TOWN OF PROSPER

HIKE & BIKE TRAILS MASTER PLAN

ADOPTED NOVEMBER 2020

HALFF

ACKNOWLEDGMENTS

The following individuals are recognized for their significant contributions to the preparation of the Town of Prosper Hike and Bike Trails Master Plan.

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ACS — American Community Survey
ADAAG — Americans with Disabilities Act Accessibility Guidelines
AASHTO — American Association of State Highway and Transportation Officials
BNSF — Burlington Northern and Santa Fe Railway
CIP — Capital Improvements Program
CMAQ — Congestion Mitigation and Air Quality
DFW — Dallas-Fort Worth
DNT — Dallas North Tollway
EDC — Economic Development Corporation
ETJ — Extra-Territorial Jurisdiction
FHWA — Federal Highway Administration
HOA — Homeowners Association
ISD — Independent School District
ITE — Institute of Transportation Engineers
LF — Linear Feet
M.U.D. — Municipal Utility District
NACTO — National Association of City Transportation Officials
NCTCOG — North Central Texas Council of Governments
NTTA — North Texas Transit Authority
RTMP — Regional Trails Master Plan
STBG — Surface Transportation Block Grant
SRTS — Safe Routes to School
TAS — Texas Accessibility Standards
TDLR — Texas Department of Licensing and Regulation
TMUTCD — Texas Manual on Uniform Traffic Control Devices
TPWD — Texas Parks and Wildlife Department
TRA — Trinity River Authority
TTI — Texas Transportation Institute
TxDOT — Texas Department of Transportation

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INTRODUCTION

CONTENT

- Background & Purpose
- Plan Contents
- Goals & Objectives

BACKGROUND & PURPOSE

BACKGROUND

The Town of Prosper is a growing, affluent community on the northern edge of the Dallas-Fort Worth (DFW) Metroplex. With the population expected to triple in the next twenty years, the Town is preparing for growth through various planning efforts. In 2019, the Town initiated its first ever comprehensive hike and bike trails master plan. This master plan will serve as a guide for future trail development within Prosper.

Since 2010, Prosper has grown by approximately 18,957 people, or 110%. With this significant growth, the amount of new and proposed development is constantly increasing. The Town is in a unique position to proactively plan for and require trails with this new development. Many other communities in the DFW area that are more built-out are having to retroactively build trails, which is much more difficult and expensive. Therefore, it is critical to create a master plan that is responsive to community needs and desires and that can be feasibly implemented over time.

Pedestrian crossing near Tucker Park

Trails have many positive benefits related to health, quality of life, and economic impacts. Access to safe and accessible trail facilities not only give residents transportation options, but also broadens opportunities for active transportation to improve health. Quality parks and trails have a great impact on overall quality of life and make neighborhoods more attractive to potential residents and businesses seeking to relocate. Finally, there have been economic studies that have found that proximity to trails increases the property values of surrounding properties. All of these benefits are compounded by the fact that citizens are demanding trail facilities more and more. In Prosper specifically, 83% of survey takers as part of this master plan effort strongly supported or supported adding more trails and filling in gaps in the trail network.

Lakes of La Cima Trail

PURPOSE

This master plan will achieve the following key objectives:

1. Inventory existing trails and planned trails;
2. Assess the need for additional trails;
3. Identify opportunities to connect to adjacent cities, schools, parks, and key destinations;
4. Provide recommendations for potential trail corridors and cost estimates; and,
5. Provide considerations for trail design standards.

The resulting trails recommendations map will be used to guide the provision of trails as development and redevelopment occurs in the Town. The associated policy recommendations should be used to update applicable policies and development standards.

The plan development process took approximately 12 months to complete; the process included inventorying existing conditions, stakeholder and public visioning, assessing opportunities, developing recommendations, and reviewing and adopting the plan.

PLAN CONTENTS

This plan is divided into five chapters as described below:

Chapter 1 - Introduction

Gives background and context for the plan and presents the plan goals and objectives.

Chapter 2 - Community Context

Depicts existing conditions in Prosper today as they relate to demographics, the built environment, and natural resources.

Chapter 3 - Trail Needs

Presents a summary of a series of quantitative and qualitative analyses that were taken to assess the need for trail facilities in Prosper.

Chapter 4 - Trail Network Recommendations

Presents recommendations for the proposed trail network and associated considerations for development standards and policies.

Chapter 5 - Implementation Strategies

Describes the prioritized list of trail development projects with information on costs and potential funding sources.

Town Lake Park

Walking paths in residential neighborhood

PLAN GOALS & OBJECTIVES

As part of the public and stakeholder visioning process, a series of goals and objectives were developed based on the vision of residents. The goals represent broad, overarching statements of intent as they relate to the development of hike and bike trails in Prosper. The subsequent objectives have a more specific target and can be met through the recommendations identified later in this plan.

Goal 1: Create a safe and connected system of hike and bike trails to support active transportation options.

- **Objective 1.1** - Increase the trails level of service (LOS) for all residents.
- **Objective 1.2** - Connect to key destinations such as schools, parks, neighborhoods, and employment centers.
- **Objective 1.3** - Coordinate with other entities to support regional active transportation mobility.
- **Objective 1.4** - Implement safety improvements at key intersections.

Goal 2: Incorporate accessible hike and bike trails when new development occurs

- **Objective 2.1** - Update trail development standards to ensure connectivity to and within new developments.
- **Objective 2.2** - Incorporate hike and bike trails when planning for new or reconstructed roadways.

Goal 3: Design, construct, and maintain hike and bike trails in a sustainable manner.

- **Objective 3.1** - Seek alternative and innovative funding sources for long-term trail development.
- **Objective 3.2** - Consider environmental features when developing new trails.
- **Objective 3.3** - Develop trails in natural areas that are context-sensitive to the surrounding landscape.

Goal 4: Increase awareness of the hike and bike trail system.

- **Objective 4.1** - Increase public awareness of the hike and bike trail system through an education campaign.
- **Objective 4.2** - Develop wayfinding amenities and trailheads along trails.

Town Lake Park

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COMMUNITY CONTEXT

CONTENT

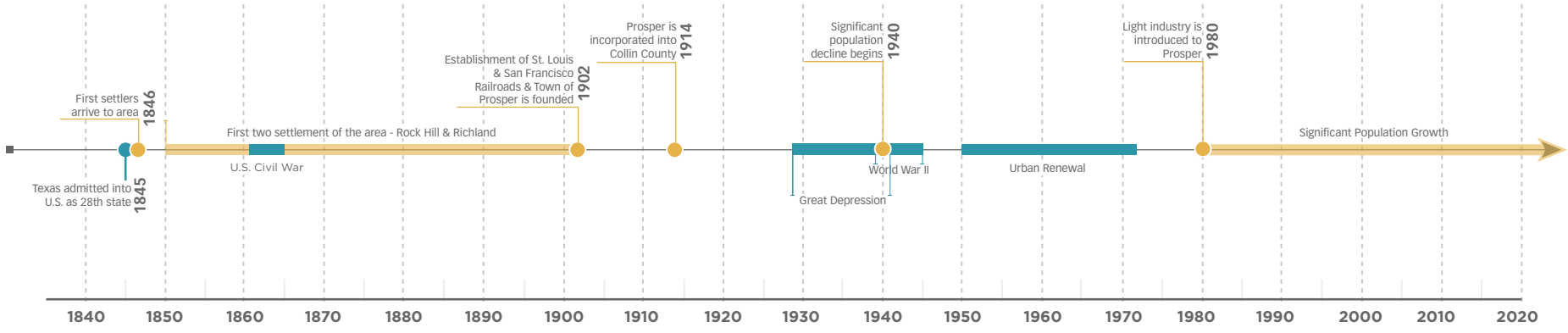
COMMUNITY OVERVIEW

TOWN HISTORY

The land that is now the Town of Prosper began as two separate agricultural settlements, Rock Hill and Richland, when cotton farming was an integral part of the North Texas landscape. These settlements experienced rapid development in 1876 when the County Courts pushed the sale of 160-acre land tracts. One of these tracts was purchased by Dr. A.T. Bryant, a resident of McKinney, and this land became the center for the future Town of Prosper. In 1902 the two settlements were united when a stop for the St. Louis and San Francisco Railroad was established within Dr. Bryant's land holdings. The railroad stop drew residents and businesses from the nearby communities to relocate to one of Collin County's last towns, Prosper. Prosper was incorporated in 1914 with a population of approximately 500, contributing cotton and corn to the surrounding agricultural region. After decades of growth, the Great Depression halted further growth and the population declined significantly by 1940. The next period of growth for Prosper occurred in the 1980s when light industrial uses were introduced to the town to support the overall development boom in the North Texas area.

Old Town Prosper

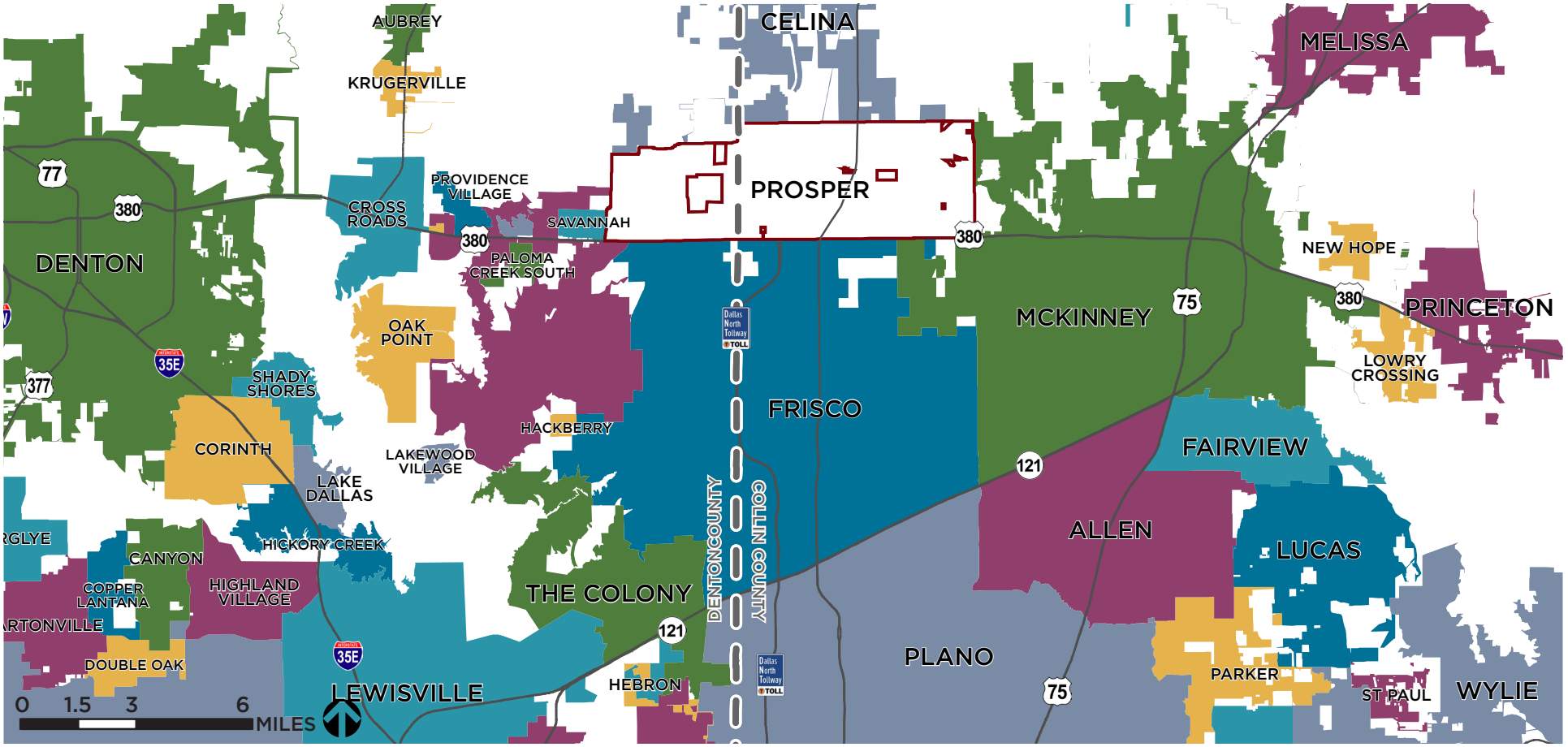
FIGURE 2.1 | COMMUNITY TIMELINE



PLANNING AREA

The Town of Prosper is located on the northern edge of the Dallas-Fort Worth Metroplex and extends into both Collin and Denton Counties. The City of Frisco is situated along the southern border, the Town of Celina is along the northern border, and McKinney is to the east. State Highway 289 (Preston Road) serves as a main artery through Prosper and provides access to cities in the south and north into Oklahoma. US 380 is located on the Town's southern border, which connects McKinney to Denton. The Dallas North Tollway (DNT) will be extended through the Town over the next several years, providing additional regional mobility. The Town is characterized by exponential residential development occurring throughout the town and the surrounding extraterritorial jurisdiction area (ETJ). As of 2020 Prosper was 27 square miles and its ETJ was 1.21 square miles, which extends primarily to the north and west of the town limits.

FIGURE 2.2 | REGIONAL CONTEXT MAP



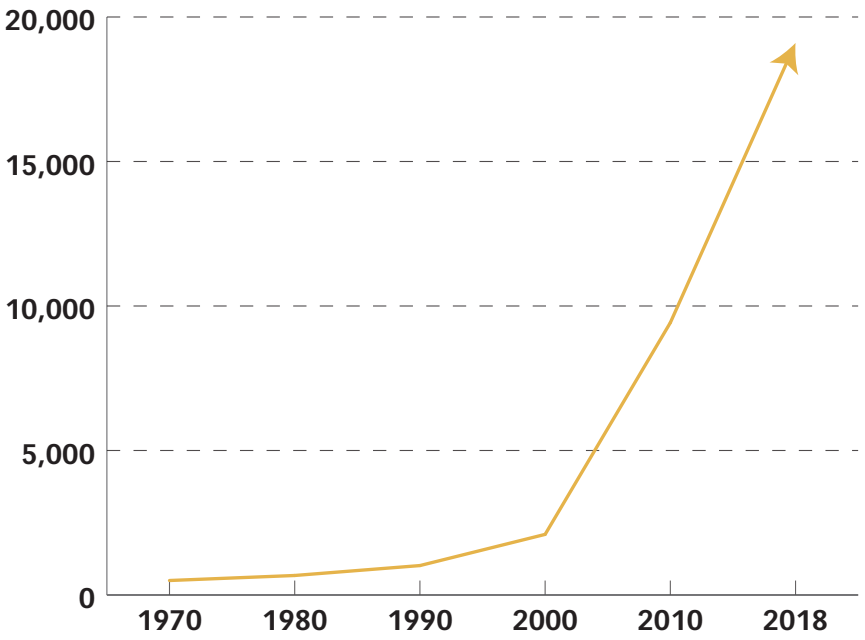
DEMOGRAPHIC PROFILE

Prosper is split by Collin and Denton Counties, which are fast growing counties within the Dallas-Fort Worth Metroplex. As growth is projected for the Town and the two counties it is a crucial part of the planning process to understand the demographic composition. The community characteristics discussed in the following sections provide an idea of the potential hike and bike trail user groups in Prosper and allow planning efforts to consider current and future trends.

GROWTH TRENDS

Exponential population growth has been the prevailing story in Prosper for the past few decades. Substantial population growth was spurred by the introduction of light industry to the Prosper area in the 1980's, and over the next 20 years the population grew by over 200%. By 2010 the population was just under 10,000, which represented a 350% increase since 2000. In more recent years, population growth has slowed slightly but continues to expand at a considerable rate. The North Central Texas Council of Governments (NCTCOG) estimates that as of 2020 the population is 28,380, which constitutes approximately 2% of the total population for both Collin and Denton Counties.

FIGURE 2.3 | HISTORICAL POPULATION GROWTH



NCTCOG also conducts population projections; Prosper is anticipated to grow 135% from 2018 to 2040, during which time the Town is predicted to reach 72,095 residents. Over the next 20 years substantial growth is also anticipated for Collin and Denton Counties. Significant population growth in the future will ultimately create increased demand for an extensive hike and bike trail system.

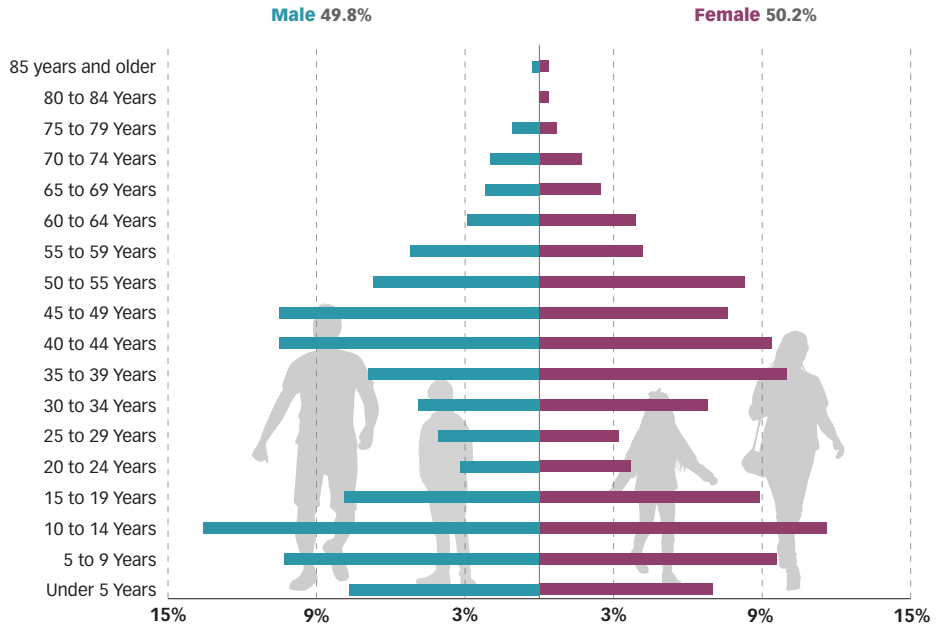
For this section, the 2014-2018 Five-Year American Community Survey (ACS) Five-Year Estimates were used. This represents the latest data available at the time of report development.

AGE & GENDER

As of 2018, individuals between the ages of 35 and 49 collectively made up the largest percentage of the population at 27.6%. The portion of the population aged 18 years and younger make up 18.1% of the population. Additionally, there is a large number of people age 20-54, which is considered the labor force participation cohort. Having a significant percentage of the population 18 years old and younger and within the labor force cohort indicates the strong presence of families living in Prosper.

Males make up 49.8% of the population and their female counterparts comprise 50.2% of the population. The median age of Prosper residents in 2018 was 34 years, which is closely aligned with the median age for all of Texas at 34.3 years but is slightly younger than the median age for the nation as a whole at 37.8 years. Median age of residents has stayed relatively consistent over the past 20 years; in 2010 the median age was 24.5 years and in 2000 it was 32.5 years. Prosper has a relatively young population reflective of younger families moving to the area.

FIGURE 2.4 | AGE & GENDER (2018)



RACE & ETHNICITY

In 2018, a significant majority (82.7%) of Prosper residents identified as white, which has remained consistent over the past 20 years; in 2010, 87% of the population identified as white and in 2000 the percentage was 92%. The second largest cohort in 2018 was residents who identified as Black or African American, composing 9.5% of the overall population, which has increased since 2000. Residents identifying as Hispanic or Latino ethnicity made up 8.4% of the population in 2018. This portion of the population has decreased since from 19% in 2000.

TABLE 2.1 | RACE & ETHNICITY (2000-2018)

	2000	2010	2018
White	92.2%	87.1%	82.7%
Black or African American	0.3%	5.3%	9.5%
American Indian or Alaska Native	0.9%	0.6%	0.9%
Asian	1.1%	1.9%	4.5%
Native Hawaiian & Other Pacific Islander	0.0%	0.0%	0.0%
Some Other Race	5.9%	2.8%	0.5%
Hispanic of Latino (of any race)	19.2%	10.8%	8.4%

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates

HOUSEHOLD CHARACTERISTICS

The total number of housing units in Prosper as of January 2020 was 8,302 units, of which 96.4% were occupied. There are currently 940 multi-family units with a 94.6% occupancy rate. Owner-occupied housing units have consistently made up the majority of Prosper's housing stock since 2000, when 94% of units were owner-occupied; even in 2010 when this percentage dropped to 86%, owner-occupied housing was more prevalent. A strong and consistent presence of owner-occupied housing units aligns with the high percentage of family households, which was 90% in 2018 and has steadily increased since 2000.

The number of vacant households have remained relatively low over the past 20 years, which is indicative of a burgeoning population. Low vacancy rates indicate that more people are moving to Prosper than leaving the Town.

The median household income for Prosper in 2018 was $140,815, which has greatly increased since 2000 when is was $64,063. Compared to most cities and towns within the DFW Metroplex Prosper had one of the highest median household incomes in 2018. The median income is also higher than both Collin County ($90,124) and Denton County ($80,290). In 2018, the median household income for the state of Texas was $60,629, which was less than half of that of Prosper's. Higher incomes often correspond with more disposable income to be used for recreation.

The percentage of individuals living below the federally established poverty level in Prosper has remained low over the past 20 years. In 2000, 7.5% of the population was considered impoverished; this decreased to 3.6% in 2018. Compared to Collin and Denton Counties there were fewer individuals living below the poverty level in Prosper as of 2018.

TABLE 2.2 | HOUSEHOLD CHARACTERISTICS (2000-2018)

	2000	2010	2018
Total Housing Units	717	3,469	7,592*
Occupied Housing Units	94.6%	86.2%	93.0%*
Vacant Housing Units	5.4%	13.8%	7.0%*
Owner-Occupied Housing Units	85.0%	79.7%	86.5%
Median Mortgage Cost	$1,299	$2,593	$2,921
Renter-Occupied Housing Units	15.0%	20.3%	13.5%
Median Rent	$612	$1,174	$1,482
Total Households	678	2,990	5,584
Median Household Income	$64,063	$111,987	$140,815

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates
**Source: NCTCOG*

COMMUTING CHARACTERISTICS

As of 2018, there were 8,608 total workers in Prosper. As discussed in the Age and Gender section, the Town of Prosper has a significant percentage of the population that falls into the age cohort classified as eligible to participate in the labor force. Looking at modes of transportation used by Prosper's labor force, 83.6% commuted by car, truck, or van. Of this 83.6%, nearly 80% of these individuals drove alone. The use of public transportation, walking, and bicycling were the modes with the lowest percentages used by Prosper residents. Between 2000 and 2018 there weren't any residents that claimed to commute to work via bicycle, and the percentage of people walking to work has declined during this timeframe, at just 0.3% in 2018. A low percentage of commuters cycling or walking as their primary mode of transportation to work may indicate that bicycle and pedestrian infrastructure in Prosper lacks connectivity, accessibility, and safety for daily mobility needs.

The mean travel time to work for Prosper commuters in 2018 was 34.5 minutes. Over half of all Prosper commuters claim to travel at least 30 minutes to get to work. The significant percentage of individuals traveling long distances to their jobs aligns with the high percentage of commuters that rely on personal vehicles as their primary mode of transportation. Longer commuting distances do not support active transportation modes such as walking or bicycling, which has resulted in low percentages for these commuting types.

TABLE 2.3 | COMMUTING CHARACTERISTICS (2000-2018)

	2000	2010	2018
Workers 16 years and over	1,016	3,696	8,608
Car, truck, or van	95.0%	85.1%	83.6%
Drove alone	82.9%	77.9%	78.5%
Carpooled	12.1%	7.2%	5.1%
Public Transportation	0.3%	0.3%	0.6%
Walked	1.4%	2.8%	0.3%
Bicycled	0.0%	0.0%	0.0%
Taxicab, motorcycle, or other	1.4%	0.3%	1.7%
Worked from home	2.8%	11.5%	13.8%

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates

TABLE 2.4 | TRAVEL TIME TO WORK (2000-2018)

	2000	2010	2018
Less than 10 minutes	10.8%	14.5%	8.1%
10 to 14 minutes	9.9%	6.2%	5.6%
15 to 19 minutes	8.8%	8.6%	9.1%
20 to 24 minutes	13.4%	10.8%	15.0%
25 to 29 minutes	5.4%	6.3%	7.1%
30 to 34 minutes	9.9%	13.7%	13.8%
35 to 44 minutes	8.9%	11.5%	11.4%
45 to 59 minutes	17.5%	17.5%	15.4%
60 or more minutes	12.9%	10.9%	14.5%
Mean travel time to work	32.3	31.2	34.5

Source: U.S. Census Bureau, 2014-2018 American Community Survey 5-Year Estimates

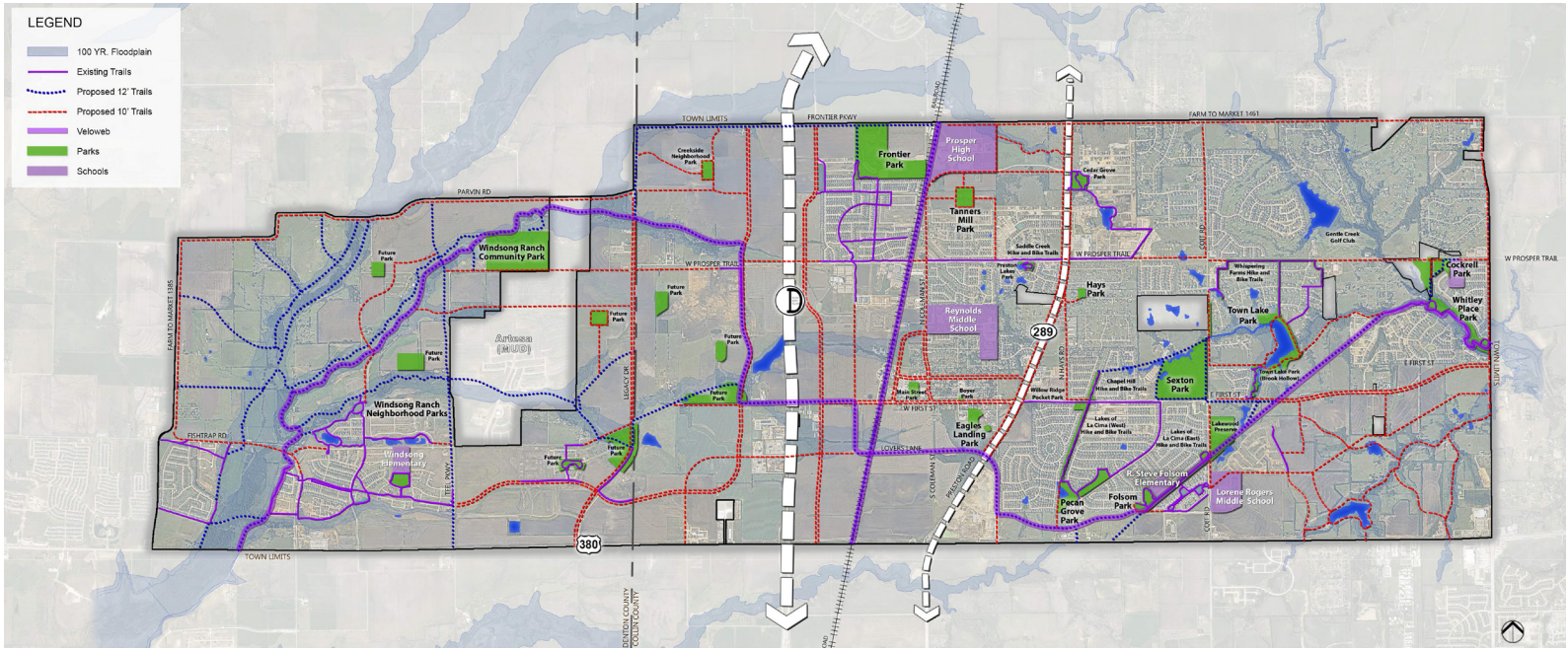
REVIEW OF RELEVANT STUDIES

HIKE & BIKE TRAIL PLAN MAP (2019)

In conjunction with the Parks, Recreation, and Open Space Master Plan, the Town developed a Hike and Bike Trail Map that identifies the proposed hike and bike trail network at a high level. This proposed network focuses on providing increased trail connections within Prosper, particularly in areas where future growth and new development is projected. One of the objectives of this master plan effort is to assess the feasibility of the trail corridors identified in the Hike and Bike Trail Plan Map. Additionally, Prosper has coordinated with NCTCOG to refine the Regional Veloweb corridors as more development has occurred.

THOROUGHFARE PLAN (2020)

The Prosper Thoroughfare Plan establishes a network of major roadways connecting to key streets in adjacent communities and identifies strategic corridors for accommodating local and long-term regional travel demand. Additionally, the plan has identified locations for future major and minor gateways along the border of the town. From a hike and bike trails perspective, providing safe crossings at the future DNT corridor is of critical importance. In 2019, an amendment to the thoroughfare plan was made. Amendments to the Thoroughfare Plan were made in 2019 and 2020.



2019 Hike and Bike Trail Plan Map

PARKS, RECREATION AND OPEN SPACE MASTER PLAN (2015)

The current parks system master plan was adopted in 2015 and provides recommendations for future land acquisition, park expansion, and park development to serve the fast-growing population of Prosper. The plan serves as a road map for the future development and expansion of the Prosper park system over the next five to ten years.

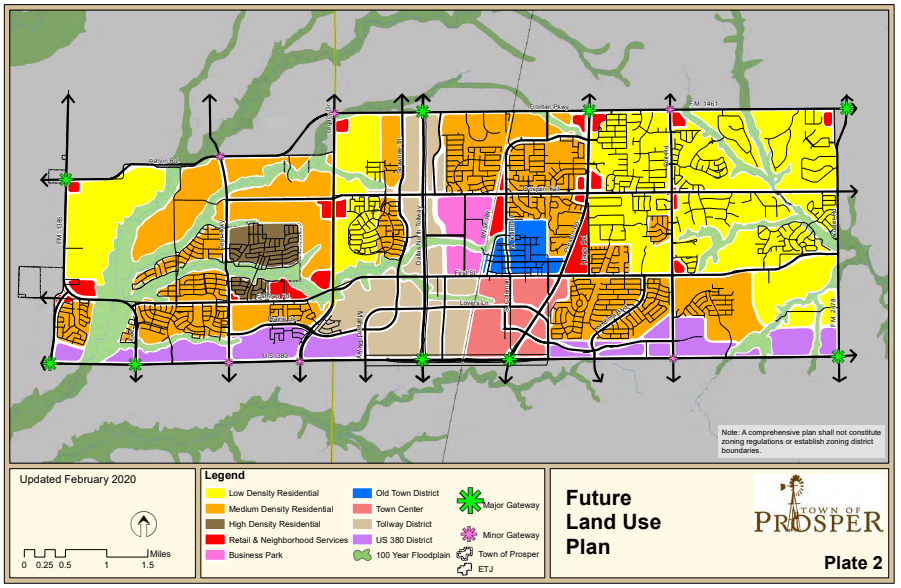
Public input was a significant part of the development of this plan and informed the decisions for items to be prioritized for implementation. As part of this plan, hike and bike trails were ranked in the top five high priority items.

COLLIN COUNTY TRAILS PLAN (2012)

The Collin County Regional Trails Master Plan (RTMP) was adopted in 2012 and plans for connectivity between Collin County cities and towns. This plan builds upon other regional studies such as the NCTCOG Regional Veloweb, the Six Cities Trail Plan, and planning efforts of individual cities and towns in the County. This plan provides guidance for municipalities of various sizes and planning capacities in areas of policy, design and maintenance standards, and funding strategies. An important aspect of this plan is that it defines high-priority regional trail corridors and identifies gaps between municipalities.

COMPREHENSIVE PLAN (2012)

The Prosper Comprehensive Plan was adopted in 2012 and serves as the Town's overarching policy document to guide new development. The plan is structured into seven sections. Within a handful of these sections the importance of trails for mobility, recreation, and quality of life is mentioned. The implementation of trails to provide safe and accessible connections for bicyclists and pedestrians throughout the town appears in objectives in the implementation plan. According to the Future Land Use Plan, major areas of future growth include the US 380 district and residential areas in the western part of the town. It is important to note where significant areas of growth are expected to occur so appropriate hike and bike trail accommodations can be planned.



Prosper Future Land Use Plan

EXISTING TRAIL NETWORK SNAPSHOT

EXISTING TRAIL NETWORK

Figure 2.5 illustrates the existing hike and bike trail network in Prosper. Currently, there are just over 37 miles of existing hike and bike trails ranging in width from 6' to 12'. The 6' paths are too narrow to be classified as trails, but are included in the inventory as 6' paths. Since development is occurring rapidly in Prosper, the number of trails being built also changes rapidly. For purposes of this master plan, the current system is defined as what is constructed as of February 2020.

Today, most trails exist within parks and greenbelt corridors, along major roads, or within residential developments. It is important to note the trail system is growing rapidly as new development occurs and trails are added incrementally. The majority of existing trails are 8' wide.

Overall, connectivity of the current hike and bike trail system is lacking, specifically in terms of providing connections to the eastern and western parts of the town. Generally, connectivity is limited to residential developments and the parks located within them; interconnectivity through a network of non-motorized routes haven't been fully addressed, which is typical for a fast growing town. As the hike and bike trail system is further developed, areas to consider are locations for safe crossings of major thoroughfares and accessibility to key destinations.

The previous trails master plan identified approximately 113 miles of additional trails necessary to create a more complete network. Additional routes will increase overall connectivity in Prosper as it will provide opportunities for users to comfortably and easily reach key destinations. The feasibility of these planned trails is discussed in later chapters.

Trails at Whitley Place

FIGURE 2.5 | EXISTING TRAIL SYSTEM MAP

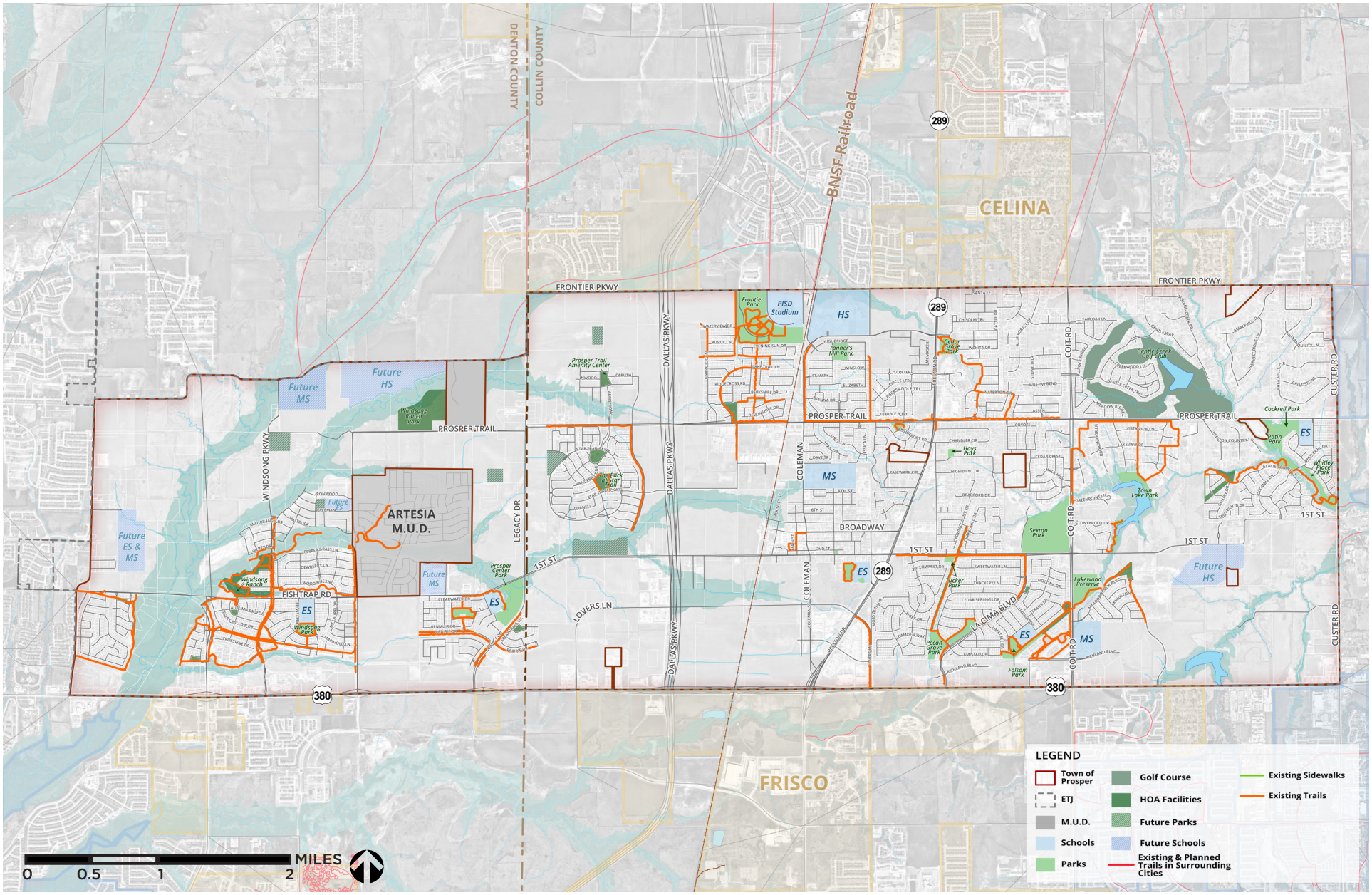
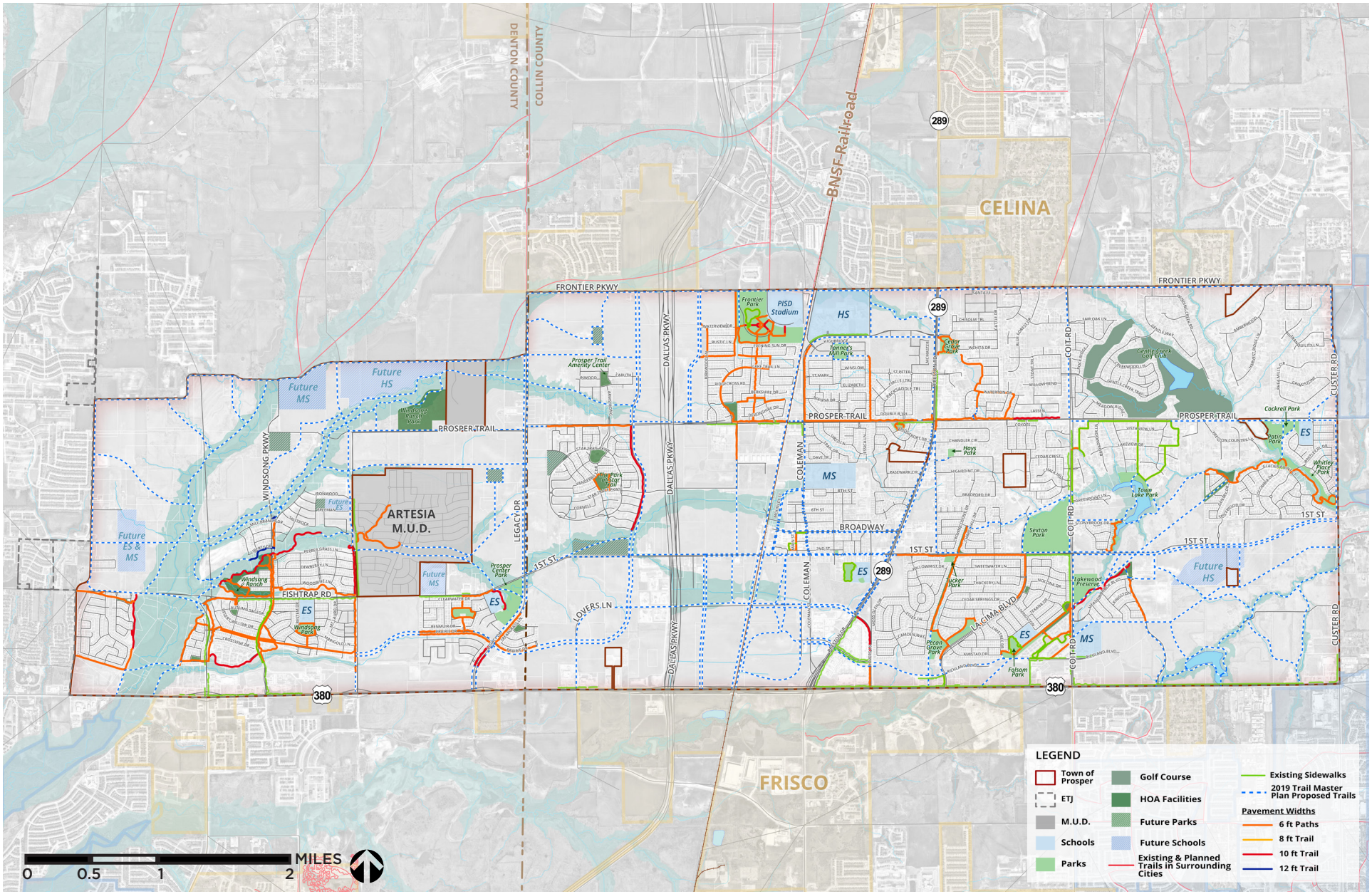


TABLE 2.5 | EXISTING TRAIL INVENTORY

	TRAIL NAME	LENGTH IN MILES	WIDTH OF TRAIL	SURFACE	TRAIL TYPE
1	Cedar Grove Park	0.58	8′	Concrete	Neighborhood Park Loop
2	Chapel Hill Hike & Bike Trails	0.22	8′	Concrete	Greenbelt Trail Corridor
3	Eagles Landing Park	0.40	6′	Concrete	Neighborhood Park Loop
4	Folsom Park	0.72	6′-8′	Concrete	Neighborhood Park Loop
5	Frontier Park	2.10	6′-10′	Concrete	Community Park Loop
6	Lakes of La Cima (East) Hike & Bike Trails	0.51	6′-8′	Concrete	Greenbelt Trail Corridor
7	Lakes of La Cima (West) Hike & Bike Trails	0.60	8′	Concrete	Greenbelt Trail Corridor
8	Lakewood Preserve	0.63	10′	Concrete	Neighborhood Park Loop
9	Pecan Grove Park	0.61	8′	Concrete	Neighborhood Park Loop
10	Prairie Park	0.45	8′	Concrete	Neighborhood Park Loop
11	Preston Lakes Park	0.24	6′-8′	Concrete	Pocket Park Loop
12	Saddle Creek Hike & Bike Trails	7.4	6′-8′	Concrete	Greenbelt Trail Corridor
13	The Park at Star Trace	0.42	8′	Concrete	Neighborhood Park Loop
14	Town Lake Park	0.36	8′	Concrete	Community Park Loop
15	Whitley Place Park	1.83	8′	Concrete	Neighborhood Park Loop
16	Whispering Farm Hike & Bike Trails	1.95	6′	Concrete	Greenbelt Trail Corridor
17	Windsong Ranch Hike & Bike Trails	2.44	8′-10′	Concrete	Greenbelt Trail Corridor
	Named Trails Subtotal Miles	**21.46**			
	Unnamed Trail Subtotal Miles	**16.05**			
	All Trails Total Miles	**37.51**			

**As of 2019 inventory*

FIGURE 2.6 | EXISTING TRAIL SYSTEM MAP - BY WIDTH



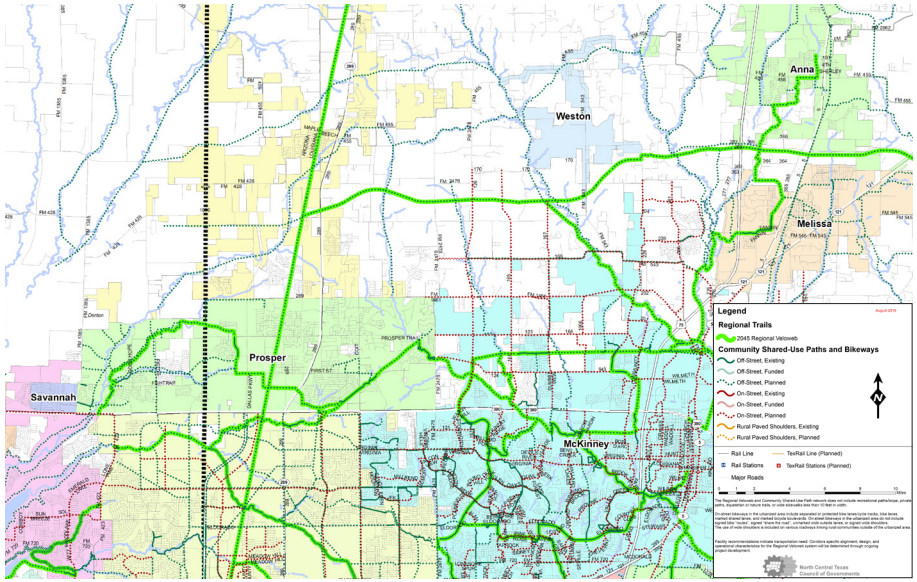
REGIONAL CONNECTIONS

REGIONAL VELOWEB

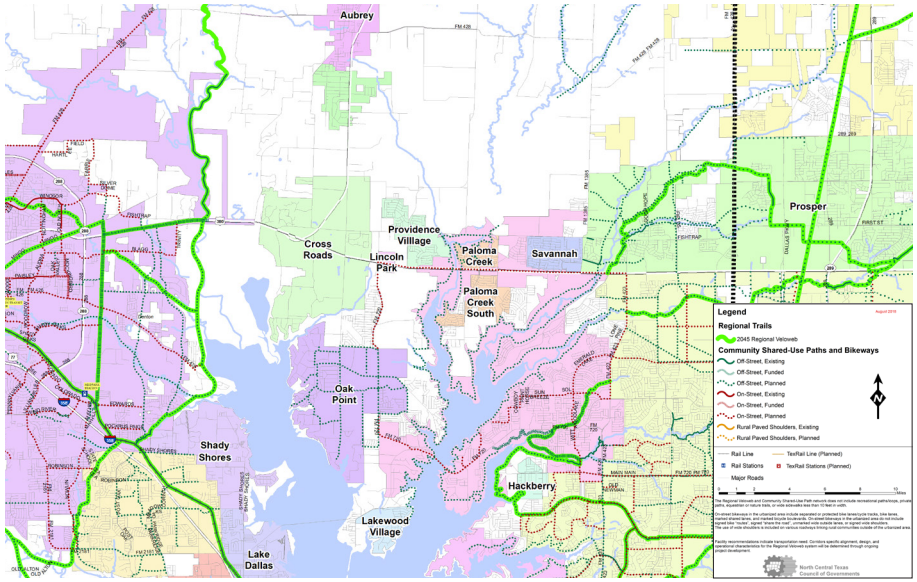
The Regional Veloweb is an expansive network of off-street shared-use paths that can accommodate multiple user groups including bicyclists, pedestrians, and other non-motorized modes of transportation. The Veloweb is compiled and continuously updated by the NCTCOG. The latest version of the regional network is included in the NCTCOG Mobility 2045 plan and contains 1,883 miles of off-street trails. The Veloweb provides connections in North Texas for 105 cities within 10 counties. The Veloweb trail alignments are established through cooperative planning efforts between NCTCOG and local jurisdictions. Individual cities are responsible for securing funding and constructing trail segments within their jurisdiction with varying levels of assistance provided by NCTCOG.

The Mobility 2045 plan has established a hierarchy of existing, funded, and planned Veloweb trail segments. The majority of Veloweb segments in Prosper are categorized as 'planned,' with a handful of existing segments located in the eastern and western part of the town. Many of Prosper's planned trail routes align with planned Veloweb routes, ultimately creating trail connections throughout the Town and into surrounding cities.

The images to the right are detailed maps of the Regional Veloweb trail and bikeway networks for Collin and Denton Counties. These maps were produced by NCTCOG and categorize trail and bikeway segments as planned, funded, or existing.



Collin County regional trails and bikeway system map (Source: NCTCOG)



Denton County regional trails and bikeway system map (Source: NCTCOG)

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TRAIL NEEDS

CONTENT

- Needs Assessment
- Community Input
- Trail Opportunities

NEEDS ASSESSMENT

TRAILS LEVEL OF SERVICE

Trail Level of Service (LOS) is a method used to compare the miles of trails within a community to the total population, determining if the community is being optimally served. Prosper's trail system as of early 2020 has a level of service of 1 mile for every 767 residents. A lower population-per-mile is representative of more miles of trail per capita, which is indicative of a higher LOS. Essentially, a lower population-per-mile figure is better (note that these figures consider only the quantity of trail mileage and not the quality). For the DFW region, a regional benchmark of 1 mile per every 1,200 residents has been established; this LOS figure will serve as a target for this analysis.

It is beneficial to compare the trail system in Prosper to those of peer communities when determining overall need for trails. Four peer communities were identified in the DFW region: Allen, McKinney, Plano and The Colony. Compared to these communities of similar socioeconomic composition, Prosper has a lower population-per-mile figure than all four communities. However, it is good to keep in mind that most of these cities have significantly larger population as well as more miles of trails than Prosper.

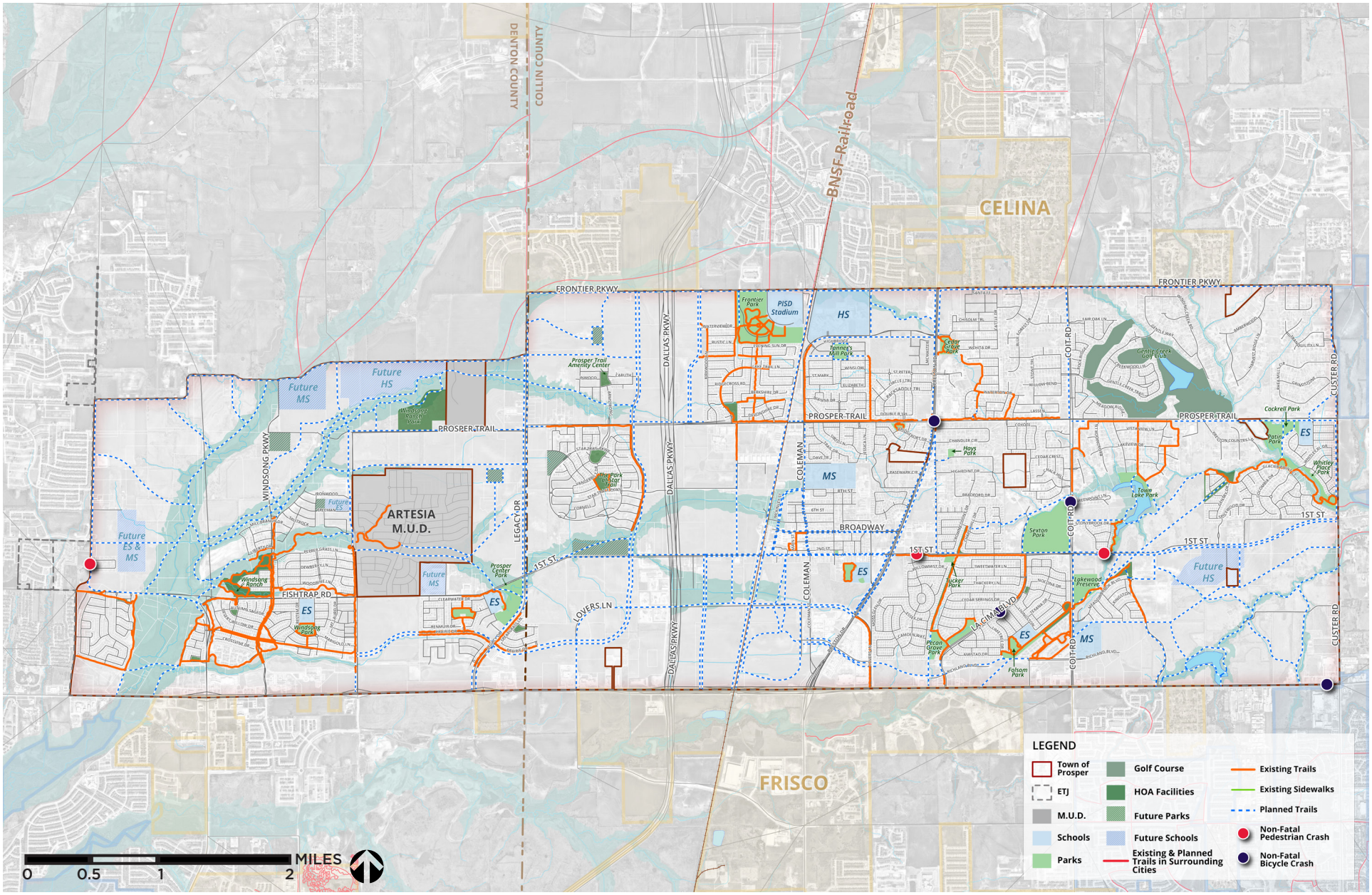
Looking to the future, this population-per-mile figure will increase without the development of additional trails. It is projected that Prosper will experience significant population growth, reaching 72,095 residents in 2040. Based on the projected population and the current trail mileage the LOS in 2040 would be 1 mile for every 2,243 residents, requiring approximately 28 miles of additional trails to meet the regional LOS benchmark.

CRASH DATA

Assessing bicycle and pedestrian crash data helps to identify safety issues that could be solved through additional bicycle and pedestrian improvements. NCTCOG's 2013-2017 bicycle and pedestrian crash data for Collin and Denton Counties, which is informed by the Texas Department of Transportation (TxDOT) Crash Record Information System (CRIS) was used in this section. The crash data mapped by NCTCOG only contains the locations crashes that are reported. Bicycle and pedestrian crashes are separated into two categories - fatal and non-fatal incidents. The points illustrated in Figure 3.1 represent the locations of bicycle and pedestrian crashes.

The total number of both bicycle and pedestrian crashes between 2013 and 2017 is low compared to other cities in the DFW Metroplex, and all were non-fatal incidents. There were four crashes that involved bicycles and three involving pedestrians. The majority of crashes occurred in the eastern portion of the town where older development and the majority of well-known existing trails are located. A commonality among the reported crashes is they all occurred along major roadways, mainly in areas that lack adequate bicycle or pedestrian accommodations. Roadways where conflict has happened include First Street, Preston Road, and Coit Road, all of which accommodate high speeds and volumes of motor vehicles throughout the day. The occurrence of bicycle and pedestrian crashes can be attributed to gaps and insufficiencies in Prosper's overall hike and bike trail network. The absence of these designated facilities requires bicyclists and pedestrians to take unsafe routes where there is a higher possibility of conflict with motor vehicles.

FIGURE 3.1 | BICYCLE & PEDESTRIAN CRASH DATA (2013-2017)



ORIGINS & DESTINATIONS

Understanding a community's trip origins and destinations is critical to ensure that the recommended hike and bike trail network accommodates where people are traveling. As part of the needs assessment, key destinations and activity nodes were identified. Key destinations included public buildings/facilities, parks, schools, large retail areas, and employment centers. In order to identify trip origins, location of neighborhoods was considered.

Public Buildings/Facilities

This includes key town facilities such as Town Hall and library. The western part of Prosper is disconnected from Town Hall and the greater Old Town area in terms of bicycle and pedestrian connections.

Parks

There are a total of 33 existing and planned public parks in Prosper today. Generally, there are walking trails within these parks, but connectivity leading to the parks from neighborhoods is lacking. There are also several private HOA parks within neighborhood developments.

Schools

Within Prosper, there are five elementary schools, two middle schools, and one high school. A new middle school is scheduled to open in the Fall, 2020. Given the anticipated growth, there are five additional planned schools to be built in the near future. Many of the existing schools do not have good sidewalk or trail connections from the surrounding neighborhoods, meaning that most children are not able to walk or bike safely to school.

Prosper Town Hall

Retail Areas

Major retail areas include the Gates at Prosper on Preston Road and US 380, Shops at Prosper Trail on Preston Road at Prosper Trail and Preston, and Windsong Ranch Marketplace at 380 and Gee Road. There are existing sidewalks along the perimeter of these developments, but not much within the retail areas themselves.

Employment Centers

The major employment centers within Prosper include the previously identified retail areas as well as the Cook Children's Health Medical Center on US 380 and Windsong Parkway, the planned Children's Health medical facility on DNT and US 380, and Downtown Prosper. There are also several existing and planned business/office parks throughout the town. It is important to provide connections to these employment centers in order to offer an alternative method of transportation for commuting purposes.

Neighborhoods

West of the future Dallas North Tollway, major neighborhood developments include Windsong Ranch, the Preserve at Doe Creek, the Parks at Legacy, and Star Trail. These are all relatively new developments and are still being built out. East of the Tollway, major neighborhood developments include Lakes of Prosper, Saddle Creek, Trails of Prosper, Wildwood Estates, Willow Ridge, Lakes of La Cima, Chapel Hill, Lakewood at Brookhollow, Whitley Place, and Gentle Creek. In addition to these subdivisions on the east side, there are also older neighborhoods and areas with larger estates. According to the Future Land Use Plan, for the areas that are not currently built out, there is anticipated to be a combination of low-density residential and medium-density residential.

Retail development in Old Town Prosper

Windsong Ranch residential development

MAJOR BARRIERS

There are both natural and man-made features in Prosper that may pose a barrier to trail construction. As part of the overall needs assessment, barriers in Prosper were identified so they can be addressed through the recommended hike and bike trail network.

Infrastructure Barriers

Major roadways like the future Dallas North Tollway and U.S. 380 pose a significant barrier to safe active transportation if cyclists and pedestrians are not accommodated appropriately. There are a total of five roadway intersections with the planned tollway within the Town limits. The Town is actively coordinating with the North Texas Tollway Authority (NTTA) to ensure that safe and accessible pedestrian paths are included with the tollway overpasses.

Other infrastructure barriers include the BNSF railroad that bisects the town just east of the Tollway. Rail lines pose a barrier to safe cyclist and pedestrian crossing traffic, just like they do for at-grade intersections with vehicle traffic.

Both the Tollway corridor and the railroad limit the amount of east-west connectivity that can be accomplished in Prosper. Throughout the public and stakeholder engagement process, residents expressed their desire to better establish east-west connections to connect neighborhoods in the west to Old Town and associated public facilities and vice versa.

Waterways

Waterways include streams, creeks, ponds, lakes, and drainage ditches. In Prosper, there are several creek tributaries that present both a barrier and opportunity for trail development. Often times greenbelt corridors are great candidates for a more natural trail corridor. However, crossing waterways is a significant investment and can be challenging to limit disturbing the natural environment.

View of BNSF rail line in Prosper

Intersections

Crossing intersections as a pedestrian and cyclist can be a harrowing experience, particularly if there is not adequate infrastructure in place. Intersections of large roadways such as Preston Road, Prosper Trail, Dallas North Tollway, and US 380 can be intimidating for active transportation users. Intersection treatments such as enhanced crosswalks and pedestrian signals can help alert motorists of the presence of pedestrians and cyclists.

Pedestrian crossing at La Cima Trail and Coit Road

Trail Gaps

As new development occurs, developers in Prosper are required to construct sidewalks or trails according to the Hike and Bike Trail Master Plan. Given that Prosper is still developing, there are gaps within the existing system where development is piecemeal, which occurs when a city develops quickly. Major gaps include the following, starting in the west:

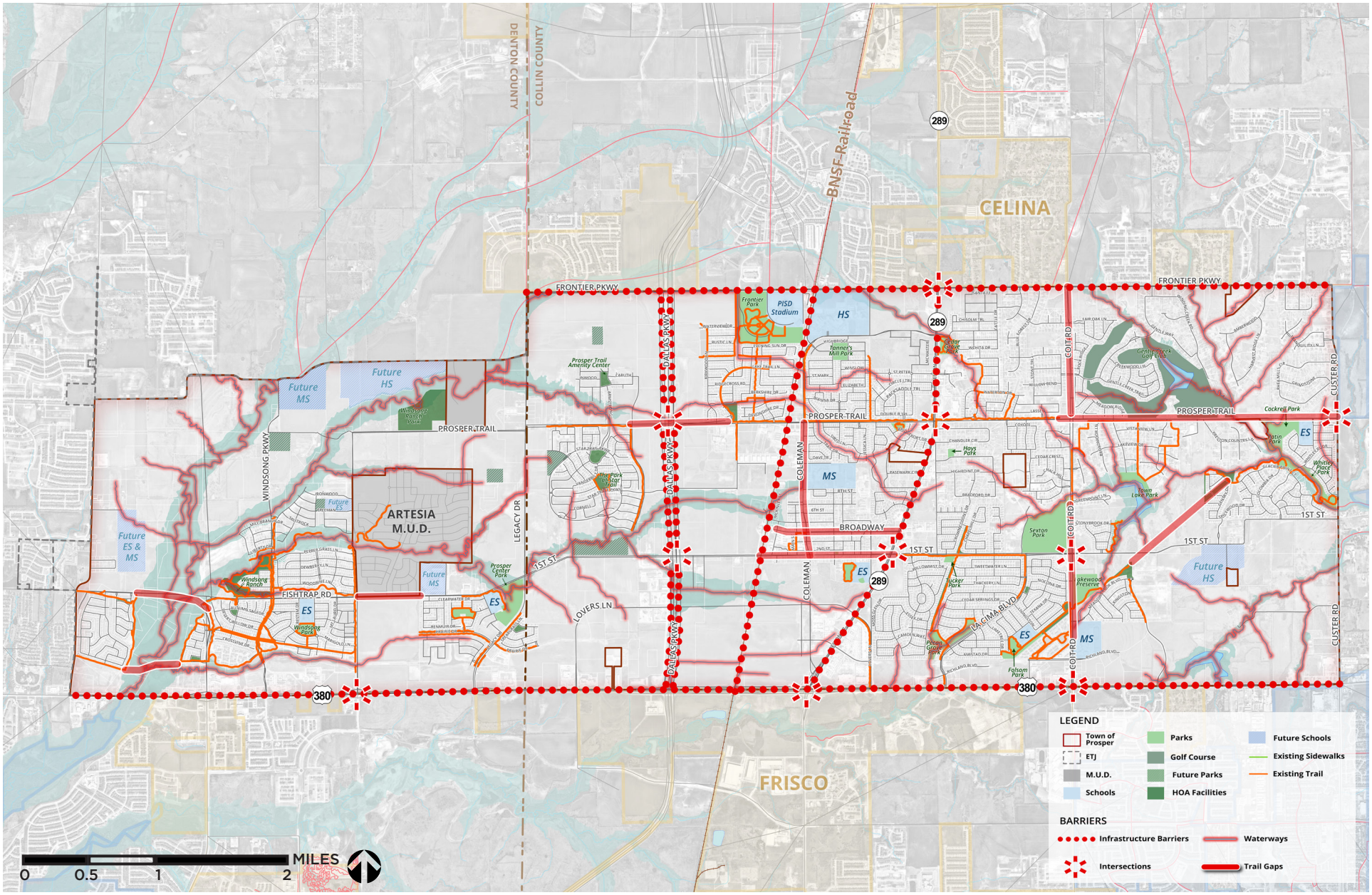
- Connecting the Preserve at Doe Creek neighborhood to Windsong Ranch along Fish Trap Road
- Connecting along Fish Trap Road adjacent to the Artesia Municipal Utility District (M.U.D.)
- Filling in gaps along Prosper Trail
- Connecting to Old Town Prosper
- Filling in gaps along Coit Road
- Connecting the La Cima Trails to the trails at Whitley Place Park

Undersized Trails

AASHTO recommends that multi-use trails be at least 10' wide to ensure there is enough space for multiple users. More locally, NCTCOG recommends that trails designated on the Regional Veloweb be at least 12' wide to accommodate multiple users. In Prosper, there are some existing trails that are 8' wide, meaning that they aren't wide enough to accommodate multiple types of users. While creating additional connectivity should be the main priority, widening key sections of undersized trail will make the existing system more usable and complete.

Figure 3.2 identifies these barriers and challenges on page 30.

FIGURE 3.2 | EXISTING CONNECTIVITY BARRIERS MAP



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COMMUNITY INPUT

Public engagement is a critical part of the planning process as it provides direction for developing the plan vision and goals from those who use the hike and bike system. Multiple engagement methods were utilized to seek input including a steering committee, community meetings, and an online community survey. This section provides an overview of the input obtained through the entire public engagement process

STEERING COMMITTEE MEETINGS

A steering committee was formed to serve as a review body to provide guidance for the duration of the plan process. Two committee meetings were held throughout the process, the initial meeting introduced the plan purpose and process and the second meeting sought feedback on proposed trail corridors and implementation priorities.

COMMUNITY MEETINGS

An initial community meeting was held in early January 2020 where an overview presentation of the anticipated planning process was given along with accompanying interactive input activities. The presentation and input activities allowed attendees to understand the overarching purpose of the hike and bike trails master plan and provide insight on the bicycle and pedestrian facilities they wish to see prioritized and what they envision the plan accomplishing. The input gained during this meeting played a critical role in shaping the vision, goals, and implementation priorities in the plan.

FIGURE 3.3 | KEY PUBLIC WORKSHOP RESULTS

What one word would you use to describe using trails in Prosper today?

What one word would you use to describe how you envision using Prosper trails in the future?

Bicycle and pedestrian facilities the public feels a greater level of comfort using.

Cycle Track

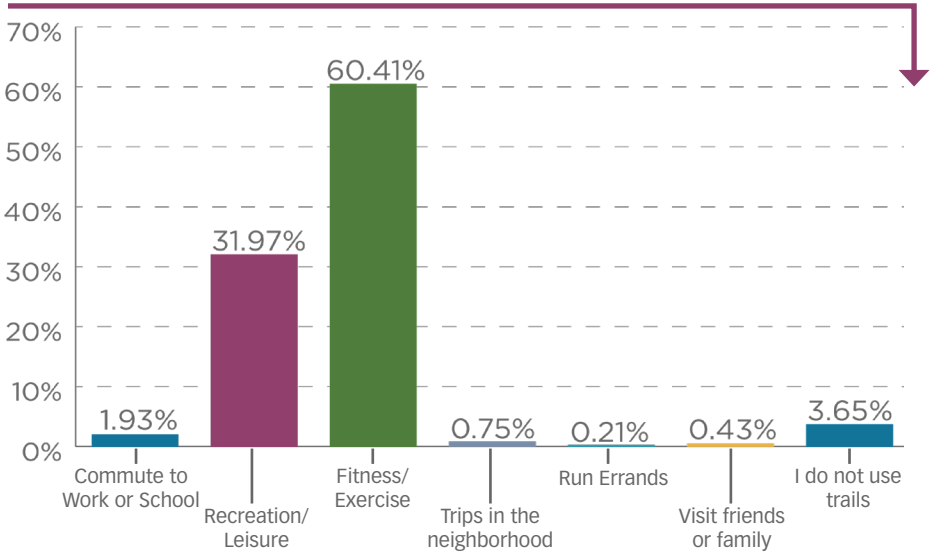
Paved Shared-Use Paths

ONLINE SURVEY

Input from citizens is an important part of the planning process and to ensure a broad range of the public was able to provide insight, an online survey was developed. The web-based survey was made available to Prosper residents from early January until mid-February. The survey contained questions focusing on various trail and bikeway aspects in Prosper.

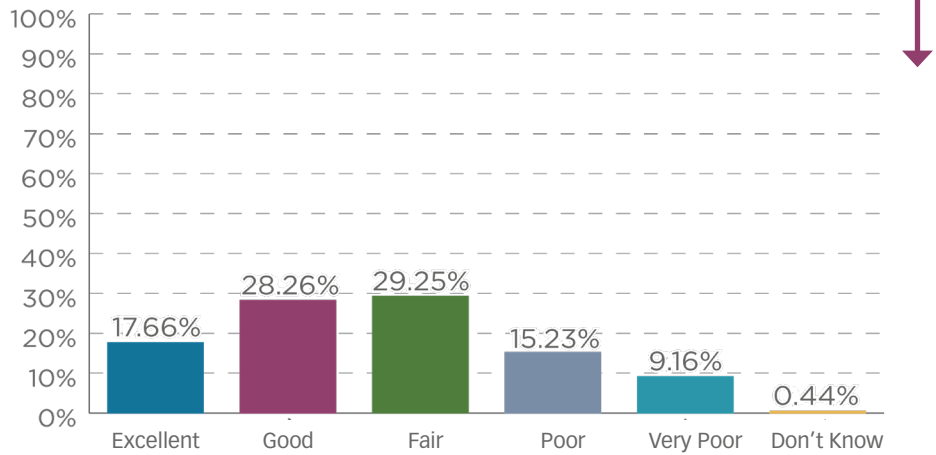
FIGURE 3.4 | KEY ONLINE SURVEY RESULTS

What is your primary purpose for using trails in Prosper?

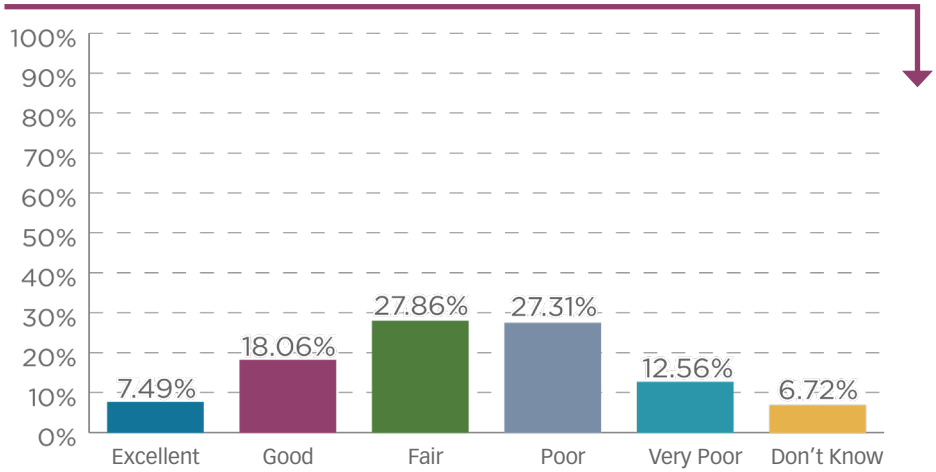


What type of bicycle facility would you prefer to use?

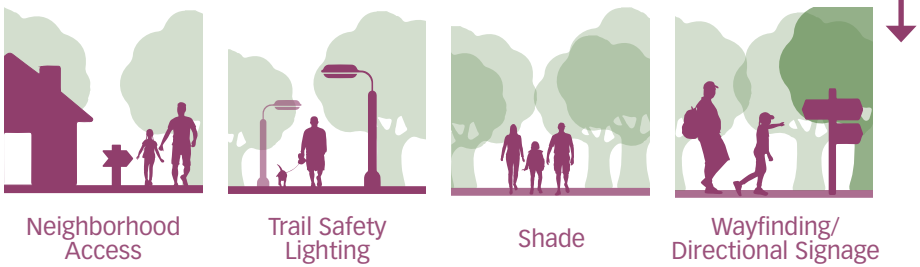
Overall, how would you rate where you live as a place to walk?



Overall, how would you rate where you live as a place to cycle?



Top ranked trail amenities and features based on importance.



TRAIL OPPORTUNITIES

USER GROUPS

A comprehensive trail system involves understanding who we are planning for; to identify what are the needs and preferences of the various trail user groups. Thorough understanding is developed by identifying the preferences, challenges, and limitations impacting multiple groups in the community. Each group comes with a unique set of needs and obstacles; however, the Town's primary goal should be defining shared aspects of the groups to develop a system that most efficiently meets overlapping needs.

Lakewood Preserve Trail access point

WALKERS

Pedestrians generally utilize trails for recreational purposes, and many categorize themselves as walkers. Affordability and accessibility make walking a great passive recreation activity for the general public. Consequently, it is important the connections are made by trails between neighborhoods and nearby destinations. Designing trails that are enjoyable, attractive, safe, and comfortable should be the primary concern when trails are developed.

RUNNERS/JOGGERS

Trail networks provide an optimal setting for runners and joggers seeking opportunities for fitness, sport, and leisure. Multi-use trails with minimum widths of 12' ensure there is space for runners and joggers to conveniently and safely pass other users while also providing space for group recreation activities and meet ups.

BICYCLISTS

Bicyclists are categorized into three groups, the occasional rider (children and seniors), the recreational rider (basic), and the more experienced rider (advanced). A connected system, either through on-street or off-street accommodations or a combination of the two, provides opportunities to access a variety of destinations.

TYPES OF BICYCLISTS

ADVANCED

Experienced bicyclists view cycling as a mode of transportation and feel confident riding in the street adjacent to motor vehicles even if there are no designated bicycle facilities. Although these bicyclists are undeterred by various road conditions, designated bicycle accommodations and bikeway networks are preferred and supported by this group. Off-street multi-use trails accommodating bicyclists will require speed control elements to reduce conflict with other trail users.

BASIC

These bicyclists that view riding as a source of recreation or a leisure activity prefer off-street bikeways and shared-use paths. Riders in this category do not typically use cycling as a mode of transportation and are generally less confident riders. On-street bicycling by this groups will mostly occur in low traffic zones such as within parks and residential neighborhoods.

CHILDREN & SENIORS

Youths and seniors are considered the most vulnerable groups and their needs and obstacles primarily revolve around safety. Trail routes that are easy to access and navigate are ideal for this group. When developing trails, it is important to provide spaces that are safe and comfortable for this user group.

OPPORTUNITY MAP

Based on the results of the needs assessment and the public and stakeholder input received, a series of opportunities for additional trail connectivity was developed.

Trail Opportunities

In addition to the currently planned routes from the previous Hike and Bike Trail Map, there are additional routes that should be considered to create a more connected system. These include:

- Connecting to the future high school and middle school north of Prosper Trail and west of Legacy Drive
- Provide trail segments through the Artesia M.U.D.
- Developing a trail along the BNSF railroad track to create a regional north/south trail
- Filling in gaps along Prosper Trail
- Creating a loop around Town Lake
- Connecting the La Cima trails to nearby schools

Interjurisdictional Connections

Creating trail connections to other cities is important to tie into other trail systems to create longer trails for users. Key interjurisdictional connections identified in the opportunity map include connecting across US 380 into Frisco to the south, to Celina by Frontier Park and the future high school to the north, and to McKinney near Whitley Place Park to the east.

Critical Connections

There are key points throughout the Town that are critical to provide an active transportation connection to either to fill in gaps in the existing network or to increase safety for pedestrians and cyclists. The critical connections identified in the opportunity map include crossings over the future Dallas North Tollway and BNSF railroad, and at key intersections including Fish Trap and Legacy, Prosper Trail and Preston, Preston and Lovers, and First Street and the La Cima Trail.

Enhanced Intersection & Pedestrian Treatments

Old Town Prosper is the focal point for the community and would benefit from additional pedestrian and cyclist enhancements. A more detailed study of the Old Town Area is occurring simultaneously with this plan and will likely recommend additional sidewalk and pedestrian infrastructure.

Trailhead Opportunities

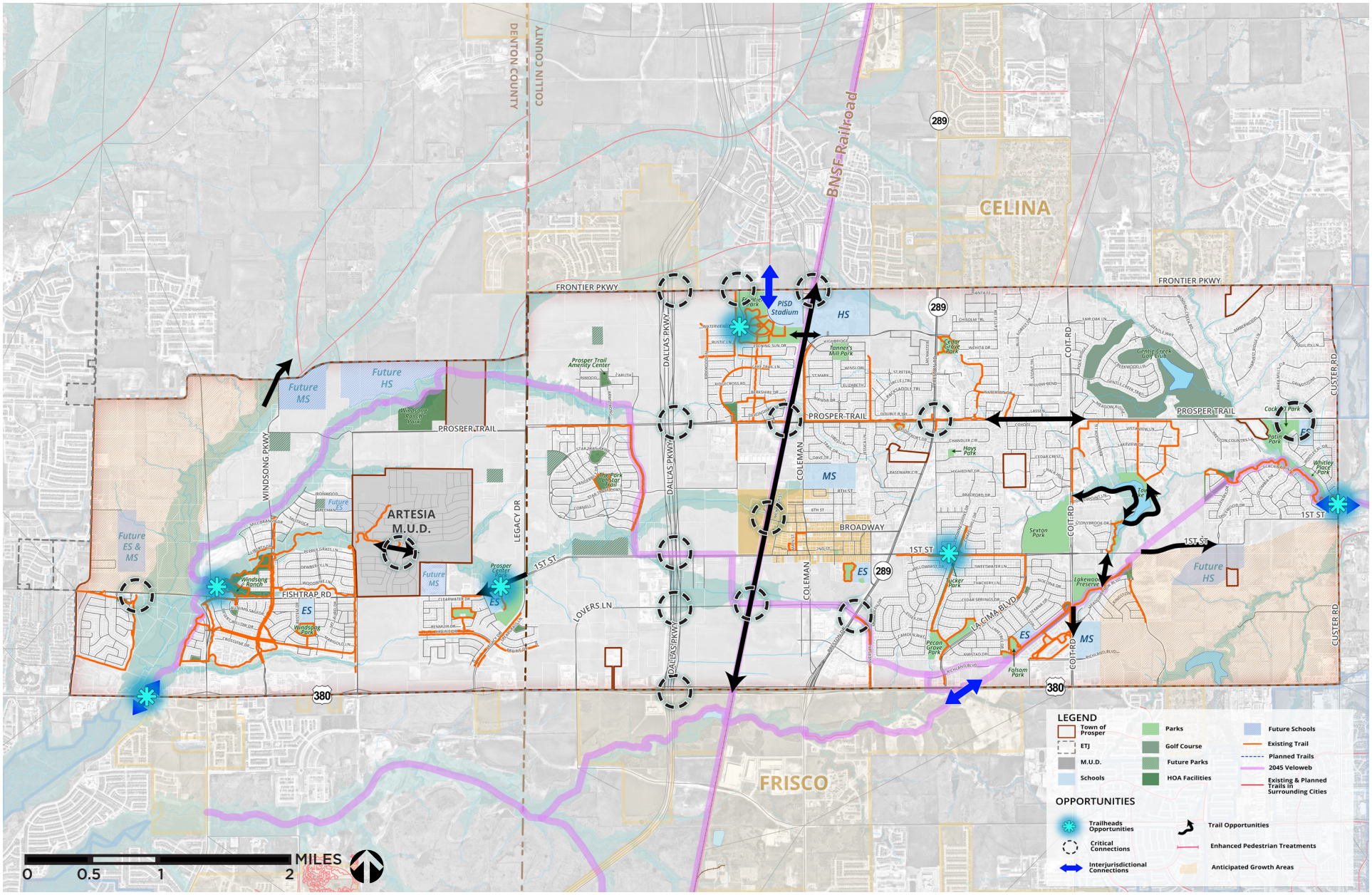
Trailheads are used to demarcate entrances to trails. They can be of various scale depending on if there is associated parking with the trailhead or if it is just a trail access point for pedestrians and cyclists. Amenities at trailheads can include wayfinding signage, benches, and water fountains. The trailheads identified on the opportunity map include those at key city entrances, at points where two trails meet, and at major destinations like Prosper High School.

Anticipated Growth Areas

As mentioned previously, Prosper is still developing and the population is anticipated to triple in the next twenty years. There are two main areas of the town that are still undeveloped; these include the far northwestern and the far southeastern portions of the town. For now, it is important to reserve space for trail connections in these areas along greenbelts and preserve right-of-way for wide paths along future roadways.

Figure 3.5 depicts these opportunities in map form. This opportunity map serves as the framework for the recommendations presented in Chapter 4.

FIGURE 3.5 | HIKE & BIKE TRAIL OPPORTUNITIES MAP



4

TRAIL NETWORK RECOMMENDATIONS

CONTENT

FACILITY HIERARCHY

The Town of Prosper's proposed hike and bike trail system is defined by a hierarchy of pedestrian and bicycle facilities that provide connections to destinations throughout the town. The hierarchy is divided into four categories: Veloweb Trails, Connector Trails, Wide Sidewalks, and Bikeways, all of which provide opportunities for a variety of user groups to utilize as an alternative mode of transportation and for recreation. Each category has defining characteristics such as pavement width and the level of connectivity they provide locally and regionally. This section discusses each level of the facility hierarchy in more detail.

VELOWEB TRAILS

Veloweb Trails are located on the NCTCOG designated Veloweb, which was discussed on page 20, highlighting their regional significance for connectivity within the DFW Metroplex. Veloweb trails are defined by pavement widths of 12' minimum and the interjurisdictional connections the provide. The extensive regional and local connectivity these trails provide allow them to support trailheads along major trail junctions. The proposed Veloweb Trails in Prosper include the Cross-Town Trail, Doe Branch Trail, and BNSF Railroad Trail.

KEY FEATURES

Minimum Width: 12'

User Groups: All pedestrians and cyclists

Location: Off-Street corridors (greenbelts, railroad corridors) or adjacent to major thoroughfares.

CONNECTOR TRAILS

The primary purpose of Connector Trails is to create connections to parks, neighborhoods, and key destinations. Typically, these trails are located along major thoroughfares or in off-street corridors and are characterized by pavement widths of 10' minimum. To establish a comprehensive system of connectivity it is crucial that Connector Trails connect to Veloweb Trails. There are existing 10' trails in Prosper today; this plan recommends additional trails, primarily along roadways.

KEY FEATURES

Minimum Width: 10'

User Groups: All pedestrians and cyclists

Location: Generally, in off-street corridors or adjacent to major thoroughfares and in some cases adjacent to minor thoroughfares where there is high demand or a key destination along the pathway. Where possible, connector trails should be placed on both sides of the roadway.

WIDE SIDEWALKS

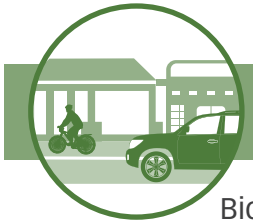
Wide sidewalks are defined by pavement widths of 8', which is wider than the standard sidewalks in Prosper (6') and are typically located along minor and collector thoroughfares. The primary function of wide sidewalks is to create connections to and within neighborhoods, proving essential access and allowing users the ability to use pedestrian facilities for short trips. Additionally, wide sidewalks provide safe routes to schools for the surrounding residential neighborhoods.

KEY FEATURES

Minimum Width: 8'

User Groups: All pedestrians

Location: Generally, adjacent to roadways classified as minor thoroughfares and collectors. Where possible, wide sidewalks should be placed on both sides of the roadway.



BIKEWAYS

Bicycle accommodations provide designated spaces for bicyclists to safely and conveniently ride along a roadway. Types of bikeway accommodations include bike lanes, buffered bike lanes, bicycle boulevards, and sharrows; the appropriate type of accommodation is selected for a roadway based on factors such as traffic speeds and volumes. Bikeways for Prosper will initially begin in the downtown area as a step toward determining what accommodations are most appropriate for the town's bicycling needs. Typical sections for each bicycle accommodation are depicted in the Design Standards section of this chapter. Future feasibility studies will need to be conducted to determine roadway specific on-street facilities.

KEY FEATURES

User Groups: Cyclists only

Location: Along roadways with appropriate speeds and volumes determined by additional analysis.

EVALUATION CRITERIA

In order to identify the proposed hike and bike trail network, a series of evaluation criteria were developed. The criteria analyze elements such as connectivity, accessibility, and ease of implementation. These elements help to identify proposed trail corridors and the prioritization of segments for future implementation. The evaluation criteria are outlined below.

CONNECTS TO KEY DESTINATIONS:

Key destinations include existing parks, schools, and major employment and shopping centers.

CONNECTS TO THE EXISTING HIKE AND BIKE TRAIL NETWORK:

Connecting to the existing system of hike and bike trails establishes a comprehensive network of connectivity.

CREATES AN INTERJURISDICTIONAL CONNECTIONS:

Establishing connections into surrounding cities increases regional connectivity.

LOCATED ON THE DESIGNATED VELOWEB:

Building along the Regional Veloweb increase opportunities for funding, public awareness, and enhances the regional network.

SOLVES A SAFETY ISSUES OR OVERCOMES A BARRIER:

It is an essential role of alternative transportation routes to eliminate safety concerns and overcome barriers to accessibility.

FILLS A GAP IN THE EXISTING SYSTEM:

The current system is largely disconnected, therefore building upon what does exist will quickly develop a fully connected system. This criterion is weighted higher due to the importance of closing gaps in the trail system.

IMPROVES AN EXISTING TRAIL:

Prioritizing improvements to trail segments that accommodate a variety of users ensures that users of all ages and abilities are considered. This criterion is weighted lower since the priority should be to construct new trails to create more connectivity.

EASE OF IMPLEMENTATION:

The ability to easily implement trail segments speaks to feasibility and ultimately prioritizes the development of a segment in the near-term. This criterion is weighted higher due to the importance of being able to feasibly implement a trail.

AMOUNT OF ENVIRONMENTALLY-SENSITIVE AREAS DISTURBED:

Minimizing disruption to the natural areas along trails is important as a measure to preserve the natural landscape and to provide scenic views along routes.

CREATES AN UNINTERRUPTED TRAIL SEGMENTS LONGER THAN 2 MILES:

Uninterrupted trail segments that extend longer than 2 miles increases the level of connectivity, provides connections to a greater number of destinations, and creates opportunities to host recreational events.

CREATES A COMFORTABLE USER EXPERIENCE:

Keeping user groups in mind is crucial when developing trails. Users should feel safe, comfortable, and enjoy their experience on a trail.

RECOMMENDED TRAIL NETWORK

A proposed network of trails and bikeways has been developed based on the community input and needs assessment, with the guidance of the evaluation criteria and with the overall master plan goals in mind. **Figure 4.1** illustrates the recommended network of trails, wide sidewalks, bikeway opportunities, and associated amenities to be implemented throughout Prosper over time. The proposed network provides for a system of non-motorized routes that strengthen connections to the greater DFW region and builds upon Prosper's burgeoning trail system.

The following pages assess the recommendations for each of the three Town areas in greater detail. The three areas are characterized by different development patterns, natural features, and anticipated future growth; therefore, while the overall proposed network considers the Town in its entirety, recommendations have been curated for each area.

HOW TO USE THE MAP

The Hike and Bike Trail Master Plan Map should serve as a guide for Town officials and developers as it relates to the specific hike and bike trail accommodations that are required throughout Prosper. Upon adoption of this master plan, the interactive maps on the Town's website should be updated to reflect the master plan recommendations. Additionally, the following assumptions should be adhered to when interpreting the map:

- In accordance with the Prosper Development Manual, 6' sidewalks are required on all thoroughfares unless designated for a different treatment on the Hike and Bike Trail Master Plan Map.
- If future thoroughfare alignments change on the Future Thoroughfare Plan, then the proposed trail facilities along those thoroughfares will also change to align with the future thoroughfares.
- The Hike and Bike Trail Master Plan Map may be amended by the Town Council. It is recommended that modifications happen once a year to reflect built facilities and other needed changes as development occurs.

ACHIEVING PLAN GOALS

The Hike and Bike Trail Master Plan recommendations achieve the stated goals of the master plan.

GOAL 1: SAFE & CONNECTED TRAIL SYSTEM

The plan recommends a total of **93.79 miles** of trail facilities 10' or wider and **16.56 miles** of 8' paths. These facilities will accommodate a variety of active transportation users. Key destinations such as parks, schools, neighborhood(s), and major retail centers will be connected.

GOAL 2: TRAILS WITH NEW DEVELOPMENT

The plan recommends trail facilities in areas of the Town that are not yet developed, ensuring that right-of-way for trails is preserved. The design standards presented later in this chapter will give guidance to developers when building future trails.

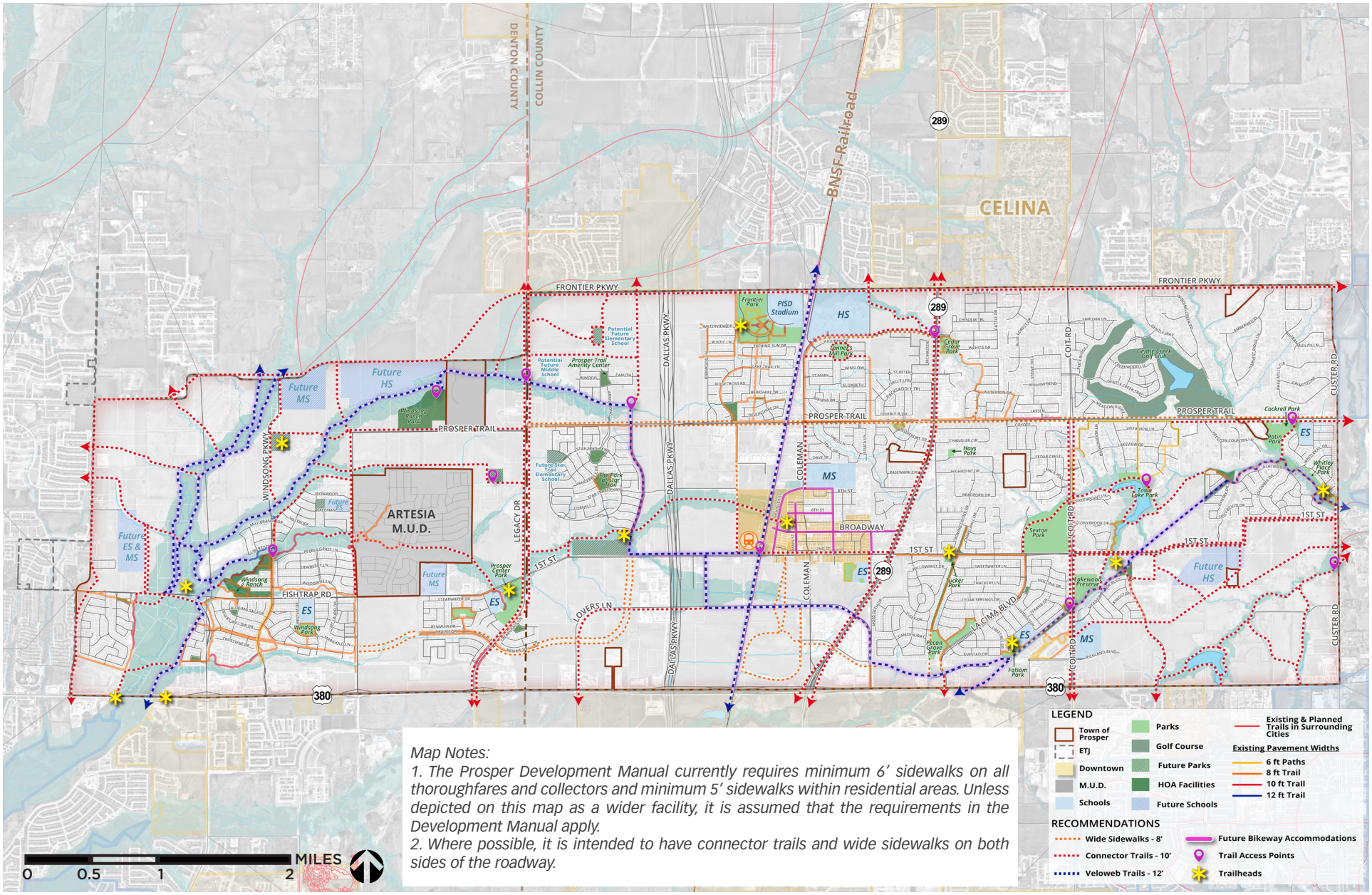
GOAL 3: SUSTAINABILITY

The plan recommends developing off-street trails within greenbelts in a context-sensitive manner to celebrate the natural features within Prosper.

GOAL 4: TRAIL SYSTEM AWARENESS

The plan recommends a series of trailheads and trail access points, which will bring awareness to the trail system as a whole.

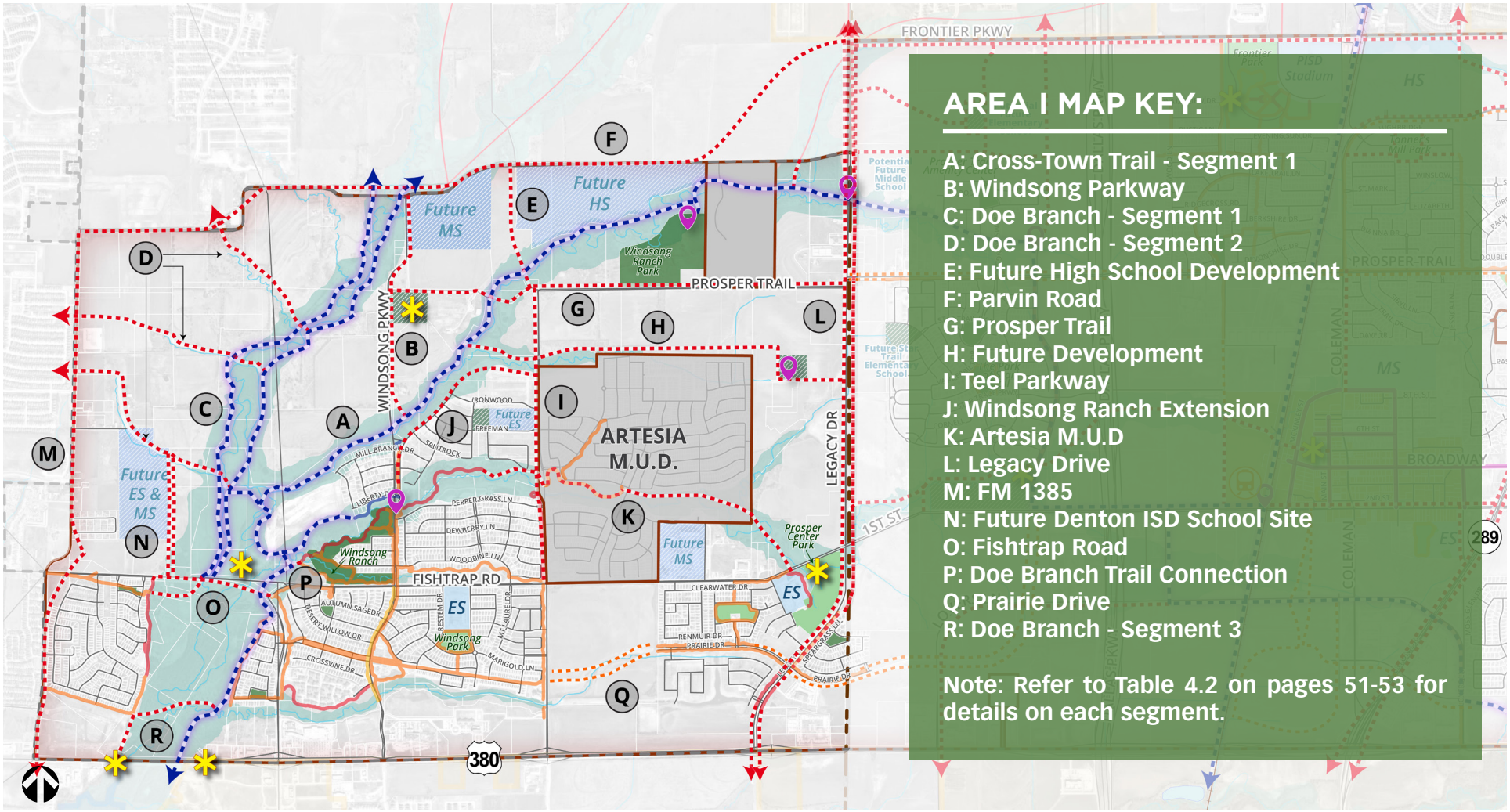
FIGURE 4.1 | RECOMMENDED NETWORK MAP



AREA I HIGHLIGHTS

- Connection through Artesia M.U.D.
- Implementation of Regional Veloweb corridor along greenbelt
- Connections to current and future schools
- Completing trails in Windsong Ranch
- Connection to Preserve at Doe Creek neighborhood
- Connections into Frisco and Celina
- Preserving trail along western portion of Doe Creek
- Trailheads at existing and future parks and along the Veloweb trail

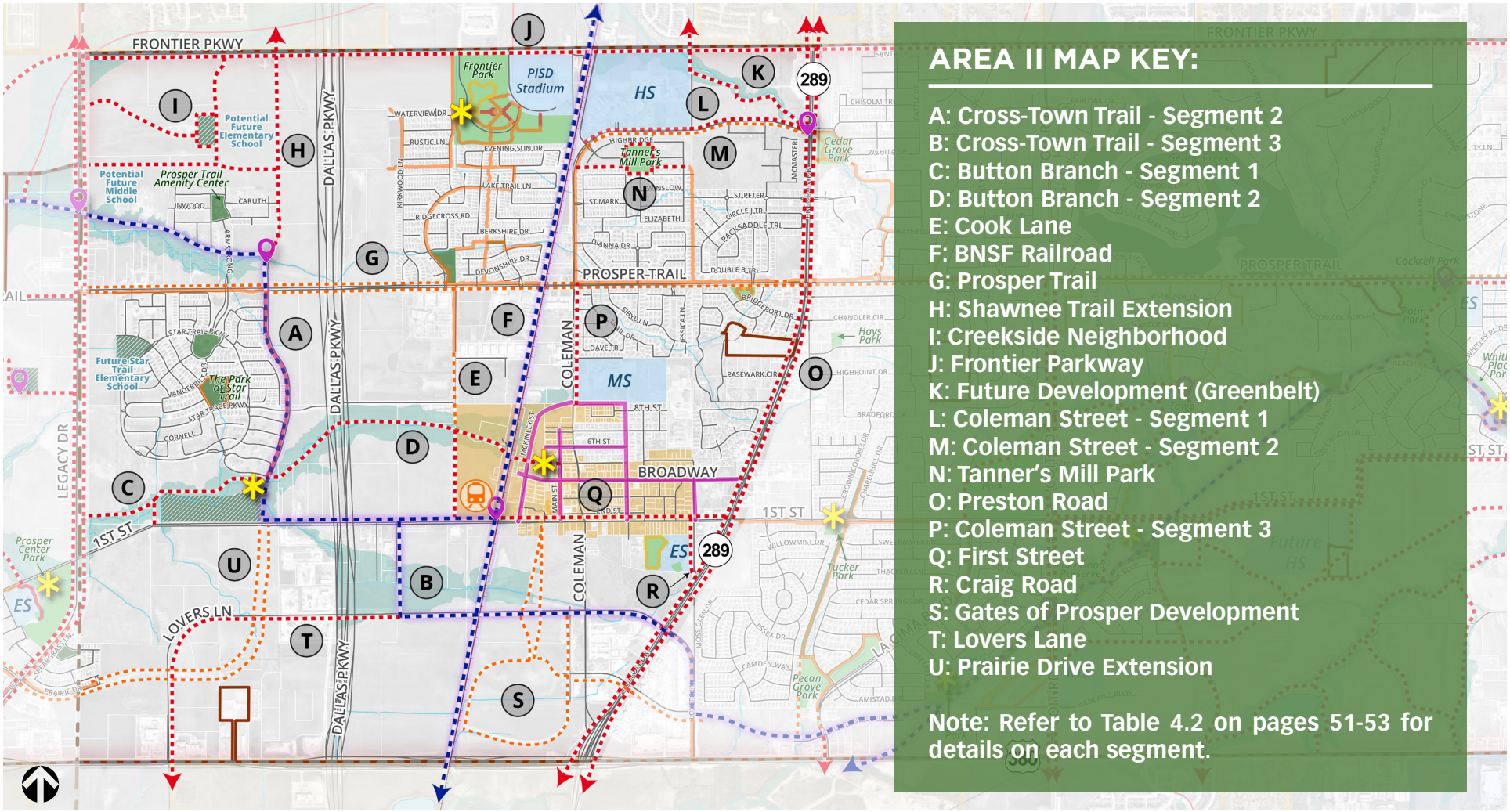
FIGURE 4.2 | RECOMMENDED NETWORK MAP - AREA I



AREA II HIGHLIGHTS

- Connection across Dallas North Tollway and BNSF railroad
- Bikeway opportunities in Old Town Prosper
- Regional Veloweb implementation - railroad and cross-town corridor
- Increased connections to schools
- Connections into Frisco and Celina
- Rails to Trails opportunity
- Trailheads at existing and future parks in Old Town Prosper

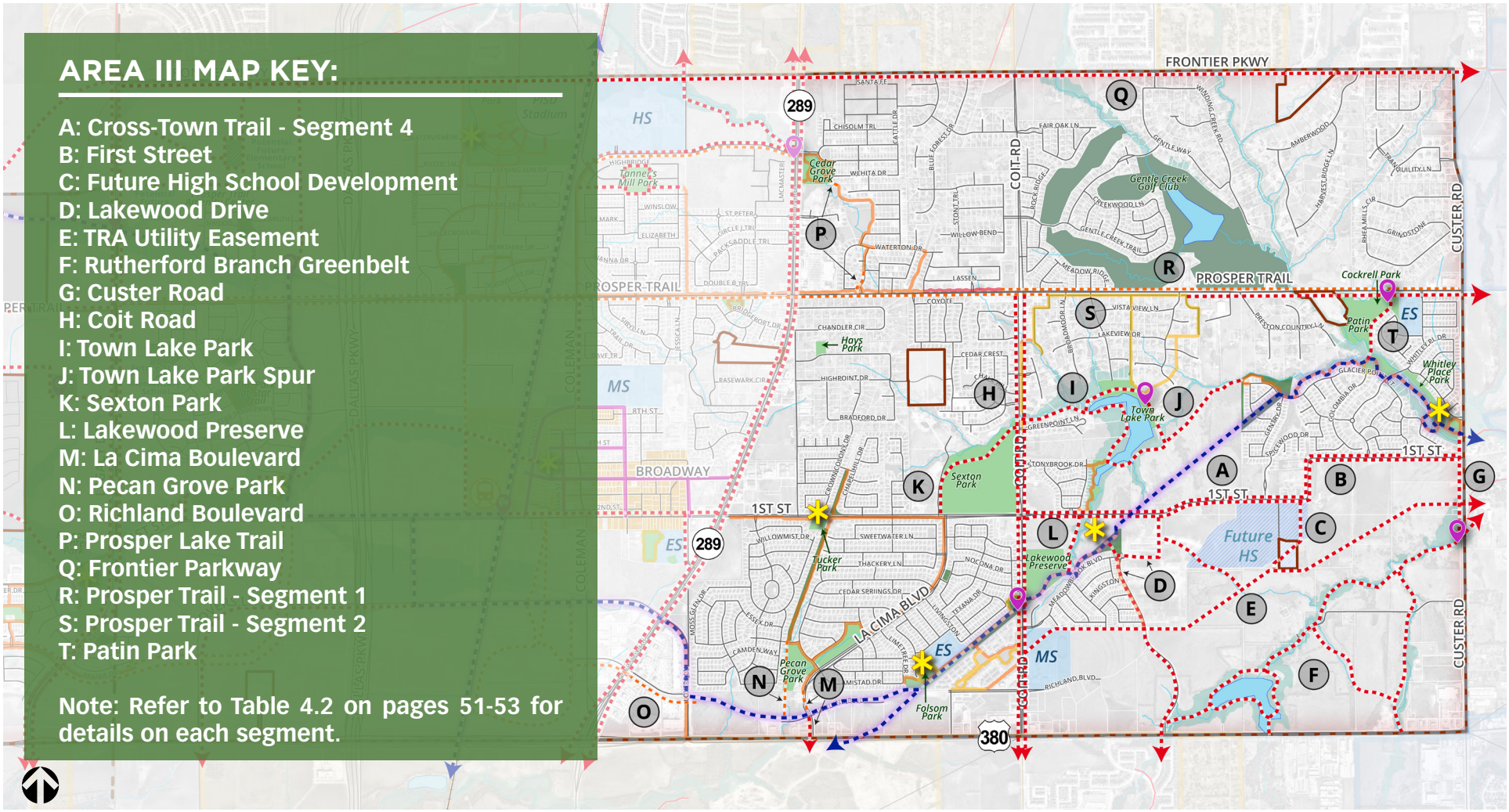
FIGURE 4.2 | RECOMMENDED NETWORK MAP - AREA II



AREA III HIGHLIGHTS

- Connector trails within easement and greenbelt corridors
- Implementation of Regional Veloweb - utility easement corridor
- Connections into McKinney and Celina
- Filling in gaps in existing trails/sidewalks
- Widen existing trails along designated Veloweb
- Preserving ROW for trail within southeastern portion of Town
- Trailheads at existing and future parks and along the Veloweb trail

FIGURE 4.2 | RECOMMENDED NETWORK MAP - AREA III



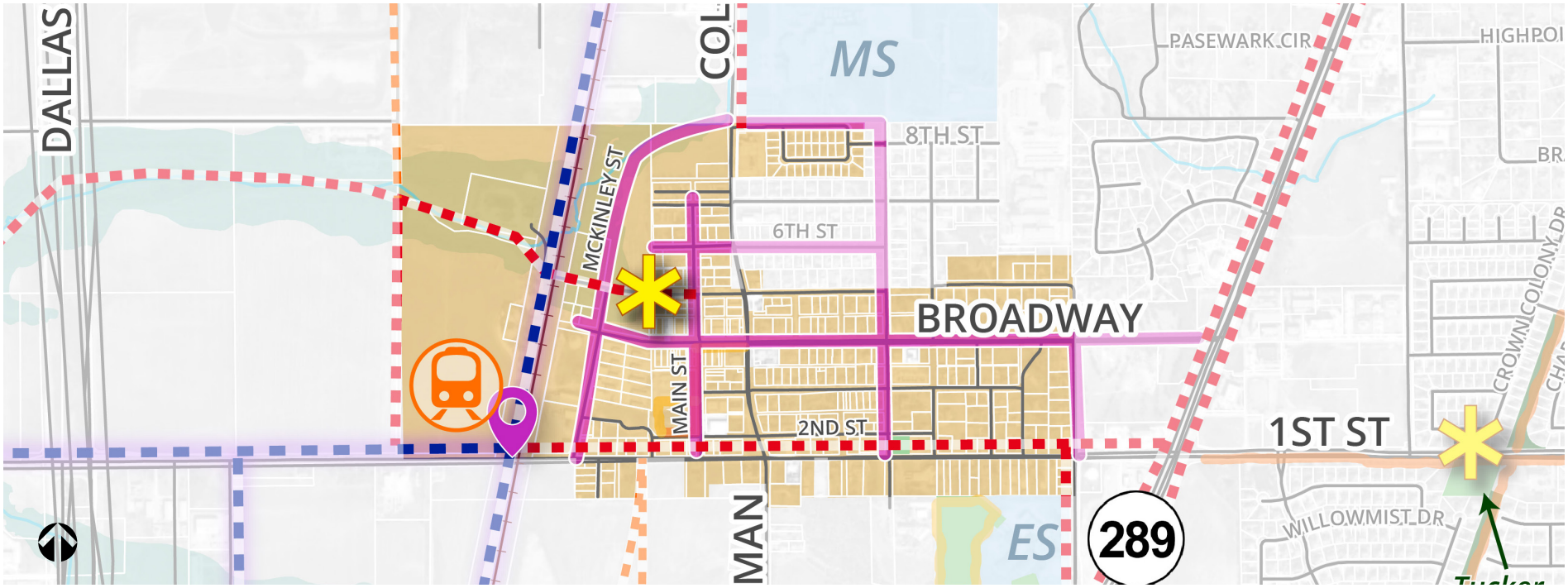
OLD TOWN PROSPER DETAIL

Old Town Prosper is the central destination of Prosper and the area has undergone past planning studies. In addition to the recommended trails along First Street and adjacent to the railroad track, there are roadways within Old Town that could support on-street bikeway accommodations.

Figure 4.5 shows the corridors within downtown that could support a bikeway accommodation such as a separated bike lane, shared lane marking, signed route, or bicycle boulevard. It is important to note that cyclists are allowed to ride in roadways in Texas unless explicitly prohibited, but adding a designated bikeway accommodation can help encourage cyclists that may not feel comfortable riding in the street otherwise.

The specific bikeway accommodation treatment(s) should be determined through further study. Some of the bikeway accommodations are relatively inexpensive to implement and could be introduced as interim or temporary installations to test the demand or popularity for the facilities in Old Town Prosper. The roadways identified have relatively low speeds and traffic volumes which translates to a lower stress facility for cyclists. The Prosper EDC will be developing a Downtown Master Plan; when that plan is finalized, the trail and bikeway recommendations should be deemed part of this master plan.

FIGURE 4.5 | RECOMMENDED NETWORK MAP - DOWNTOWN



RECOMMENDATIONS SUMMARY

The Town of Prosper Hike and Bike Trail Master Plan recommends a comprehensive and connected network of trails to connect key destinations such as parks, schools, neighborhoods, major employers, and retail centers. Collectively, the plan recommends a total of 110.35 miles of hike and bike trail facilities. **Table 4.1** summarizes the recommended trail mileage by type.

Table 4.2 on the next several pages describe the recommended treatment for each corridor segment. This detailed information should be used as a checklist for implementation. Chapter 5 details the prioritized segments in each of the three town areas.

TABLE 4.1 | SUMMARY OF RECOMMENDATIONS BY FACILITY TYPE

FACILITY TYPE	MILEAGE
Veloweb Trail (12' +)	22.22
Connector Trail (10' +)	71.57
Wide Sidewalk (8')	16.56

BRANDING THE HIKE AND BIKE SYSTEM

Trails within a community should be easy to identify and locate, which can be improved through branding the hike and bike trail system. 'Branding' the trail system can refer to naming trails, creating a consistent theme for signage and trailheads, and increasing awareness of the trail system via online maps and information.

Trail Naming: Some of the trails in Prosper are named, such as the Lakes of La Cima Hike & Bike Trails. Moving forward, each of the existing and proposed trails categorized as Connector and Veloweb Trails should be named and consistently referred to as such on town maps and educational materials. This will help residents recognize trails and learn about new ones.

Consistent Themes: The Town has been successful in creating a consistent pallet for gateway and neighborhood entry features. Similar materials should be used for signage and furnishings at trailheads so trail users recognize this is a town facility.

Public Awareness and Education: Information regarding trails on the town's website and other publication materials should be consistently updated with information regarding existing and planned trails, trailheads, and trail access points. This will give residents and visitors adequate information to utilize the trail system.

Example of branded and consistent monumentation features along a trail in Dallas

TABLE 4.2 | SUMMARY OF RECOMMENDED NETWORK BY CORRIDOR

MAP ID	CORRIDOR	FROM	TO	RECOMMENDED TREATMENT	FACILITY WIDTH	LENGTH (MILES)	SIDE OF STREET/ WATERWAY
AREA I							
1.A	Cross Town Trail -Segment 1	US 380	Legacy Drive	Connector/Veloweb	10'-12'	5.30	North, South, East
1.B	Windsong Parkway	Doe Creek Greenbelt	Parvin Drive	Connector	10'	1.00	East
1.C	Doe Branch - Segment 1	Fishtrap Road	Parvin Drive	Connector	10'	4.09	East, West
1.D	Doe Branch - Segment 2	Doe Creek	Western Town Limits	Connector	10'	2.42	North
1.E	Future High School Development	Prosper Trail	Parvin Drive	Connector	10'	0.53	East
1.F	Parvin Road	FM 1385	Frontier Parkway	Connector	10'	3.53	South
1.G	Prosper Trail	Windsong Parkway	Legacy Drive	Connector	10'	1.95	North
1.H	Future Development	Doe Creek Greenbelt	Legacy Drive	Connector	10'	1.75	North
1.I	Teel Parkway	Prosper Trail	Fishtrap Road	Connector	10'	1.25	West
1.J	Windsong Parkway Extension	Windsong Parkway	Teel Parkway	Connector	10'	0.87	North, West
1.K	Artesia M.U.D.	Doe Creek Greenbelt	Fishtrap Road	Connector	10'	1.63	South
1.L	Legacy Drive	US 380	Frontier Parkway	Connector	10'	5.97	East, West
1.M	FM1385	Parvin Road	US 380	Connector	10'	2.29	East
1.N	Future Denton ISD School Site	Proposed Doe Branch Segment 2 (south)	Fishtrap Road	Connector	10'	1.04	East, West
1.O	Fishtrap Road	Preserve at Doe Creek	Gee Road	Connector	10'	0.79	South
1.P	Doe Branch Trail Connection	Windsong Parkway	Doe Branch Trail	Connector	10'	0.04	South
1.Q	Prairie Drive	Teel Parkway	County line	Wide Sidewalk	8'	1.04	North, South
1.R	Doe Branch - Segment 3	US 380	Doe Branch Trail	Connector	10'	0.58	North, East
AREA II							
2.A	Cross Town Trail - Segment 2	County Line	BNSF Railroad	Veloweb	12'	2.96	North, West
2.B	Cross Town Trail- Segment 3	First Street	Preston Road	Veloweb	12'	1.57	South, East

TABLE 4.2 | SUMMARY OF RECOMMENDED NETWORK BY CORRIDOR (CONTINUED)

MAP ID	CORRIDOR	FROM	TO	RECOMMENDED TREATMENT	FACILITY WIDTH	LENGTH (MILES)	SIDE OF STREET/ WATERWAY
AREA II							
2.C	Button Branch - Segment 1	Legacy Drive	Shawnee Trail	Connector	10′	0.96	North, West
2.D	Button Branch - Segment 2	Shawnee Trail	McKinley Street	Connector	10′	1.36	North
2.E	Cook Lane	Industry Way	First Street	Wide Sidewalk/ Connector	8′-10′	0.70	West
2.F	BNSF Railroad	US 380	North Town Limits	Veloweb	12′	3.08	West
2.G	Prosper Trail	Legacy Road	Preston Road	Wide Sidewalk	8′	4.18	North, South
2.H	Shawnee Trail Extension	Frontier Parkway	Prosper Trail	Connector	10′	0.85	West
2.I	Creekside Neighborhood	Legacy Drive	Frontier Parkway	Connector	10′	2.11	South, East, West
2.J	Frontier Parkway	County Line	Preston Road	Connector	10′	3.11	South
2.K	Future Development (Greenbelt)	Prosper High School Boundary	Preston Road	Connector	10′	0.71	South
2.L	Coleman Street - Segment 1	Talon Lane	Preston Road	Connector	10′	0.99	North
2.M	Coleman Street - Segment 2	Talon Lane	Preston Road	Wide Sidewalk	8′	0.96	South
2.N	Tanner's Mill Park	Coleman Street	Kingsbridge Lane	Connector	10′	0.83	South
2.O	Preston Road	Frontier Parkway	US 380	Connector	10′	6.51	East, West
2.P	Coleman Street - Segment 3	Prosper Trail	Gorgeous Road	Connector	10′	0.53	East
2.Q	First Street	Cook Lane Extension	Preston Road	Connector	10′	0.98	North
2.R	Craig Road	First Street	Preston Road	Connector	10′	0.26	West
2.S	Gates of Prosper Development	First Street	Preston Road	Wide Sidewalks	8′	3.00	South, West
2.T	Lovers Lane	Proposed Veloweb on Lovers Lane	US 380	Connector	10′	1.49	South, West
2.U	Prairie Drive Extension	First Street	County Line	Wide Sidewalk	8′	2.84	North, South
AREA III							
3.A	Cross Town Trail - Segment 4	Preston Road	Eastern Town Limits	Veloweb	12′	5.31	North
3.B	First Street	Coit Rod	Custer Road	Connector	10′	4.39	South

TABLE 4.2 | SUMMARY OF RECOMMENDED NETWORK BY CORRIDOR (CONTINUED)

MAP ID	CORRIDOR	FROM	TO	RECOMMENDED TREATMENT	FACILITY WIDTH	LENGTH (MILES)	SIDE OF STREET/ WATERWAY
AREA III							
3.C	Future High School Development	First Street	Future High School Boundary	Connector	10′	0.37	East
3.D	Lakewood Drive	First Street	US 380	Connector	10′	1.37	West
3.E	TRA Utility Easement	Coit Road	Custer Road	Connector	10′	2.65	North
3.F	Rutherford Branch Greenbelt	Lakewood Drive	Custer Road	Connector	10′	3.80	North
3.G	Custer Road	Whitley Place Park	Rutherford Branch Greenbelt	Connector	10′	0.48	West
3.H	Coit Road	Prosper Trail	US 380	Connector	10′	4.01	East, West
3.I	Town Lake Park	Coit Road	Town Lake Park	Connector	10′	1.66	North
3.J	Town Lake Park Spur	Whispering Farms Trails	Existing 8′ trail at Glacier Point Court	Connector	10′	0.47	East
3.K	Sexton Park	First Street	Coit Road	Connector	10′	0.59	East
3.L	Lakewood Preserve	First Street	Prosper Cross Town Trail - Segment 4	Connector	10′	0.27	West
3.M	La Cima Boulevard	La Cima Trail	Richland Boulevard Extension	Wide Sidewalk	8′	0.20	West
3.N	Pecan Grove Park	Chapel Hill Trail	Richland Boulevard Extension	Wide Sidewalk	8′	0.35	West
3.O	Richland Boulevard	Preston Road	Lovers Lane	Wide Sidewalk	8′	0.35	South
3.P	Prosper Lake Trail	Prosper Trail	Cedar Grove Park	Wide Sidewalk	8′	0.17	West
3.Q	Frontier Parkway	Preston Road	Custer Road	Connector	10′	2.95	South
3.R	Prosper Trail - Segment 1	Coit Road	Custer Road	Wide Sidewalk	8′	2.08	North
3.S	Prosper Trail - Segment 2	Preston Road	Eastern Town Limits	Wide Sidewalk/ Connector	8′-10′	2.39	South
3.T	Patin Park	Prosper Trail	Whitley Place Park	Connector	10′	0.34	West

DESIGN STANDARDS

The proposed network presented in this chapter is comprised of facilities of varying widths. Therefore, design standards are important to outline the recommended minimum requirements for safety and convenience of users. It is important to note that all trails should at a minimum meet the American Association of State Highway and Transportation Officials (AASHTO) standards, and should exceed those standards if and where possible. This section outlines design considerations related to various aspects of trails and pedestrian facilities. Upon adoption of this master plan, the applicable sections of the Prosper Development Manual should incorporate the standards and design criteria outlined in this section. The design standards outlined in this section are best practices and assume ideal situations. However, individual developments will be reviewed on a case by case basis.

The recommended standards in this section comply with the following standards:

- **AASHTO** (American Association of State Highway and Transportation Office)
- **ADAAG** (American with Disabilities Act Accessibility Guidelines)
- **ITE** (Institute of Transportation Engineers)
- **NACTO** (National Association of City Transportation Officials)
- **TAS** (Texas Accessibility Standards)
- **TMUTCD** (Texas Manual on Uniform Traffic Control Devices)
- **TTI** (Texas Transportation Institute)
- **TxDOT** (Texas Department of Transportation)
- **NCTCOG** (North Central Texas Council of Governments)

The following is a list of relevant Town development ordinances to used as a reference for the recommended design standards:

- Town of Prosper Development Manual
- Town of Prosper Subdivision Ordinance
- Town of Prosper Zoning Ordinance

OFF-STREET TRAILS

Off-Street Trails are those designated as either Veloweb Trails or Connector Trails located away from roadways following natural features such as creeks or within railroad or utility easement corridors. A 50’ minimum is required for easements and greenbelts. For trails following a railroad, an easement of 20’-25’ outside of the foul zone is needed. This ensures that the trail will be safely outside of the zone needed for track maintenance.

DESIGN OBJECTIVES

- The alignment of off-street trails should preserve the natural terrain and vegetation to the greatest extent possible. Alignments should follow the contours of the land and natural drainage patterns and should not appear to be carved out of the terrain.

- The alignment of off-street trails should have both curvilinear and straight segments. However, extreme curves or long straight segments are not desirable and should be avoided where possible, except where tree preservation or other obstructions necessitate such an alignment.

- Meanders in trails should follow natural topography and should not be haphazard or irregular.

- Intersections with other trails should be located where sightlines are not obscured and should occur at natural focal points such as scenic vistas and trail access points.

- Trails should align with existing and future crosswalks at streets and incorporate handicap accessible ramps that meet the design criteria of ADAAG and TAS.

PAVEMENT STRUCTURE

Off-street trail pavement should be 6" thick reinforced concrete with a traverse light broom finish. Expansion joints should be placed in the trail at an interval of 40' for 10' wide trails and 50' to 60' for 12' wide trails. Expansion joints should be topped and sealed with a self-leveling elastomeric join compound and should be flush with the top surface of pavement on both sides of the joint. Control joints should be placed at intervals equal to the trail width and the depth should be one-fourth of the pavement thickness. The joints should be saw-cut and ¼" wide. For optimum user comfort, the finished surface of trails should not vary more than ¼" from the lower edge of an 8' long straight edge when laid on the surface in any direction.

WIDTH

Trails designated as **Veloweb Trails** in the Trails Master Plan should be a **minimum of 12'** in width in accordance with NCTCOG guidelines. This applies to trails that will accommodate a mix of users, including cyclists, pedestrians, maintenance vehicles, and other non-motorized traffic. Trails designated as **Connector Trails** in the Trails Master Plan should be a **minimum of 10'** in width in accordance with AASHTO standards. In instances where bridges are needed and ROW is constrain, a 12' trail may be reduced to 10' to still accommodate both cyclists and pedestrians, It is not recommended to reduce a 10' trail further at a bridge crossing

FIGURE 4.6 | EASEMENT & GREENBELT SETBACK SECTION

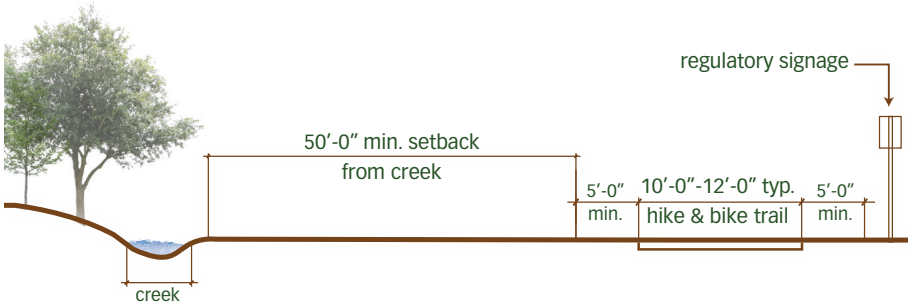
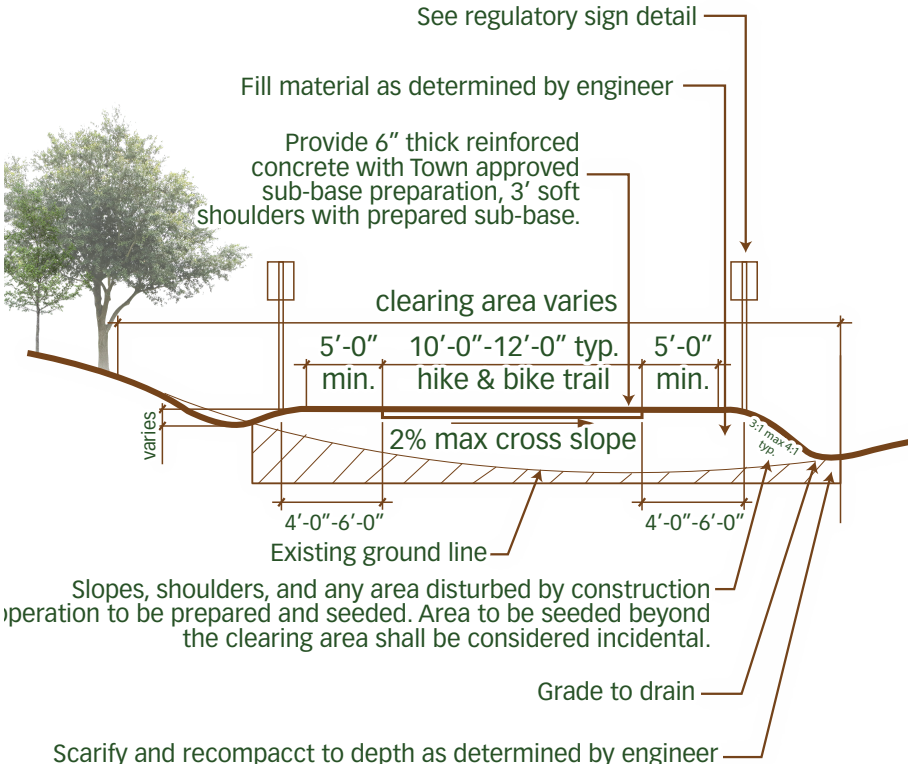


FIGURE 4.7 | STANDARD TRAIL SECTION



Note: For Figures 4.7-4.13 refer to current NACTO, TMUTCD and AASHTO Guidelines when developing bicycle facilities to determine required sign placement and trail design.

CLEARANCE

The optimum vertical clearance over a trail is 10' or higher; this height accommodates maintenance, patrol, and emergency vehicle access. All underpasses and tunnels should be a minimum of 8' in height and where there are vertical clearances less than 10', warning signage should be posted. In order to have proper clearance for safety and visibility along trails, tree removal may be necessary in some areas. Chapter 4, Section 3 of the Town's Zoning Ordinance gives guidance on tree mitigation, which discusses the preservation of trees and natural areas during construction and regulates tree removal of Protected Trees when necessary

DESIGN SPEED

In general, a minimum design speed of 20 miles per hour (mph) should be used if grade does not exceed 5% slope. A design speed of 30 mph is advisable in instances where strong prevailing winds exist or trail grades exceed 5%. Speed bumps and other surface obstructions that would pose a trip hazard for other trail users should not be used. For instances where it is desirable to slow the speed of cyclists, chicanes may be used.

DRAINAGE

The cross-slope of areas adjacent to trail shoulders should have a minimum of 2% slope to allow for adequate drainage **away** from the trail. Trail pavement surfaces should have a cross slope of 1% to maintain compliance with ADAAG and TAS standards. Pipe and culverts should be used to minimize adjacent drainage from crossing the trail. In no case shall concentrated flows be allowed to cross a trail. Particular attention should be paid to minimize ice forming on trails.

PEDESTRIAN FACILITIES

DESIGN OBJECTIVES

- Pedestrian facilities should be located within or parallel to a street right-of-way with an appropriate buffer distance from vehicular traffic. The minimum recommended buffer distance is 2'.
- Special consideration should be given to crossings at roadway intersections to ensure a safe travel experience for both motorists and pedestrians.

STANDARD SIDEWALK

A sidewalk refers to a paved route that generally connects residential areas to surrounding services and employment and other neighborhoods. The Prosper Development Manual currently requires a minimum of **6' sidewalk along thoroughfares and collectors** and a **minimum of 5' sidewalk on residential streets** as well as barrier free ramps at all curb crossings. Sidewalks are located within or parallel to a street right-of-way and are designed for pedestrian use only; sidewalks are typically too narrow to accommodate both cyclists and pedestrians since they travel at different speeds.

WIDE SIDEWALKS

In some instances, sidewalks wider than the standard 6' along thoroughfares and collectors may be warranted. The updated Hike and Bike Trail Master Plan map shows **8' sidewalks** along certain roadways that provide key connections between destinations. These wider sidewalks will still be located within or parallel to the street right-of-way and incorporate barrier free ramps at all curb crossings.

It is recommended to follow the language in the Prosper Zoning Ordinance as follows - Sidewalk easements adjacent to the standard ROW will be required, if necessary, for meandering sidewalks. The outside edge of the sidewalk shall meander in and out of the sidewalk easement and, at its closest point to the street, shall be located not less than five feet (5') from the back-of-curb. Sidewalk easements shall provide a minimum clearance of two feet (2') beyond the outside edge of the sidewalk. As stated in the Town of Prosper Subdivision Ordinance, sidewalks may be located within the designated landscape buffer of roadways.

TRAILS ADJACENT TO ROADWAYS

The updated Hike and Bike Trail Master Plan identifies some Connector and Veloweb Trails adjacent to roadways. Unlike sidewalks, trails are wider with a minimum width of 10' or 12' depending on the trail designation and are intended for use by both pedestrians and cyclists. When larger volumes of pedestrian traffic is anticipated, the co-location of a shared-use path and sidewalk may be appropriate if there is enough right-of-way to accommodate the facilities.

Meandering trail adjacent to roadway.

INTERSECTION TREATMENTS

Conflict points can occur at intersections between sidewalks and roadways. In order to reduce conflict points, the corner radius for a 90-degree intersection should typically be 15'.

Figure 4.8 depicts a typical intersection treatment at two intersecting trails. Additionally, there may be instances when a signalized trail crossing is needed at a roadway away from the designated intersection, similar to the treatment at the La Cima Trail and Coit Road. On the following page, **Figure 4.9** depicts a typical signalized trail crossing and **Figure 4.10** depicts a typical trail crossing at a roadway intersections.

An alternative, more expensive option for crossing roadways is to construct a pedestrian bridge or tunnel. This provides a completely separated experience for the trail users away from the roadway. A pedestrian tunnel is being implemented at Coit and Sexton.

FIGURE 4.8 | TYPICAL TRAIL INTERSECTION TREATMENT

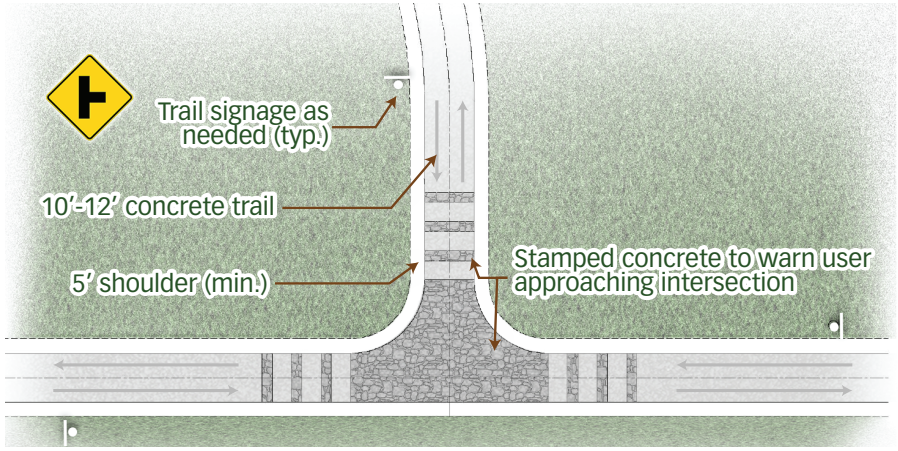
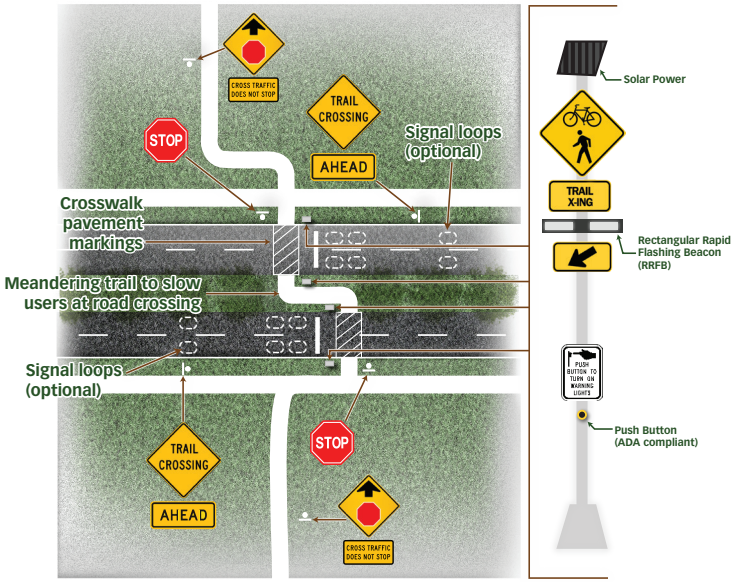
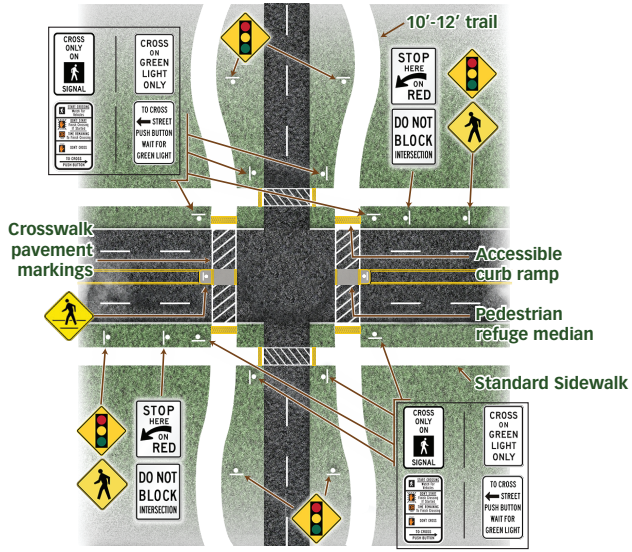


FIGURE 4.9 | SIGNALIZED TRAIL CROSSING TREATMENT (MID-BLOCK)



Note: Mid-block trail crossing treatment appropriate for major arterials, minor thoroughfares, collectors, and local streets. The push button and RRFB signalization are not required for local streets.

FIGURE 4.10 | SIGNALIZED TRAIL CROSSING AT ROADWAY INTERSECTION

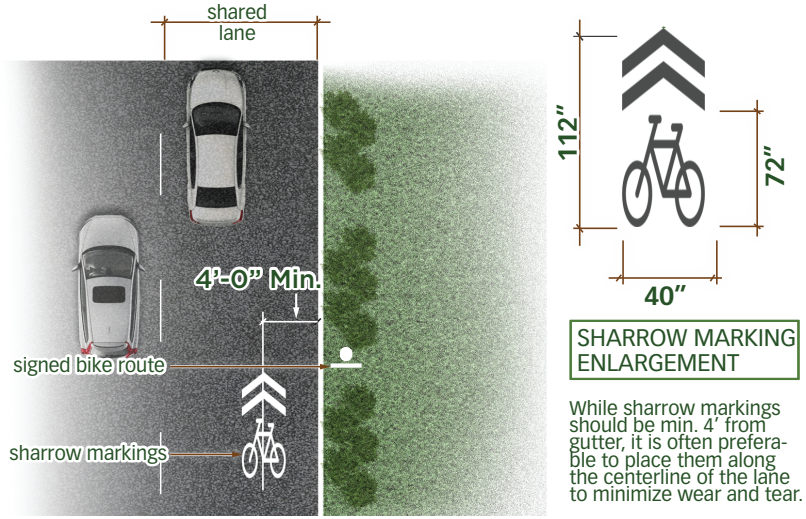


ON-STREET BIKEWAY FACILITIES

There are corridors identified on the updated Hike and Bike Trails Master Plan map as bikeway opportunities. These are streets, primarily located in the Old Town Prosper area, that could accommodate an on-street bikeway facility; what specific bikeway facility type is to be determined with future study. This section outlines general descriptions of the types of potential on-street accommodations that could be implemented in the future. Additional analysis is needed to determine the exact design guidelines for on-street facilities in Prosper.

Bicycle boulevards in Austin, Texas with traffic calming countermeasures.

FIGURE 4.11 | SHARROW TYPICAL FEATURES



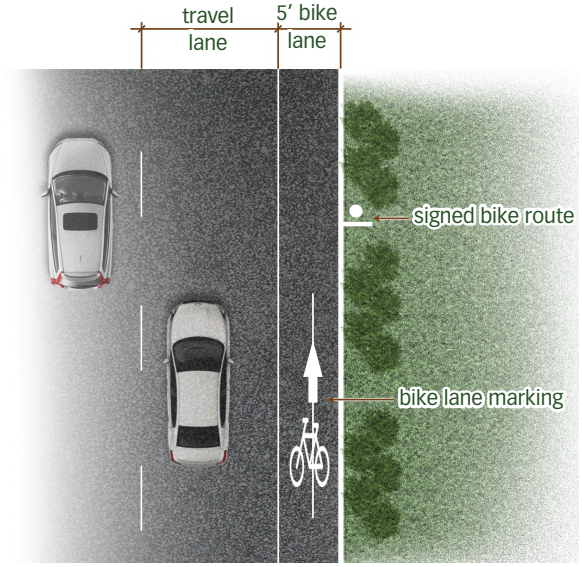
Note: If on-street parking is present along the roadway, the minimum recommended placement of the sharrow marking is 11' from the curb.

SHARROW

A sharrow is a type of shared lane in which a sharrow marking designates the lane for the shared use of motor vehicles and cyclists. These lanes are depicted with both pavement markings and signage, as shown in **Figure 4.11**. This accommodation is typically used on streets with low speeds (35 mph or less) and low volumes. If the lane is less than 14', then cyclists may ride in the middle of the lane. If the lane is 14' or greater, state law dictates that the cyclists must ride near the curb.

Planning-Level Estimated Costs: Sharrows are relatively inexpensive to implement; as of 2020, costs are typically $50,000 per mile for pavement markings and signage on an existing street surface.

FIGURE 4.12 | STANDARD BICYCLE LANE FEATURES



STANDARD BICYCLE LANE

Bicycle lanes are a designated portion of a roadway demarcated by a lane stripe, pavement markings, and signage defining the area for the exclusive use for one-way cyclist traffic. The minimum width for a bicycle lane is 4', but 5' is preferred for increased comfort. Specific design standards for bicycle lanes should be developed with further analysis specific to Prosper and using the resources on page 54 as a guide.

Planning-Level Estimated Costs: As of 2020, bicycle lanes cost approximately $75,000 per mile for markings and signage on an existing street. For adding additional width to existing roadways, the typical costs are $635,000 per mile.

FIGURE 4.13 | SEPARATED BICYCLE LANE FEATURES

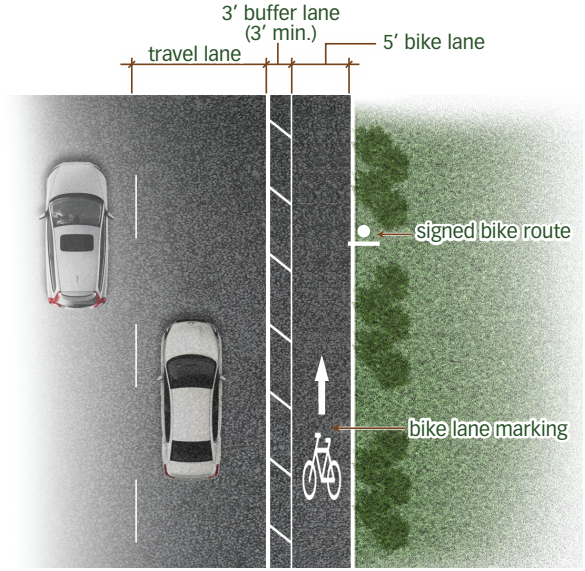
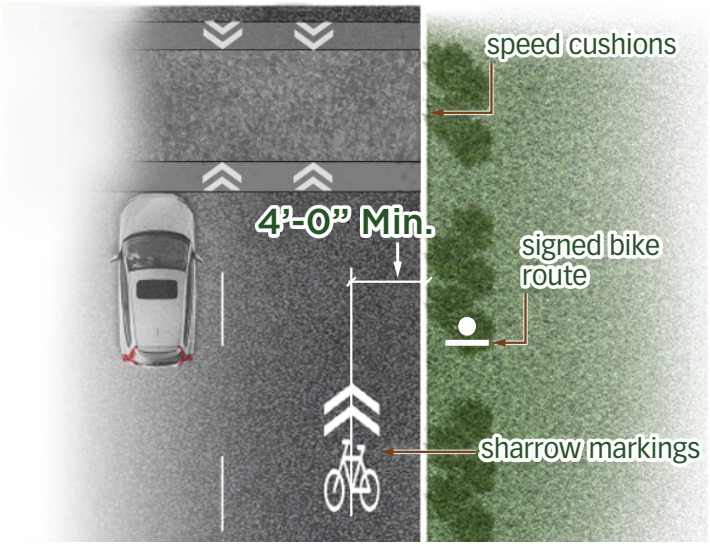


FIGURE 4.14 | BICYCLE BOULEVARD FEATURES



Note: If on-street parking is present along roadways, the minimum recommended placement of the shared lane marking is 11' from the curb.

SEPARATED BICYCLE LANE

Separated bicycle lanes differ from standard bicycle lanes in that there is a separation between the bicycle lane and the vehicle lanes. The same design features of standard bicycle lanes apply to separated bicycle lanes, except that there is also a minimum 3' buffer between the bicycle lane and vehicle lane. The benefit of utilizing a separated bicycle lane is that the increased separation between drivers and cyclists improves the safety and comfort of cyclists.

Planning-Level Estimated Costs: As of 2020, the cost of implementing separated bicycle lanes is approximately $75,000 per mile for markings and signage on an existing street. For adding additional width to existing roadways, the typical costs are $770,000 per miles.

BICYCLE BOULEVARD

A roadway designated as a bicycle boulevard is a street with low motorized traffic volumes and speeds that is designed to give priority to cyclists and local motor vehicle traffic. Bicycle boulevard infrastructure includes signs, shared lane markings, and traffic calming elements. The primary purpose of this type of bikeway accommodation is to promote the use of cycling along certain roadways.

OTHER CONSIDERATIONS

Whichever on-street bikeway accommodation is chosen, all pavement surfaces should be smooth, uniform in width, and free of utility lids, wide cracks, or longitudinal joints. Bicycle-safe grates without longitudinal openings should be used to avoid tires getting stuck. The use of brick, pavers, or stamped concrete is not recommended; instead, concrete or asphalt is preferred to ensure a smooth cycling surface.

SIGNAGE AND MARKINGS

TRAFFIC CONTROL SIGNAGE

The TMUTCD provides guidance on traffic control signage for all trail and bikeway crossings with roadways, based on the facility type and location. The signage is meant to alert both trail users and motorists of appropriate usage. The Appendix includes a compilation of commonly used trail and bikeway signage and information on their recommended location and size.

Key features of traffic control signage for trails and bikeways include the following:

- Signage should be highly visible to attract the attention of motorists, potentially through flashing warning beacons, roadway striping, or changes in pavement texture.
- Signage for trail users should alert users to oncoming vehicular traffic through stop signs, pavement marking, or bollards.
- Too many signs or other traffic control devices in one location can be overwhelming and ultimately lose their impact.
- Directional signage such as 'bicycle crossing' helps to warn motorists of the presence of potential trail users and can also help promote use of the trail.
- Directional signage along trails should promote wayfinding to key destinations.
- Trail markers for trails adjacent to roadways is not needed.

TRAIL MARKER DESIGN

Trail markers are used to designate distance along a trail and also provide location-specific information for emergency situations. At a minimum, trail markers should be installed at each trailhead, trail access point, and major trail intersection. Additionally, mileage markers help to inform users of the distance they have traveled along the trail and are important to determine location for emergency access. Ideally, trail markers should be installed every quarter mile along off-street Veloweb and Connector trails.

Trail mile marker on the Cottonwood Creek Trail in Allen, Texas

TRAIL AMENITIES

Trail amenities can enhance the overall user experience along trails. Through the community online survey and public open house, residents of Prosper voiced their preferences for various trail amenities, with neighborhood access, trail safety lighting, shade, and wayfinding signage ranking the highest. This section includes a description of the features such as stopping points, furnishings, and design elements that should be considered throughout the trail system in the Town. Ultimately, the Parks and Recreation Department will need to determine the placement of each throughout the trail system based on what the overall recreation and programming goals are for each trail.

STOPPING POINTS

TRAILHEADS

Trailheads are located at key entrances to the trail system allowing users to access a trail. Features typically included at a trailhead include parking, restrooms, information on trail rules and regulations, drinking fountains, benches, and trash receptacles. Additional information regarding recommended design of trailheads is discussed on page 65.

TRAIL ACCESS POINTS

A trail access point is a location along an off-street trail in which trail users can access the facility. These are often in the form of short, paved spurs to the existing sidewalk system in a neighborhood or in a commercial area. While a trail marker is needed at trail access points, all of the other features recommended in a trailhead are not needed for an access point. More details are discussed on page 65.

PARKING AREAS

Parking should be provided at all trailheads. Particularly for longer Veloweb Trails, parking at trail entrances is convenient for residents living further away from the trail network who can not easily walk or bike to the trail entrance.

Example of parking provided at a trailhead at Valley View Park

REST AREAS

Approximately every two miles along off-street Veloweb trails, there should be a rest area that contains shade, benches, drinking fountains, and trash receptacles. This will enhance the user experience for all trail users.

BIKE REPAIR STATIONS

Bike Repair stations are self-service stations that include tools to perform basic repairs and maintenance to bicycles, including filling deflated tires or changing a flat tire. Such stations should be placed near bicycle parking found at key destinations like parks, schools, and commercial areas.

Bike Repair station at a park in Plano

TRAIL OVERLOOKS

A trail overlook is meant to celebrate areas of natural beauty or historic or cultural significance. An overlook should be placed along a trail so as to not require removal of additional trees. Overlooks should be situated approximately every one to three miles along Veloweb Trail corridors. The design of individual overlooks varies based on unique site conditions.

FITNESS STATIONS

Fitness stations along trails are particularly useful for joggers and cyclists seeking to stretch, warm up, and cool down before or after a run or bike ride. Similar to fitness stations located within a park, a fitness station offers trail users an opportunity to engage with static machines that target different muscles.

Fitness Station along Campion Trail in Irving

FURNISHINGS

BIKE RACKS

Bike racks are particularly important in areas where the trail intersects with key destinations such as parks, schools, or commercial areas. This allows for trail users to safely secure their bicycles while stopping at destinations along the trail. Bike racks should be located at trailheads and where the trail intersects with key destinations.

Bike rack along the Cottonwood Creek Trail in Allen, Texas

WATER BOTTLE FILL STATION

Water bottle fill stations are important to ensure that trail users and their pets can remain hydrated while using the trail. Water bottle fill stations should be located at all trailheads and trail overlook points.

TRASH RECEPTACLES

The overall cleanliness of the trail system plays a big role in attracting new and retaining existing users. Trash and recycling receptacles play a large role in helping ensure trails stay clean. Trash receptacles should be placed at trailheads and only placed along trails if there is a demonstrated need. It is recommended for trail users to bring their own dog waste bags; if there is an issue with waste in the future, the Town should consider installing dog waste pickup bag dispensers adjacent to trash receptacles at trail head locations.

INFORMATIONAL KIOSKS

Directional signage, maps, and trail rules and regulations should be posted at trailheads to convey important trail information. Informational kiosks can inform users of their location along the trail, total length of the trail, location of amenities and key destinations along the trail, and where intersections with other trails occur, if applicable.

Informational Kiosk at the Brazos Park East in Waco, Texas

DESIGN FEATURES

EMERGENCY LIGHTING

While it is not the Town's policy to light trails since parks and trails close after dusk, emergency safety lighting is still critical to implement. Areas that should have emergency lighting include trailheads and parking areas. If the Town's policy regarding lighting trails changes in the future, considerations should be given to the time of day that lights are illuminated and whether they should have a motion sensor or photo-electric cell controller to reduce energy costs.

BRIDGES & LOW WATER CROSSINGS

Particularly in areas where trails are proposed to follow creeks, there will be instances where bridges or low-water crossings are needed as part of a trail corridor. All bridge designs should be sealed by a Texas Professional Engineer and meet the Town's engineering standards. Low water crossings should not exceed 4' from the path to the waterway flowline unless approved by the Town Engineer. Any crossing exceeding this 4' vertical separation will require a bridge to ensure the trail is compliant with ADAAG and TAS standards. For creek crossings that require a short span, box culverts can be used with handrails.

TRAIL SAFETY RAILING

In areas where there is significant change in topography within 5' of the trail shoulder, safety railings should be constructed. The top of the railing should be a minimum of 4' higher than the trail surface. Additionally, the railing rungs should be horizontal to avoid catching bicycle handlebars. The bottom rung of the railing should be 4" from the top of the trail. The trail safety railings should be constructed in accordance with the latest International Building Code.

Example of safety railings along the Cedar Park Trail in Cedar Park, Texas

TRAILHEAD DESIGN

The Hike & Bike Trail Master Plan map designates a series of trailheads to provide access points to the trail system. Trailheads should create a unique, well-designed entry to the trail system and adhere to the following design considerations. The following represents typical features to be included with a trailhead in Prosper.

- **Trail Markers**: At least one trail marker designating the trail name and access point should be placed at a trailhead.
- **Signage**: A map of the Town's trail system should be provided with a 'you are here' locator.
- **Parking**: At minimum of 10 parking spaces for major trailheads (at community parks and retail centers) and five spaces for minor trailheads (at neighborhood parks and trail intersections) with one handicap space should be provided. The use of shared parking should be encouraged when appropriate.
- **Bike Racks**: Bike racks should be provided at a ratio of one bike space per every two vehicle parking spaces. A minimum of five bike rack spaces should be provided at each trailhead. The design of bike racks must be approved by the Town.
- **Benches**: One bench for every three vehicle parking spaces should be provided at each trailhead. The design of benches must be approved by the Town.
- **Water Bottle Fill Station**: One water bottle fill station is recommended where possible to be provided at each trailhead within 30' of the benches and bike racks. The design of the fill stations must comply with standard specifications set by the Town.
- **Lighting**: Trailhead parking lots should be lit with appropriate commercial light fixtures to a minimum of ½ footcandle with no spillover to adjacent properties. The use of solar powered lighting is encouraged where possible.

TRAIL ACCESS POINTS

The Hike & Bike Trail Master Plan map also designates trail access points, or areas where one can access a trail that isn't located adjacent to a roadway. At a minimum, a trail access point should include a trail marker that designates the trail name and mile marker information. Trailheads are also considered access points, but include more amenities as listed in the previous section.

Example of a trailhead in Allen, Texas

SOCIAL DISTANCING CONSIDERATIONS

The unprecedented times experienced during the global pandemic have heightened the importance of public amenities that support outdoor recreational opportunities at a safe distance. However, a new reality has taken form which involves normalizing social distancing through design.

Examples of trail amenity design that support social distancing behavior include the following:

- **Implementing wider trails** increases comfort for all trail users and better aligns with current and future social distancing policies. The ability to maintain a safe distance from fellow users is critical from a health standpoint.

- **Touchless water bottle fill stations** allow users to refill personal water bottles in a manner that considers the safety of all users and prevents the spread of germs.

- **Establishing sanitation stations** along trails that provide for hand-washing and cleansing wipes to disinfect amenities such as benches and hand railings increase user comfort and aid in the prevention of spreading germs.

- To optimize the use of spaces for public activities, municipalities should consider temporarily **closing lanes along roadways with excess capacity** to be utilized by bicyclists.

- **Increasing the frequency of rest stops** allows space for separation from others along portions of trail that are experiencing higher volumes of users as well as the ability to more conveniently provide amenities such as water filling stations and sanitation stations.

Example of social distancing signage along trails in Plano, Texas

5

IMPLEMENTATION STRATEGIES

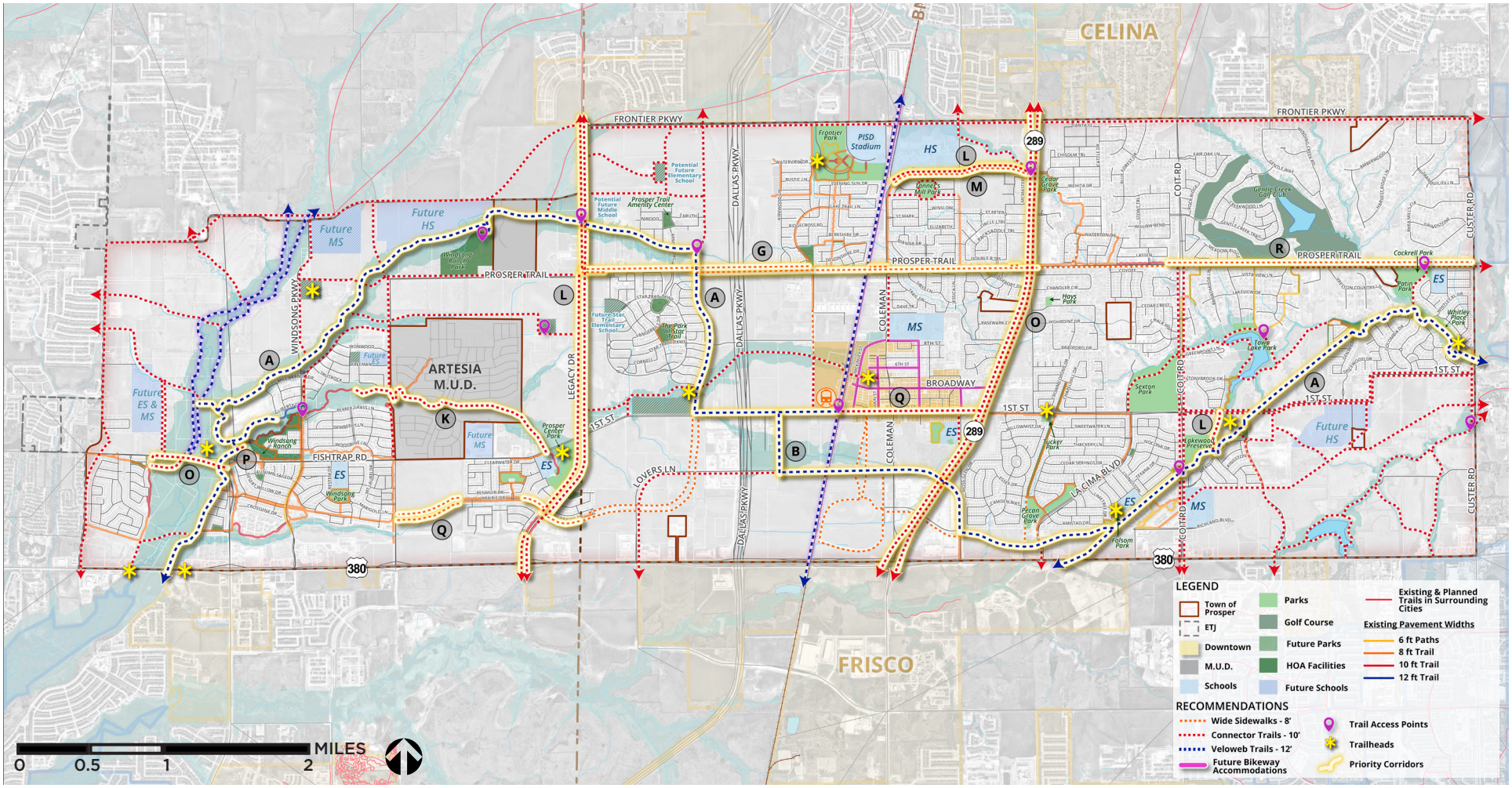
CONTENT

IMPLEMENTATION PLAN

IMPLEMENTATION PRIORITIES

Figure 5.1 depicts the overall recommendations map as discussed in Chapter 4 with the prioritized segments highlighted. These segments were identified by scoring each of the trail segments based on the evaluation criteria discussed in Chapter 4.

FIGURE 5.1 | TOWN-WIDE PRIORITIZATION MAP



PRIORITY TRAIL PROJECTS

The summaries on pages 72-87 give detail on each of the corridors identified in the priority map in **Figure 5.1** and **Table 5.1**. Although these corridors scored high given the prioritization criteria, there may be projects that occur sooner as development occurs throughout Prosper.

For each priority corridor, a description of the key features, implementation considerations, and planning-level cost estimates are given. It is important to note that the estimates are at a pre-design level, and therefore will vary as additional planning and design occurs. A summary of the potential funding sources is also discussed on the following pages.

For all of the other recommended facilities, typical cost per mile estimates are detailed on page 88.

TABLE 5.1 | PRIORITY CORRIDOR LISTING

TOWN AREA	SEGMENT	PAGE
Area 1 - West Prosper	1.A - Cross-Town Trail Segment 1	72
Area 1 - West Prosper	1.K - Artesia M.U.D.	73
Area 1 - West Prosper	1.L - Legacy Drive	74
Area 1 - West Prosper	1.O - Fishtrap Road	75
Area 1 - West Prosper	1.P - Doe Branch Trail Connection	76
Area 1 - West Prosper	1.Q - Prairie Drive	77
Area 2 - Central Prosper	2.A - Cross-Town Trail Segment 2	78
Area 2 - Central Prosper	2.B - Cross-Town Trail Segment 3	79
Area 2 - Central Prosper	2.G - Prosper Trail	80
Area 2 - Central Prosper	2.L - Coleman Street Segment 1	81
Area 2 - Central Prosper	2.M - Coleman Street Segment 2	82
Area 2 - Central Prosper	2.O - Preston Road	83
Area 2 - Central Prosper	2.Q - First Street	84
Area 3 - East Prosper	3.A - Cross-Town Trail Segment 4	85
Area 3 - East Prosper	3.L - Lakewood Preserve	86
Area 3 - East Prosper	3.R - Prosper Trail Segment 1	87

AREA I - SEGMENT A

TRAIL TYPE: 12' VELOWEB TRAIL | LENGTH: 5.30 MILES

Segment 1.A is the far western portion of the Cross-Town Trail that is part of the Regional Veloweb network. The proposed trail travels from U.S. 380 in the south to Legacy Drive to the east following along the Doe Branch Creek. This corridor will provide connectivity to Frisco and Little Elm from the south and Celina to the north and also connect key destinations within Prosper including parks, neighborhoods, and a planned high school. As shown in **Figure 5.2**, there are multiple trailheads and trail access points recommended for this trail segment.

When this trail segment is designed and constructed, major implementation considerations include:

- Coordinating with Frisco and Little Elm to the south and Celina to the north to ensure safe and easy connections to trails within those communities.
- Elevating portions of trails where needed due to flooding.
- Crossing major roadways at Fish Trap, Teel Parkway, and Legacy Drive.
- Implementing bridge or culverts when crossing the creek.

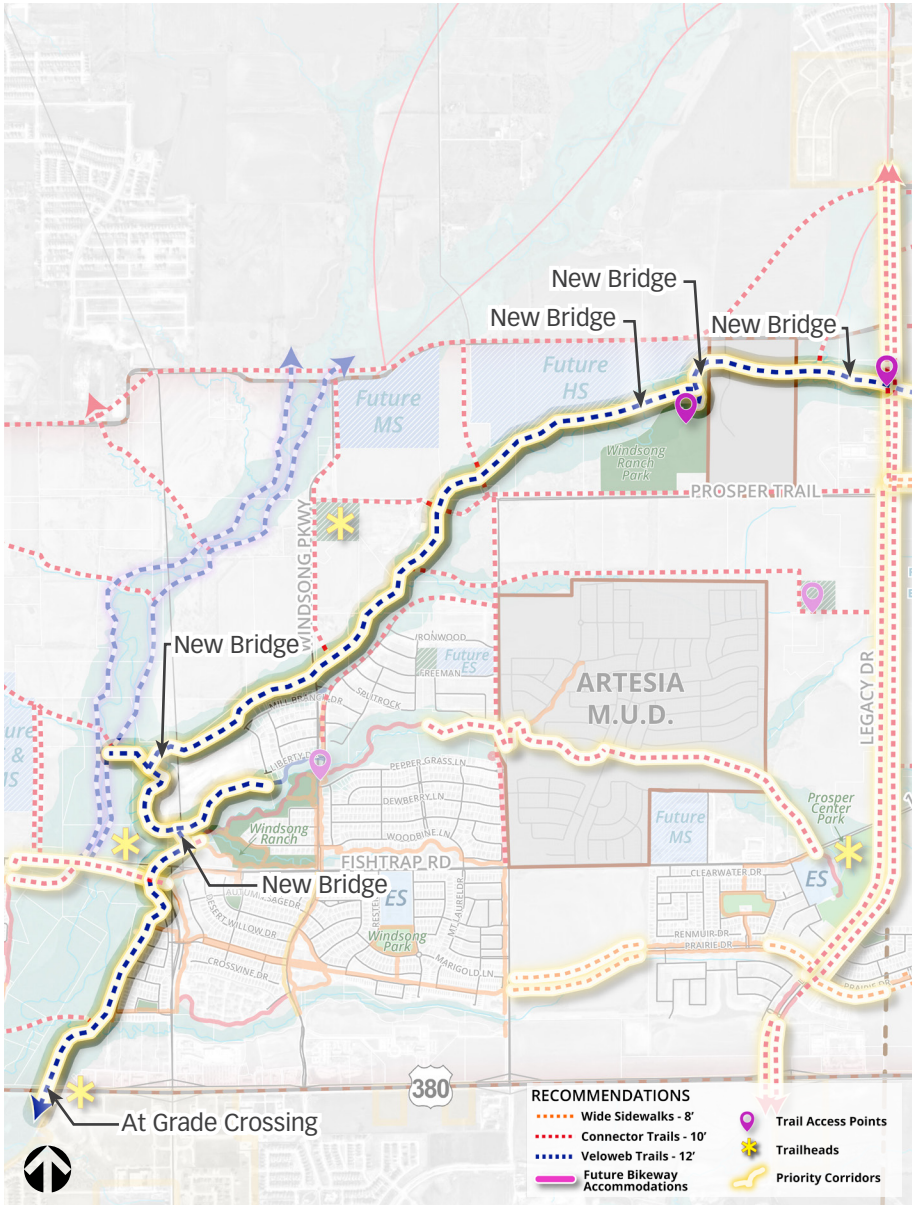
Table 5.2 depicts the estimated planning level costs to implement the trail segment. Since this trail primarily runs through the Windsong Ranch development, the majority of the trail will be funded through private development. A portion of the trail also travels adjacent to the future high school. Given that this corridor is designated on the Regional Veloweb, grant opportunities could also be pursued.

TABLE 5.2 | CORRIDOR 1.A COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
1.A - Cross-Town Trail Segment 1	5.30 miles	$8,000,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.2 | CORRIDOR 1.A DETAIL MAP



AREA I - SEGMENT K

TRAIL TYPE: 10' CONNECTOR TRAIL | LENGTH: 1.63 MILES

Segment 1.K connects through the Artesia M.U.D. to provide connectivity from the Windsong Ranch neighborhood to Prosper Center Park and an elementary school. The proposed trail travels from the Doe Creek Greenbelt to Fish Trap Road. There are existing trails within Artesia to which this proposed trail will connect. **Figure 5.3** depicts the corridor in detail, including a proposed trailhead at Prosper Center Park.

When this trail segment is designed and constructed, major implementation considerations include:

- Coordinating with Windsong Ranch and Artesia M.U.D.
- Elevating portions of trails where needed due to flooding.
- Crossing major roadways at Legacy and Fish Trap.

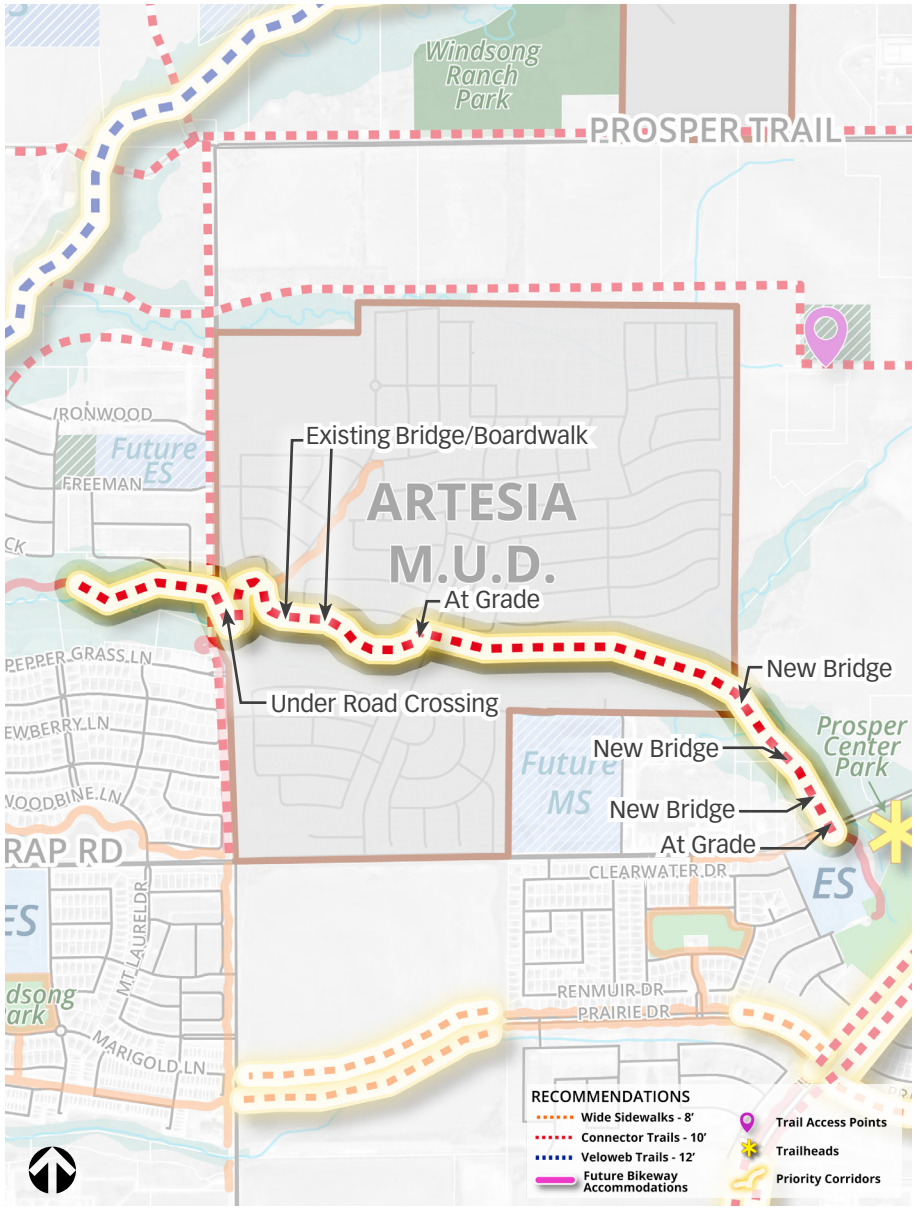
Table 5.3 depicts the estimated planning level costs to implement the trail segment. Potential funding sources include grant funding and CIP funds. This project also presents an opportunity to partner with the Artesia M.U.D. on providing trail opportunities.

TABLE 5.3 | CORRIDOR 1.K COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
1.K - Artesia M.U.D.	1.63 miles	$3,100,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.3 | CORRIDOR 1.K DETAIL MAP



AREA I - SEGMENT L

TRAIL TYPE: 10' CONNECTOR TRAIL | LENGTH: 5.63 MILES

Segment 1.L would provide 10' trails on both side of Legacy Drive from the southern town boundary (U.S. 380) to the northern boundary (Frontier Parkway). The trail corridor will provide connectivity to Frisco and Celina and will connect to Prosper Center Park and the Cross-Town Veloweb in the northern part of Town. **Figure 5.4** depicts the details of this trail corridor. There is a proposed trail access point at the intersection with the Cross-Town Veloweb Trail just south of Frontier Parkway.

When this trail segment is designed and constructed, major implementation considerations include:

- Coordinating with Frisco to the south and Celina to the north to ensure safe and easy connections to trails or pedestrian facilities in those communities.
- Crossing major roadways at Fish Trap and Prosper Trail.
- Tying into existing trails south of Prairie Drive.

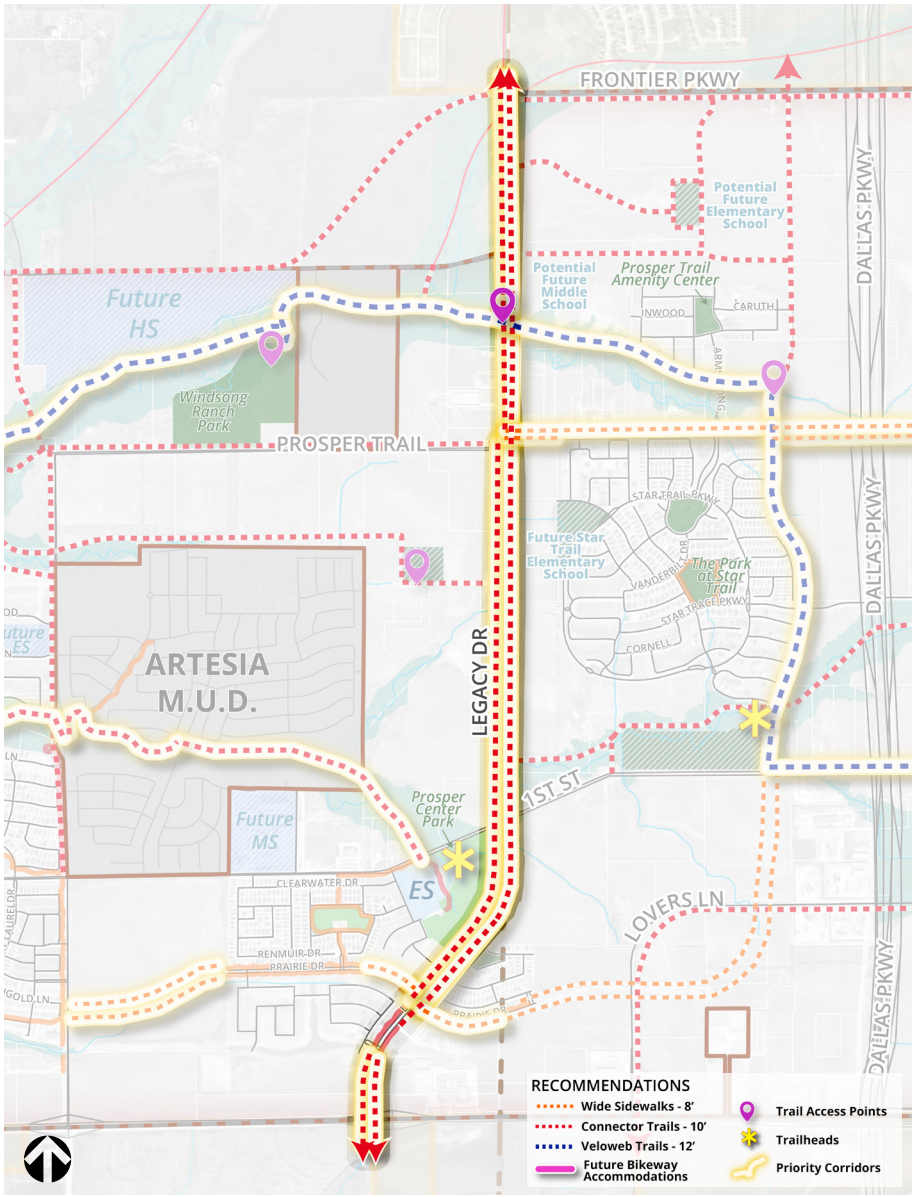
Table 5.4 depicts the estimated planning level costs to implement the trail segment. The majority of the proposed corridor extent falls within existing developer agreements, so the trail should be funded by private development as development occurs.

TABLE 5.4 | CORRIDOR 1.L COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
1.L - Legacy Drive	5.63 miles	$8,800,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.4 | CORRIDOR 1.L DETAIL MAP



AREA I - SEGMENT O

TRAIL TYPE: 10' CONNECTOR TRAIL | LENGTH: 0.79 MILES

Segment 1.O is a short connection on the south side of Fish Trap Road that would connect the Preserve at Doe Creek neighborhood to Gee Road. This corridor was identified as a gap during the public engagement events and needs assessment process. When implemented, this connection will connect to the larger existing and planned system within the Windsong Ranch neighborhood. The proposed corridor is shown in **Figure 5.5** to the right.

When this trail segment is designed and constructed, major implementation considerations include:

- Tying into existing trails within the Preserve at Doe Creek neighborhood.
- Creating a connection to proposed Veloweb Trails along Doe Branch creek.
- Floodplain considerations.

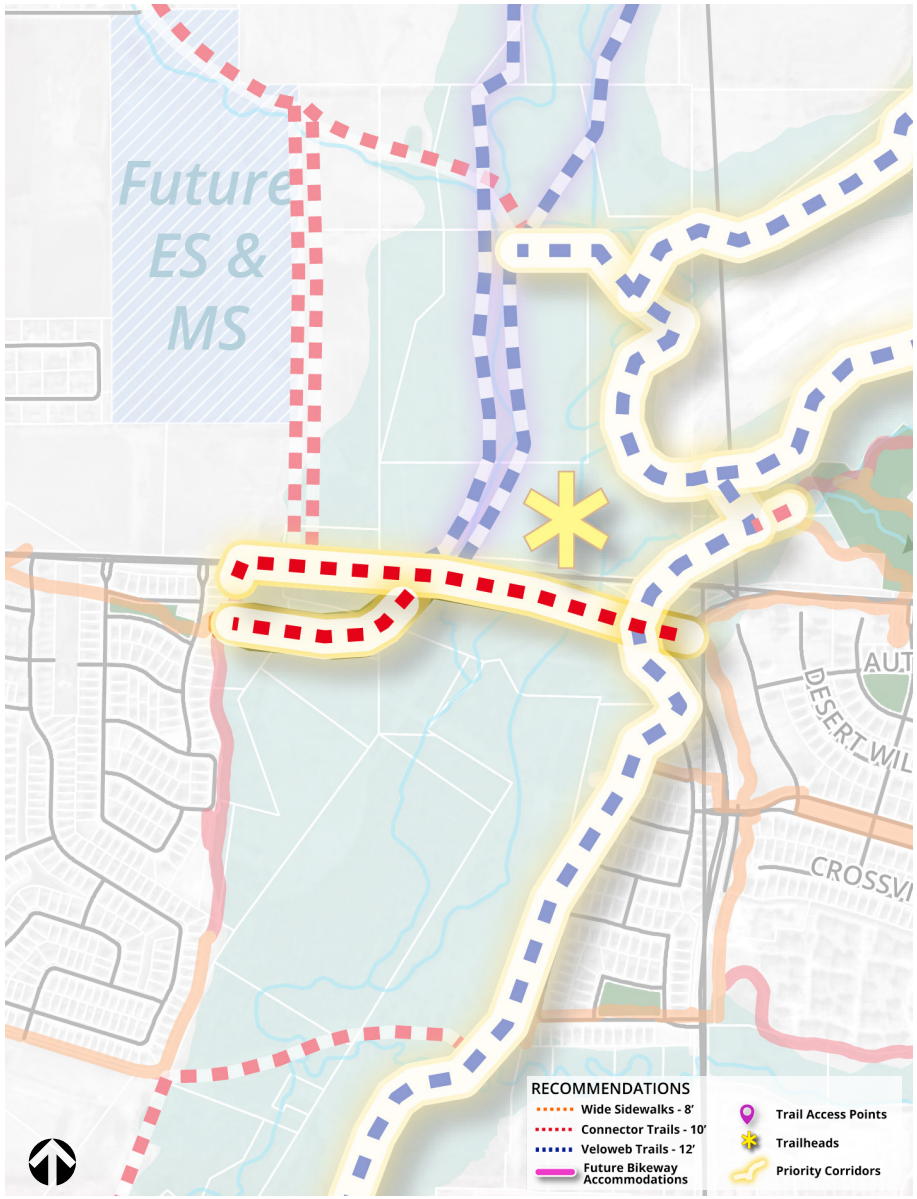
Table 5.5 depicts the estimated planning level costs to implement the trail segment. Potential funding sources include CIP funding or grant funding since this location is outside of an existing developer facility agreement.

TABLE 5.5 | CORRIDOR 1.O COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
1.O - Fishtrap Road	0.79 miles	$2,100,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.5 | CORRIDOR 1.O DETAIL MAP



AREA I - SEGMENT P

TRAIL TYPE: 10' CONNECTOR TRAIL | LENGTH: 0.04 MILES

Segment 1.P is a short connection that connects the Cross-Town Veloweb Trail along Doe Branch to the existing 10' trails built in Windsong Ranch. The proposed trail corridor travels from Windsong Parkway to Doe Branch Trail. **Figure 5.6** to the right shows the proposed trail segment and surrounding area in more detail.

When this trail segment is designed and constructed, major implementation considerations include:

- Connecting to existing trails within Windsong Ranch.
- Floodplain considerations.

Table 5.6 depicts the estimated planning level costs to implement the trail segment. This short spur is located within the Windsong Ranch neighborhood with existing developer agreements, so the trail should be funded through the developer when development occurs.

FIGURE 5.6 | CORRIDOR 1.P DETAIL MAP

TABLE 5.6 | CORRIDOR 1.P COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
1.P - Doe Branch Trail Connection	0.04 miles	$330,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

AREA I - SEGMENT Q

TRAIL TYPE: 8' WIDE SIDEWALKS | LENGTH: 1.04 MILES

Segment 1.Q recommends providing wide sidewalks on the north and south side of Prairie Drive from Teel Parkway to the Denton/ Collin County line. There are existing 8' paths along portions of Prairie Drive, so this corridor would provide additional paths on either side of the full extension of the roadway. **Figure 5.7** depicts the details of the proposed corridor.

When this trail segment is designed and constructed, major implementation considerations include:

- Any adjustments to proposed roadway alignment.
- Connecting to existing 8' paths.

Table 5.7 depicts the estimated planning level costs to implement the trail segment. Potential funding sources include future developer agreements as development in this area occurs.

TABLE 5.7 | CORRIDOR 1.Q COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
1.Q - Prairie Drive	1.04 miles	$2,000,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.7 | CORRIDOR 1.Q DETAIL MAP

AREA II - SEGMENT A

TRAIL TYPE: 12' VELOWEB TRAIL | LENGTH: 2.96 MILES

Segment 2.A is the second segment of the Cross-Town Veloweb corridor. In Area II, the corridor travels from the County Line to the BNSF railroad along the Doe Branch Greenbelt, south on Shawnee Trail, and east on First Street. The proposed corridor intersects with multiple trails along the route and is part of the east-west Veloweb corridor. **Figure 5.8** shows the various trail intersections and trail access opportunities within this segment.

When this trail segment is designed and constructed, major implementation considerations include:

- Coordinating with NTTA on the Dallas North Tollway crossing.
- Widening existing paths along Shawnee Trail to accommodate the Veloweb Trail.
- Creek crossings.
- Major roadway crossings at Prosper Trail, Dallas North Tollway, and Lovers Lane.
- Floodplain considerations.

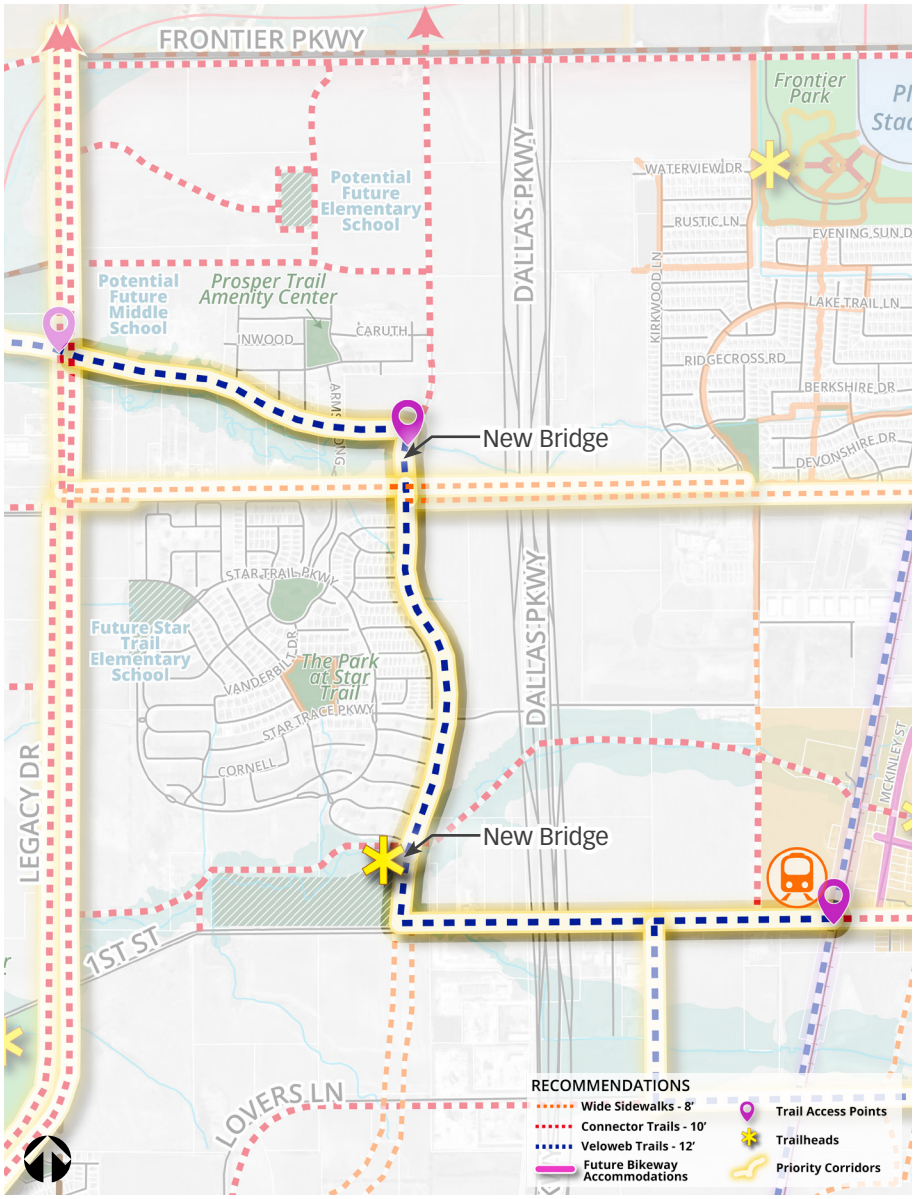
Table 5.8 depicts the estimated planning level costs to implement the trail segment. Potential funding sources include developer funding through existing and future developer facility agreements. Given that this corridor is designated on the Regional Veloweb, grant opportunities could also be pursued.

TABLE 5.8 | CORRIDOR 2.A COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
2.A Cross-Town Trail Segment 2	2.96 miles	$4,600,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.8 | CORRIDOR 2.A DETAIL MAP



AREA II - SEGMENT B

TRAIL TYPE: 12' VELOWEB TRAIL | LENGTH: 1.57 MILES

Segment 2.B is a continuation of Segment 2.A as part of the overall Cross-Town Veloweb Trail. The proposed 12' trail travels from First Street to Preston Road along the east side of a future collector road and the south side of Lovers Lane. Both of these roadway segments are not fully constructed today, so when construction does occur the trail facilities should be accommodated in the design. **Figure 5.9** depicts this corridor in detail.

When this trail segment is designed and constructed, major implementation considerations include:

- Coordinating with BNSF Railroad on the railroad crossing.
- Crossing major roadways at Lovers Lane, Coleman Street, and Preston Road.
- Floodplain considerations.
- Potential adjustments to future thoroughfares.

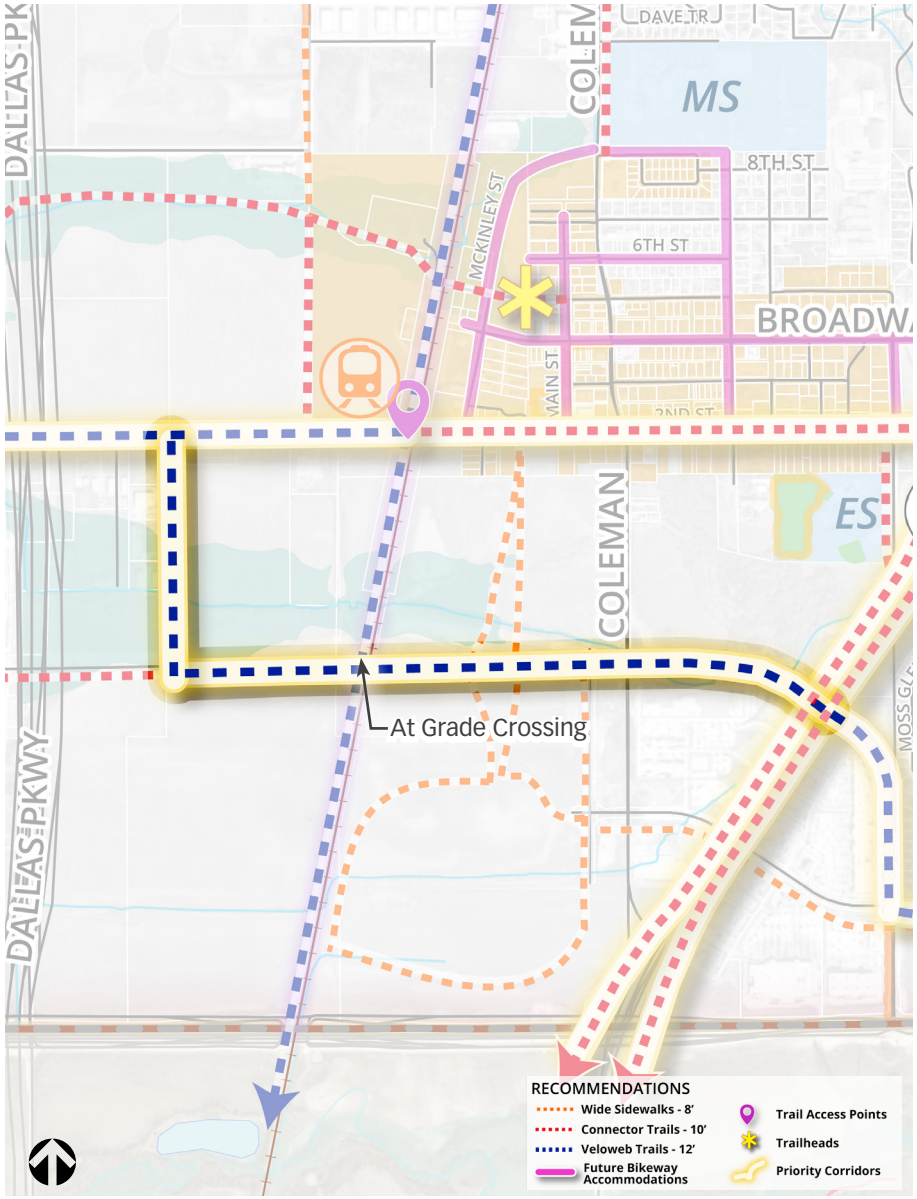
Table 5.9 depicts the estimated planning level costs to implement the trail segment. Potential funding sources include developer funding through future developer facility agreements. Similar to the previous corridor, since the Cross-Town Trail is designated on the Regional Veloweb, grant opportunities could also be pursued.

TABLE 5.9 | CORRIDOR 2.B COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
2.B - Cross-Town Trail Segment 3	1.57 miles	$3,000,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.9 | CORRIDOR 2.B DETAIL MAP



AREA II - SEGMENT G

TRAIL TYPE: 8' WIDE SIDEWALKS | LENGTH: 4.18 MILES

Segment 2.G fills in 8' paths along the north and south sides of Prosper Trail through the central portion of Town. The proposed corridor goes from Legacy Road in the west to Preston Road in the east. As new development occurs, these wide sidewalks will be filled in. **Figure 5.10** to the right shows the proposed corridor and the existing and planned trails to which it will connect.

When this trail segment is designed and constructed, major implementation considerations include:

- Coordinating with NTTA on the Dallas North Tollway crossing.
- Coordinating with BNSF Railroad on the railroad crossing.
- Connecting to existing 8' paths along the roadway.
- Major crossings at Legacy Road, Shawnee Trail, Coleman Street, and Preston Road.

Table 5.10 depicts the estimated planning level costs to implement the trail segment. Potential funding sources include future developer agreements as development along Prosper Trail occurs.

FIGURE 5.10 | CORRIDOR 2.G DETAIL MAP

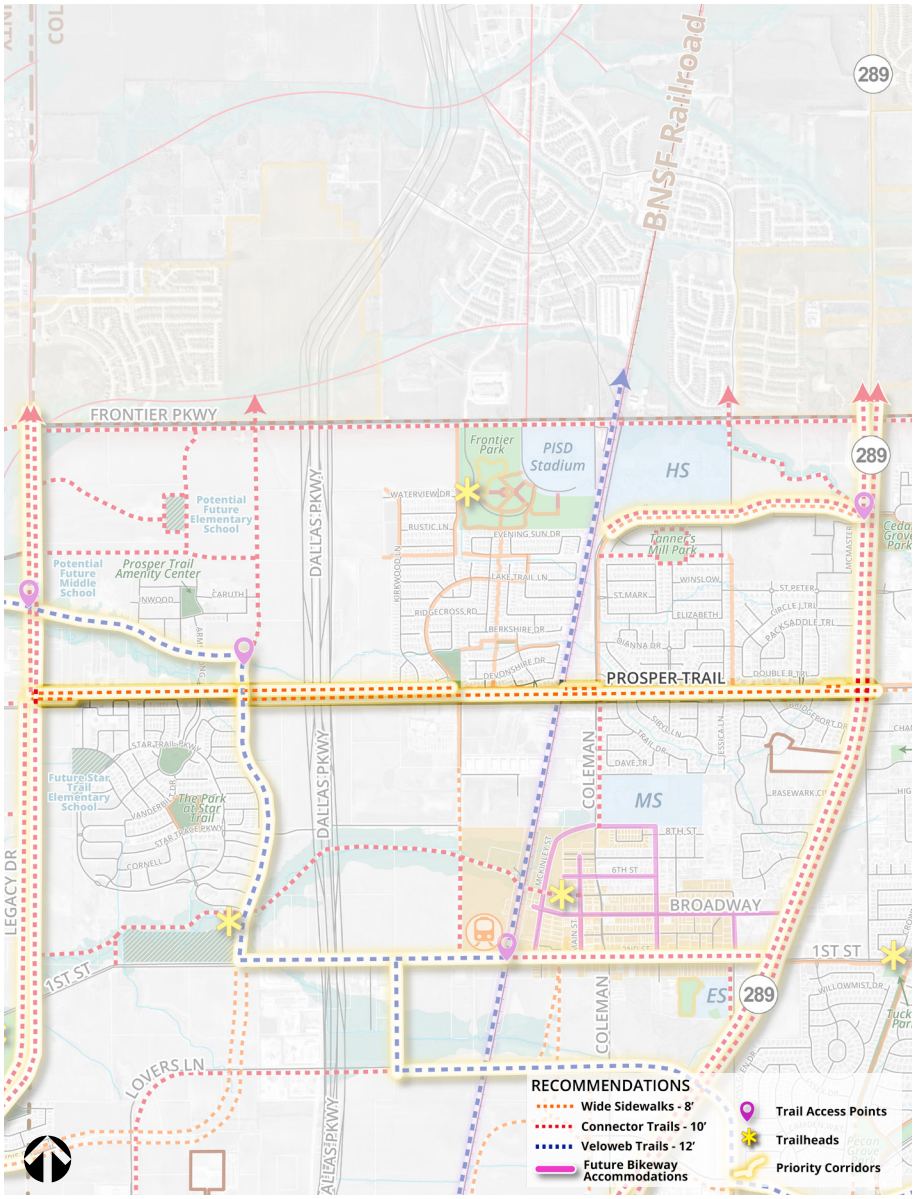


TABLE 5.10 | CORRIDOR 2.G COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
2.G - Prosper Trail	4.18 miles	$4,700,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

AREA II - SEGMENT L

TRAIL TYPE: 10' CONNECTOR TRAIL | LENGTH: 0.99 MILES

Segment 2.L proposes a 10' connector trail on the north side of Coleman Street from Talon Lane to Preston Road. This segment fills in a gap in the trail network from Preston Road to Prosper High School. Segment 2.L on the south side of Coleman Street will connect to existing wide sidewalks. As shown in **Figure 5.11**, a trail access point is located at the intersection of Preston and Coleman Street.

When this trail segment is designed and constructed, major implementation considerations include:

- Connecting to existing paths.
- Providing connectivity to Prosper High School.

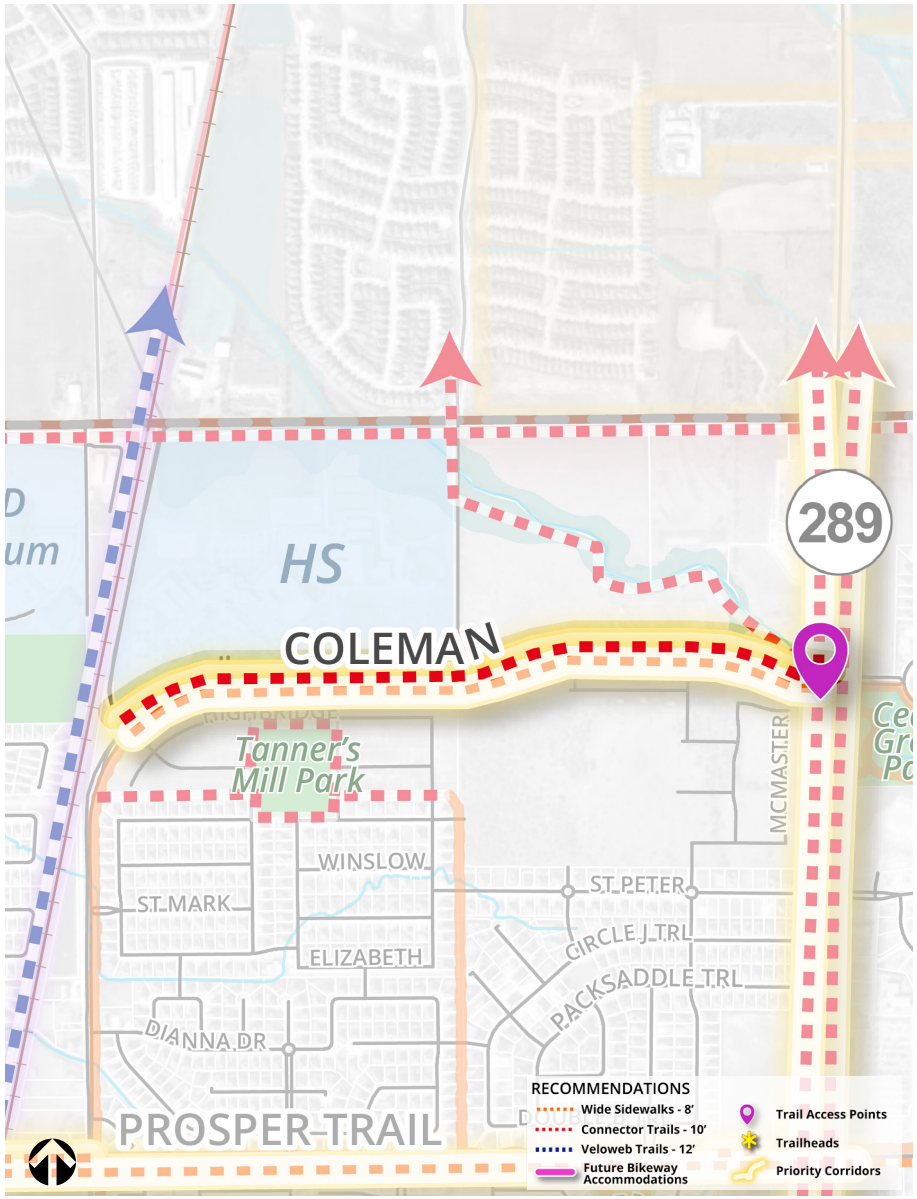
Table 5.11 depicts the estimated planning level costs to implement the trail segment. The corridor is located within an existing developer facility agreement, so the trail should be funded by the developer when development occurs.

TABLE 5.11 | CORRIDOR 2.L COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
2.L - Coleman Street Segment 1	0.99 miles	$1,900,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.11 | CORRIDOR 2.L DETAIL MAP



AREA II - SEGMENT M

TRAIL TYPE: 8' WIDE SIDEWALKS | LENGTH: 0.96 MILES

Segment 2.M proposes wide sidewalks on the south side of Coleman Street from Talon Lane to Preston Road. This corridor would connect to existing 8' paths on the south side south of Talon Lane and would complement the 10' connector trail on the north side of Coleman Street. **Figure 5.12** to the right depicts the proposed corridor.

When this trail segment is designed and constructed, major implementation considerations include:

- Connecting to existing paths.
- Intersection safety at Preston Road.

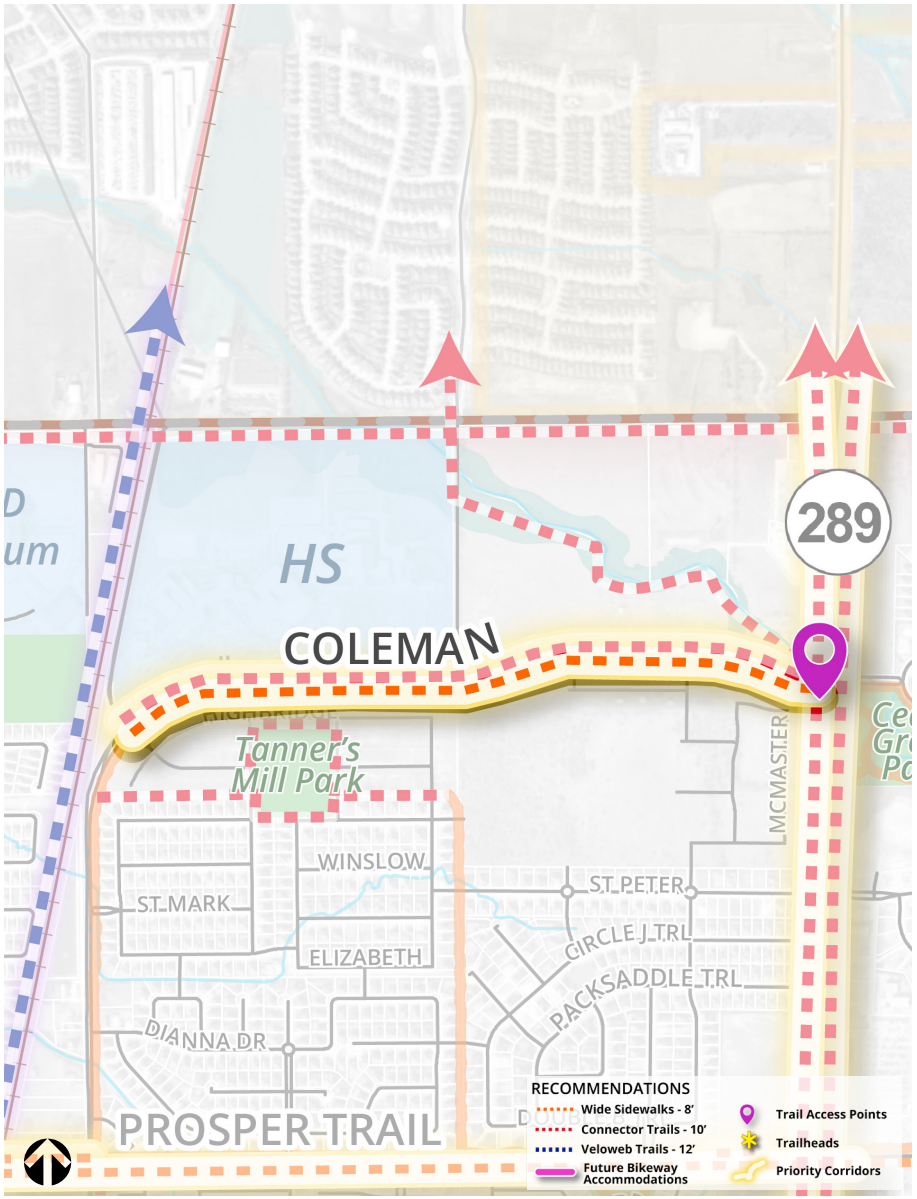
Table 5.12 depicts the estimated planning level costs to implement the trail segment. Similar to Segment 2.M, the corridor is located in an area with an existing developer facility agreement, so the trail should be funded by the developer when development occurs.

TABLE 5.12 | CORRIDOR 2.M COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
2.M - Coleman Street Segment 2	0.96 miles	$1,700,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.12 | CORRIDOR 2.M DETAIL MAP



AREA II - SEGMENT O

TRAIL TYPE: 10' CONNECTOR TRAIL | LENGTH: 6.51 MILES

Segment 2.O proposes a 10' connector trail on both sides of Preston Road for the entire stretch through Prosper (U.S. 380 to Frontier Parkway). Preston is a key commercial corridor in Prosper and also poses a barrier for safe bicycle and pedestrian activity. **Figure 5.13** to the right depicts the corridor in detail.

When this trail segment is designed and constructed, major implementation considerations include:

- Connecting to existing paths.
- Crossing major roadways at U.S. 380, First Street, Prosper Trail, and Frontier Parkway.
- Connecting to Celina to the north and Frisco to the south.

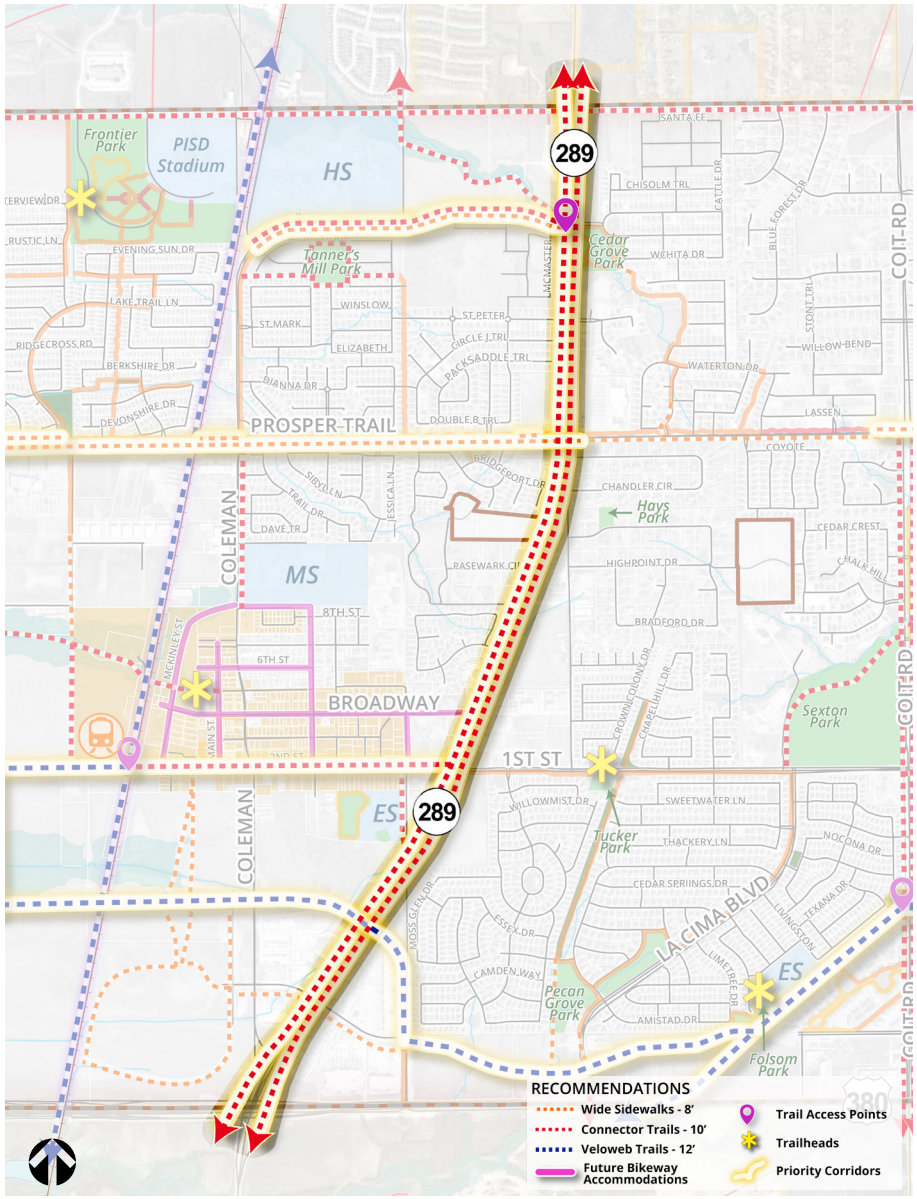
Table 5.13 depicts the estimated planning level costs to implement the trail segment. There is not an existing developer's agreement along the corridor, so potential funding sources include CIP funds and potential grant funding. Given that Preston Road is a major artery in Prosper, there may be major employers that have interest in sponsoring a portion of the trail facilities.

TABLE 5.13 | CORRIDOR 2.O COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
2.O - Preston Road	6.51 miles	$7,500,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.13 | CORRIDOR 2.O DETAIL MAP



AREA II - SEGMENT Q

TRAIL TYPE: 10' CONNECTOR TRAIL | LENGTH: 0.98 MILES

Segment 2.Q proposes a Connector Trail along the north side of First Street from the Cook Lane extension to Preston Road. This corridor would provide a connection from the Cross-Town Regional Veloweb to Old Town Prosper via First Street. Major destinations that would be connected include Old Town Prosper and the future passenger rail station along the BNSF railroad at First Street. **Figure 5.14** shows the proposed corridor details.

When this trail segment is designed and constructed, major implementation considerations include:

- Coordinating with BNSF Railroad on the railroad crossing.
- Property conflicts within Old Town.

Table 5.14 depicts the estimated planning level costs to implement the trail segment. Since this corridor is located within an older portion of Town, unless major redevelopment occurs, developer fees won't be available to implement this corridor. Instead, CIP funds and grant funding should be sought to implement the facility.

FIGURE 5.14 | CORRIDOR 2.Q DETAIL MAP

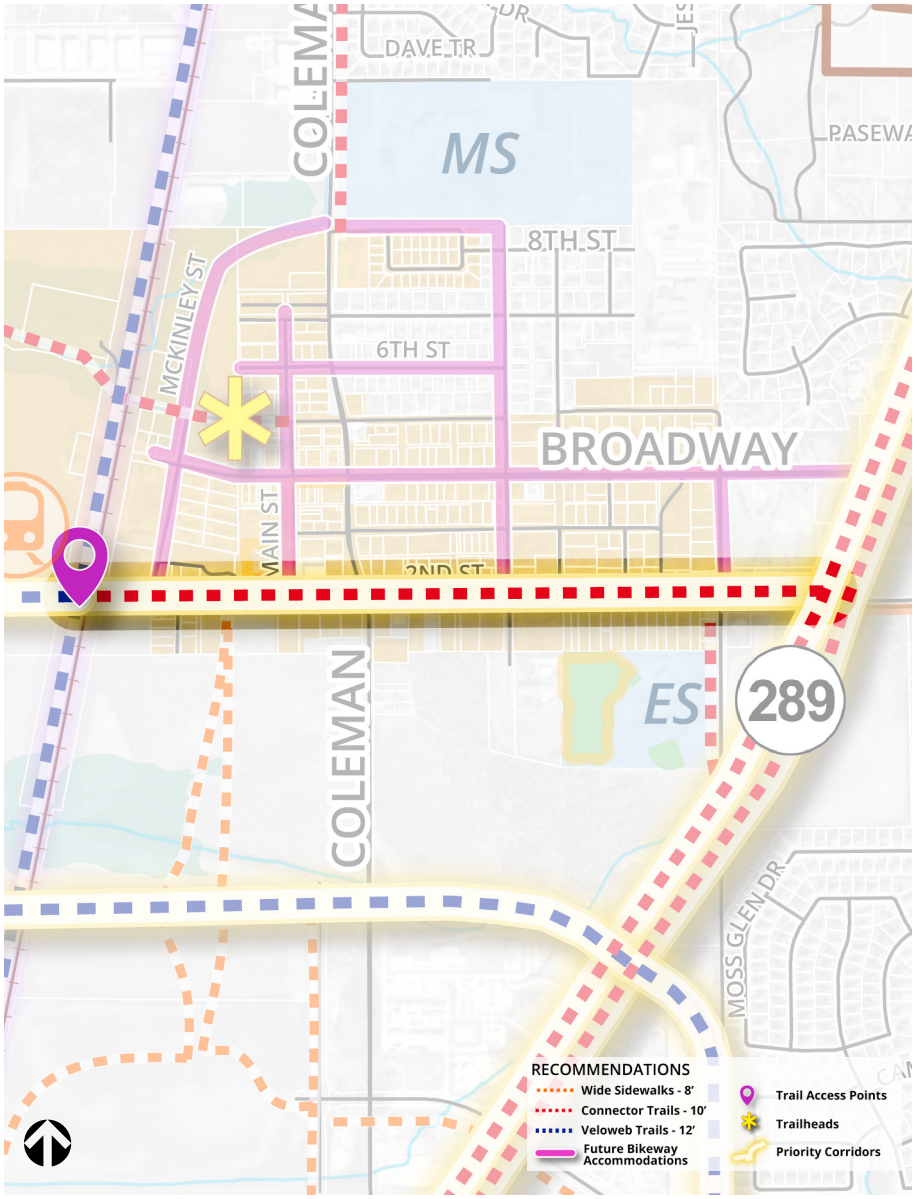


TABLE 5.14 | CORRIDOR 2.Q COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
2.Q - First Street	0.98 miles	$2,000,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

AREA III - SEGMENT A

TRAIL TYPE: 12' VELOWEB TRAIL | LENGTH: 5.31 MILES

Segment 3.A is the final segment of the Cross-Town Veloweb Trail, traveling from Preston Road to Custer Road at the eastern town boundary. The 12' trail will generally follow along the north side of Richland Boulevard, then travel within the utility easement starting at Folsom Park and then traverse through the greenbelt near Whitley Place Park before connecting to McKinney past Custer Road. Along this segment there are three proposed trailheads and one proposed trail access point. As shown in **Figure 5.15**, there are portions along this corridor that are built, but they are recommended to be widened over time to accommodate all users.

When this trail segment is designed and constructed, major implementation considerations include:

- Connecting to existing paths.
- Connecting south to Frisco and east to McKinney.
- Crossing major roadways at Coit and First Street.
- Widening existing trails along path to 12'.
- Floodplain considerations.

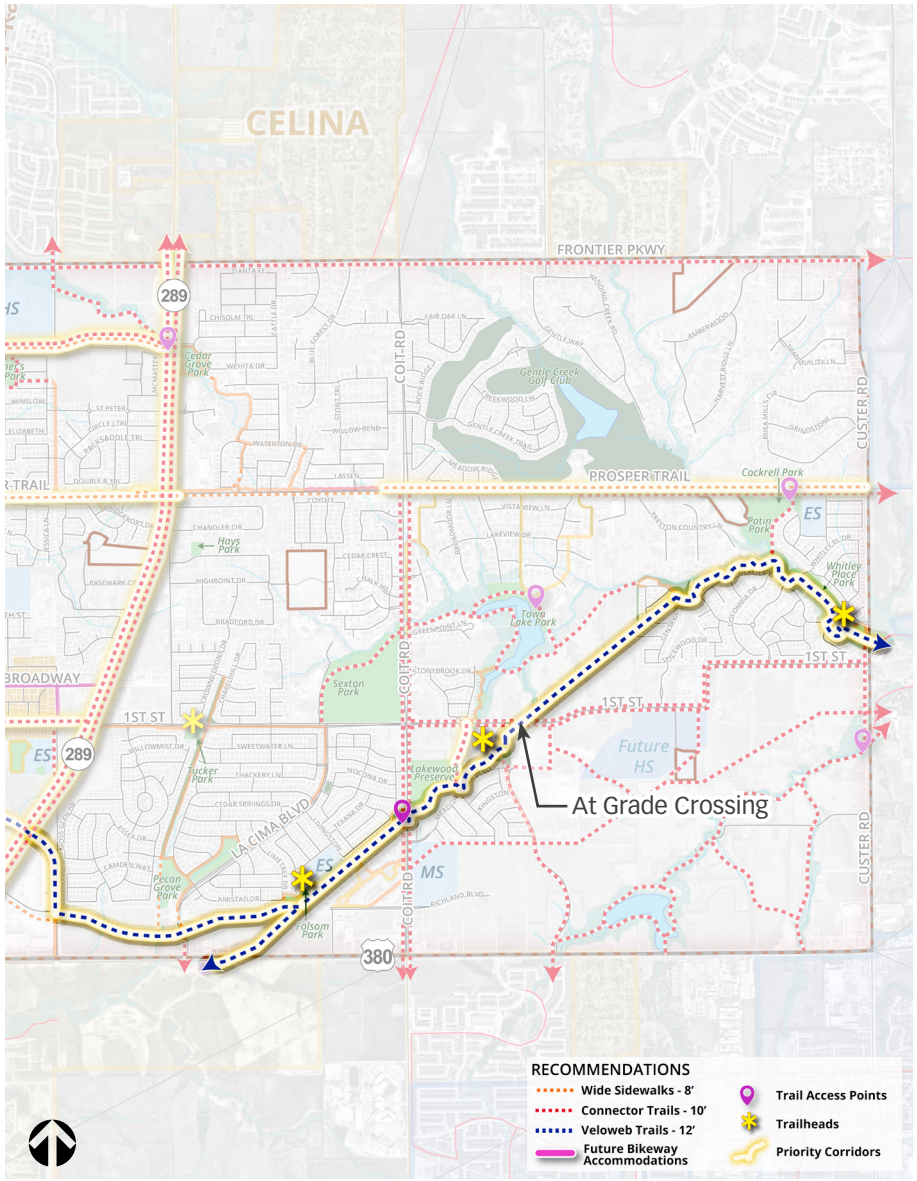
Table 5.15 depicts the estimated planning level costs to implement the trail segment. For the portions of this trail not already built, the trail should be funded through future development agreements. For sections of the trail that are built today less than 12' wide, the cost will be on the Town to widen segments over time, which could be funded by CIP funds or grant funding.

TABLE 5.15 | CORRIDOR 3.A COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
3.A - Cross-Town Trail Segment 4	5.31 miles	$7,300,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.15 | CORRIDOR 3.A DETAIL MAP



Note: Some portions of trail are existing 8' paths. Recommended to be widened to be a 12' Veloweb corridor for multi-use. (cost estimate includes cost to widen existing sections).

AREA III - SEGMENT L

TRAIL TYPE: 10' CONNECTOR TRAIL | LENGTH: 0.27 MILES

Segment 3.L proposes a Connector Trail within the creek greenbelt connecting from First Street to the Cross-Town Veloweb Trail adjacent to the Lakewood Preserve park. This connection, although short, provides connectivity from north of First Street down to the Regional Veloweb corridor. **Figure 5.16** to the right depicts the corridor in more detail.

When this trail segment is designed and constructed, major implementation considerations include:

- Floodplain considerations.
- Crossing First Street.
- Connecting to the Regional Veloweb trail.
- Access to Lakewood Preserve park.

Table 5.16 depicts the estimated planning level costs to implement the trail segment. Since this short connection is outside of an existing or future developer facility agreement, the corridor should be funded by CIP funds or grants.

FIGURE 5.16 | CORRIDOR 3.L DETAIL MAP

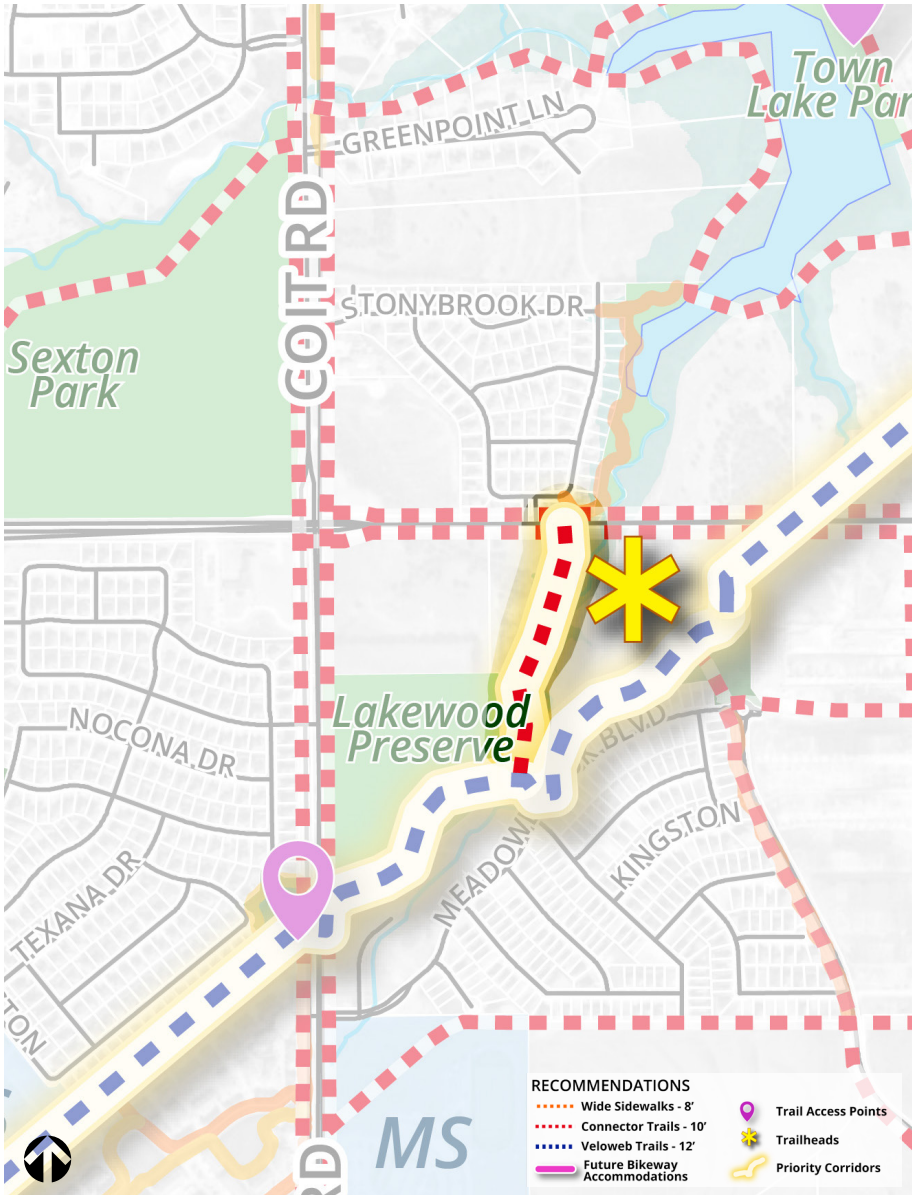


TABLE 5.16 | CORRIDOR 3.L COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
3.L - Lakewood Preserve	0.27 miles	$1,400,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

AREA III - SEGMENT R

TRAIL TYPE: 8' WIDE SIDEWALKS | LENGTH: 2.08 MILES

Segment 3.R proposes a 8' wide sidewalk along the north side of Prosper Trail from Coit Road to Custer Road and along the south side from Coit Road to Preston Road. This segment would provide additional connectivity for an already developed area of Prosper. A connector trail is proposed for the south side of much of Prosper Trail. **Figure 5.17** to the right depicts the corridor in more detail.

When this trail segment is designed and constructed, major implementation considerations include:

- Connecting to existing paths.

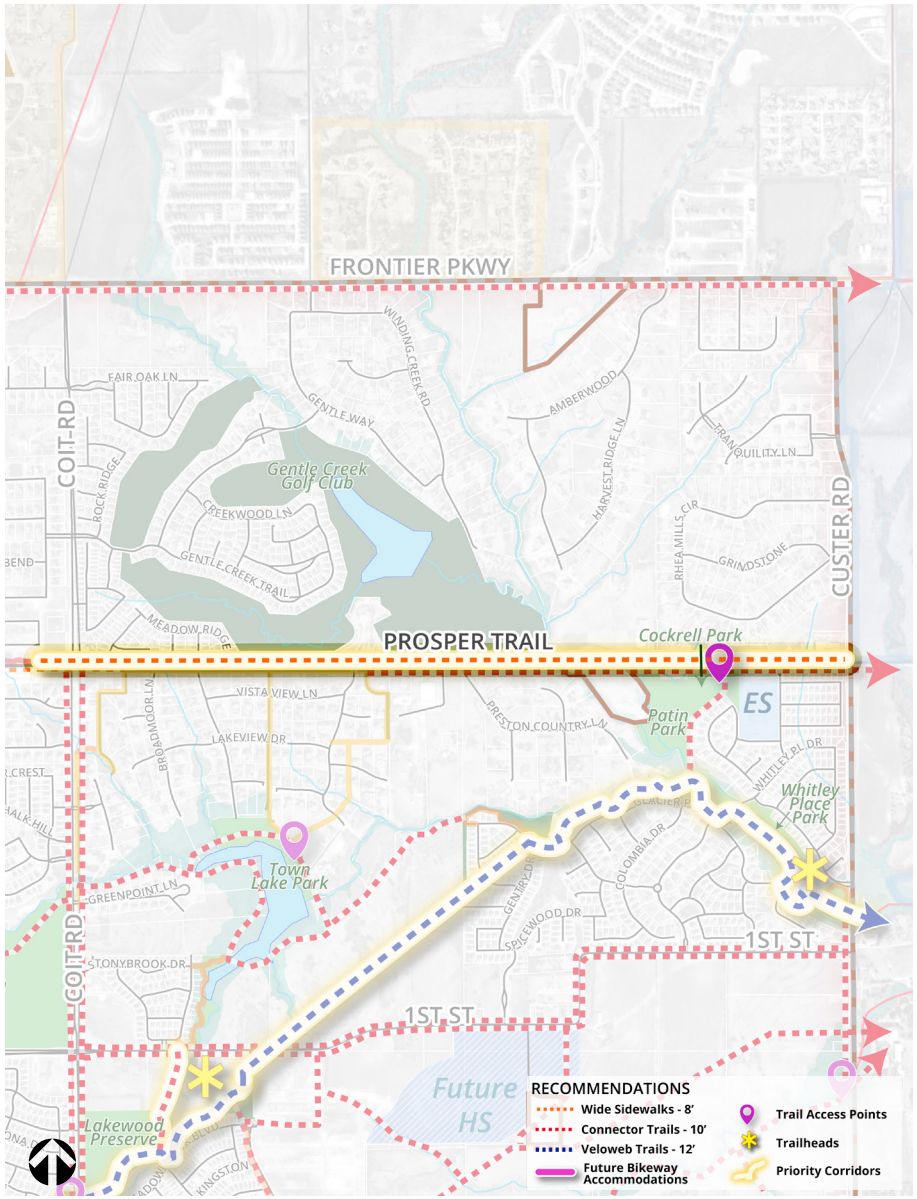
Table 5.17 depicts the estimated planning level costs to implement the trail segment. Since this corridor is essentially built out, there won't be future development agreements so the improvements should be funded through CIP or grant funding.

TABLE 5.17 | CORRIDOR 3.R COST ESTIMATES

SEGMENT	LENGTH	ESTIMATED COST
3.R - Prosper Trail Segment 1	2.08 miles	$2,800,000

Estimates are at a pre-planning level. Costs will vary with additional planning and design. See page 88 for typical cost figures used.

FIGURE 5.17 | CORRIDOR 3.R DETAIL MAP



COST SUMMARY

For each of the priority corridors, a planning-level assessment of potential implementation costs were factored into the estimates of probable cost including mobilization, demolition, utilities, grading and earthwork, paving, structures, bridges, erosion control, landscaping and irrigation, and lighting. **Table 5.18** depicts a summary of the approximate costs for each of the prioritized trail segments.

For the overall plan recommendations, typical costs are based on approximate order-of-magnitude unit costs for various trail amenities. These unit costs were developed based upon recent project bids, current market trends, and engineering means and methods. Typical per-unit costs for major elements in the plan include:

- 8' wide sidewalk, concrete: Approx. $1.0M - $1.4M per mile
- 10' connector trail, concrete: Approx. $1.3M - $1.8M per mile
- 12' Veloweb trail, concrete: Approx. $1.3M - $1.8M per mile
- Prefabricated 12' wide ped bridge: Approx. $3,000 per LF
- Trail access point: Approx. $50K each
- Trailhead with amenities: Approx. $350K - $450K each

Using these typical cost figures, the cost approximations for all the recommendations shown in the Hike and Bike Trail Master Plan (Figure 4.1) are as follows:

- Wide Sidewalks: 16.56 miles in length = Approx. $20M
- Connector Trails: 71.57 miles in length = Approx. $111M
- Veloweb Trails: 22.22 miles in length = Approx. $34M
- Trail Access Points: 11 total = Approx. $550K
- Trailheads: 12 total = $5M
- Estimated Annual Trail Maintenance = 2% of construction cost

TABLE 5.18 | PRIORITIZATION TRAIL PROJECT COST SUMMARY

SEGMENT	LENGTH	WIDTH	ESTIMATED COST
1.A - Cross-Town Trail Segment 1	5.30 mi.	12'	$8,000,000
1.K - Artesia M.U.D.	1.63 mi.	10'	$3,100,000
1.L - Legacy Drive	5.63 mi.	10'	$8,800,000
1.O - Fish Trap Road	0.79 mi.	10'	$2,100,000
1.P - Doe Branch Trail Connection	0.04 mi.	10'	$330,000
1.Q - Prairie Drive	1.04 mi.	8'	$2,000,000
2.A - Cross-Town Trail Segment 2	2.96 mi.	12'	$4,600,000
2.B - Cross-Town Trail Segment 3	1.57 mi.	12'	$3,000,000
2.G - Prosper Trail	4.18 mi.	8'	$4,700,000
2.L - Coleman Street Segment 1	0.99 mi.	10'	$1,900,000
2.M - Coleman Street Segment 2	0.96 mi.	8'	$1,700,000
2.O - Preston Road	6.51 mi.	10'	$7,500,000
2.Q - First Street	0.98 mi.	10'	$2,000,000
3.A - Cross-Town Trail Segment 4	5.31 mi.	12'	$7,300,000
3.L - Lakewood Preserve	0.27 mi.	10'	$1,400,000
3.R - Prosper Trail Segment 1	2.08 mi.	8'	$2,800,000
TOTAL	40.24 mi.	**n/a**	**$61,800,000**

Note: Costs will vary based on specific site conditions and with additional planning and design. For future budgeting purposes, a conservative inflation rate of 3% per year should be factored into the overall cost.

RECOMMENDED POLICY CHANGES

There are certain policies that when put in place can help effectively implement the recommendations in this master plan. This section describes policy changes that are needed to advance the hike and bike trail master plan recommendations.

Updates to Prosper Development Manual. The design standards described in Chapter 4 should be incorporated into the Prosper Development Manual. This document sets forth standards for various aspects of development and is used as a guide for developers in Prosper. References to the updated Hike and Bike Trail Master Plan should also be incorporated.

Connectivity to School Sites. Given that Prosper is growing exponentially, there are a number of future schools planned for the school districts that fall within Prosper. The known future school sites are captured on the Hike and Bike Trail Master Plan Recommendations Map with associated trail recommendations. However, there are likely to be future schools planned and built that are not shown on this map. When future schools are built, there should be at least 8' walks connecting to them along minor thoroughfares and at least 10' trails along major thoroughfares with appropriate intersection treatments provided to ensure safe routes to schools.

Connection with Thoroughfare Plan. For future updates to the thoroughfare plan, the Town should include a reference to the Hike and Bike Trails Master Plan map. This places an emphasis on multi-modal accommodations as the Town's thoroughfare network is built out. Additionally, if future thoroughfare alignments change on the Future Thoroughfare Plan, then the proposed trail facilities along those thoroughfares will also change to align with the future thoroughfares.

Consider Adopting a Complete Streets Policy. Complete Streets are roadways that are designed to accommodate all users, beyond just vehicle traffic. Many communities across the country have adopted a Complete Streets Policy to direct planners and engineers to design roadways to ensure safe access for all types of users. NCTCOG has resources for sample Complete Street policies that other communities have adopted.

Developer Agreements. The Town of Prosper has been successful in partnering with developers for trail accommodations. In addition to the hike and bike trail facilities identified on the Master Plan Recommendation Map, the Town should endeavor to provide additional connections with new developments that are proposed to ensure maximum connectivity.

Education and Outreach. As the number of trails and bikeways increase in Prosper, the number of users will also increase. Therefore, it is important to have adequate awareness and education for both motorists and trail and bikeway users to ensure roadway safety. This could include partnerships with the school district on bicycle safety for school-age children.

POTENTIAL FUNDING SOURCES

TOWN FUNDING SOURCES

General Fund Expenditures are primarily used for improvements or repairs to existing parks and facilities. Typical general fund expenditures are for smaller repair and replacement efforts.

Bond Funds are primarily targeted for new facilities. The Town of Prosper anticipates holding a new bond election later in 2020 which will have potential funding for parks and trail implementation. Once a bond program is approved, the list of approved projects becomes part of the Capital Improvements Program (CIP).

Park and Trail Improvement Fee is a funding system that currently exists in Prosper and is utilized in the development of future parks and park amenities, but could be broadened to construct hike and bike trails. The current fee schedules states $1,500/SF unit and $2,000/multi-family unit. The fee is structured so that a developer can get credit for building trails instead of paying the fee. When determining credit for developers for park and improvement fee up to date construction costs need to be considered to reflect the true cost of developing trails.

PRIVATE DEVELOPMENT

Private development must pay for the infrastructure needed to support the new developments. When a new development is planned, a developer facility agreement is initiated to outline what infrastructure and amenities the development must provide. Of the trails recommended as part of this master plan, several of the corridors fall within areas that are already covered by a developer agreement.

Public/Private Partnerships are another potential funding agreement in which the town and a private entity partner to provide a facility. Sometimes large employers will sponsor park and recreation facilities, particularly if their mission is related to health and well-being.

REGIONAL FUNDING SOURCES

Collin County Parks & Open Space Project Funding Assistance Program allows cities within Collin County to apply for county bond funds for parks and open space. Such funds are allocated on a competitive basis to assist cities and towns in implementation of parks and open space projects which are consistent with the Collin County Parks and Open Space Strategic Plan dated October 2001.

Transportation Alternatives Set-Aside Program funding is administered by NCTCOG to award to municipalities in the Dallas-Fort Worth region for active transportation projects. General types of projects eligible under this program include on- and off-road pedestrian and bicycle facilities and infrastructure associated with Safe Routes to School (SRTS) projects that will substantially improve safety and the ability for students to walk and bicycle to school. Typically, NCTCOG issues a call for projects every two years.

STATE FUNDING SOURCES

Recreational Trail Grants are administered by Texas Parks and Wildlife Department (TPWD) in Texas under the approval of the Federal Highway Administration (FHWA). Funds can be spent on both motorized and non-motorized recreational trail projects such as the construction of new recreational trails, to improve existing trails, to develop trailheads or trailside facilities, and to acquire trail corridors.

The grants can be up to 80% of project cost with a maximum of $200,000 for non-motorized trail grants and currently there is not a maximum amount for motorized trail grants.

FEDERAL FUNDING SOURCES

BUILD Transportation Discretionary Grant Program stands for "Better Utilizing Investments to Leverage Development." BUILD grants primarily focus on projects that provide significant economic benefits while also improving safe transportation options. Funding can be used for, but is not limited to, bicycle lanes, crosswalks, lighting, and bridges. It is important to note that many bicycle and pedestrian projects will only be competitive under this program if they are part of a larger project with proven economic benefits.

Surface Transportation Block Grant Program (STBG) provides funds that are eligible for bicycle and pedestrian improvement projects. Federal funds are sub-allocated to the local level based on population and TxDOT then prioritizes projects and administers STBG funds.

Congestion Mitigation and Air Quality Improvement Program (CMAQ) are Federal Highway Administration (FHWA) funds that are apportioned to states. CMAQ funds are intended to fund projects that improve air quality and reduce congestion. CMAQ funds may be used on projects related to pedestrian and bicycle infrastructure such as bicycle lanes, sidewalks, shared use paths, and signage. In Texas, CMAQ funds are included within TxDOT's Category 5 funding.

CONCLUSION

The Town of Prosper has experienced significant development over the past decade and this trend is expected to continue in the future. The provision of safe and accessible hike and bike trails is essential as residential and commercial development continues. This master plan serves as a guide for the development of hike and bike trail corridors to improve existing neighborhoods and to ensure future neighborhoods will be well-connected.

This master plan identified four overarching goals for the trails system:

1. Safe and Connected Trails System
2. Trails with New Development
3. Sustainability
4. Trail System Awareness

Collectively, the recommendations for the hike and bike trail network, design standards, and policy changes will achieve these overarching goals. As Prosper continues to grow, this plan should be referenced as a guide for Town staff, Council, and developers to achieve a connected hike and bike trail system.

6

APPENDIX

CONTENT

GLOSSARY OF TERMS

WALKING AND PEDESTRIAN-ORIENTED TERMS

Buffer: The portion of the a highway, road or street between the curb-face or edge of the pavement and the sidewalk that provides a spatial buffer between vehicular traffic and pedestrians on sidewalks. Buffers often include landscape plantings such as grass, trees or shrubs, or utility poles, and may also be referred to as the "planting strip," "landscape buffer," "tree buffer," or "tree box." Buffers can also include barriers such as highway guide rails (guardrails) or bollards. In rural or suburban areas the buffer may be a grassy swale or drainage ditch. In urban areas, downtowns, the buffer may also include street furniture, street signs, fire hydrants, vending boxes, lighting poles, etc.

Cross-Slope: Defined as the slope measured perpendicular to the direction of travel. Cross-slope must be measured at specific points. The average cross-slope is the average of cross-slopes measures at regular intervals along the trail. Running cross-slope is defined as the average cross-slope of a contiguous section of trail. The running cross-slope can be determined by taking periodic measurements throughout a section of trail and then averaging the values.

Crosswalk: The horizontal portion of roadways, usually at intersections, reserved for pedestrian crossing; it may be marked or unmarked. Three marking patterns using white striping are most common: 1) Double parallel lines, 2) "zebra Stripes:" white cross hatches perpendicular to the pedestrian direction of travel, or 3) "Ladder:" perpendicular white cross hatches combined with double parallel lines on the outside edges.

Intersection Treatment: The design of intersections to reduce conflict between pedestrians, cyclists, and motorists that occurs at roadway and trail intersections. The purpose of these treatments is to Increase awareness for all users, achieved through the implementation of visual or physical indicators such as specialized signals, changes in pavement material, pavement markings, and the addition of refuge medians on wide roadways.

Major Thoroughfares: Roadways designated for large traffic volumes, higher speeds, and intended for long-distance travel. Typically, this type of thoroughfare creates interjurisdictional connections and is part of a regional roadway network.

Minor Thoroughfares: Roadways with lower traffic volumes, slower speeds, and intended for local travel needs. Typically, these thoroughfares creates key cross-town connections and connects to major thoroughfares.

Pedestrian: A person walking or traveling by means of a wheelchair, electric scooter, crutches, or other walking devices or mobility aids. Use of the term pedestrian is meant to include all disabled individuals regardless of which equipment they may use to assist their self-directed locomotion (unless they are using a bicycle). It also includes runner, joggers, those pulling or pushing strollers, carriages, carts and wagons, and those walking bicycles.

Rest Area: Defined as level portions of a trail wide enough to provide wheelchair users and others a place to rest and gain relief from prevailing grade and cross-slope demands. Users can benefit from rest stops on steep or very exposed trails to pause from their exertions and enjoy the environment. Rest areas are most effective when placed at intermediate points, scenic lookouts, or near trail amenities. Rest areas located of the trail allow stopped trail users to move out of the way of continuing traffic. The most inviting rest areas have a bench, shade, a place to rest bicycles, and a trash receptacle.

Sidewalk: That portion of a highway, road or street specifically constructed for the use of pedestrians on the outside edge of the vehicular travel way. Sidewalks are typically, but not always, curb-separated from the roadway and made of concrete, brick, asphalt or another hard surface material.

Texas Accessibility Standards (TAS): Standards for developing ADA accessible public facilities in Texas The TAS are regulated by the Texas Department of Licensing and Regulations (TDLR).

Trail: The word "trail" has come to mean a wide variety of facilities types, including everything from a "marked or beaten path, as through woods or wilderness" to a paved "multi-use trail." For this reason, this planning process will not use the word "trail" to reference a facility intended for bicycle transportation. We urge use of the term shared-use path in place of multi-use trail. Note: Several of these definitions are taken from the American Association of State Highway and Transportation Officials (AASHTO) "Guide for the Development of Bicycle Facilities," 1999 Edition.

BICYCLE-ORIENTED TERMS

Bicycle: Every vehicle propelled solely by human power upon which any person may ride, having two tandem wheels, except scooters and similar devices. The term "bicycle" in this planning process also includes three and four-wheeled human-powered vehicles, but not tricycles for children.

Bicycle Accommodations/Facilities: A general term denoting a variety of improvements and provisions that are made by public agencies to accommodate or encourage bicycling, including bike lanes, shared0use pathways, signed bike routes, and bicycle parking and storage facilities.

Bicycle Boulevard: A roadway designated for the mix of bicycle and motor vehicle traffic, which creates a comfortable shared-use environment through a combination of traffic calming measures, pavement markings, and signage.

Bike Lane: A portion of a roadway that has been designated by striping, signing, and pavement markings for the preferential or exclusive use of bicyclists.

Bikeway: A generic term for any road, street, path, trail, or way that, in some manner, is specifically designated for bicycle travel, regardless of whether such facilities are designated for the exclusive use of bicycles or are to be shared with other transportation modes.

Shared Lane: A roadway that is open to both bicycle and motor vehicle travel. Unless bicycle travel is explicitly prohibited, all highways, roads, and streets are "share lanes." Some shared lands may have wide curb lanes or paved shoulders, to increase comfort for bicyclists; however in most cases these roads do not have sufficient width to accommodated a designated bike lane.

Shared-Use Path: A bicycle and pedestrian path separated from motorized vehicular traffic by an open space barrier or curb. Shared-use paths may be within the highway righto0of-way (often termed "sidepaths") or within an independent right-of-way, such as on an abandoned railroad bed or along a stream valley park. Shared use paths typically accommodate two-way travel and are open to pedestrians, in-line skaters, wheelchair users, joggers and other non-motorized path users. They are typically surfaced in asphalt or concrete, but may have hard-packed/all weather gravel or dirt surfaces as well.

Sharrow: A pavement marking with two inverted 'V' shapes above a bicycle indicating that the entire lane is meant to be shared by motor vehicles and bicyclists. Often times sharrows will be accompanied by a "Bicycle May Use Full Lane" sign.

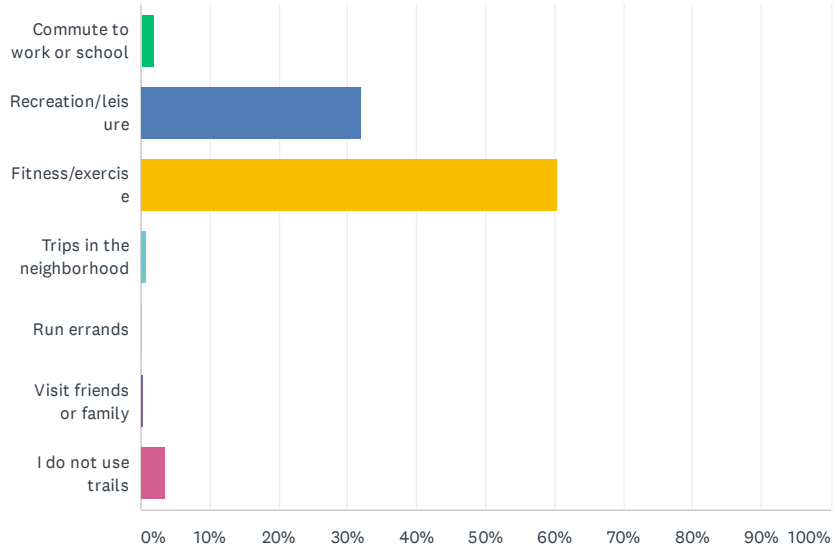
Shoulder: Any pavement of a roadway to the right of the right-most travel lane, but not including curbs, planting buffers, and sidewalks. Shoulders can have variety of surface treatments including pavement, gravel, or grass. Depending on their width and surface, they serve a variety of purposes, including providing space for vehicles to slow and turn right, accommodation of stopped of broken-down vehicles, to allow emergency vehicles to pass, for structural support of the roadbed, or for bicycle and pedestrian travel.

Sidewalk with landscape in Artesia MUD

SURVEY RESULTS

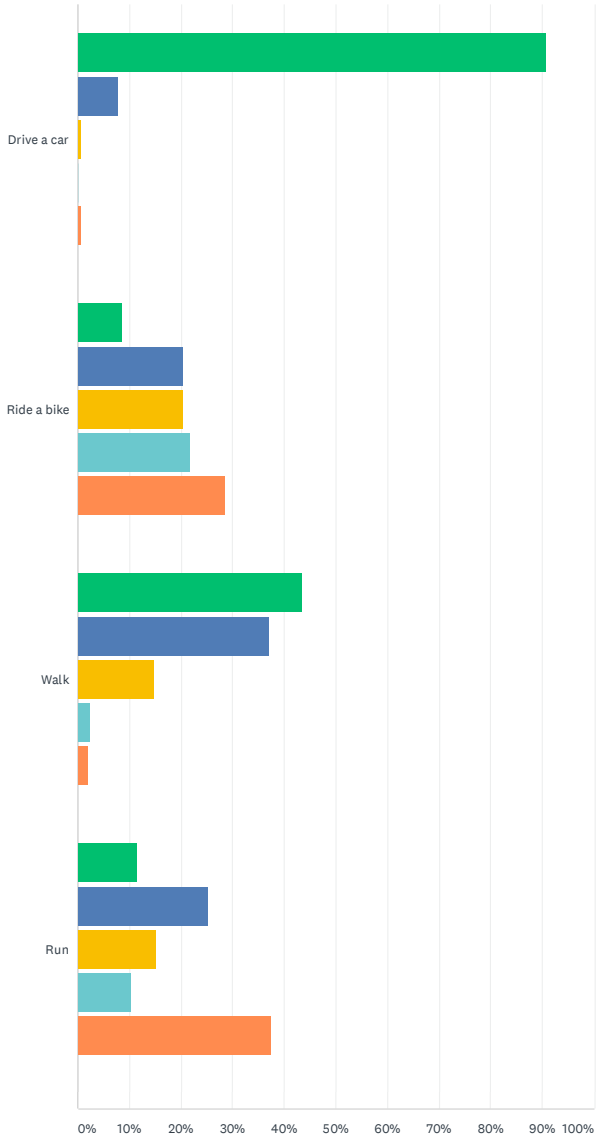
A community survey consisting of questions focused on various aspects of trail and bikeway facilities as well as demographic characteristics of the community was conducted in early 2020.

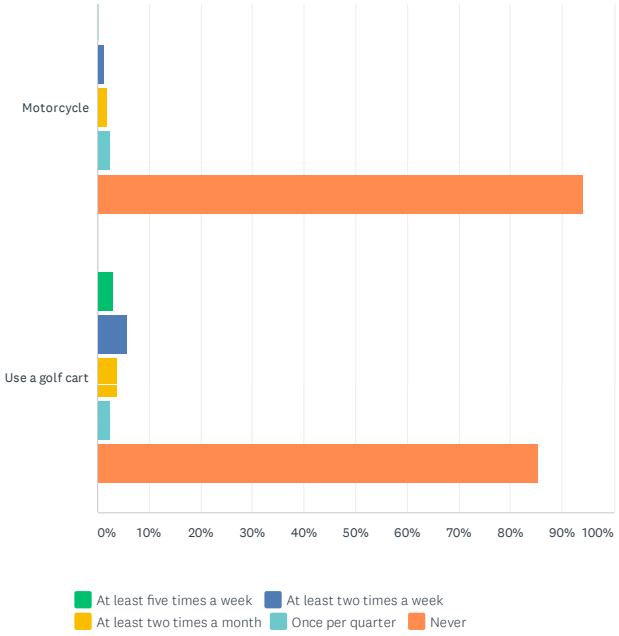
What is your primary purpose for using trails in Prosper?



ANSWER CHOICES	RESPONSES	
Commute to work or school	1.93%	18
Recreation/leisure	31.97%	298
Fitness/exercise	60.41%	563
Trips in the neighborhood	0.75%	7
Run errands	0.21%	2
Visit friends or family	0.43%	4
I do not use trails	3.65%	34
TOTAL		932

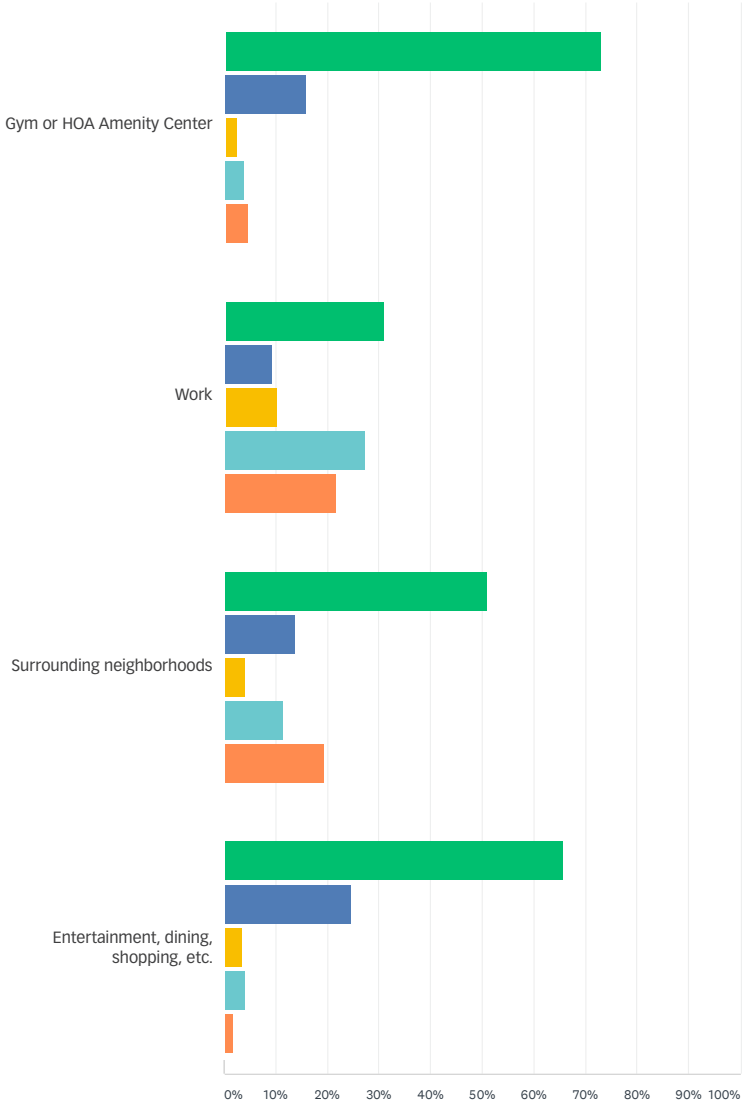
How often do you...

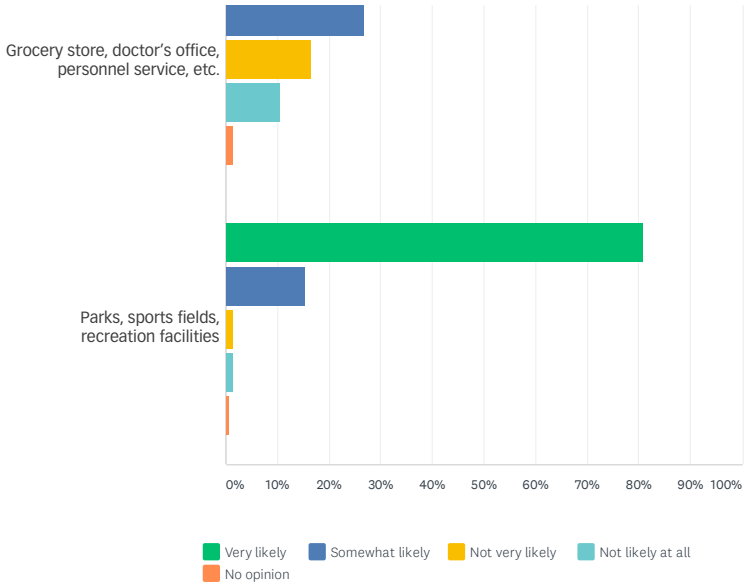




	AT LEAST FIVE TIMES A WEEK	AT LEAST TWO TIMES A WEEK	AT LEAST TWO TIMES A MONTH	ONCE PER QUARTER	NEVER	TOTAL
Drive a car	90.84% 833	7.85% 72	0.55% 5	0.11% 1	0.65% 6	917
Ride a bike	8.59% 79	20.43% 188	20.43% 188	21.85% 201	28.70% 264	920
Walk	43.43% 400	37.13% 342	14.77% 136	2.50% 23	2.17% 20	921
Run	11.60% 106	25.38% 232	15.21% 139	10.39% 95	37.42% 342	914
Motorcycle	0.22% 2	1.21% 11	1.88% 17	2.54% 23	94.15% 853	906
Use a golf cart	2.85% 26	5.60% 51	3.73% 34	2.52% 23	85.29% 777	911

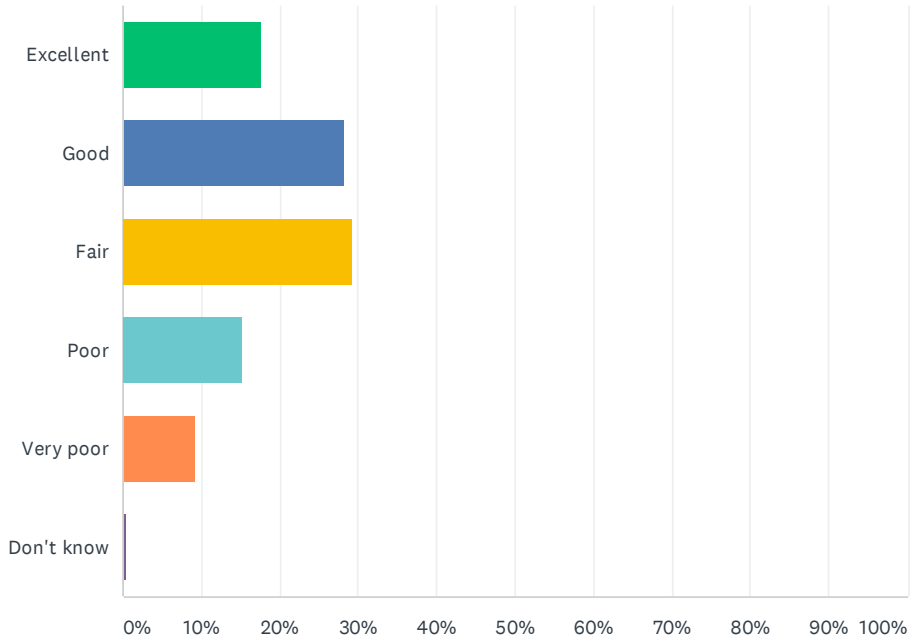
If sidewalks or trails connected your residence to the following destinations, what is the likelihood that you would walk or bike to each for at least some of your trips?





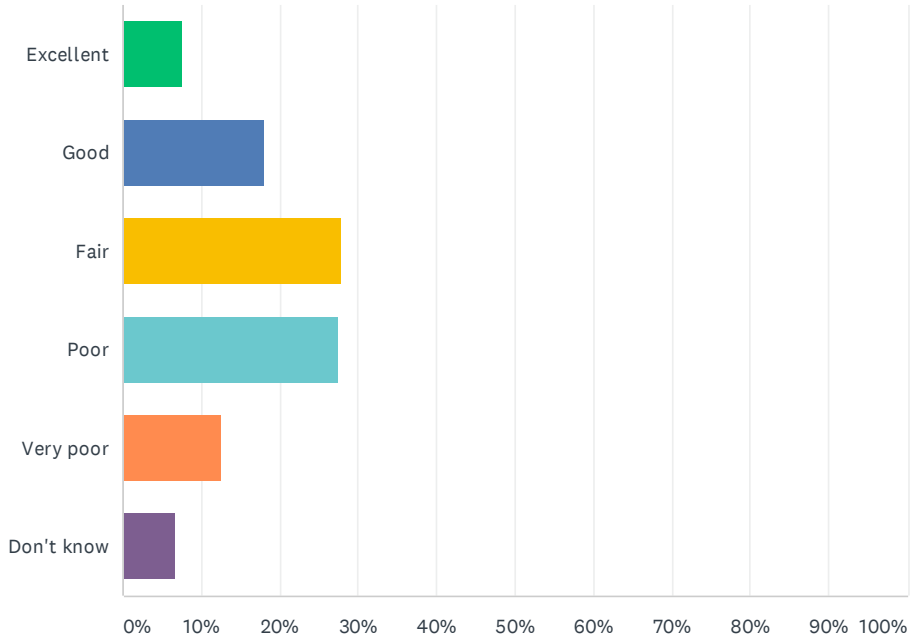
	VERY LIKELY	SOMEWHAT LIKELY	NOT VERY LIKELY	NOT LIKELY AT ALL	NO OPINION	TOTAL	WEIGHTED AVERAGE
Gym or HOA Amenity Center	73.03% 677	15.86% 147	2.48% 23	3.99% 37	4.64% 43	927	3.49
Work	31.02% 286	9.44% 87	10.30% 95	27.44% 253	21.80% 201	922	2.00
School	50.98% 468	13.73% 126	4.25% 39	11.55% 106	19.50% 179	918	2.65
Surrounding neighborhoods	65.73% 610	24.68% 229	3.56% 33	4.09% 38	1.94% 18	928	3.48
Entertainment, dining, shopping, etc.	63.01% 586	25.05% 233	6.67% 62	4.52% 42	0.75% 7	930	3.45
Grocery store, doctor's office, personal service, etc.	44.68% 416	26.75% 249	16.43% 153	10.63% 99	1.50% 14	931	3.02
Parks, sports fields, recreation facilities	80.92% 755	15.54% 145	1.50% 14	1.39% 13	0.64% 6	933	3.75

Overall, how would you rate where you live as a place to walk?



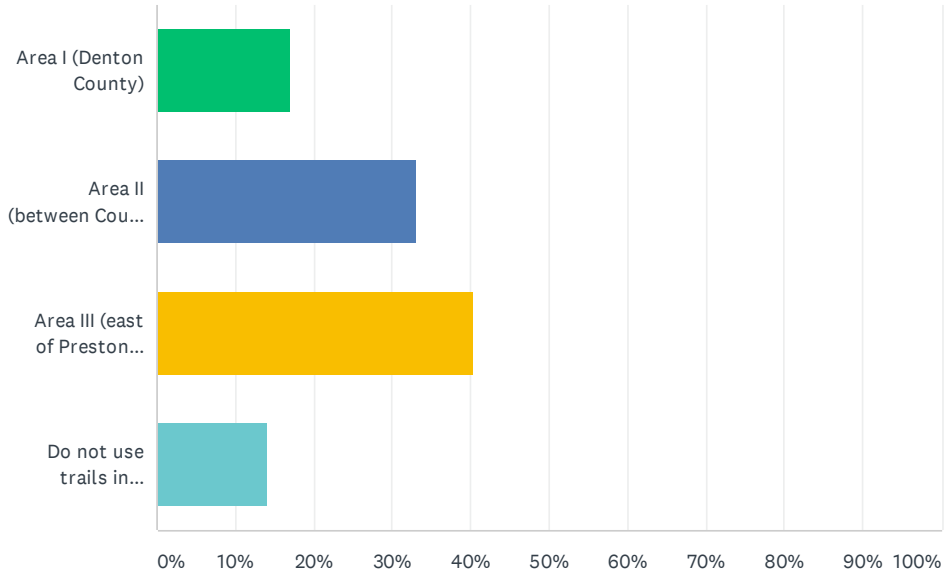
ANSWER CHOICES	RESPONSES	
Excellent	17.66%	160
Good	28.26%	256
Fair	29.25%	265
Poor	15.23%	138
Very poor	9.16%	83
Don't know	0.44%	4
TOTAL		906

Overall, how would you rate where you live as a place to cycle?



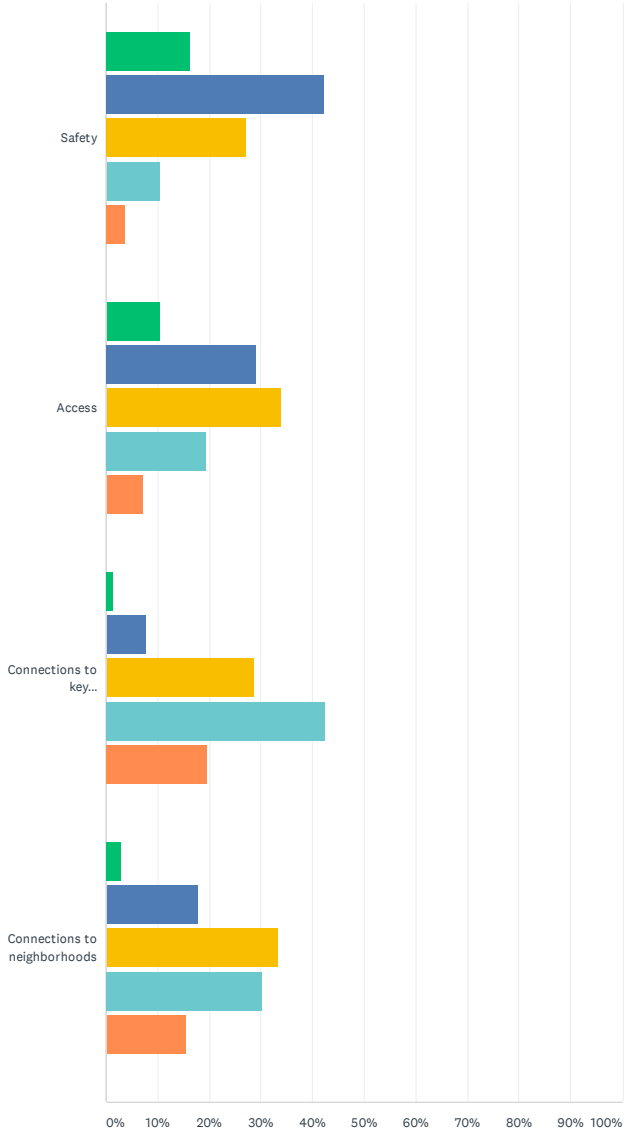
ANSWER CHOICES	RESPONSES	
Excellent	7.49%	68
Good	18.06%	164
Fair	27.86%	253
Poor	27.31%	248
Very poor	12.56%	114
Don't know	6.72%	61
TOTAL		908

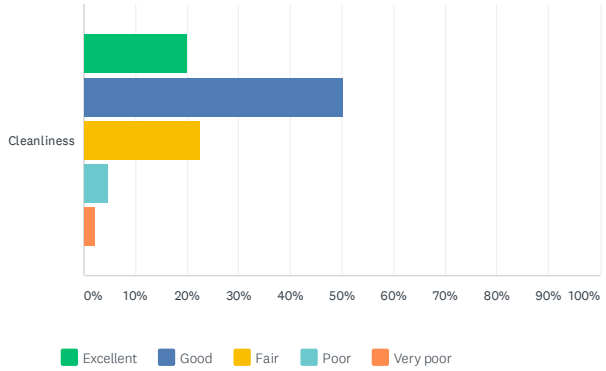
In what part of Prosper do you typically use trails?



ANSWER CHOICES	RESPONSES	
Area I (Denton County)	17.00%	154
Area II (between County Line and Preston Road)	33.00%	299
Area III (east of Preston Road)	40.40%	366
Do not use trails in Prosper	14.02%	127
Total Respondents: 906		

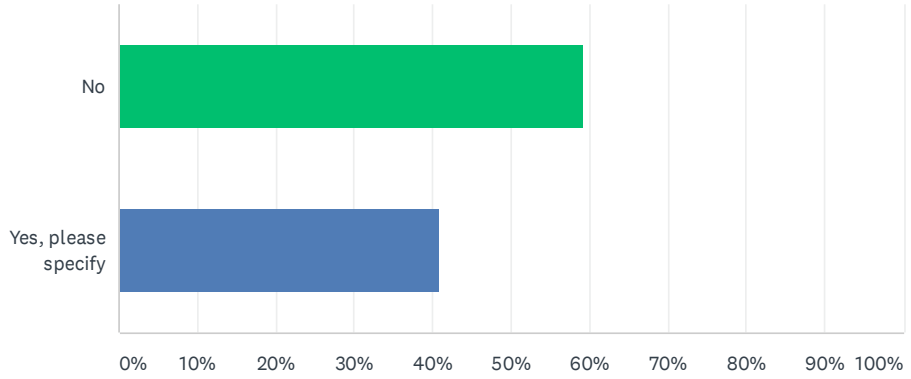
How would you rate the following aspects of the existing trails in Prosper that you use?





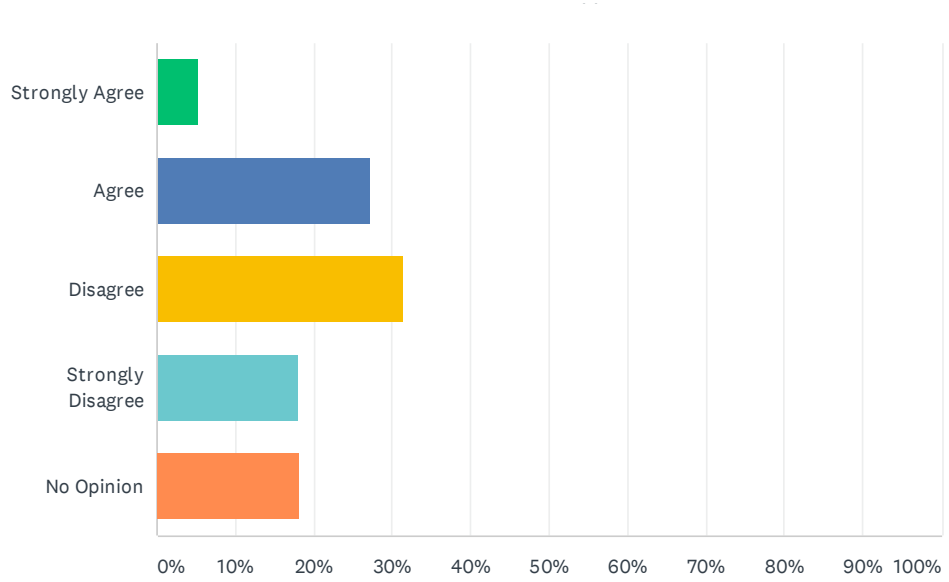
	EXCELLENT	GOOD	FAIR	POOR	VERY POOR	TOTAL	WEIGHTED AVERAGE
Safety	16.30% 135	42.27% 350	27.17% 225	10.39% 86	3.86% 32	828	2.57
Access	10.36% 86	29.16% 242	33.98% 282	19.40% 161	7.11% 59	830	2.16
Connections to key destinations	1.44% 12	7.69% 64	28.61% 238	42.55% 354	19.71% 164	832	1.29
Connections to neighborhoods	3.02% 25	17.85% 148	33.29% 276	30.28% 251	15.56% 129	829	1.62
Cleanliness	20.02% 165	50.24% 414	22.57% 186	4.85% 40	2.31% 19	824	2.81

Do you use trails or bikeways in other cities?



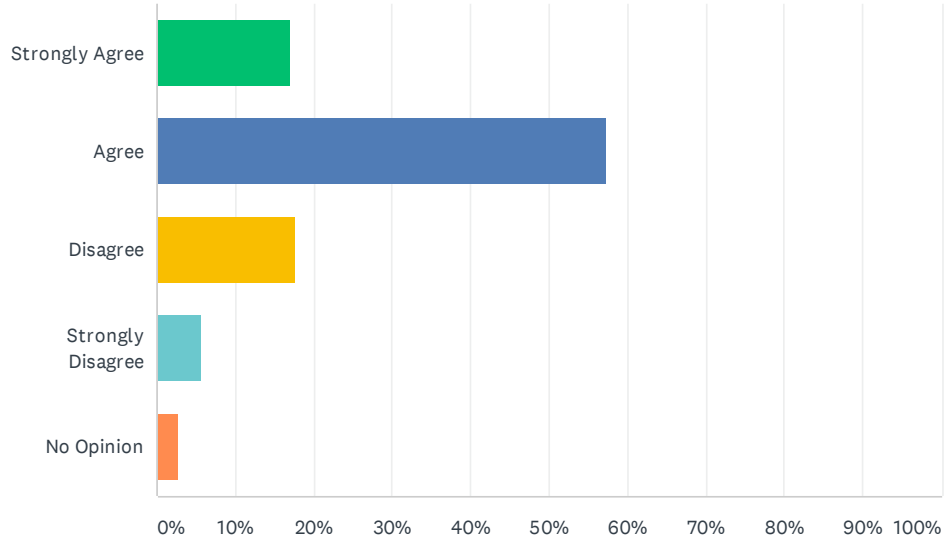
ANSWER CHOICES	RESPONSES	
No	59.30%	510
Yes, please specify	40.70%	350
TOTAL		860

To what degree do you agree with the following statement? I feel comfortable cycling in Prosper today.



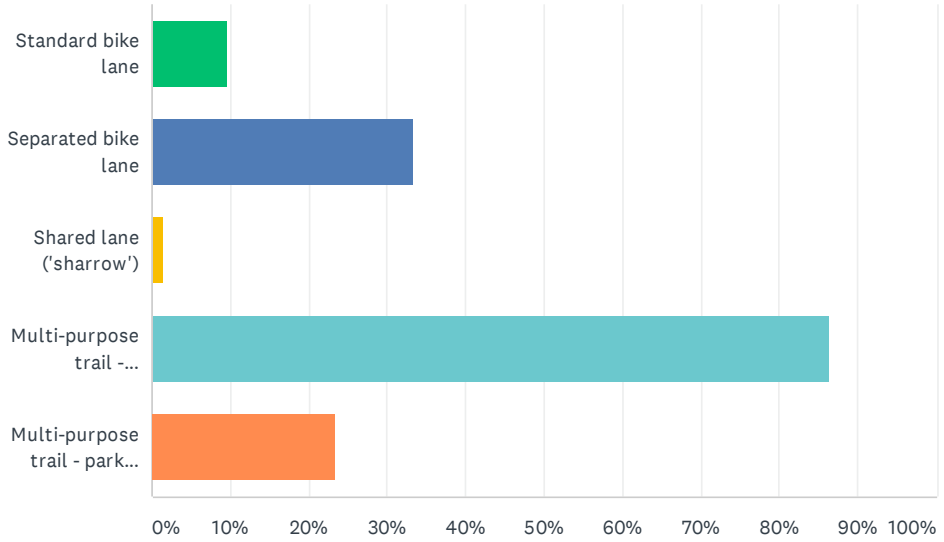
ANSWER CHOICES	RESPONSES	
Strongly Agree	5.18%	44
Agree	27.21%	231
Disagree	31.45%	267
Strongly Disagree	18.02%	153
No Opinion	18.14%	154
TOTAL		849

To what degree do you agree with the following statement? I feel comfortable walking in Prosper today.



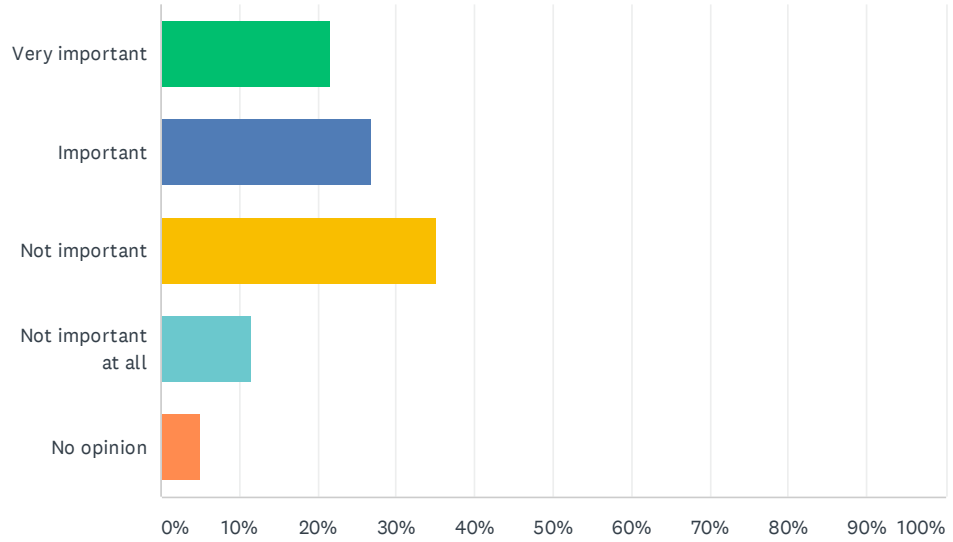
ANSWER CHOICES	RESPONSES	
Strongly Agree	16.88%	143
Agree	57.26%	485
Disagree	17.47%	148
Strongly Disagree	5.67%	48
No Opinion	2.72%	23
TOTAL		847

What type of bicycle facility would you prefer to use?



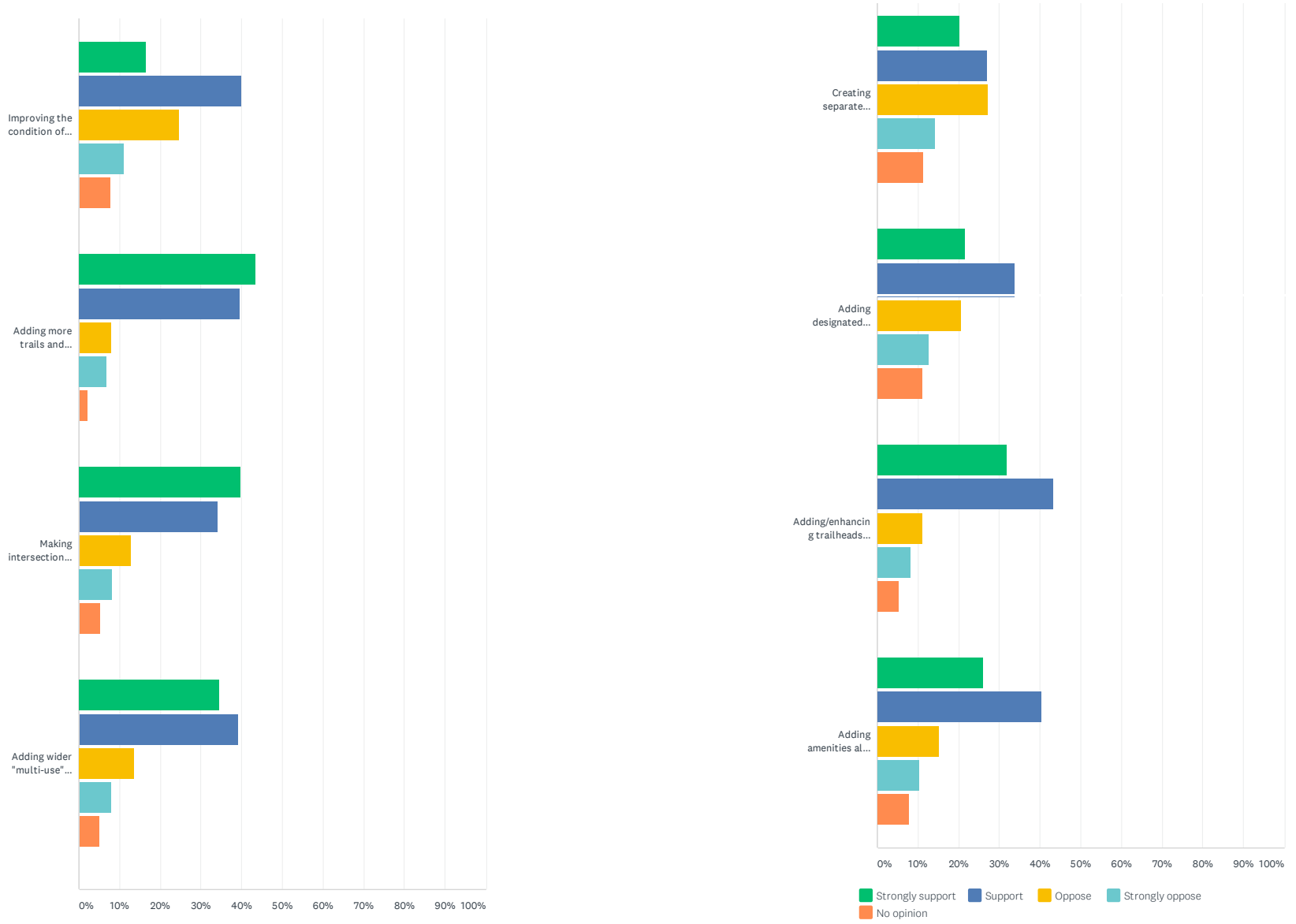
ANSWER CHOICES	RESPONSES	
Standard bike lane	9.52%	80
Separated bike lane	33.33%	280
Shared lane ('sharrow')	1.43%	12
Multi-purpose trail - greenbelt	86.43%	726
Multi-purpose trail - parkway	23.45%	197
Total Respondents: 840		

How important is it that pedestrians and cyclists are separated on trails?



ANSWER CHOICES	RESPONSES	
Very important	21.65%	184
Important	26.82%	228
Not important	35.18%	299
Not important at all	11.41%	97
No opinion	4.94%	42
TOTAL		850

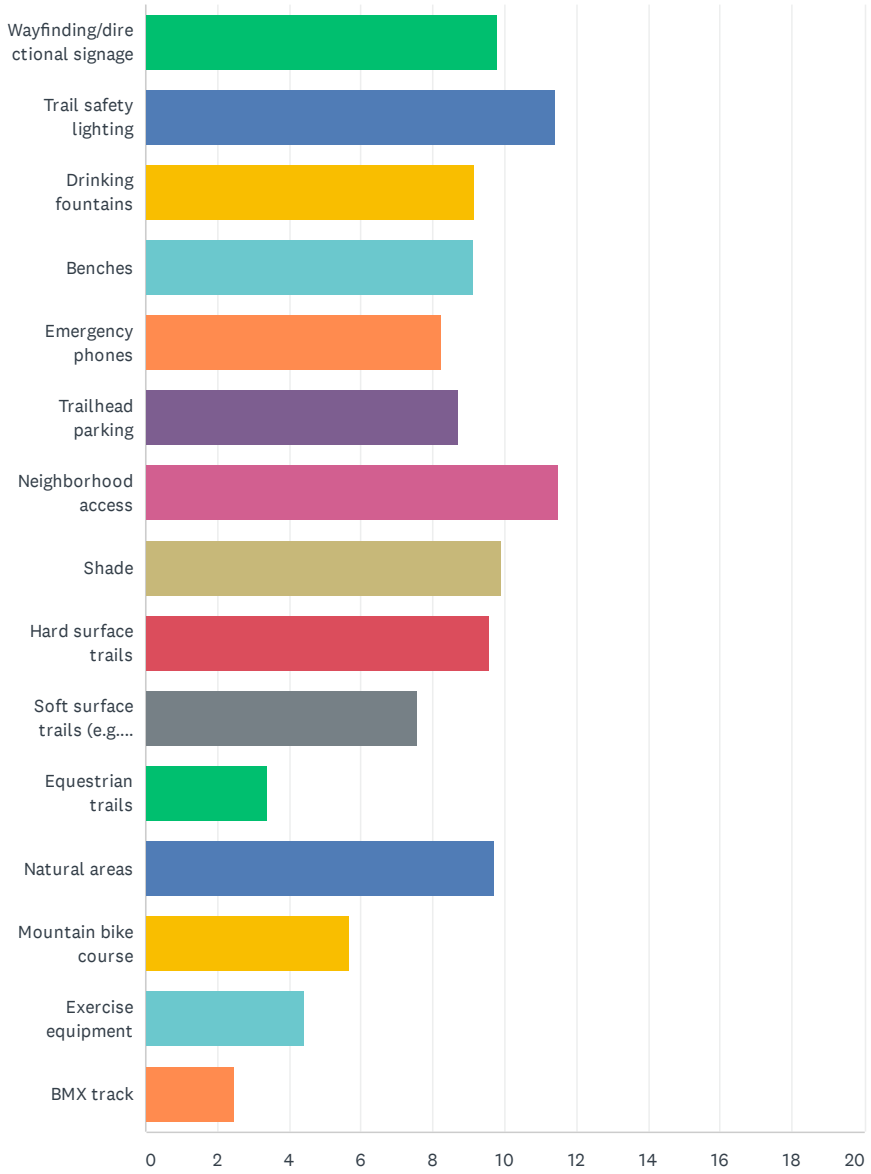
How strongly would you support or oppose an increase in taxes for the following trail and bicycle facilities?



How strongly would you support or oppose an increase in taxes for the following trail and bicycle facilities?

	STRONGLY SUPPORT	SUPPORT	OPPOSE	STRONGLY OPPOSE	NO OPINION	TOTAL	WEIGHTED AVERAGE
Improving the condition of existing trails (i.e. pavement quality, width, etc.)	16.56% 127	40.03% 307	24.64% 189	11.08% 85	7.69% 59	767	2.47
Adding more trails and filling in missing gaps in the trails network	43.56% 335	39.53% 304	7.93% 61	6.89% 53	2.08% 16	769	3.16
Making intersections safer for pedestrians and cyclists (e.g. tunnel crossings)	39.77% 305	34.03% 261	12.78% 98	8.21% 63	5.22% 40	767	2.95
Adding wider "multi-use" pathways for both pedestrians and cyclists	34.42% 264	39.11% 300	13.56% 104	7.95% 61	4.95% 38	767	2.90
Creating separate facilities for pedestrians and cyclists	20.37% 156	26.89% 206	27.15% 208	14.23% 109	11.36% 87	766	2.31
Adding designated bicycle facilities along roadways	21.57% 165	33.86% 259	20.65% 158	12.81% 98	11.11% 85	765	2.42
Adding/enhancing trailheads throughout the trails system (e.g. parking, drinking fountains, etc.)	31.81% 243	43.32% 331	11.13% 85	8.25% 63	5.50% 42	764	2.88
Adding amenities along trails such as wayfinding/directional signage, rest areas, fitness stations, etc.	26.08% 200	40.29% 309	15.25% 117	10.43% 80	7.95% 61	767	2.66

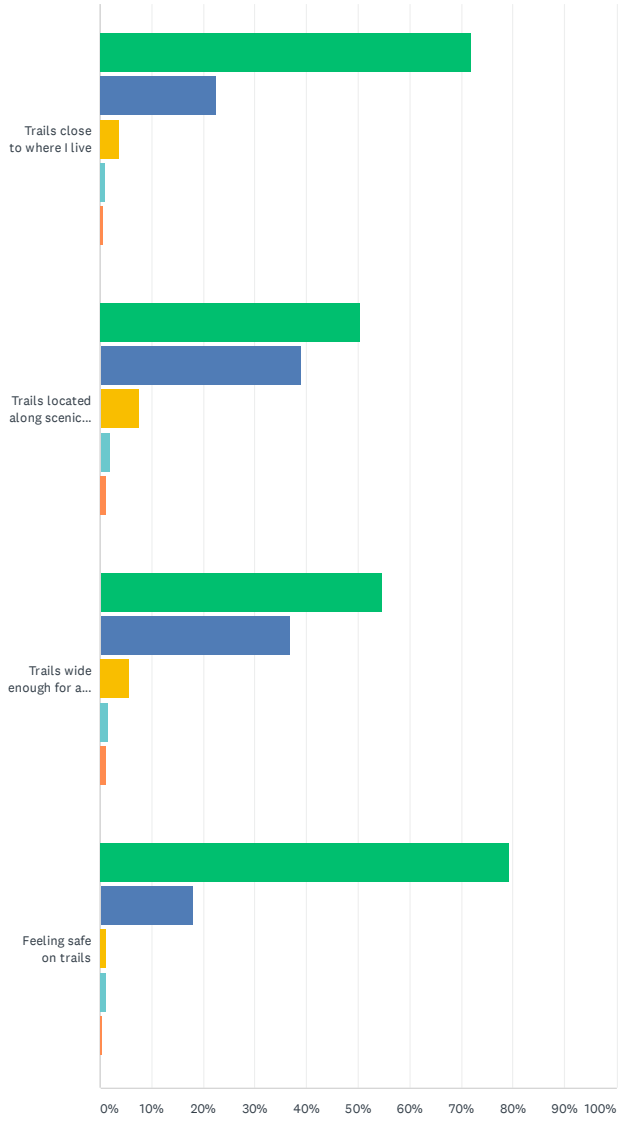
Please rank the following recreational trail amenities of features in order of importance to you (1 is most important, 15 is least important).

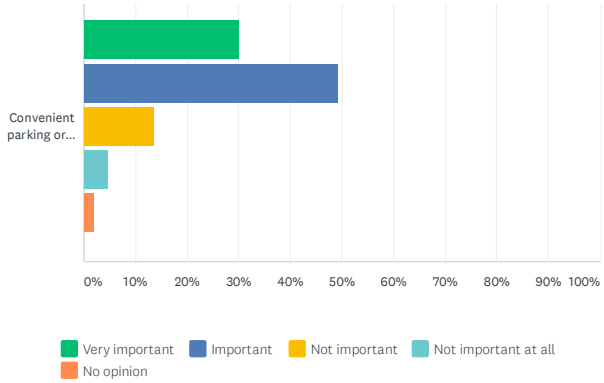


Please rank the following recreational trail amenities of features in order of importance to you (1 is most important, 15 is least important).

	1	2	3	4	5	6	7	8	9	10	11	12	13
Wayfinding/directional signage	11.74% 85	9.53% 69	7.46% 54	10.08% 73	8.29% 60	7.18% 52	8.29% 60	10.91% 79	5.80% 42	5.11% 37	4.56% 33	4.56% 33	2.76% 20
Trail safety lighting	19.97% 144	18.59% 134	12.76% 92	8.32% 60	6.93% 50	6.24% 45	5.83% 42	5.27% 38	4.99% 36	4.30% 31	2.36% 17	1.66% 12	1.39% 10
Drinking fountains	1.52% 11	6.20% 45	12.53% 91	10.47% 76	9.23% 67	10.19% 74	10.19% 74	6.34% 46	8.13% 59	9.37% 68	5.51% 40	5.23% 38	2.07% 15
Benches	1.11% 8	2.91% 21	5.69% 41	12.76% 92	13.59% 98	13.45% 97	11.23% 81	12.21% 88	7.63% 55	6.80% 49	5.69% 41	3.33% 24	1.94% 14
Emergency phones	3.33% 24	5.83% 42	6.39% 46	6.25% 45	10.14% 73	7.78% 56	8.06% 58	7.50% 54	8.75% 63	10.42% 75	7.92% 57	5.83% 42	5.00% 36
Trailhead parking	2.49% 18	6.49% 47	5.80% 42	6.22% 45	7.87% 57	11.19% 81	12.57% 91	11.74% 85	11.33% 82	7.87% 57	7.04% 51	3.87% 28	1.80% 13
Neighborhood access	26.24% 191	11.13% 81	10.85% 79	8.65% 63	7.28% 53	6.32% 46	10.44% 76	6.04% 44	4.53% 33	3.43% 25	2.06% 15	1.65% 12	0.82% 6
Shade	4.92% 36	8.62% 63	10.67% 78	11.90% 87	9.99% 73	11.08% 81	8.89% 65	10.26% 75	9.03% 66	5.20% 38	4.38% 32	2.46% 18	1.78% 13
Hard surface trails	10.08% 74	9.13% 67	9.40% 69	7.22% 53	6.95% 51	6.54% 48	5.18% 38	8.72% 64	12.40% 91	10.49% 77	8.31% 61	3.54% 26	1.23% 9
Soft surface trails (e.g. crushed granite)	2.61% 19	6.18% 45	6.04% 44	5.36% 39	4.81% 35	5.08% 37	4.81% 35	4.95% 36	9.62% 70	15.93% 116	16.48% 120	10.30% 75	3.71% 27
Equestrian trails	0.42% 3	0.14% 1	0.28% 2	1.11% 8	0.69% 5	1.11% 8	1.11% 8	1.94% 14	2.22% 16	5.40% 39	12.19% 88	11.91% 86	16.07% 116
Natural areas	11.80% 87	10.99% 81	8.01% 59	8.01% 59	9.23% 68	8.68% 64	5.97% 44	5.70% 42	4.88% 36	4.88% 36	6.24% 46	10.72% 79	3.53% 26
Mountain bike course	5.62% 41	3.98% 29	3.16% 23	1.10% 8	3.29% 24	2.33% 17	3.57% 26	3.29% 24	3.98% 29	3.02% 22	6.58% 48	14.13% 103	29.08% 212
Exercise equipment	0.68% 5	0.96% 7	2.19% 16	1.78% 13	2.19% 16	1.91% 14	2.46% 18	3.69% 27	4.64% 34	5.46% 40	6.56% 48	15.44% 113	19.54% 143
BMX track	0.55% 4	1.51% 11	0.55% 4	1.10% 8	0.68% 5	0.55% 4	1.23% 9	0.96% 7	1.23% 9	1.78% 13	1.92% 14	3.15% 23	7.95% 58

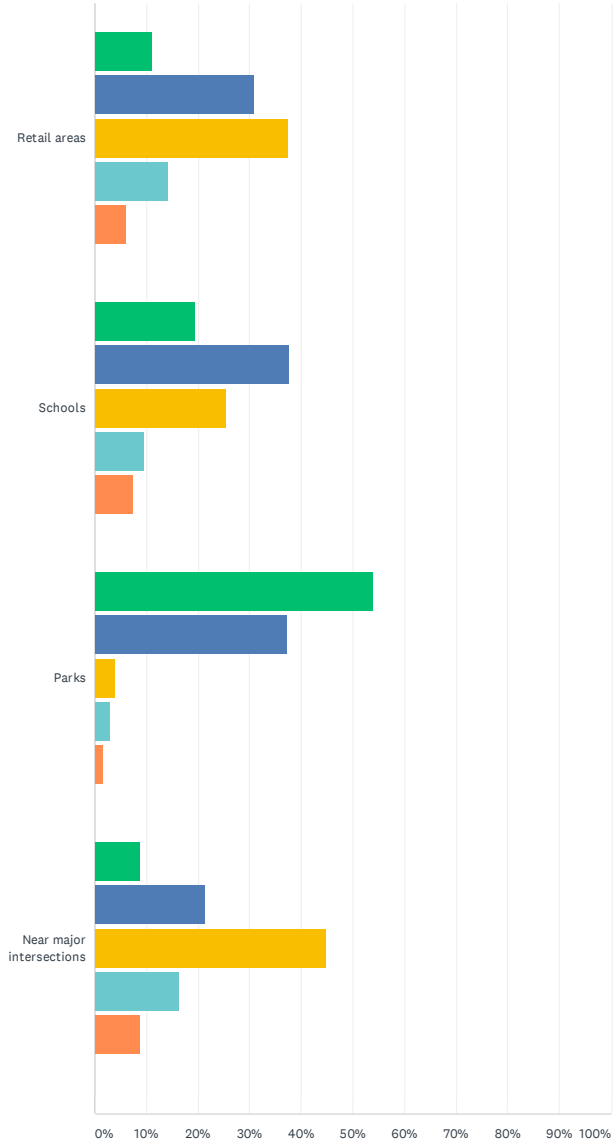
How important are each of the following features of trail facilities?

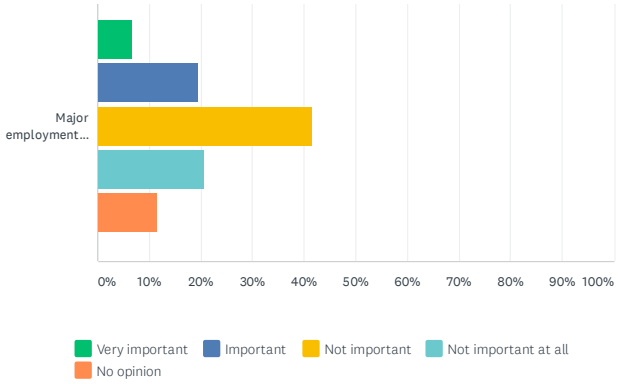




	VERY IMPORTANT	IMPORTANT	NOT IMPORTANT	NOT IMPORTANT AT ALL	NO OPINION	TOTAL	WEIGHTED AVERAGE
Trails close to where I live	72.05% 544	22.65% 171	3.71% 28	1.06% 8	0.53% 4	755	3.65
Trails located along scenic areas	50.40% 381	38.89% 294	7.54% 57	1.98% 15	1.19% 9	756	3.35
Trails wide enough for all types of users	54.64% 412	36.74% 277	5.57% 42	1.72% 13	1.33% 10	754	3.42
Feeling safe on trails	79.28% 597	17.93% 135	1.20% 9	1.20% 9	0.40% 3	753	3.75
Convenient parking or access to trails	30.03% 227	49.47% 374	13.62% 103	4.76% 36	2.12% 16	756	3.01

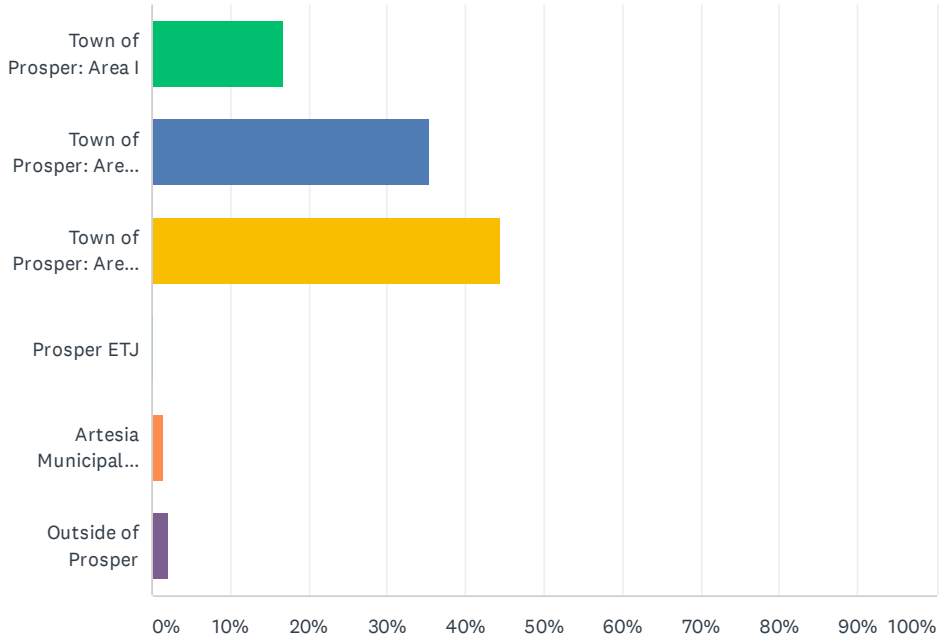
How important is it to have trailhead parking at the following locations?





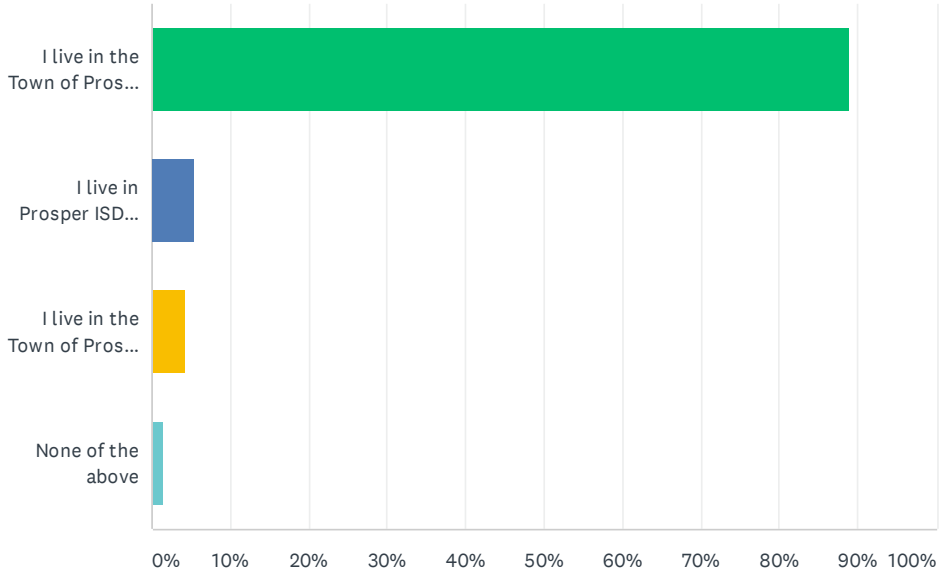
	VERY IMPORTANT	IMPORTANT	NOT IMPORTANT	NOT IMPORTANT AT ALL	NO OPINION	TOTAL	WEIGHTED AVERAGE
Retail areas	11.19% 84	30.89% 232	37.55% 282	14.25% 107	6.13% 46	751	2.27
Schools	19.47% 146	37.73% 283	25.60% 192	9.60% 72	7.60% 57	750	2.52
Parks	54.00% 405	37.33% 280	4.00% 30	2.93% 22	1.73% 13	750	3.39
Near major intersections	8.79% 66	21.44% 161	44.74% 336	16.25% 122	8.79% 66	751	2.05
Major employment centers	6.66% 50	19.44% 146	41.68% 313	20.77% 156	11.45% 86	751	1.89

In what area do you live?



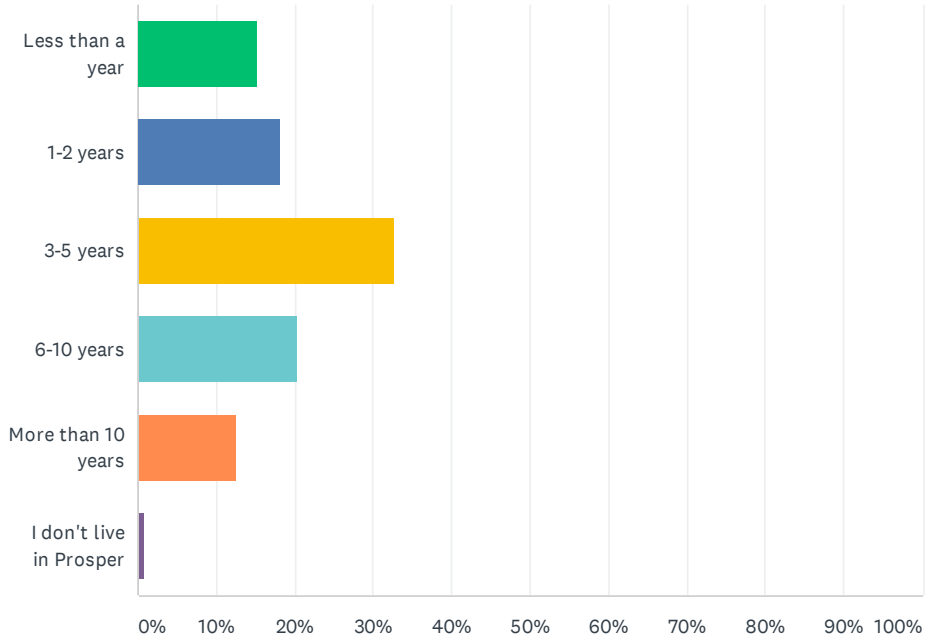
ANSWER CHOICES	RESPONSES	
Town of Prosper: Area I	16.67%	123
Town of Prosper: Area II	35.37%	261
Town of Prosper: Area III	44.31%	327
Prosper ETJ	0.14%	1
Artesia Municipal Utility District (MUD)	1.49%	11
Outside of Prosper	2.03%	15
TOTAL		738

Which of the following defines where you live?



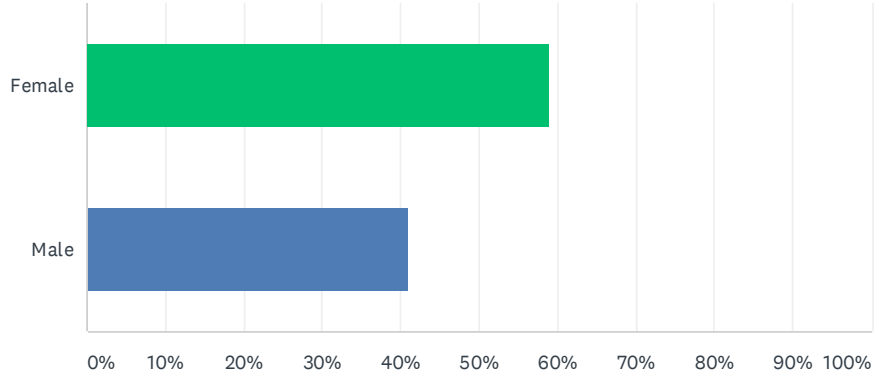
ANSWER CHOICES	RESPONSES	
I live in the Town of Prosper and within Prosper ISD boundaries	88.86%	662
I live in Prosper ISD boundaries but not within the Town of Prosper	5.50%	41
I live in the Town of Prosper but not within Prosper ISD boundaries	4.16%	31
None of the above	1.48%	11
TOTAL		745

How long have you lived in Prosper?



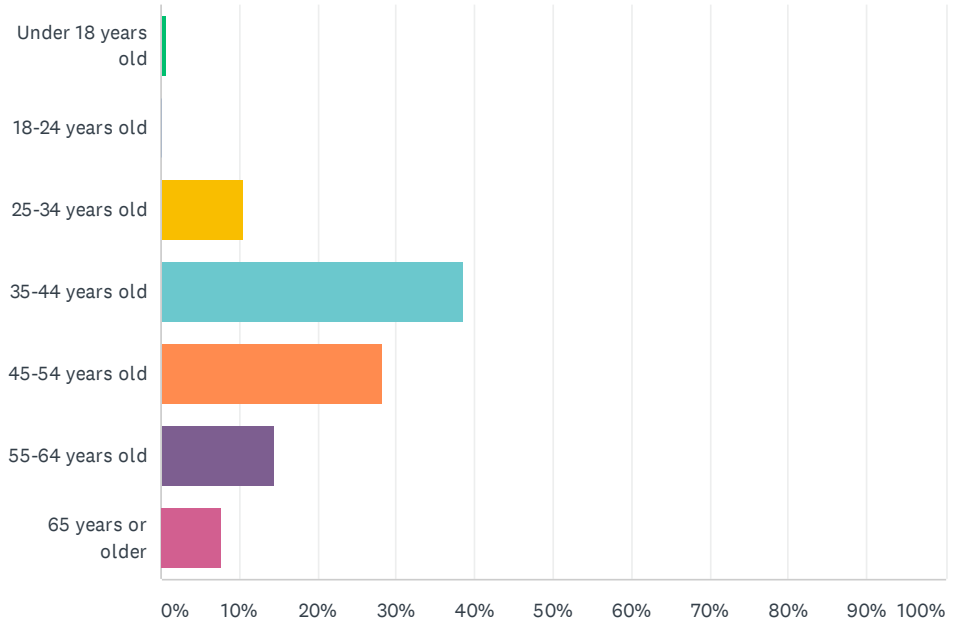
ANSWER CHOICES	RESPONSES	
Less than a year	15.32%	114
1-2 years	18.15%	135
3-5 years	32.66%	243
6-10 years	20.30%	151
More than 10 years	12.63%	94
I don't live in Prosper	0.94%	7
TOTAL		744

What is your gender?



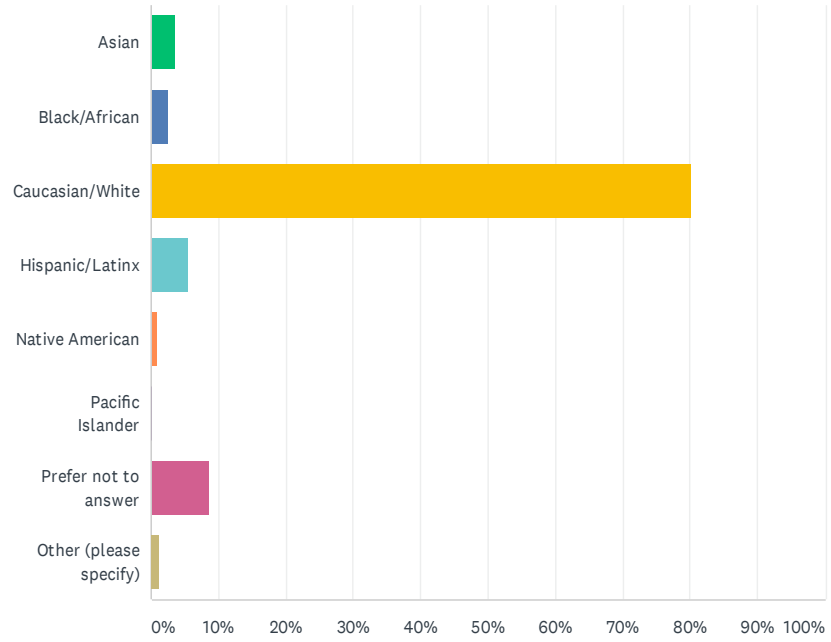
ANSWER CHOICES	RESPONSES	
Female	58.95%	438
Male	41.05%	305
TOTAL		743

In what age group do you fall?



ANSWER CHOICES	RESPONSES	
Under 18 years old	0.54%	4
18-24 years old	0.14%	1
25-34 years old	10.42%	77
35-44 years old	38.57%	285
45-54 years old	28.28%	209
55-64 years old	14.34%	106
65 years or older	7.71%	57
TOTAL		739

How do you identify your race/ethnicity?



ANSWER CHOICES	RESPONSES	
Asian	3.50%	26
Black/African	2.43%	18
Caucasian/White	80.05%	594
Hispanic/Latinx	5.39%	40
Native American	0.81%	6
Pacific Islander	0.13%	1
Prefer not to answer	8.49%	63
Other (please specify)	1.21%	9
Total Respondents: 742		

REFERENCE MAPS

FIGURE 6.1 | RESIDENTIAL DEVELOPMENT TIMELINE & RECOMMENDATIONS MAP

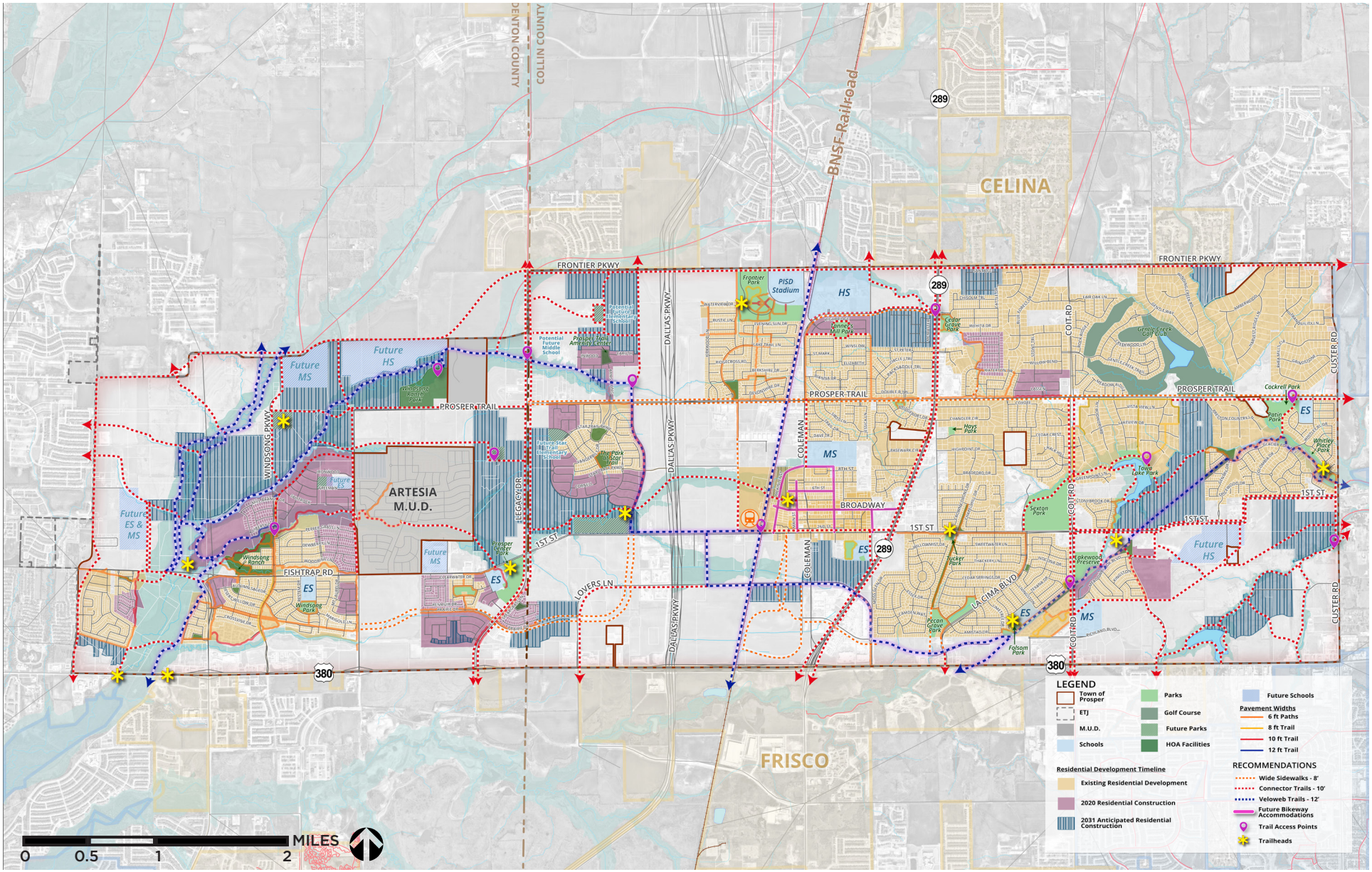
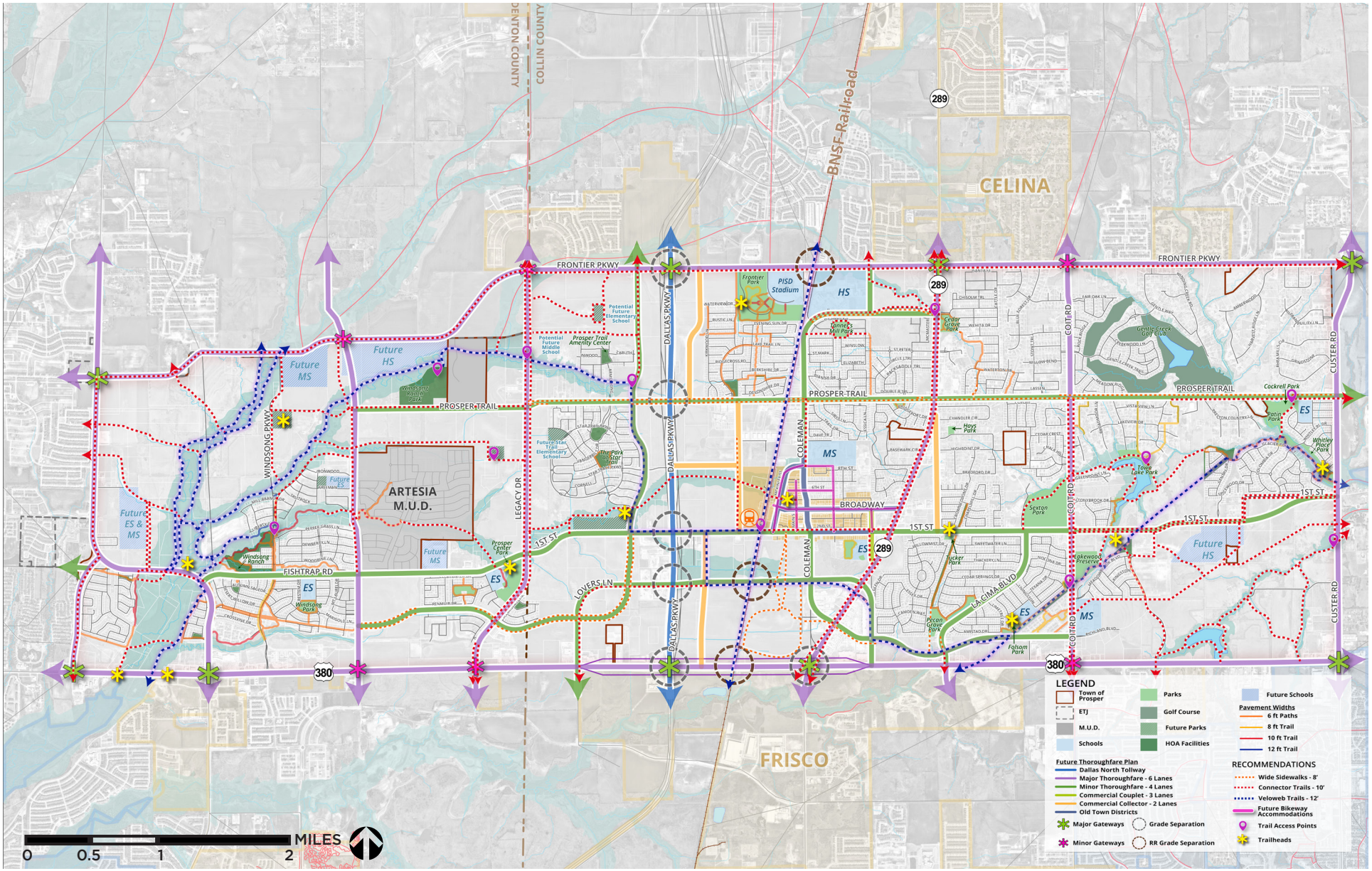


FIGURE 6.2 | THOROUGHFARE PLAN & RECOMMENDATIONS MAP



COMMONLY USED TRAIL & BIKEWAY SIGNAGE

R9-7
THE SHARED-USE PATH RESTRICTION

Location: Installed on facilities that are to be shared by pedestrians and bicyclists

R9-6
BICYCLE YIELD TO PEDESTRIAN

Location: At crosswalk
Size: 12" x 18" (min. for trails)

D4-3
BICYCLE PARKING AREA

Location: Installed where it is desirable to show the direction to a designated bicycle parking area. The arrow may be reversed as appropriate

D11-1
BIKE ROUTE

Location: At beginning of each route and at intersections
Size: 24" x 18" (min. for trails)

R9-5
USED PEDESTRIAN SIGNAL

Location: At crosswalk
Size: 12" x 18" (min. for trails)

R3-17
BIKE LANE

Location: Sign spacing should be determined by engineering judgment based on prevailing speed of bicycle and other traffic, block length, distances from adjacent intersections, and other considerations.

R3-17A
AHEAD

Location: Should be mounted directly below a R3-17 sign in advance of the beginning of a marked bicycle lane

M4-11, 12, 13, M7-1, 2, 3, 4, 5, 6, 7
BIKE ROUTE SUPPLEMENTAL PLAQUES

Location: Where bike lanes begin, end, or change direction
Size: 12"x4", 12"x9" (min. for trails)

R3-17B
ENDS

Location: Should be mounted directly below a R3-17 sign at the end of a marked bicycle lane

BIKE MAY USE FULL LANE

D1-1B, D3-1
DIRECTIONAL SIGNS

Location: At intersections where access to destinations are available
Size: 24"x6" (min. for trails)

R5-3
NO MOTOR VEHICLE

Location: Entrance to trail
Size: 24"x24" (min. for trails)

W16-1
SHARE THE ROAD

Location: Where there is a need to warn motorists to watch for bicyclists traveling along the highway

R1-1
STOP

Location: At trail intersections and crossings
Size: 18"x18" (min. for trails)

W11-1
BICYCLE WARNING

Location: Orientated toward motorists at trail crossing
Size: 18"x18" (min. for trails)

R1-2
YIELD

Location: At trail intersections and crossings
Size: 18"x18"x18" (min. for trails)

W11-2
PEDESTRIAN WARNING

Location: Orientated toward motorists at trail crossing
Size: 18"x18" (min. for trails)

W3-1
STOP AHEAD

Location: Where stop sign visibility is obscured
Size: 18"x18" (min. for trails)

W3-2
YIELD AHEAD

Location: Where yield sign visibility is obscured
Size: 18"x18" (min. for trails)

W3-3
SIGNAL AHEAD

Location: Where traffic signal visibility is obscured
Size: 18"x18" (min. for trails)

W1-1,2,3,4,5
TURN & CURVE WARNING

Location: At turns and curves which exceed design speed criteria
Size: 18"x18" (min. for trails)

W2-1,2,3,4,5
TRAIL INTERSECTION WARNING

Location: At trail intersections where no stop or yield sign is required; locations with limited sight lines
Size: 18"x18" (min. for trails)

PLEASE STAY ON TRAIL

Location: In environmentally-sensitive areas of where the trail travels near wildlife and heavy vegetation
Size: 12" x 18" (minimum dimensions for trails)

TRAIL CLOSED: NO ENTRY UNTIL MADE ACCESSIBLE & SAFE FOR PUBLIC USE

Location: Where trail or access points are closed due to hazardous conditions or construction
Size : 18" x 18" (minimum dimensions for trails)

TRAIL REGULATIONS/RULES OF THE TRAIL

Location: Entrances to trail
Size : 18" x 18" (minimum dimensions for trails)

TOWN OF PROSPER

HIKE & BIKE TRAILS MASTER PLAN

HALFF

HALFF ASSOCIATES, INC. | 1201 N. BOWSER ROAD | RICHARDSON, TX 75081 | WWW.HALFF.COM

ADOPTED NOVEMBER 2020