbelt is the heart of the McKinney Trail system, while Erwin Park draws regional visitors and smaller park loop trails service adjacent neighborhoods.

Park land acquisitions and partnerships present an opportunity to expand the trail network as development continues, especially in the northern sector. Utility corridors designed for functionality, drainageways and water conveyance present an opportunity to expand the trail network for long segments across the city.

The Honey Branch Creek corridor presents an opportunity to add a second riparian greenbelt trail to the McKinney system. Opportunities for soft surface trails in parks, nature paths, specialty use trails can be expanded and incorporated into existing and new parks in partnership with friends groups etc.

Key Greenbelts & Parks Locations:

- Wilson Creek Greenbelt
- Honey Creek Greenbelt
- Plan for Park Loops at Undeveloped Park Properties (Dowell, Johnson-Bolin)



Design Standards: Greenbelts & Parks

The list below outlines a general set of guidelines that can be used for planning and implementing Greenbelts & Parks trails.

Hard Surface Trails

- Trails (shared use paths) are intended for two-way traffic of bicyclists and pedestrians and shall be designed in accordance with AASHTO Guidelines for Pedestrian and Bicycle Facilities.
- Greenbelt and Neighborhood Park Loop Trails shall be constructed of durable materials. Highly durable materials that are common in the north Texas region include steel reinforced concrete, glass fiber reinforced concrete, and asphalt paving with prepared aggregate base.
- All trails identified to be on the Veloweb or as regional connections shall be 12' wide (minimum).
- Hard surface trails should be constructed 12' wide (typical). Neighborhood Park loops and limited trail connections may be 10' or 8' (min) wide for due to limitations or site constraints.
- Trails in riparian corridors shall be routed close enough to the creek for an enhanced user experience and visual interaction with the 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' 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 McKinney.



Figure C. Parks & Greenbelts Trail



On-Street Bike Routes (*Bicycle Boulevards*)

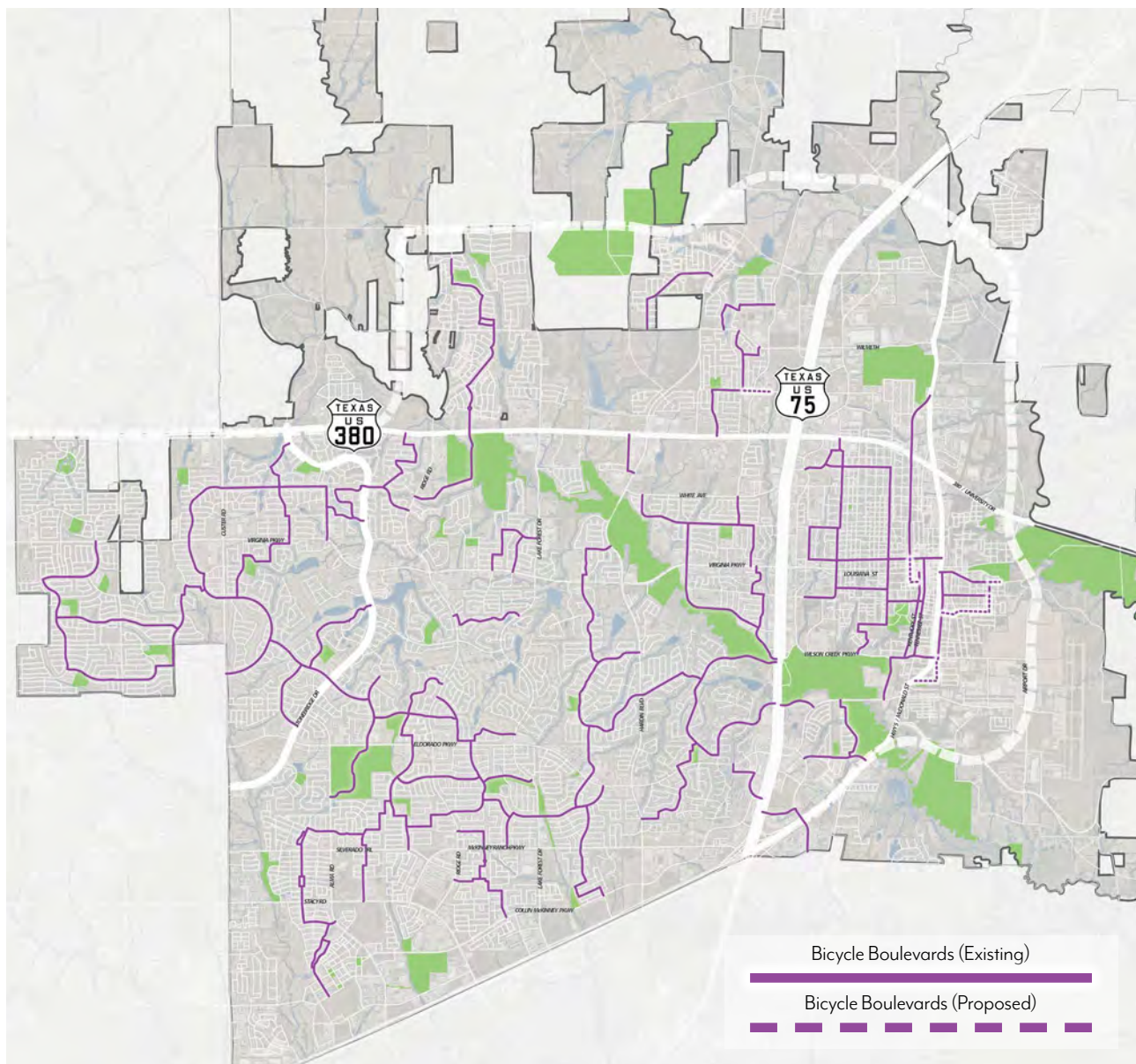
McKinney is a diverse collection of neighborhoods and districts with various types of development patterns and street types. Bicycle Boulevards identify routes on lower speed/volume roads that suitable for most bicyclists. Routes are currently identified with signage and/or 'sharrow' pavement markings.

Additional bicycle boulevard routes shall be incorporated into the City on low volume streets linking neighborhoods to other trails in the systems.

Future development of City's system may require additional on-street facilities to be constructed to support a growing number of bicyclists in the City. These future improvements may include bike lanes, bike tracks.

Key Bicycle Boulevard Locations:

- Benge St
- Davis St
- Greenville Rd
- Wilson St
- Fitzhugh St
- McMakin St



Design Standards: On-Street Bike Routes (Bicycle Boulevards)

The list below outlines a general set of guidelines that can be used for planning and implementing On-Street Bikeways.

- *Bike Boulevards are intended increase driver awareness of bicyclists in the roadway and shall be designed in accordance with AASHTO Guidelines for Pedestrian and Bicycle Facilities.*
- *Routes shall be clearly marked with blue City of McKinney bike boulevard signage.*
- *In zones where signage may be difficult to read due to existing site conditions or congestion shared lane markings or “sharrows” may be incorporated on the street.*

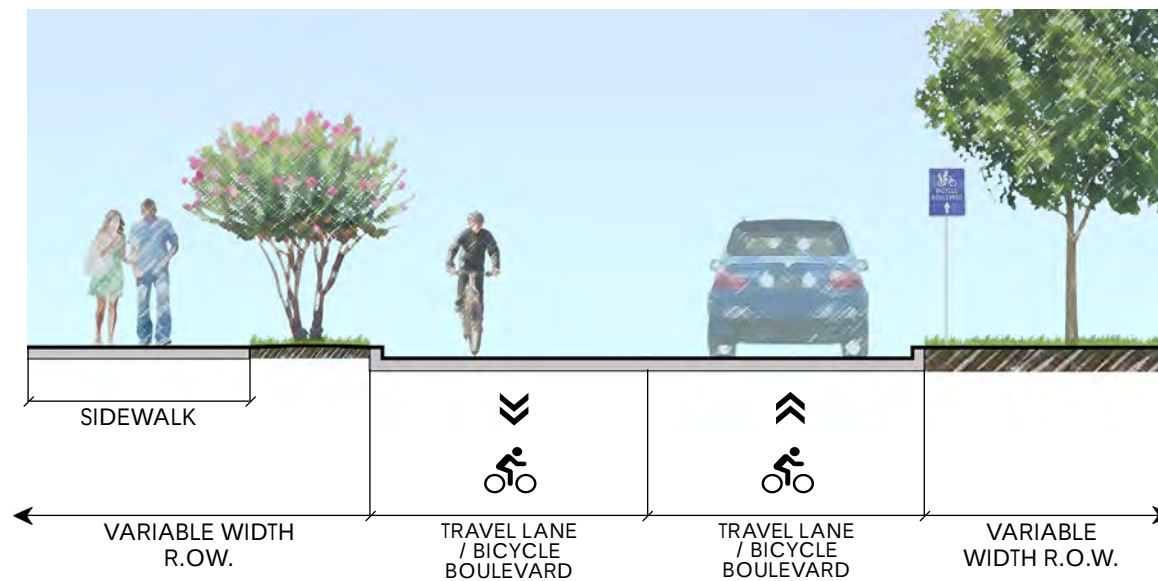


Figure C. Bike Boulevards



Crossings & Trailheads

Crossings

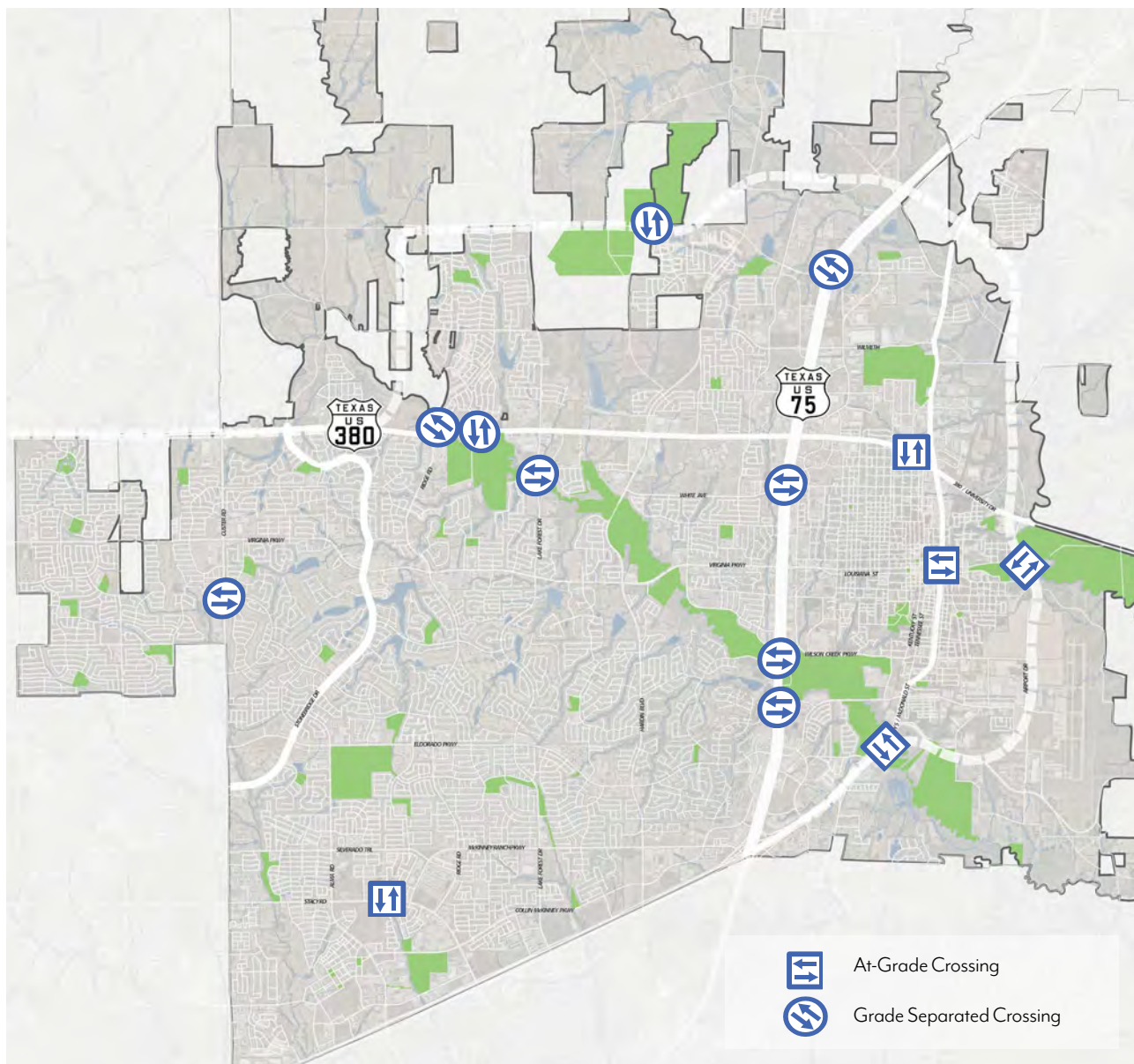
All trails eventually intersect roadways, these crossings should be designed to minimize the conflicts between trail users and motor vehicles. At-grade crossing, like crosswalks and signalized intersection, are appropriate in many cases where trails intersect neighborhood streets. Intersections of high volume trails and high speed roadways should utilize grade-separated crossing to provide continuous trail experience with minimal motor vehicle interactions.

Trailheads

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 Crossings Locations:

- Custer Rd
- 380 / University Dr
- Lake Forest Dr
- US 75
- Airport Dr
- McDonald St / Hwy 5



Design Standards: Crossings

The list below outlines a general set of guidelines that can be used for planning and implementing Crossings.

Under-bridge 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 10' can be achieved under-bridge crossings should be considered before at-grade crossings. Typical safety measures to be incorporated when designing under bridge crossings include:

- *Security lighting*
- *Overhead clearance height signage*
- *Speed limit signage*
- *Guardrails (where edge drop-off exceeds 30 inches)*



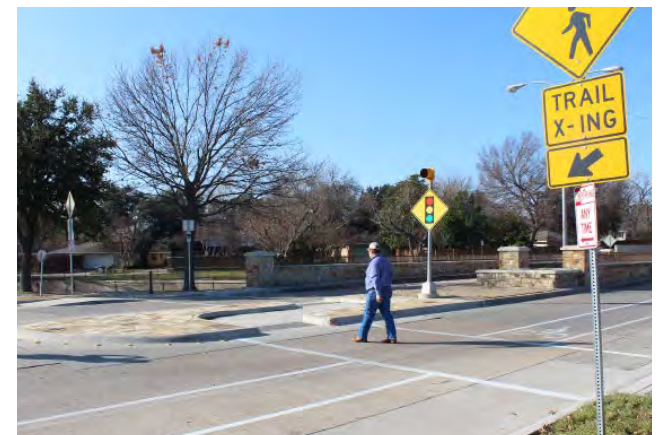
Underbridge Crossing

Unsignalized At-Grade Crossings

These crossings occur at lower traffic volume crossings of trail and roadway. At minimum, these crossings should include the following safety measures:

- *Painted crosswalk striping in the roadway*
- *Barrier-free ramps with detectable warning strips*
- *Traffic signage alerting vehicles to presence of pedestrians*

Where feasible, enhance 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 high traffic volume crossings of the trail and roadway. Where possible, signalized crossings are recommended to be installed using a High-Intensity Activated Crosswalk or HAWK signal 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

Trailheads

Trailheads are entry points to the system where many users park and gather and embark before a run or ride. Primary trailheads located on key trail segments provide arrival, access and orientation while secondary trailheads serve as wayfinding hubs and rest stops. Designed elements for all trail types should be consistent with City of McKinney standards and appropriate in size and scale to the surroundings.

Design Standards: Trailheads

The list below outlines a general set of guidelines that can be used for planning and implementing Trailheads.

Primary Trail Heads

Located along popular segments where people often drive to access specific trails segments and designed to provide a sense of arrival, access, and orientation for single users and groups these trail heads should include a parking lot, pavilion, map, and site furnishings. Highly visible and signature locations present opportunities include public art or architectural enhancements.

Secondary Trail Heads

Designed to reinforce the trail systems identity and assist in wayfinding Secondary Trail Heads provide rest stops for users. Trail maps, shade trees, ornamental plantings, low walls and site furnishings and enhanced paving should be utilized to define these locations.

Trail Rest Stops

On high traffic trails, rest stops should be placed at intervals of $\frac{1}{3}$ mile to $\frac{1}{2}$ mile. On trails with potentially lower volumes of use and more remote sections, rest stops may be placed at intervals of $\frac{3}{4}$ mile to 1 mile.

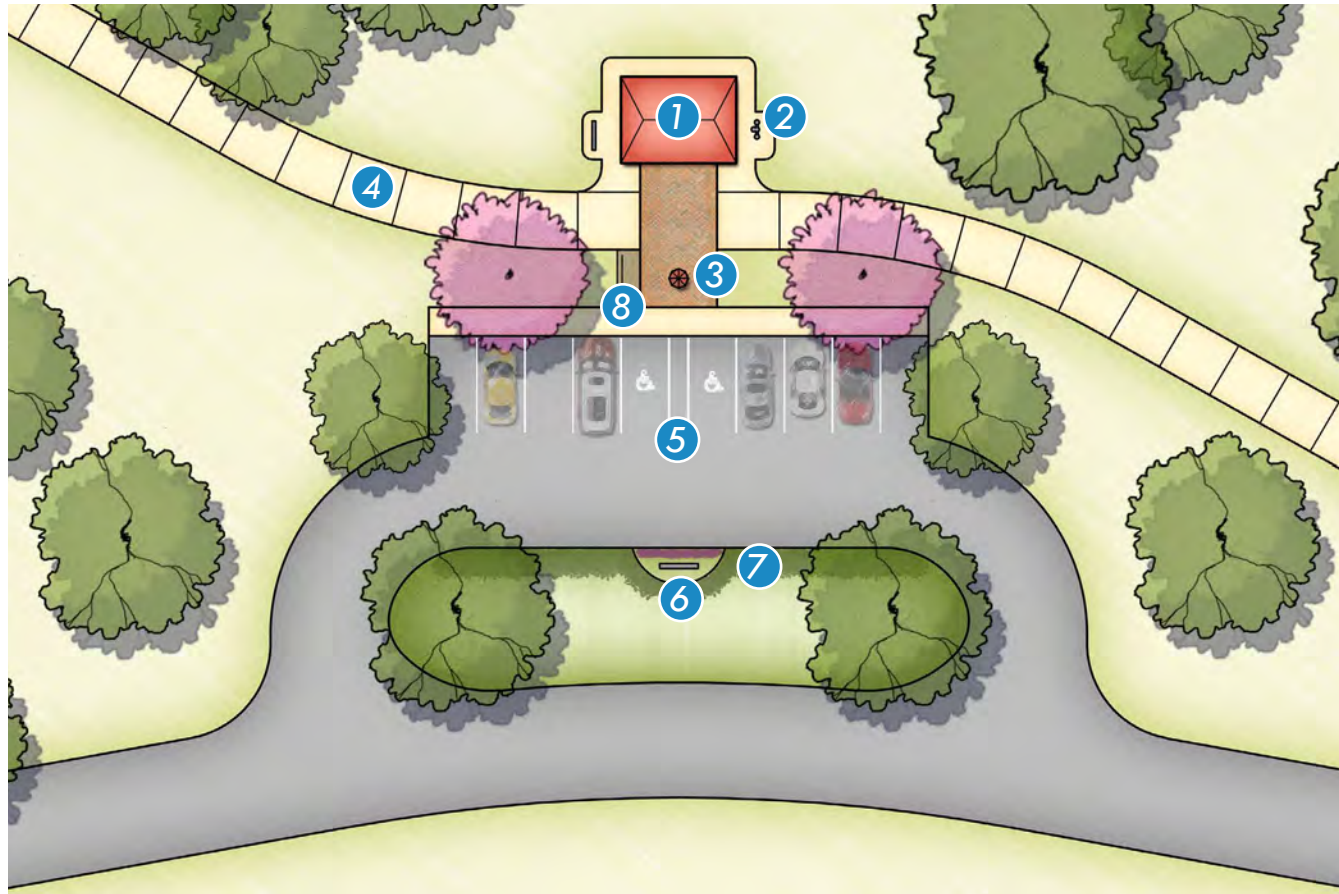
These stopping points may be comprised of a variety of amenities for the trail user. Each stop may include seating only (for example, 1 to 2 benches or a picnic table). They may also include a drinking fountain, trash receptacle, and/or interpretive and wayfinding signage, as appropriate to the character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



Primary Trailhead with Public Art

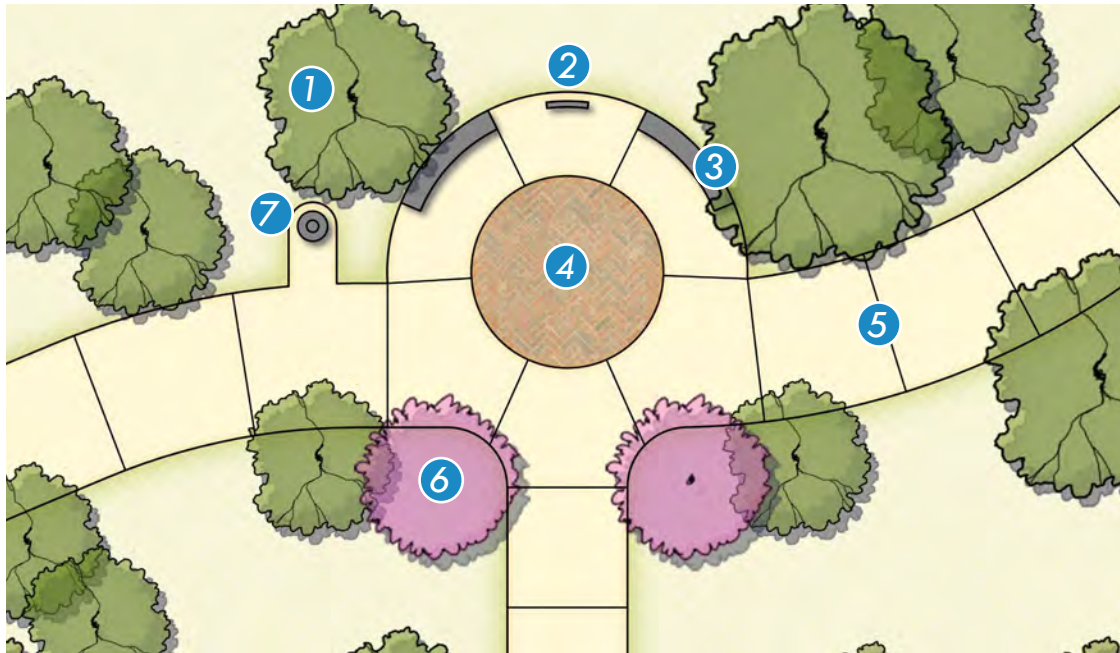


Secondary Trailhead with Wayfinding & Seating



- 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 Access
- 6 Ornamental Trees
- 7 Litter Receptacle

Figure H. Sample Secondary Trailhead Configuration



Portals & Branding

In a unique way, McKinney's trail system can expand the City's identity throughout each sector of town. Design features can creatively present the city's trail system with design features such as portals, identity markers, safety signage, and trail rest stops. Trail users will not only enjoy the unique trail environment, but also benefit from the information provided along different segments of the network.

Portals

At beginning segments of the trail, or a key intersections, design features can creatively present portals and branding. This may include incorporating design features such as signage, gateways, monuments, kiosks, and landscape development. Uniquely designed portals can be used to brand specific districts or segments each of them should be proportional in scale use a similar pallet of materials to provide visual continuity and consistency throughout the system. Additionally, consistent signage and architectural elements can be incorporated into certain trail segments. This might include areas of historical significance, tourism opportunities, recreational use, the downtown, and cultural landmarks.

Trail Identity Markers

Trail Identity Markers are smaller than portals should be incorporated periodically along trails. They can be small columns, branded bollards or special fence segments that reinforce McKinney's trail system identity provide continuity to the system. Markers need to be maintenance friendly and will must withstand the weather and potential flooding and should be constructed with quality natural stone and metal.



Sample Portal Trail Monuments & Gateway

Trail User Safety & Signage

McKinney's trail system offers inviting health & wellness opportunities for all age groups in the community. As trail development continues in McKinney, 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 post an adapted list of trail rules that address issues custom to the McKinney Trail Network.

Some examples of trail etiquette / rules include:

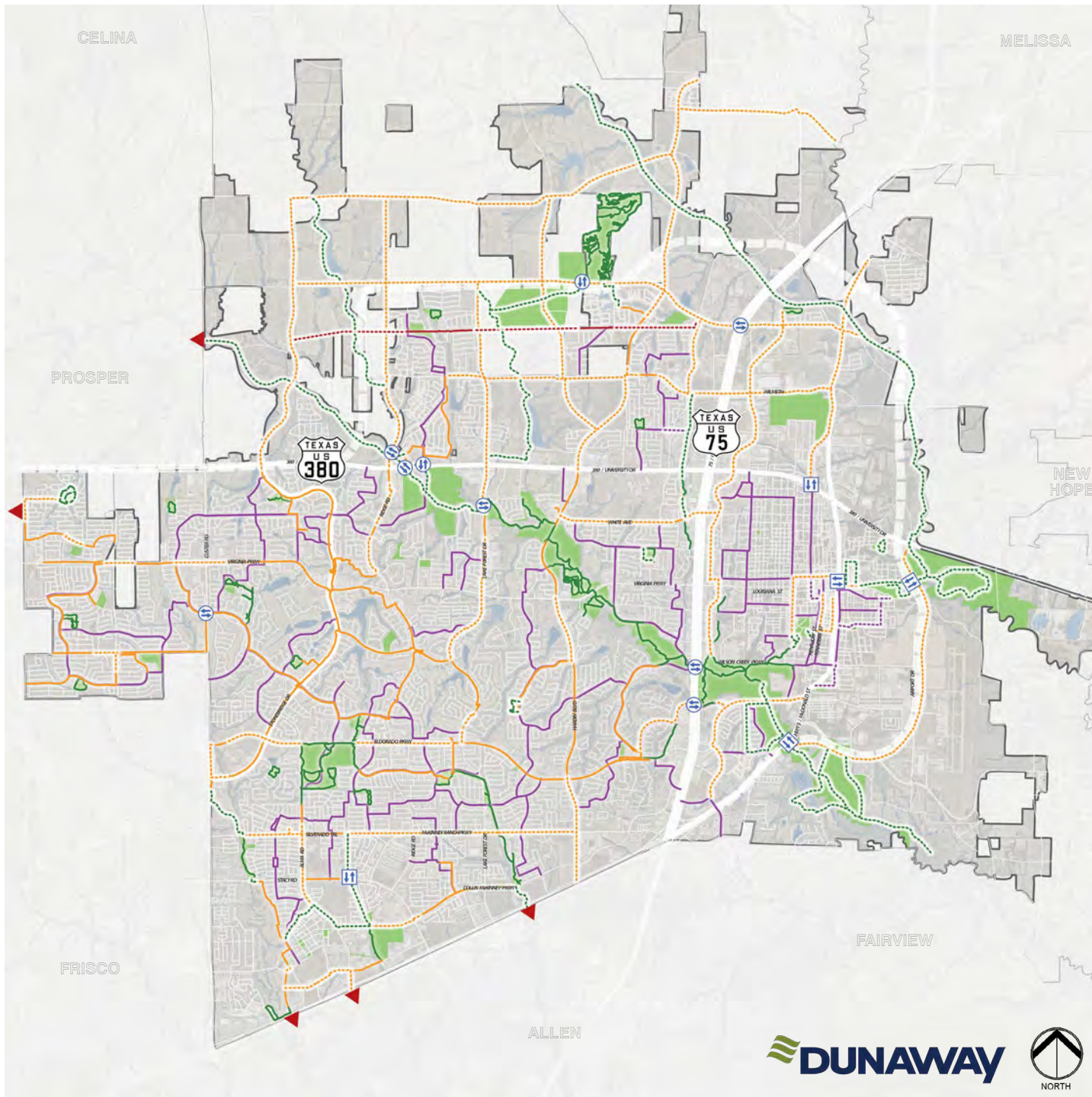
- *Be courteous to other trail users at all times;*
- *Keep to the right, except when passing;*
- *Always pass on the left, and give clear audible warning when passing slower traffic;*
- *Avoid congregating on the trail or walking more than two abreast;*
- *Bicyclists should keep speed under 15 mph at 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.*



Wayfinding Sign

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 locator systems along major trails. It is recommended that the City 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.

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.



TRAIL NETWORK PLAN

Trails (Existing & Proposed)

-  Parkway Trail
-  Bicycle Boulevard
-  Greenbelt & Park Trail
-  Easement Trail

Crossings & Connections

-  At-Grade Crossing
-  Grade Separated Crossing
-  Regional Connection

 **DUNAWAY**



A photograph of a dirt path winding through a dense forest of tall, thin trees with green foliage. The path is covered in shadows from the trees. Overlaid on the right side of the image are large, white, stylized numbers '05' with a thin green outline. The numbers are semi-transparent, allowing the forest scene to be seen through them.

05

IMPLEMENTATION



Implementation

City leaders should utilize this document to prioritize, plan, and budget the implementation future trail projects. McKinney's implementation strategy should be prioritized into immediate projects, short-term priorities, and future 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)

Projects that provide strategic connections and greatly increase the impact the trail network for McKinney citizens and visitors should be identified as immediate priorities. Typically a high-priority for current trail users these segments make critical links and address a direct mobility or safety need.

SHORT-TERM PRIORITIES (3 TO 9 YEARS)

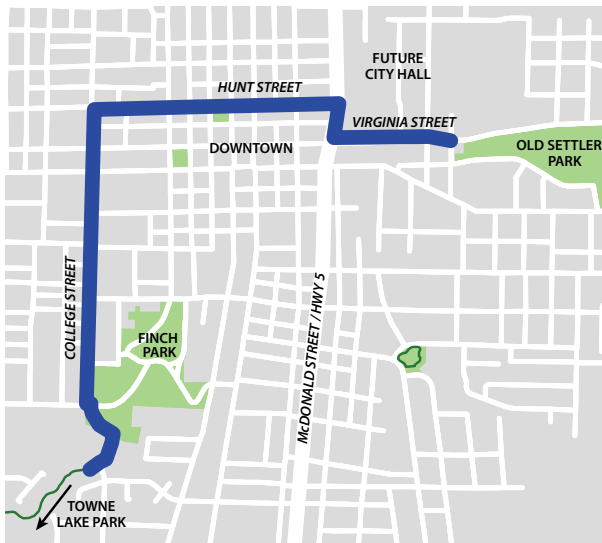
Short term projects are those which there is a current need but require additional time for design, coordination and execution. Examples of these project types include signature trail extensions, park loops associated with new park development, and critical links between established districts.

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 McKinney. 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, land acquisitions and the availability of unforeseen funding sources such as grants, partnerships, donations, etc.

CATALYST PROJECTS

This plan recommends an extensive network of trails that will be constructed over time. These proposed trails will be implemented through collaboration and commitment by the City and development partners. The following pages identify six catalyst projects that will make immediate critical connections. Projects were determined using stakeholder input, staff recommendations and site observations. The proposed trail segments will provide improved network connectivity, comfort and safety for trail users along these key connections.



Downtown Connection

Extending from Old Settlers Park to Town Lake Park, this project will connect the Downtown Districts neighborhoods and destinations to trails in the Wilson Street greenbelt. From Old Settlers Park, 1.5 miles of roadside trails will follow Virginia Parkway, cross McDonald then head east along Hunt, turn south next to College Street then connect to Finch Park. An additional ¼ mile trail will follow the creek linking Finch Park and existing trails that extend to Town Lake Park. Trails and extend along the creek to existing trails at Town Lake Park.



McKinney Greens

This former golf course property around the McKinney Green's neighborhood currently has undulating asphalt cart paths which function as nature trails. This project proposes to reconstruct these pathways to meet current trail design standards into a 2 mile trail loop that then connects the Town Lake Park trail system via an underbridge crossing of Eldorado Pkwy.



Rowlett Creek Extension Craig Ranch

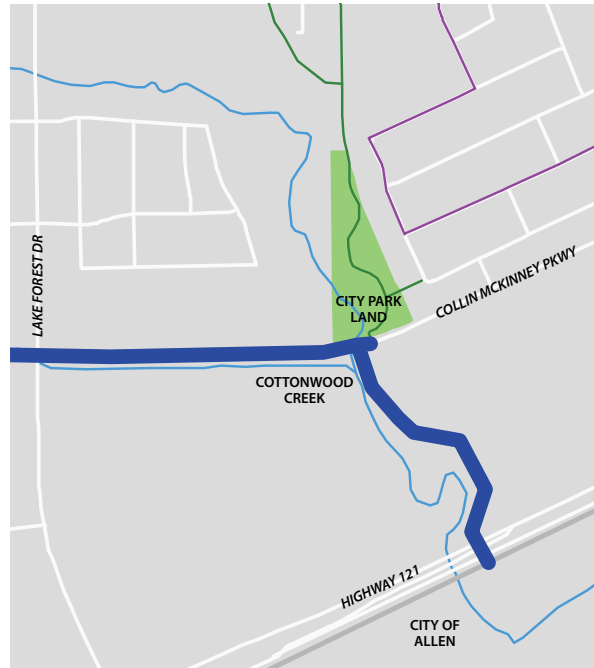
Rowlett Creek Park includes a ¾ mile trail that follows the creek. This project includes new trails in both directions. The North trail extension is ¾ mile, crossing under Silverado, the alignment then crosses the creek via pedestrian bridge then extends along the west side of the creek until Custer Road. The south extension includes a short 350 lf link between the Stacy Road under-bridge crossing and the existing trails along Settlement Way. This project creates continuous trail from US 380 to McKinney's southern City limit.

CATALYST PROJECTS



Erwin Park Connection

This project includes 1.5 miles of trail connecting trails and recreation opportunities at Erwin Park, the Ottaway Parcel, and Park Property to planned trail segments and new residential neighborhoods. The trail will follow the new alignment of Bloomdale Rd with one crossing at CR 1006, then extend in through the park property where it will connect to the Painted Tree spine trail.



Cottonwood Creek Connection

The trail along Collin McKinney Parkway provides an east-west travel in south McKinney, connecting neighborhoods to Emerson High School and the Craig Ranch Sport Complex. The trail currently ends at the Lake Forest intersection. This project will extend the trail east to Cottonwood Creek where the alignment will run south, along the east side of the creek and under the SH 121 bridge to the city limits. The $\frac{3}{4}$ mile segment will connect to Allen's existing 3-mile Cottonwood Creek Trail creating a significant regional connection for McKinney.



Auburn Hills - Grey Branch Connection

Heavy vehicular traffic on US 380 is an imposing barrier for many bicyclists and pedestrian, effectively separating north and south Mckinney. This project includes a .23 mile trail and grade separated crossing beneath US 380, linking the Auburn Hills neighborhood to the Gray's Branch Park property eventually connecting to the trails in the Wilson Creek Greenbelt.

COST OF IMPLEMENTATION

Trail projects include similar elements such as pavement, signage and markings, moderate grading that can be used estimate cost for a basic 12' trail at \$800,000 to \$1M per mile. Often trail projects include roadway intersections improvements and crossings, or recreational elements such as trailheads, rest areas and exercise stations. Trails commonly traverse undulating topography, with drainage issues, with dense vegetation or other obstacles that and may require features such as bridges, boardwalks, walls, or structures. Complete trail projects incorporating these elements can exceed \$1.5 million per mile.

On-Street bicycle facilities can be implemented on existing streets with minimal roadway modifications improving connectivity where trails are not feasible. New bike lane markings and signage improvements range in cost between \$75,000 and \$100,000 per mile.

Shared Lane markings and signage are approximately \$25,000 per mile. 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. In recent years, the COVID pandemic has resulted in global supply chain and labor disruptions leading to increased volatility in construction pricing. Current inflation is trending upward and costs are continuing to rise. A typical placeholder of 3% to 5% of construction costs is widely accepted as a reasonable allowance. However, this allowance fluctuates directly with current market conditions and is difficult to predict.



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.

Collin 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

- FWA 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
- Foundation Directory Online
- Private Donations
- Partnerships with Volunteer Groups