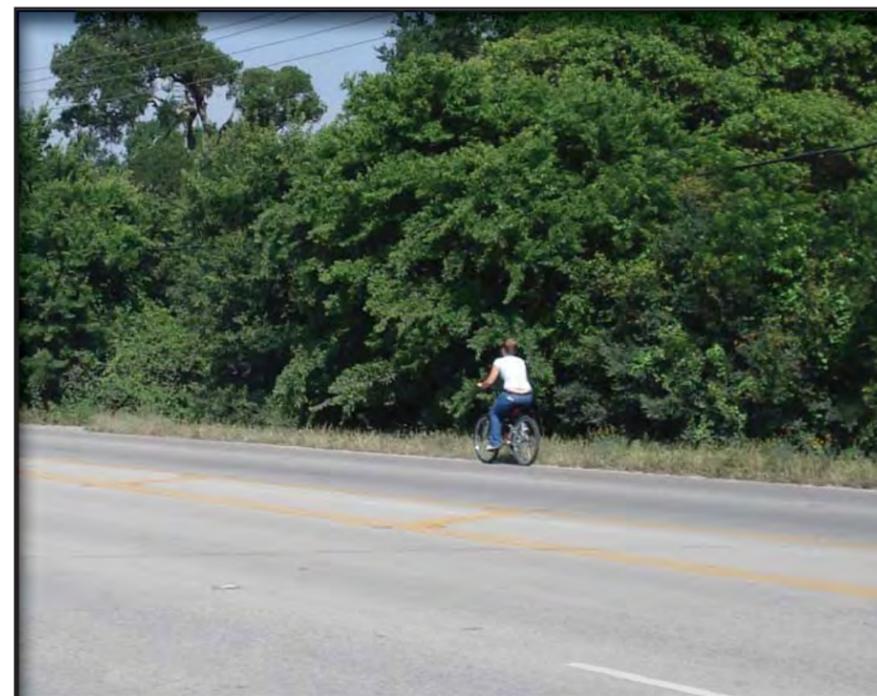
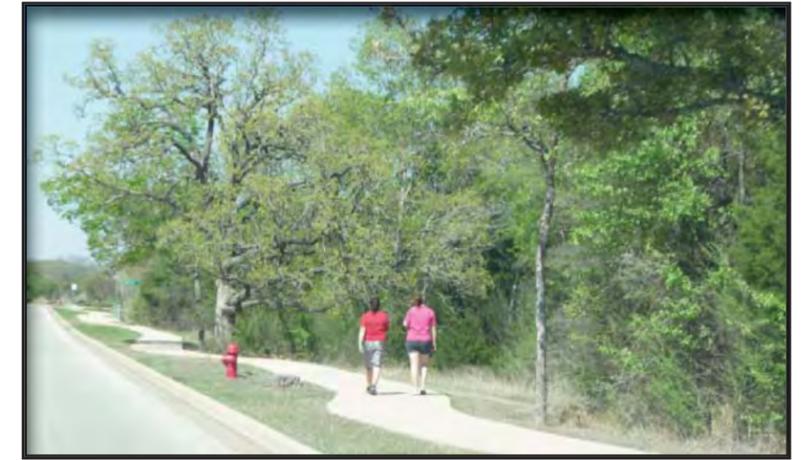




Connecting Cedar Park

The 2010 Hike and Bike Trails Master Plan





December 10, 2009

Curt Randa, Director of Parks and Recreation
City of Cedar Park
1435 Main Street
Cedar Park, TX 78613

Reference: Draft of the Cedar Park Hike and Bike Trails Master Plan

Halff Associates, Inc. is pleased to submit the draft Cedar Park Hike and Bike Trails Master Plan. This report seeks to capture the many observations and findings developed as part of the planning process, and to match those to the desires and expectations of the citizens of Cedar Park. The plan's recommendations encompass a variety of different trail types, seeking first and foremost to create a citywide interconnected system of continuous trails that link all parts of Cedar Park. The ultimate goal of this plan is to truly connect all of Cedar Park.

As in any comprehensive analysis, this document contains many recommendations that are prioritized over time. Many of the actions in this plan are immediate in nature and can be developed as funding becomes available. Others can be developed in conjunction with ongoing development in Cedar Park. Finally, some are long term actions that may not be funded for some time, but that are shown to ensure that they remain present in the City's planning for the future and as new funding sources become available.

Ultimately, this plan stresses what citizens of Cedar Park desire from their trails system. As much as any other type of infrastructure in a city, trails can transform Cedar Park and continue to make it one of the best places to live in Texas.

We greatly appreciate the opportunity to have worked with you, your staff, and the citizens of Cedar Park.

Sincerely,

Halff Associates, Inc.

Jim Carrillo, ASLA, AICP
Vice President, Director of Planning





The Cedar Park Hike and Bike Trails Master Plan was developed by the Parks and Recreation Department with the technical assistance and design help of Half Associates. A special thanks goes to the many residents, landowners, and community leaders for their insights, comments and support throughout this planning study.

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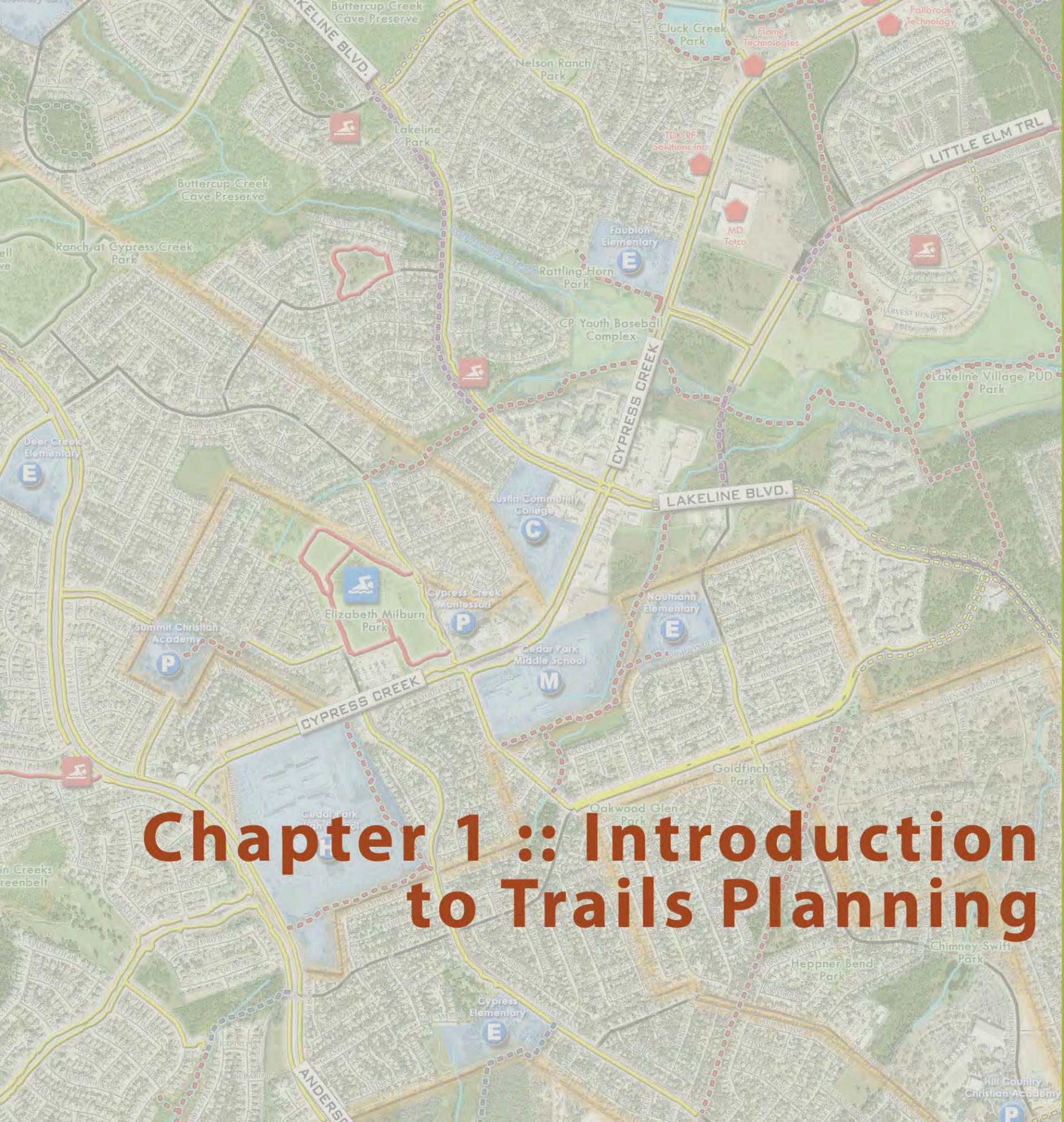
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Chapter 1 :: Introduction to Trails Planning





Why Plan for Hike and Bike Trails in Cedar Park

For many decades, trails have been one of the most popular recreation features that a community can offer. Lately trails have also become more than just recreation. A well planned and interconnected trails system can serve as an alternative mode of transportation. With the high price of gas, a new push to decrease our carbon footprints, and people just wanting to avoid traffic congestion, trails can be an easy way for residents to commute to work or school as well as places to shop, restaurants, and other entertainment venues.

Because of the favorable weather in Texas the majority of the year, trails are often the most frequently requested recreation amenity. Trails offer many benefits:

- ◆ Trails are popular because they offer something for everyone. The very young to the very old can all be active on trails.
- ◆ Trails provide access and opportunities to see beautiful, natural parts of the City. They provide opportunities to see other neighborhoods and newer parts of the City.
- ◆ Trails support economic development by creating attractive greenbelts that can revitalize areas and enhance neighborhoods. Trails provide access to local businesses, and provide tourism opportunities. A great system of places to walk and bike makes Cedar Park an even more attractive place to live and invest in.
- ◆ Trails promote a healthy lifestyle by providing opportunities to engage in exercise whether by walking, running, biking or rollerblading.
- ◆ Trails help preserve and enhance greenbelt areas and can beautify street corridors.
- ◆ Trails teach us about the history and culture of Cedar Park by preserving key historical features and areas, as well as the landscape context around those areas.
- ◆ Trails enhance the transportation system in Cedar Park by providing alternative ways to get to key destinations such as schools, libraries, parks, recreation centers, pools, city hall, places of employment, restaurants and retail shopping areas.
- ◆ Finally and most importantly, the development of a citywide trail system clearly speaks to Cedar Park's commitment to

establish a very high quality of life standard for its citizens. This commitment to quality tells everyone that Cedar Park will always seek to be a premier place to live in and to do business.

Creating Greenways in Cedar Park

A greenway is a long, narrow piece of land for recreational or pedestrian use. A greenway allows for urban commuting via bicycle or foot rather than motorized transportation. Often times a greenway follows a natural, linear corridor such as a riverfront, a stream valley, or a ridgeline. It can also follow a man-made linear corridor such as a railroad right-of-way, a canal, or a scenic road. Trails along many of the natural corridors in Cedar Park can be considered greenways.

Potential greenway corridors in Cedar Park include:

- ◆ Brushy Creek
- ◆ Cave Preserves
- ◆ Spanish Oak Creek
- ◆ Buttercup Creek
- ◆ Cluck Creek

The Purpose of a Citywide Hike and Bike Trails Master Plan

A citywide hike and bike trails plan provides the framework by which the City of Cedar Park and the private sector can work together to jointly create beautiful and meaningful trail corridors and make informed decisions as to how to fund trail development in a satisfactory manner.

This long range plan envisions a system of trails that connects all of Cedar Park by allowing residents to go from one end of the City to the other in a fun and healthy way. This plan will identify key trail corridors and on-street bicycle facilities and will guide the creation of a citywide network. A plan such as this will provide guidance on the preferred location for trail corridors and will help the City acquire lands for trail use.

This Trails Master Plan is intended to be flexible and remain a viable tool as Cedar Park continues to grow and change. The plan will continue to serve for many years, but should be periodically updated to reflect current conditions within the City, the

neighboring communities and the greater Central Texas area as a whole.

Who Will Implement This Plan?

The implementation of the Trails Master Plan will be lead by the City of Cedar Park and its Parks and Recreation Department. However, everyone in Cedar Park has a vested interest in developing a citywide trail system. Other key implementers will include:

- ◆ All area governmental entities, including the City of Cedar Park, Williamson County, Leander ISD, and other entities such as TxDOT.
- ◆ Other departments within the City of Cedar Park, including Public Works, Engineering, and Planning/Transportation should work with the Parks and Recreation Department to implement components of the plan.
- ◆ Property owners, developers, commercial entities, and others in the business community in Cedar Park.
- ◆ Community homeowner associations (HOAs) and other collective groups of neighborhoods.
- ◆ All citizens of Cedar Park, no matter which part of the City they live in.
- ◆ Adjacent residents of Williamson County to help encourage connections to other adjacent systems.

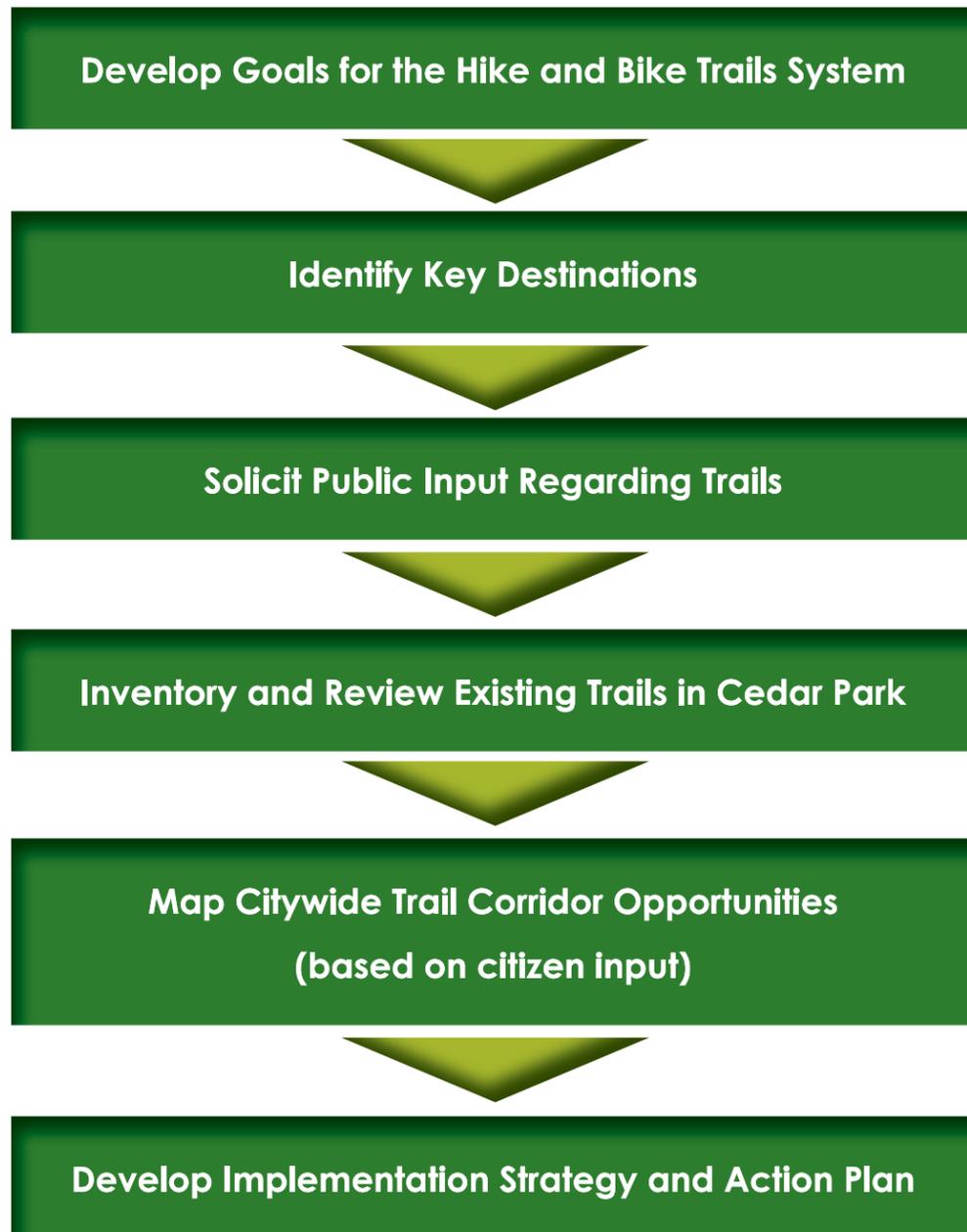
This Hike and Bike Trails Master Plan follows the general guidelines for local area master plans established by the Texas Parks and Wildlife Department (TPWD). This document will be filed with the Texas Parks and Wildlife Department, and allows the City to better qualify for trail grant opportunities as they become available.

The timeframe for this plan is formulated to address the timeframe from 2010 through the year 2020. Periodic review is recommended to provide an opportunity for citizen feedback and to adjust for any major events or occurrences that may significantly alter the recommendations of this plan.



Methodology Used to Develop the Hike and Bike Trails Master Plan

The methodology used to develop this plan is shown graphically below.



1999 Trails Master Plan

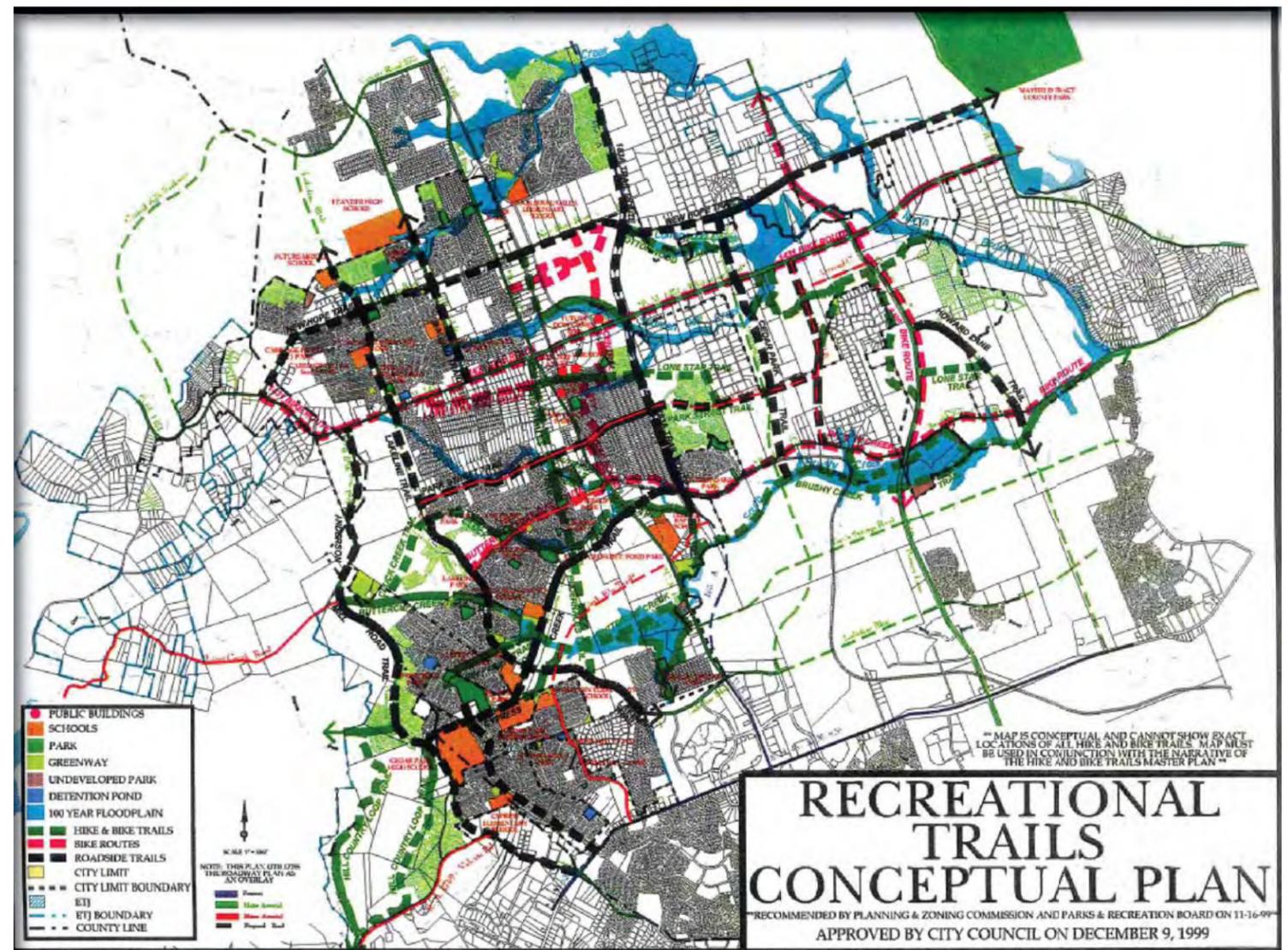
This Master Plan is an update to the 1999 Recreational Trails System Plan - *Pathways to the New Millennium*. The 1999 Trails System Plan was led by City staff, a citizen task force, and residents of Cedar Park. It proposed corridors for bicycle routes, roadside trails, and hike and bike trails. One point that the plan continually emphasized was that eminent domain would not be used for land acquisition for the development of recreational trails. During the planning process in 1999, several property owners mistakenly thought that the City would acquire their land for trails. However, the City has never had any intention of doing this. All proposed trails on private property assumed that if the property were ever sold for development, then the developer would be responsible for building that trail for the many new families that would be living on those sites. This Master Plan also stresses that the City will not use eminent domain for the acquisition of private land to be used for the development of trails. All proposed developer trails shown in the recommendations indicate that any future developer of those sites would be asked to help develop those trails.

The 1999 Plan identified four types of trails that could be built in

Cedar Park. These included:

- ◆ **Recreational** - provides convenient routes that are easily accessible and that traverse scenic areas and views.
- ◆ **Commuting** - provide straight routes through the City to places of work and business.
- ◆ **Neighborhood** - connect parks and schools with residential areas.
- ◆ **Primitive** - less developed and travel through natural areas and are somewhat isolated by design.

The 1999 Trails Plan is shown on this page.





Other Trail Planning Efforts

Several other master plans in Cedar Park make reference to hike and bike trails. The Comprehensive Plan, Transportation Plan, and the Citywide Parks Master Plan all discuss bicycle and pedestrian facilities to some extent. This update follows what is proposed in these other citywide plans to ensure consistency between this Hike and Bike Trails Master Plan and other adopted plans.

City of Cedar Park Comprehensive Plan 2006 Update

The City of Cedar Park updated its Comprehensive Plan in 2006. In the updated plan document, several references are made to the development and importance of a citywide trails network. **In the SWOT analysis that was conducted for the Comprehensive Plan, having a Recreational Trails Plan was listed as one of the strengths of the City, and being a green city of open space networks, trails and parks was listed as a key opportunity.** The Comprehensive Plan encourages alternative sources of transportation and seeks to provide a variety of ways to travel.

The Comprehensive Plan recommends that an inventory of bicycle routes and sidewalks be prepared, then prioritized major connections needed in the system. The Comprehensive Plan also noted that while the City currently requires sidewalks to be provided along all streets, older neighborhoods and roadways do not have sidewalks. As these areas are renovated and updated, sidewalks will need to be added.

Transportation Master Plan

The City's Transportation Master Plan greatly emphasizes the need for alternative modes of transportation through pedestrian and bicycle facilities. Objective 1.8 of the Goals and Objectives of the Transportation Plan is to "improve connectivity of subdivisions with parks, school campuses and other neighborhoods." Actions to achieve this objective are:

- ◆ Involve neighborhood groups, developers, and local schools in developing a route plan emphasizing pedestrian and bicycle modes.
- ◆ Strongly encourage developers to provide pedestrian and bikeway access.

Objective 4.6 of the Transportation Plan is to "consider non-traditional methods of providing land for alternative travel means. Proposed actions to achieve this objective include:

- ◆ Consider negotiating the usage of utility rights of way for bicycle and pedestrian improvements.

Goal #3 of the Transportation Plan deals entirely with promoting alternative travel modes. This goal states "Cedar Park should offer and encourage the use of travel modes other than the automobile. Citizens should be encouraged to use bicycles, walking, and public transit as alternatives." Objectives of Goal #3 include:

- ◆ Providing convenient and safe bicycle routes.
- ◆ Providing attractive and convenient access routes for pedestrians.
- ◆ Minimizing conflict between travel modes.
- ◆ Supporting the provision of public transportation.

Street design guidelines discussed in the Transportation Plan emphasize the importance of planning for pedestrian and bicycle facilities at the start of a project, since it can be much more difficult to add those facilities to an already existing street. Meandering sidewalks was listed as one of the elements that could increase the aesthetic appeal of a roadway.

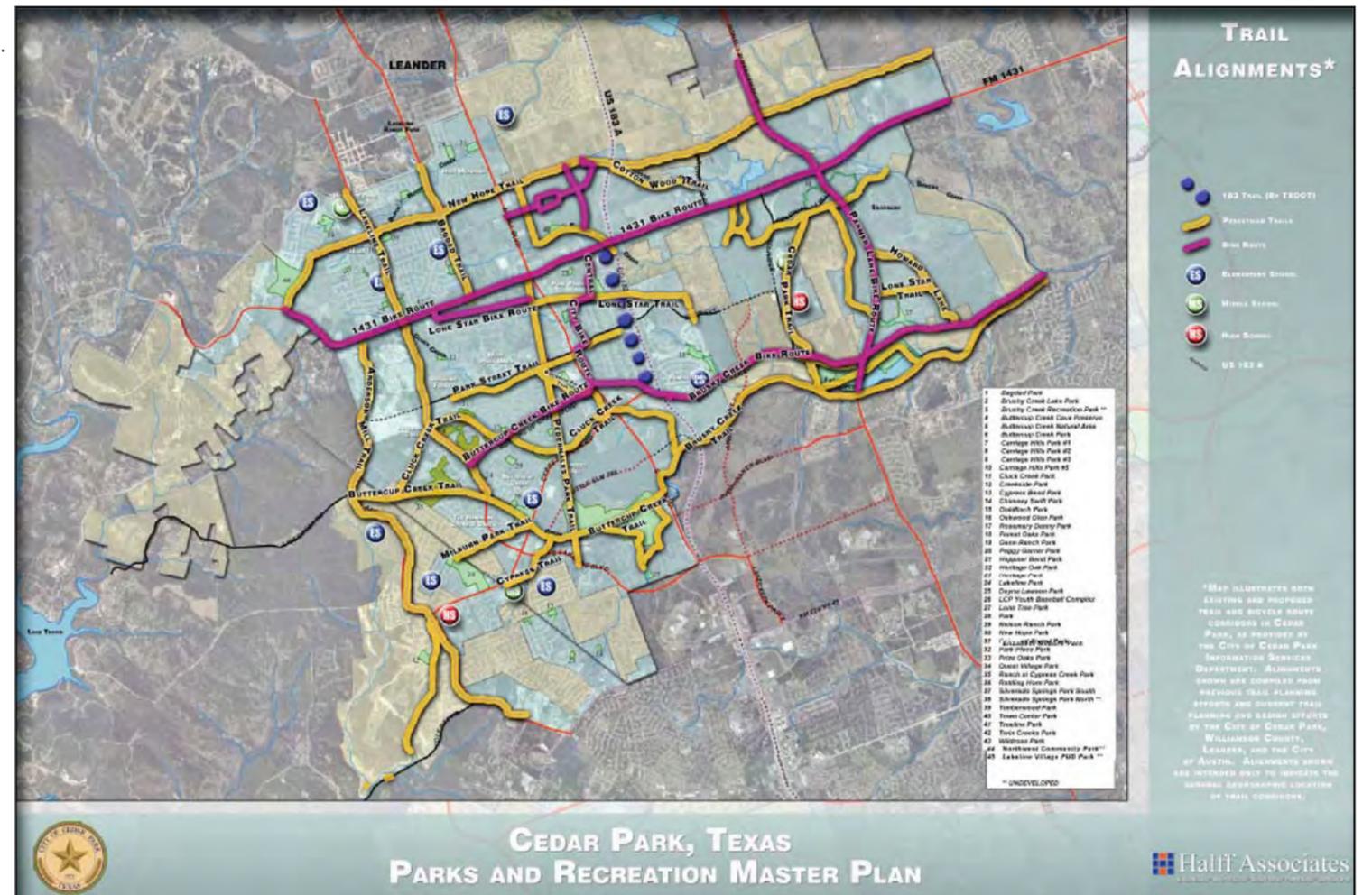
Specific sections of the Transportation Plan are dedicated to bicycle facilities and pedestrian facilities. These sections

discuss standards, improvements, general recommendations, and issues. No specific routes for either type of facilities are given.

Parks and Open Space Master Plan

The Parks and Open Space Master Plan was completed in 2006. This plan recommended one mile of trail for every 3,000 residents. At the time the plan was completed, the City of Cedar Park had a deficit of 6.4 miles of trails; by the year 2016, there was estimated to be a 15.6 mile deficit of trails. The plan illustrates the major corridors proposed in the 1999 Trails Plan for both bicycle and pedestrian facilities.

Trails were ranked as a very high need in the Parks and Open Space Master Plan. It was ranked as one of the key needs by residents during the public input process.



Trail recommendations from the 2006 Parks and Open Space Master Plan



Principles of the Hike and Bike Trails Master Plan

The system of trails, bicycle facilities, and pedestrian connections recommended in this master plan will allow the City to enhance not only recreation opportunities but also to influence the appearance of Cedar Park. This plan is both visionary and practical. The visionary component foresees a network of beautiful corridors that seamlessly allow a user to easily go from one place in Cedar Park to another by walking or riding. The practical side envisions connections to all neighborhoods via readily accessible, wide, safe, and attractive pathways.

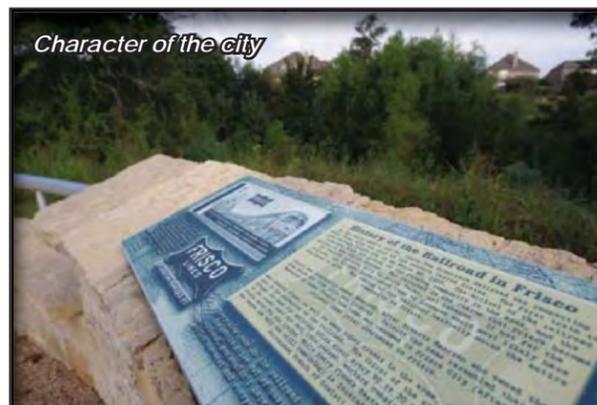
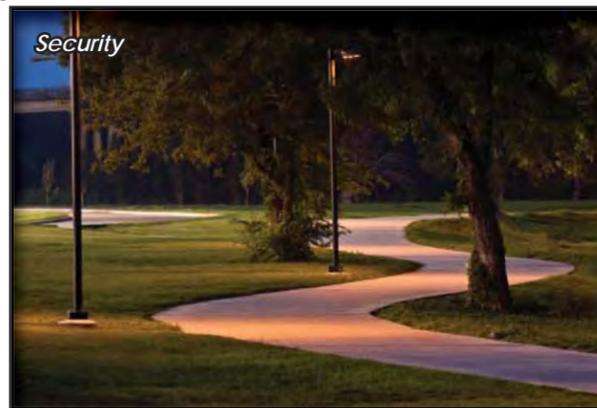
The following principles were developed through the master planning process, and serve to guide the alignment and layout of both the trails proposed in this document, as well as additional pathways proposed in the future.

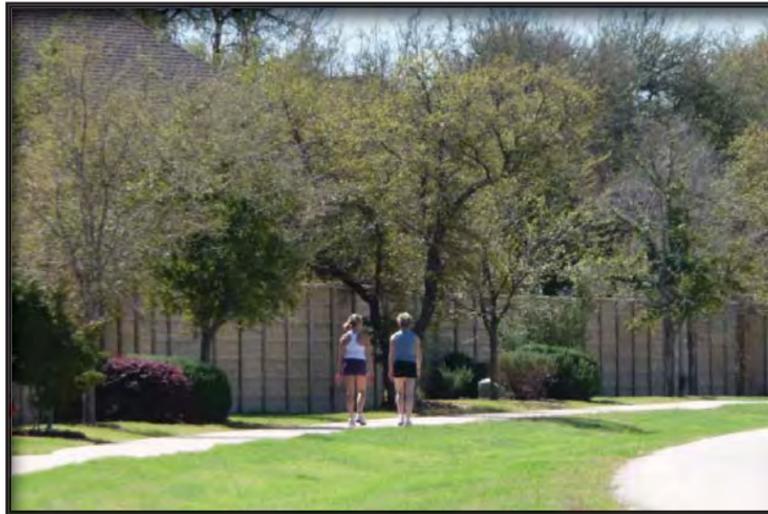
- ◆ **Create a citywide network of trails** - The ultimate goal is to create an interconnected network that allows travel across all of Cedar Park. Unconnected sections should be united into an overall system of continuous trails. Trails can be used for both transportation and recreation. The City should create facilities that can allow for commuting and short trips to retail and civic destinations.
- ◆ **Promote a feeling of security on all trails** - Trails should provide smooth, walkable corridors that feel safe and are visible.
- ◆ **Access** - Access to the trail system must be maximized as much as possible. This may range from simple sidewalk connections to the trails, to complete trailheads with parking and comfort features such as shade structures and restrooms. The City can encourage the use of the trail system by creating easy access.
- ◆ **Trails should enhance Cedar Park** - Trails should enhance the physical appearance of the City, whether through new pedestrian features, landscaping added to the trail corridors, or simply by revealing natural areas not previously visible to the general public.
- ◆ **Provide a variety of trail opportunity types** - Provide trails that are suitable for a variety of activities including walking, running, cycling, and in-line skating. Provide nature trail opportunities and equestrian facilities where feasible. Consider facilities for paddling trails along Brushy Creek and area lakes.
- ◆ **Character of the City** - Trail segments should be designed

so that they promote the physical and historical character of the City of Cedar Park. They should relate to adjacent neighborhoods. Trail corridors provide unique opportunities to learn about the history, culture, and accomplishments of Cedar Park. Trails provide access to the natural habitat in the City, and should offer ample opportunities to learn about the environment. Include interpretive signs and features that provide opportunities for learning about Cedar Park and its cultural and ecological heritage.

- ◆ **Connectivity** - Where possible, trails corridors and alignments should be designed so as to enhance linkages between parks, neighborhoods, schools, retail, and key civic and community destinations. The citywide trail system is proposed to connect to other surrounding communities and other regional trail systems such as the Brushy Creek Trail through the southern portion of Williamson County.

- ◆ **Create partnerships with other entities** - The citywide trails system should encourage the creation of public and private partnerships that can help build the entire system more quickly.





Target Level of Service for Trails in Cedar Park

The 2006 Parks and Open Space Master Plan recommended a target level of service of one mile of trail for every 3,000 residents of the City. This Plan reinforces that recommendation. This target LOS reflects the high level of interest in trails and the commitment to the quality of life that they represent.

The target level of service should be viewed as a performance goal and as a way to measure progress over previous years. It should not be viewed as the absolute final goal of the City. With this target level of service, the following amounts of trails would be desired as the population of Cedar Park grows.

Current Miles of Trails: 22.1 miles of trails

Estimated Current Population (including ETJ): 76,718

Current Level of Service: 1 mile per 3,470 residents

Recommended Target Level of Service: 1 mile per 3,000 residents

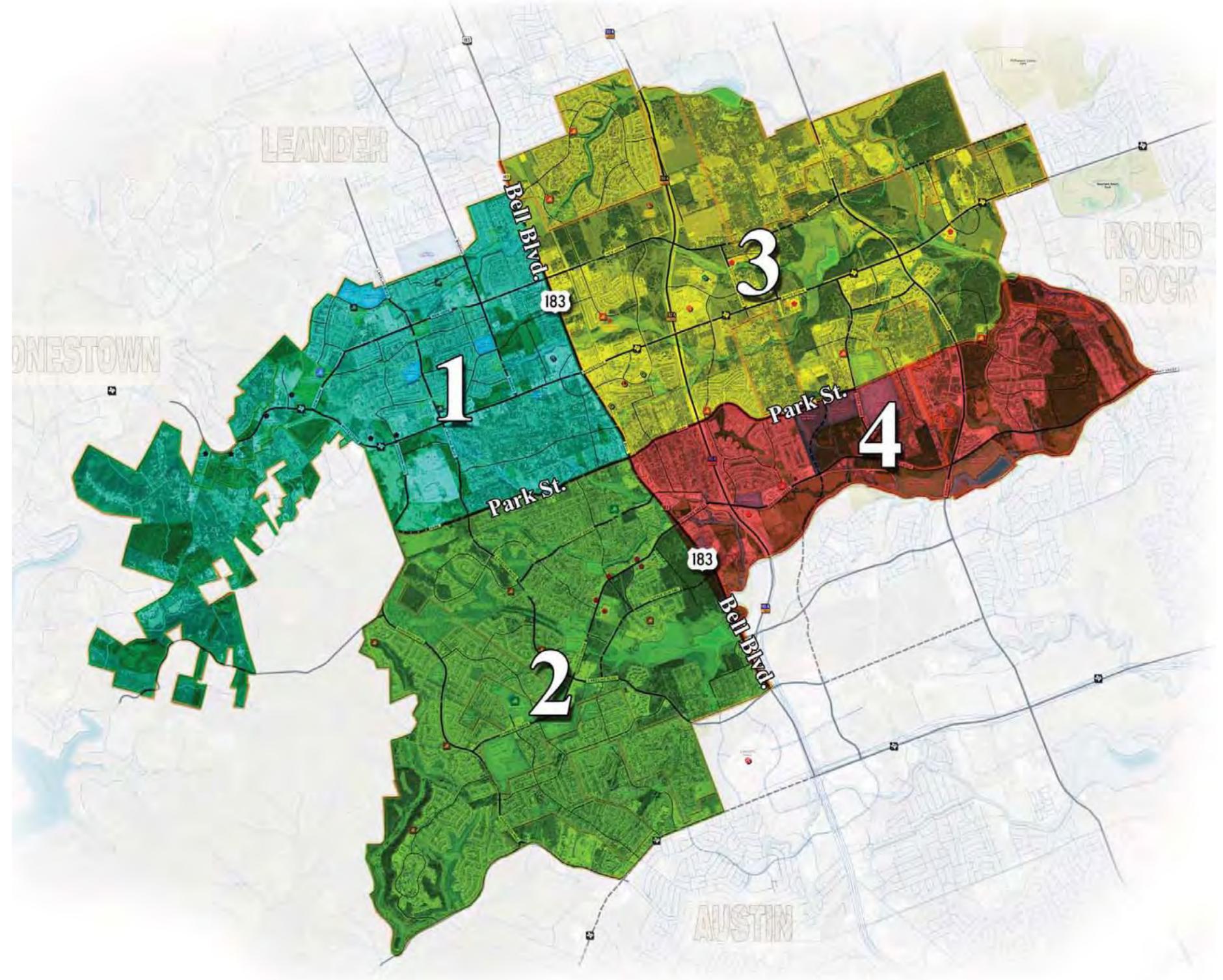
- ◆ Current 2009 need for 76,718 population: 25.6 miles (deficit of 3.5 miles)
- ◆ Year 2010 need for 78,253 population: 26.1 miles (deficit of 4.0 miles)
- ◆ Year 2015 need for 88,100 population: 29.4 miles (deficit of 7.3 miles)

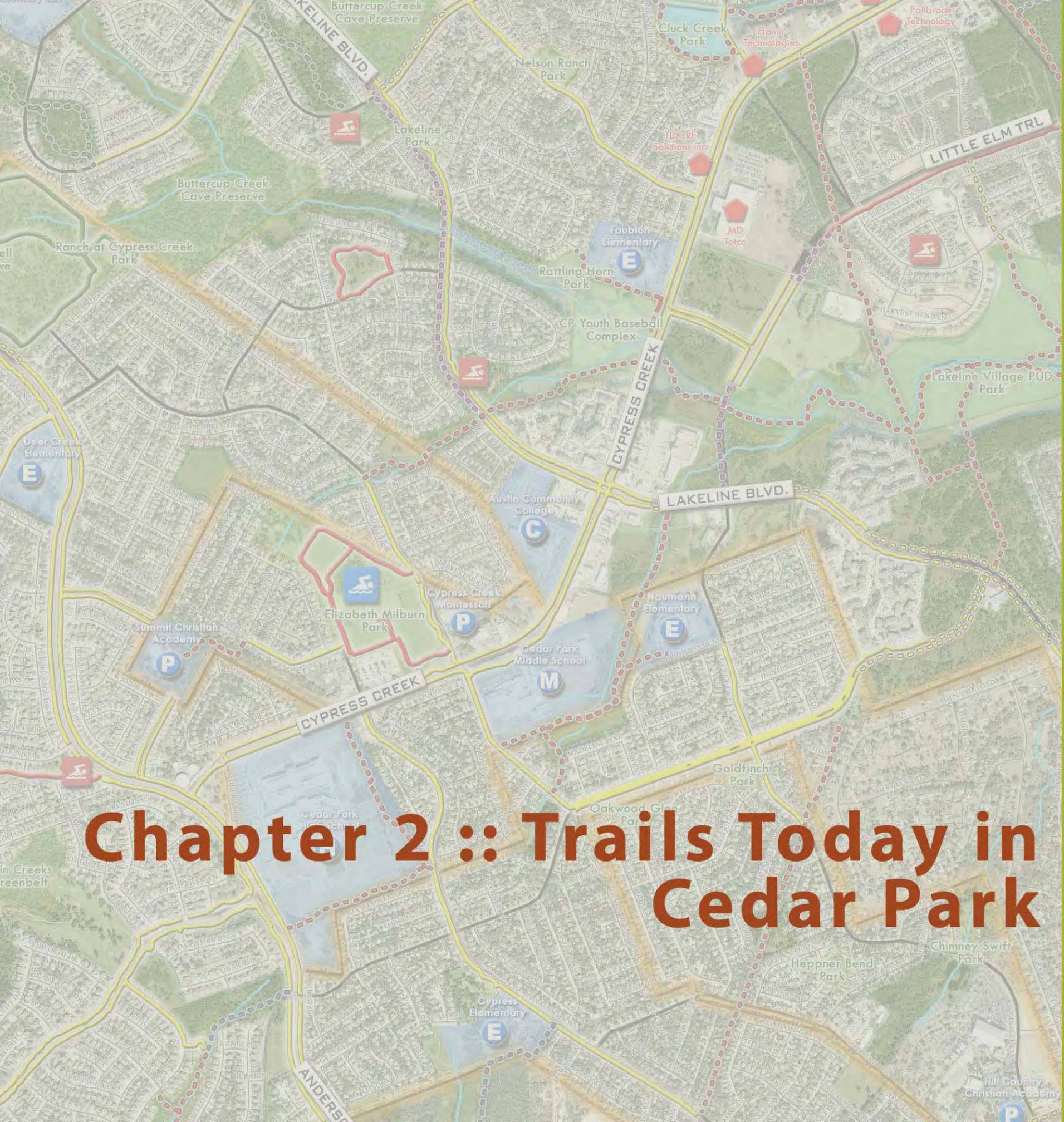


Cedar Park's Trail Planning Sectors

For the purpose of this planning process, the City was divided into four planning sectors. These sectors are shown on the map to the right. For the purpose of this report, they are referred to as follows:

- ◆ Sector 1 - north of Park Street and west of Bell Blvd.
- ◆ Sector 2 - south of Park Street and west of Bell Blvd.
- ◆ Sector 3 - north of Park Street and east of Bell Blvd.
- ◆ Sector 4 - south of Park Street and east of Bell Blvd.





Chapter 2 :: Trails Today in Cedar Park





Planning for the Cedar Park of Today and Tomorrow

When planning for trails, a master plan such as this must consider both the population of today as well as any growth that is expected to occur in the future. It must consider the context of the City today, looking at the many key destinations and attractions that should be accessible by the trails system. This Master Plan must also coordinate with regional trails and bicycle planning efforts in Williamson County and Travis County as well as the Central Texas region.

Population Growth for Cedar Park

Cedar Park has experienced tremendous growth over the past several decades. In the 1970s and again in the 1990s, Cedar Park more than quadrupled its population. Additionally, Cedar Park has more than doubled in size since the year 2000. This high population growth is shown in Table 2.1.

The population of Cedar Park is expected to continue to grow, but at a slower rate. Between 2010 and 2015, growth is expected to be 12.5% which is lower than the growth of the past decades. Projected population growth is shown in Table 2.2.



Table 2.1

Past Population Growth of Cedar Park

Year	Cedar Park City Limits Only	Percent Change	City Limits and ETJ Limits	Percent Change
1970	687	-	Not available	-
1980	3,474	405%	Not available	-
1990	5,161	49%	11,534	-
2000	26,049	405%	37,649	226%
2009	52,893	103%	76,718	104%

Source: Cedar Park Planning Department

Table 2.2

Projected Population Growth for Cedar Park

Year	Cedar Park City Limits Only	Percent Change	City Limits and ETJ Limits	Percent Change
2009	52,893	-	76,718	-
2010	53,951	2%	78,253	2%
2015	60,740	12.5%	88,100	12.5%

Source: Cedar Park Planning Department



Undeveloped Land in Cedar Park for Potential Future Trails

Cedar Park has nearly reached its build-out point. The map in Figure 1 illustrates all the land in Cedar Park that is currently developed as residential, commercial, or industrial. The shaded area in red is land that is developed and where new trails may be difficult to build. The dark green areas are existing parks, while the light green areas are floodplain corridors or other types of open space. Existing trails currently in the city are shown by the red lines.

Figure 2 illustrates the available land that has not been developed in the City. Again parks and open space are in the green colors, while all undeveloped land is shaded gray. It is obvious from these two illustrations that there are limited natural corridors remaining in the City. It is likely that the proposed trail recommendations will follow the natural corridors that are shaded gray, and utilize the parks and floodplain corridors to connect different areas of the City. Existing trails are shown by the red lines.

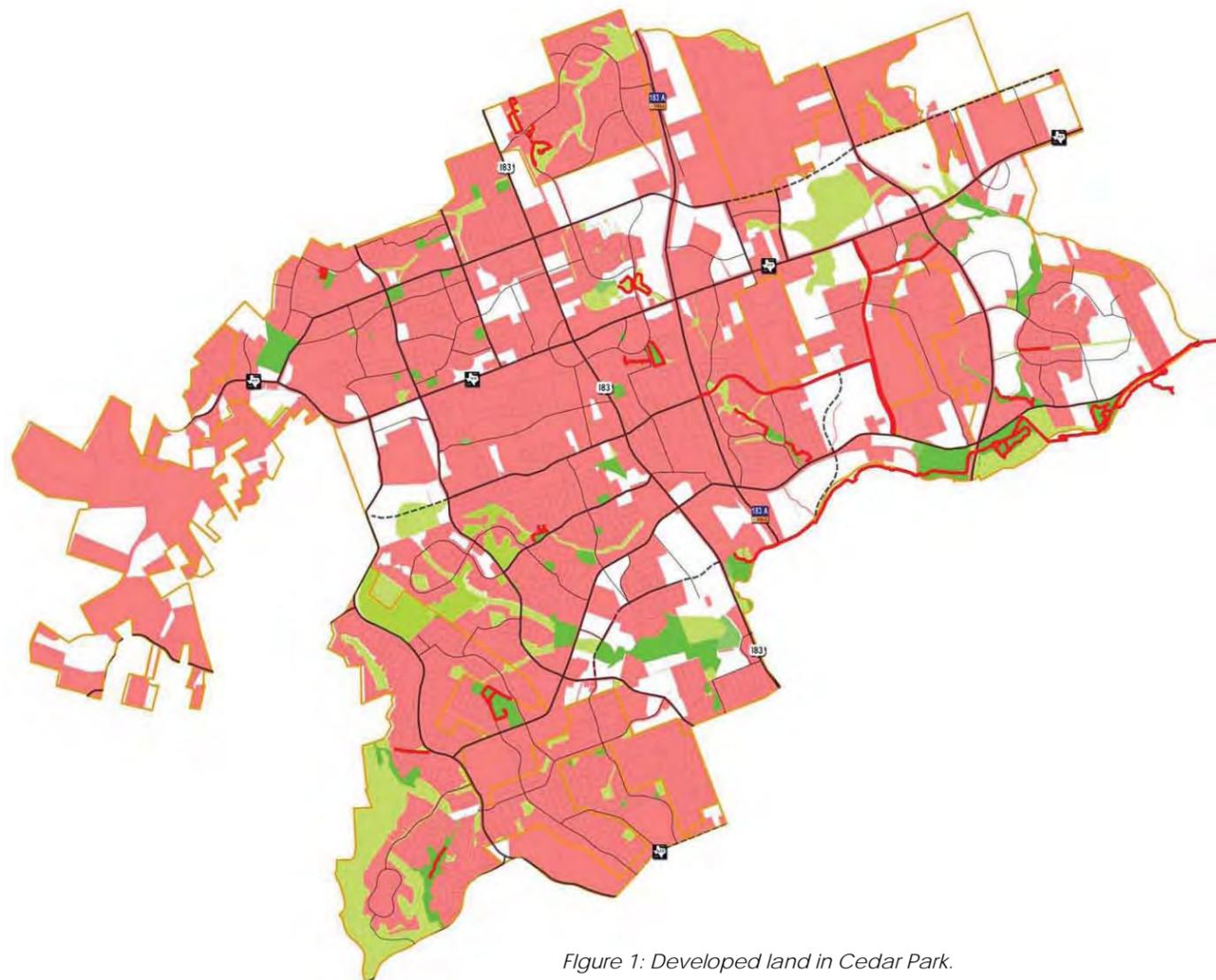


Figure 1: Developed land in Cedar Park.

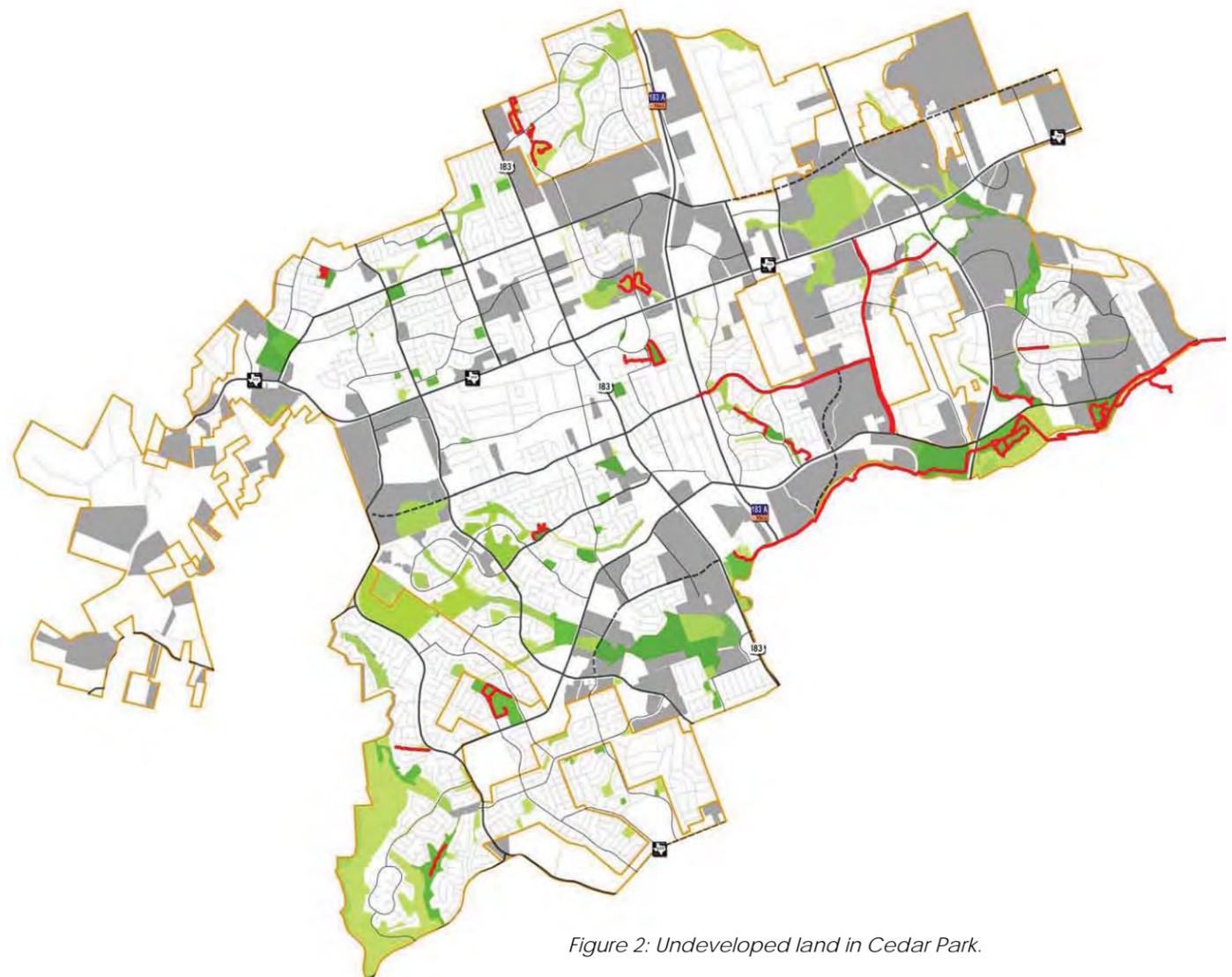


Figure 2: Undeveloped land in Cedar Park.

Existing Trails in Cedar Park

Cedar Park currently has the start of a good trail system. Most of the existing trails are well located and easily accessible. They are heavily used by residents of the City. One concern regarding the existing trails is the width of the trail and whether or not they can accommodate multiple users. Most streets in Cedar Park have sidewalks which offer an off street trail opportunity. However, the narrow widths of many of the sidewalks prevent multiple uses. Also, key gaps in the trail system exist between areas of the City, and addressing these connections could significantly increase the usability of Cedar Park's trail system.

Key concerns include the width of the pavement in some areas where a narrow sidewalk is in place instead of a wider eight-foot or ten-foot pavement.

The map on this page illustrates the overall existing trails in Cedar Park. Existing trails are shown in red. Key existing trail corridors are described on a sector by sector basis in more detail starting on Page 2-6.

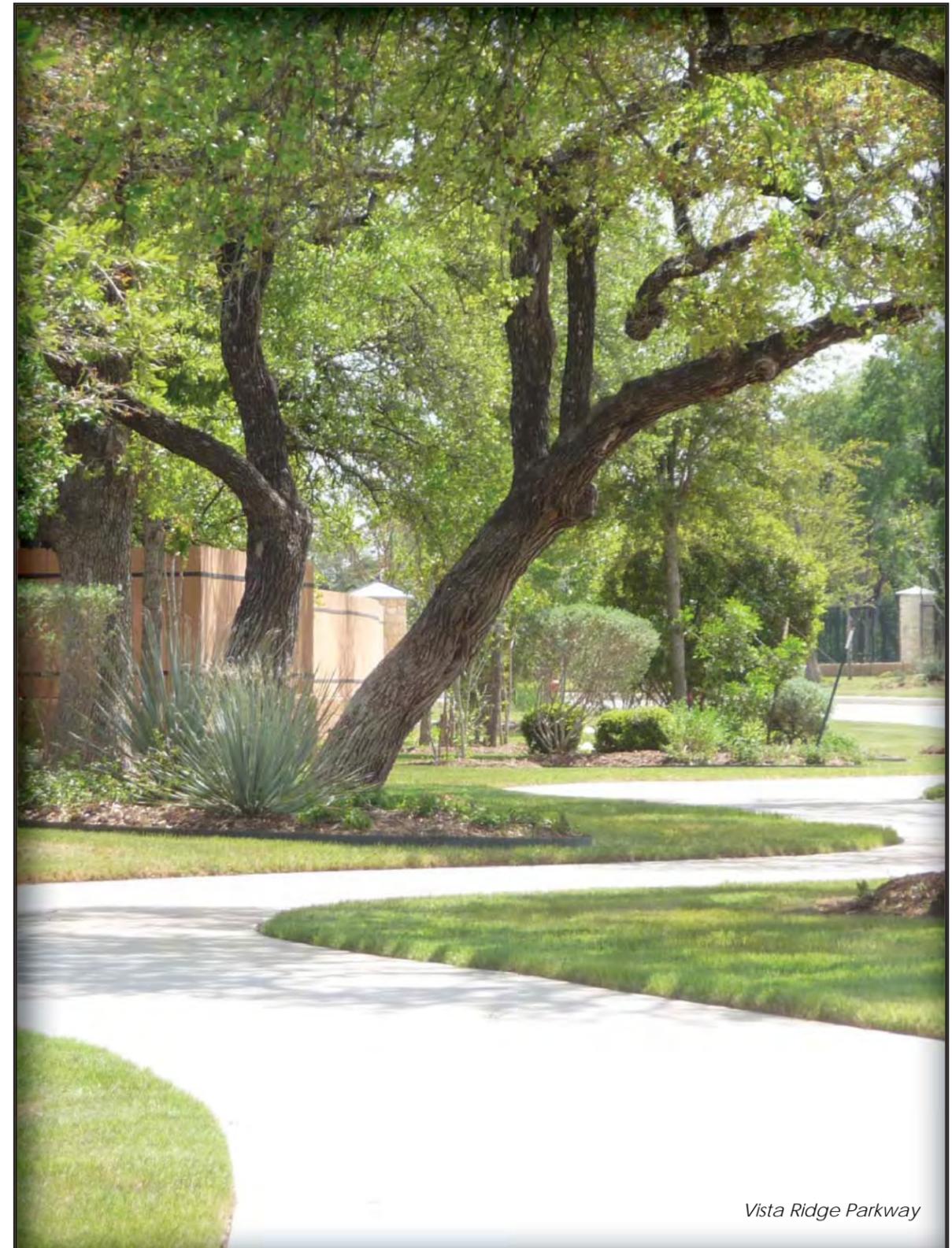




Table 2.3

Existing Trails in Cedar Park

Trail	Sector	Type	Length
Colonial Parkway	3	Concrete	0.6 miles
Little Elm Trail	2	Concrete	0.5 miles
New Hope Drive	3	Concrete	0.9 miles
Park Street	4	Concrete	1.5 miles
Vista Ridge Parkway	3/4	Concrete	2.2 miles
Subtotal of parkway sidewalk trails			5.7 miles
Block House Creek MUD	3	Crushed Granite	1.6 miles
Creekside Park	2	Concrete	0.3 miles
Discovery Well Cave Preserve Nature Trail	2	Nature Trail	2.6 miles
Elizabeth Milburn Park	2	Concrete/Crushed Granite	1.0 miles
Forest Oaks Park Greenbelt	4	Concrete	0.9 miles
Gann Ranch Park	1	Concrete	0.2 miles
Quest Village Park	3	Crushed Granite	0.9 miles
Silverado Springs Park South	4	Concrete	0.5 miles
Twin Creek Historic Park	2	Crushed Granite	0.3 miles
Subtotal of looped trails within parks			8.3 miles
Brushy Creek Regional Trail	4	Concrete/Crushed Granite	6.7 miles
Silverado Springs Gas Line Easment Trail	4	Concrete/Crushed Granite	0.3 miles
Town Center Trails	3	Concrete	0.8 miles
Twin Creeks HOA	2	Crushed Granite	0.3 miles
Subtotal of off-street trails			8.1 miles
Total Trails in Cedar Park			22.1 miles



Vista Ridge Parkway



Sector 1 - Existing Trails and Key Destinations

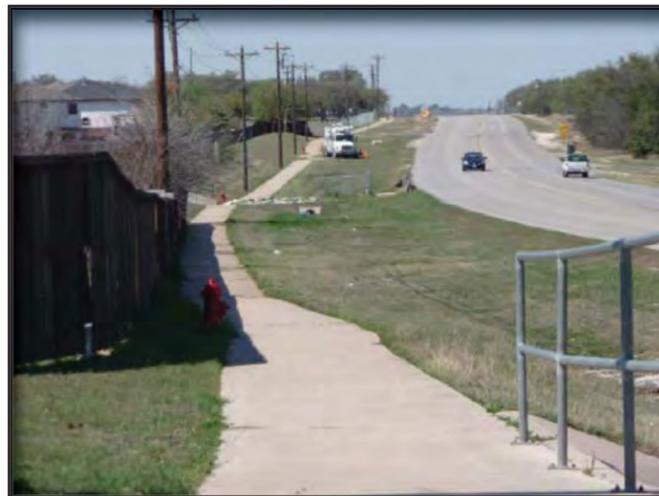
This sector has a large number of private lots in the far northwest hills. There is also a quarry that is owned and operated by the City of Austin. There are three elementary schools and one middle school in this sector. Also there are several major employers along Whitestone Blvd. The city-owned community park, Veterans Memorial Park, is located in this sector and has a swimming pool and proposed dog park, amphitheater, practice fields, and trails. All these destinations would benefit with trails linking them to nearby neighborhoods. There are several parks and HOA run swimming pools in this sector. Major retail in this sector includes Wal-Mart at Bell Blvd. and Whitestone Blvd.

There currently are no major trails in this sector; however, most streets have sidewalks for pedestrian use.

The map on the following page shows the locations of the following existing trails:

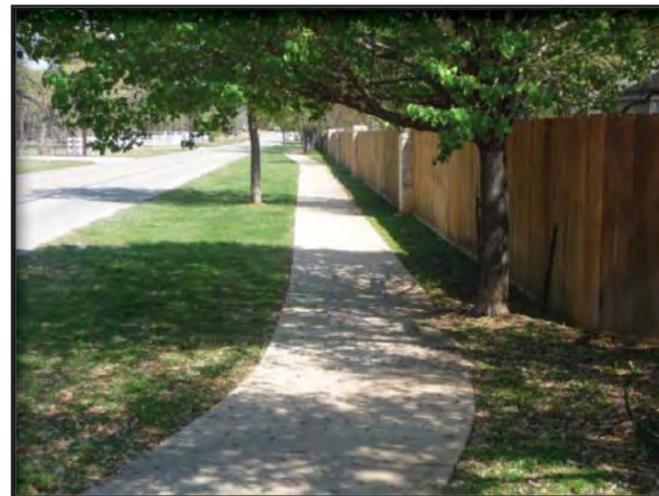
1-1 Bagdad Road: Bagdad Road creates a north/south connection from Cedar Park into Leander. Giddens Elementary is also located along this road. Much of the existing sidewalk is in poor to adequate condition with severe cracks, and is only four feet wide. Also, in several spots the sidewalk ends abruptly and starts again several feet later.

Length: 0.6 miles (on west side of street only)



1-2 Park Street: Park Street is one of the major collector streets in this sector which runs east to west. As this street is expanded and renovated, a ten-foot wide sidewalk is proposed on one side of the street.

Length: 0.4 miles (Lakeline Blvd. to Sophora Place)



1-3 New Hope Drive: New Hope Drive currently has a four-foot wide sidewalk on the south side of the street in this sector. This road is planned to have a ten-foot wide sidewalk when the expansion and renovation of the roadway occurs. Several sections of New Hope Drive have the ten-foot parkway sidewalk, such as near Veterans Memorial Park.

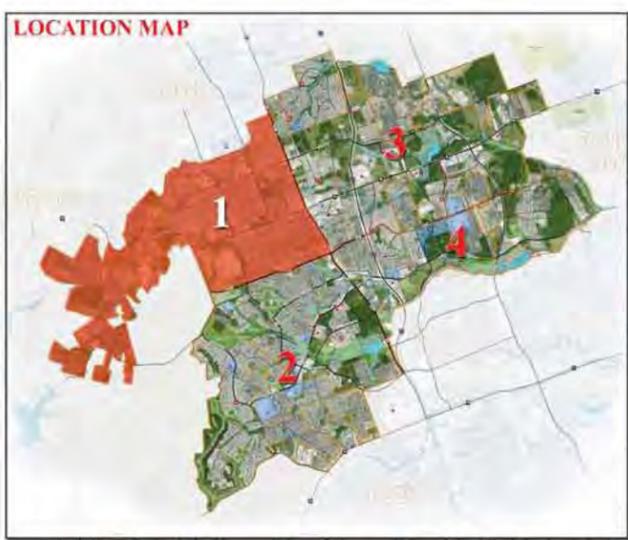
Length: 0.7 miles (segments from Bell Blvd. to Fairweather Way)



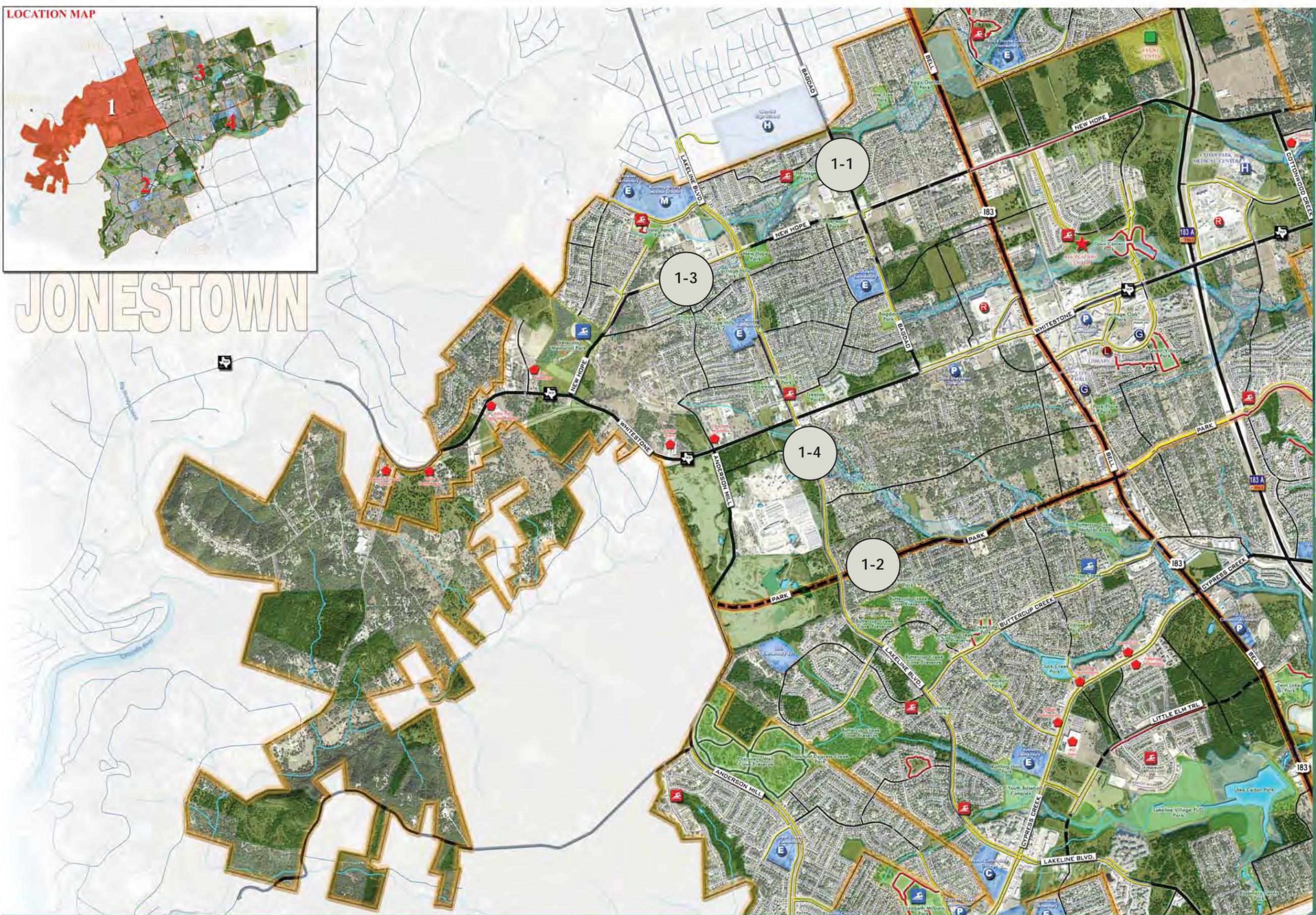
1-4 Lakeline Boulevard: Lakeline Blvd. is one of the most heavily used streets in Cedar Park. Mason Elementary and Running Brushy Middle School are both located on Lakeline Blvd. in this sector. The existing sidewalk is in good condition; however, there are several places where the sidewalk ends and starts again several feet down the street. Throughout most of the area, the sidewalk is only six feet wide.

Length: 2.1 miles (Park St. to Running Brushy Middle School)





JONESTOWN



LEGEND

- City Limit
- ETJ Limit
- Sector Limit
- Park
- School
- Floodplain
- Open Space/Undeveloped Land
- Creek
- Major Employer
- Government
- Library
- Medical
- Recreation
- Retail
- Cap Metro Rail Station
- City Pool
- HOA Pool
- Elementary School
- Middle School
- High School
- Private School
- Community College
- Existing Trails
- Existing Sidewalks
- Existing Nature Trails





Sector 2 - Existing Trails and Key Destinations

This sector has some existing trails in the city parks and in the far southwest neighborhoods of the Twin Creeks HOA. There are several elementary schools in this sector, as well as one middle school, one high school and two private schools. All these schools serve as destination points for future trails. There are several HOA swimming pools and city owned swimming pools at Milburn Park and Buttercup Creek Park. Major employers in this sector are located off Cypress Creek Road.

There are two cave preserves in this sector: the Discovery Well Cave Preserve and the Buttercup Creek Cave Preserve. While small portions of these preserves are available for hiking and walking along the nature trails, some areas are strictly preserved for research purposes. Because so much of the area is preserved, existing trails within the caves are not shown.

The map on the following page shows the locations of the following existing trails:

2-1 Deer Creek HOA Trails: Deer Creek is a major HOA in Cedar Park’s ETJ. There is a crushed granite trail that connects the HOA swimming pool to the back side of the golf course. The trail is well maintained and is well used by the residents in that neighborhood.

Another similar trail is located in the far south end of the neighborhood. This trail is difficult to access and is in the Twin Creeks Historic Park. A master plan for Twin Creeks Historic Park has been approved. Trailheads and additional access points will ensure proper use of this trail.

Length: 0.6 miles (for both existing trails)



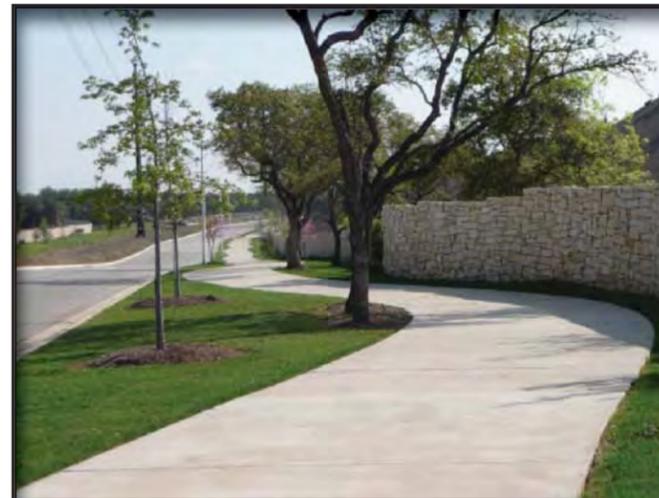
2-2 Anderson Mill Road: Anderson Mill Road is a major north/south arterial street in this sector. Once this road reaches the Deer Creek HOA area, there is a parkway sidewalk on both sides of the street. There is also a wide shoulder on both sides of the road which could easily be designated as a bike lane. The extension of the sidewalk and the wide shoulder should continue south as the street nears FM 620. Currently between FM 620 and Volente, there is only a four-foot wide sidewalk and no shoulder on Anderson Mill Road.

Length: 2.8 miles (from Cypress Creek Rd. to cave preserves, on both sides of the street)



2-3 Little Elm Trail: Little Elm Trail is similar to Park Street and New Hope Drive in that as the street was extended, a ten-foot sidewalk was planned on at least one side. Little Elm Trail is located in the southeast part of this sector and connects Lakeline Blvd. to Bell Blvd. Portions of the ten-foot sidewalk are already in place; however, some extension of the road and trail is still needed.

Length: 0.5 miles (in the Red Oaks neighborhood)



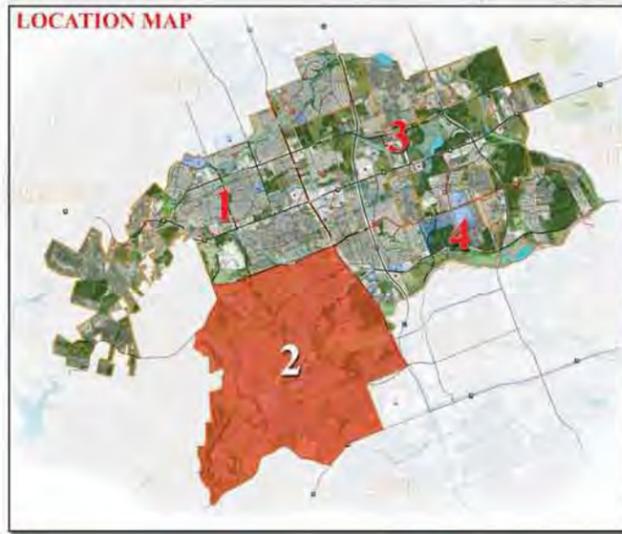
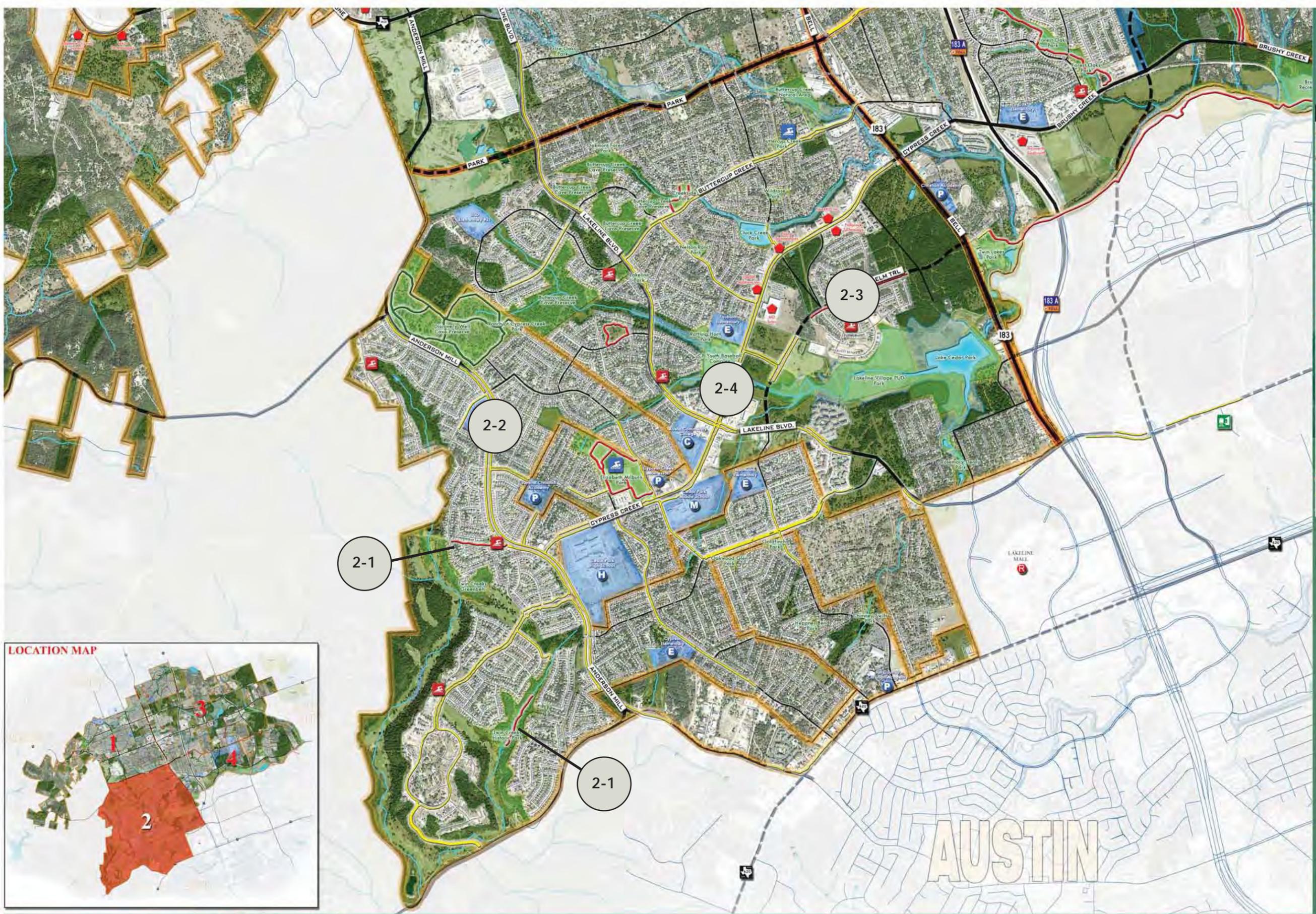
2-4 Cypress Creek Road: Because so many major employers in this sector are located off Cypress Creek Road, as well as three Leander ISD schools, this street serves as a major corridor in connecting residents to these destinations. Currently there is a six-foot wide sidewalk on both sides of the street. However, because of the potential for heavy pedestrian traffic, this should be widened to at least eight feet on one side if feasible.

Length: 5.5 miles (on both sides of the street)



LEGEND

- City Limit
- ETJ Limit
- Sector Limit
- Park
- School
- Floodplain
- Open Space/Undeveloped Land
- Creek
- Major Employer
- Government
- Library
- Medical
- Recreation
- Retail
- Cap Metro Rail Station
- City Pool
- HOA Pool
- Elementary School
- Middle School
- High School
- Private School
- Community College
- Existing Trails
- Existing Sidewalks
- Existing Nature Trails





Sector 3 - Existing Trails and Key Destinations

There are several key destinations located in this sector. The newly built city recreation center is towards the north. City Hall and other government buildings are towards the western side of this sector. The Cedar Park event center is located towards the center of this sector. Other key destinations include the Cedar Park Regional Medical Center, the Cedar Park Public Library, the newly developed Town Center, and the major retail shopping area 1890 Ranch.

This sector has the largest amount of undeveloped land, and several large lot property owners. Existing trails are located in the Town Center, in the Block House Creek MUD, and leading to the school properties along Park Street, Vista Ridge Parkway and Colonial Parkway.

The map on the following page shows the locations of the following existing trails:

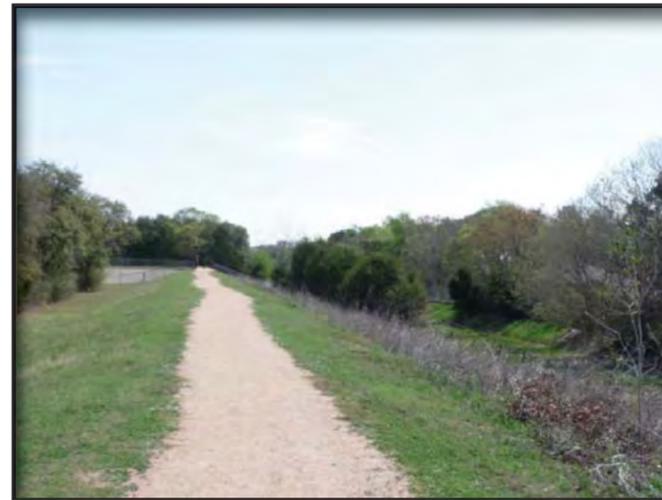
3-1 Town Center: The Cedar Park Town Center is a mix use development. The trails throughout the Town Center connect the neighborhood residents to the newly built city recreation center, the HOA swimming pool, the nearby retail area, and encircle the two lakes that are placed at the entrance of the development. The trails are ten feet wide and are in excellent condition.

Length: 0.8 miles



3-2 Quest Village Park: Quest Village Park has a crushed granite trail that loops throughout the park. The trail also extends along the Lone Star Gas Easement, connecting the park and the surrounding neighborhoods to the Cedar Park Public Library. The trail is in good condition but is not wide enough to allow for multiple users.

Length: 0.8 miles



3-3 New Hope Drive: The portion of New Hope Drive that has been built in this sector currently has a ten-foot wide sidewalk on the south side of the street. As this road is extended to the east, the parkway sidewalk is also planned to be extended. This street and parkway sidewalk will eventually lead into Round Rock, connecting Cedar Park residents to the Williamson County Regional Park.

Length: 0.9 miles (Bell Blvd. to Discovery Blvd.)



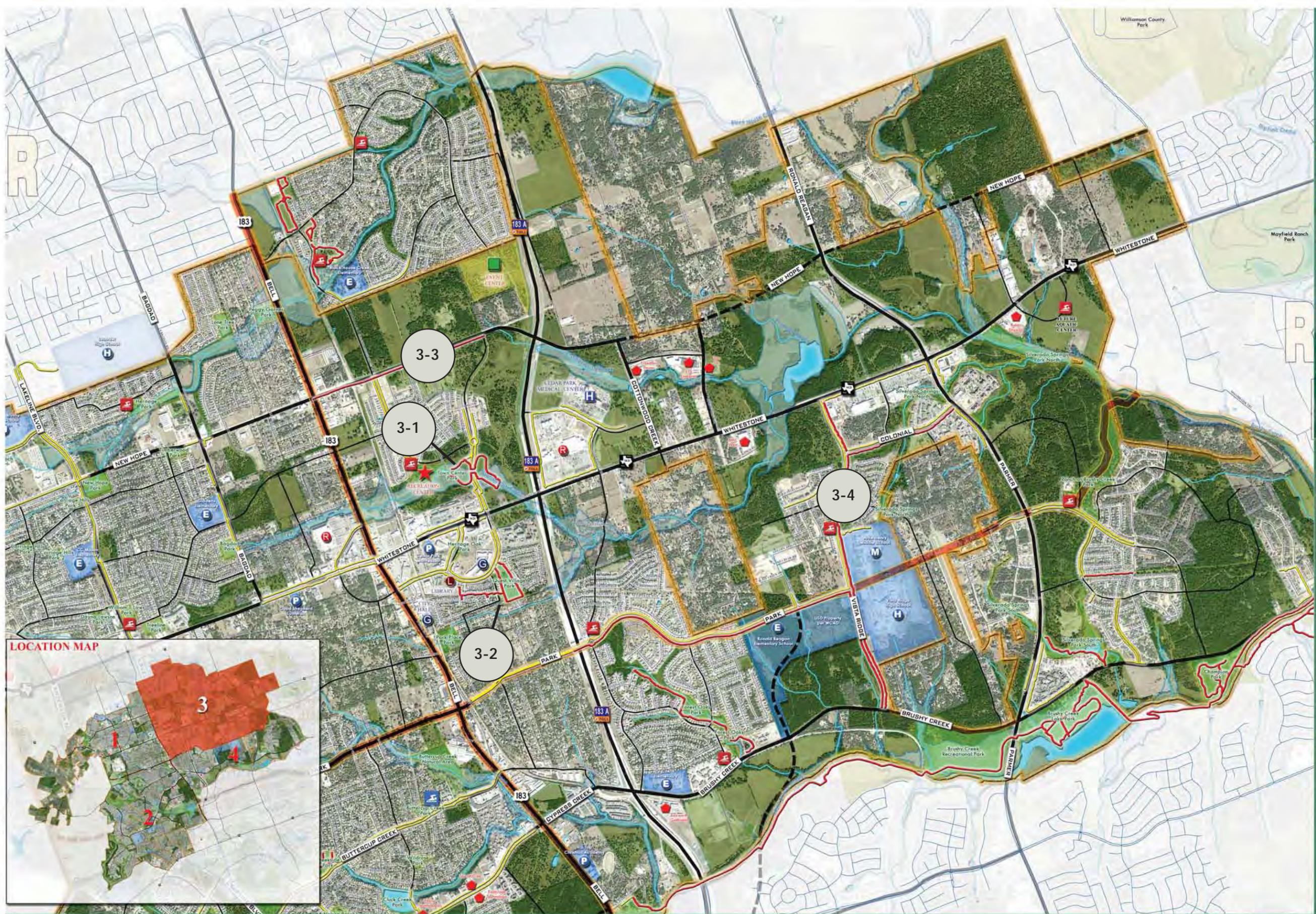
3-4 Vista Ridge Parkway: This road is a major corridor which connects the surrounding neighborhoods to the high school, middle school and new elementary school. There is currently a ten-foot parkway sidewalk on the east side of the street from Whitestone Blvd. to Brushy Creek Rd. This street is part of the Transportation Master Plan, which requires at least a six-foot wide meandering sidewalk.

Length: 1.0 miles (Park St. to Whitestone Blvd., east side of street only)





- LEGEND**
- City Limit
 - ETJ Limit
 - Sector Limit
 - Park
 - School
 - Floodplain
 - Open Space/Undeveloped Land
 - Creek
 - Major Employer
 - Government
 - Library
 - Medical
 - Recreation
 - Retail
 - Cap Metro Rail Station
 - City Pool
 - HOA Pool
 - Elementary School
 - Middle School
 - High School
 - Private School
 - Community College
 - Existing Trails
 - Existing Sidewalks
 - Existing Nature Trails

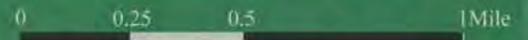


Existing Trail Facilities

CITYWIDE HIKE AND BIKE TRAILS MASTER PLAN
CITY OF CEDAR PARK, TEXAS



SECTOR 3



GRAPHIC SCALE





Sector 4 - Existing Trails and Key Destinations

The existing Brushy Creek Regional Trail is located in this sector. This trail follows the Brushy Creek corridor, and eventually it will extend from the City of Hutto to Lake Travis. This will connect Cedar Park residents to the surrounding communities and to the lake. Other existing trails in this sector can be found in neighborhood parks and in the new development occurring in the far east. There are parkway sidewalks located along Park Street and Vista Ridge.

Major destinations in this sector of Cedar Park include two elementary schools, one high school, HOA swimming pools, the YMCA, and the Brushy Creek Trail. Most of this sector is either residential or undeveloped land. There is minimal to no commercial or industrial land uses. There are no major employers located in this sector.

The map on the following page shows the locations of the following existing trails:

4-1 Brushy Creek Regional Trail: The Brushy Creek Trail currently follows Brushy Creek from Twin Lakes Park into the City of Round Rock's ETJ. Eventually the trail will extend from Hutto to Lake Travis and pass completely through the City of Cedar Park. Portions of the trail are crushed granite while others are concrete. The trail is in good condition and is heavily used.

Length: 6.7 miles (in Cedar Park)



4-2 Park Street: On the south side of Park Street, from the 183A Toll Road to the Vista Ridge High School, there is a ten-foot wide parkway sidewalk. As the street is redeveloped from the Toll Road to Bell Street, the ten-foot wide parkway sidewalk is planned to be built as part of the renovation. This parkway sidewalk connects a significant number of neighborhoods to the nearby schools, thus creating a safe route to the schools.

Length: 1.6 miles (183A to Vista Ridge Pkwy., south side of street only)



4-3 Silverado Springs Trail: The Silverado Springs HOA has built a trail along the Lone Star Gas easement that runs through the middle of the neighborhood. It also changes intermittently from crushed granite to concrete. Homes back up to the trail; however, the fencing is wrought iron and there are privacy gates for the homeowners to access the trail from their backyards.

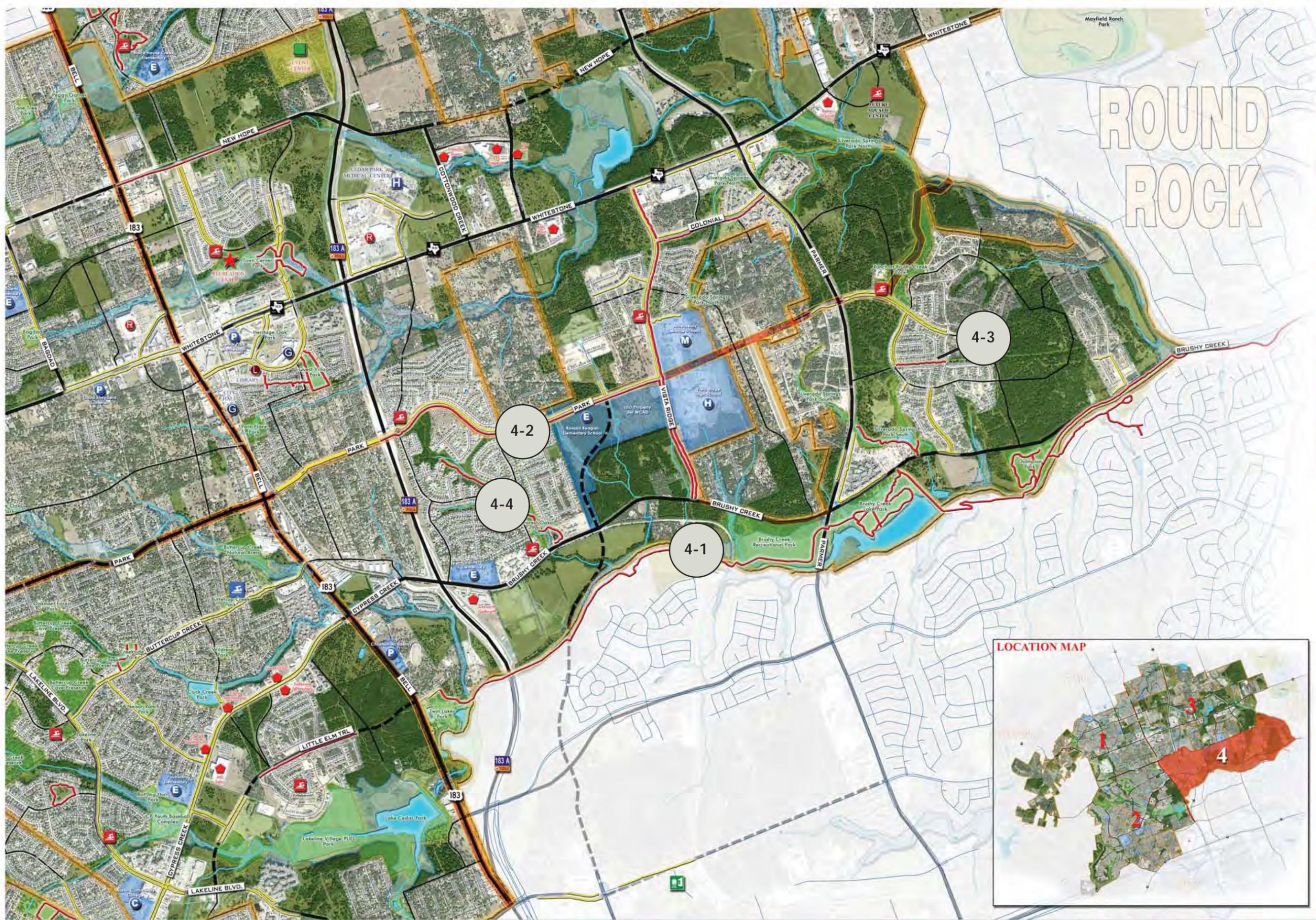
Length: 0.3 miles



4-4 Forest Oaks Park Trail: This concrete trail follows a drainage corridor in the Forest Oaks neighborhood. It connects nearby homes to the Forest Oaks Park and the HOA swimming pool. Homes back up to much of the trail; therefore, access is most likely from the park or where the trail crosses over the street at Trail Ridge Drive.

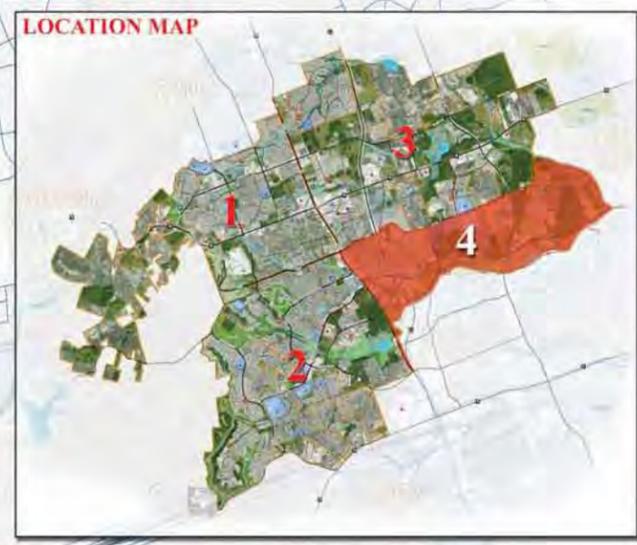
Length: 0.9 miles





ROUND ROCK

- LEGEND**
- City Limit
 - ETJ Limit
 - Sector Limit
 - Park
 - School
 - Floodplain
 - Open Space/Undeveloped Land
 - Creek
 - Major Employer
 - Government
 - Library
 - Medical
 - Recreation
 - Retail
 - Cap Metro Rail Station
 - City Pool
 - HOA Pool
 - Elementary School
 - Middle School
 - High School
 - Private School
 - Community College
 - Existing Trails
 - Existing Sidewalks
 - Existing Nature Trails

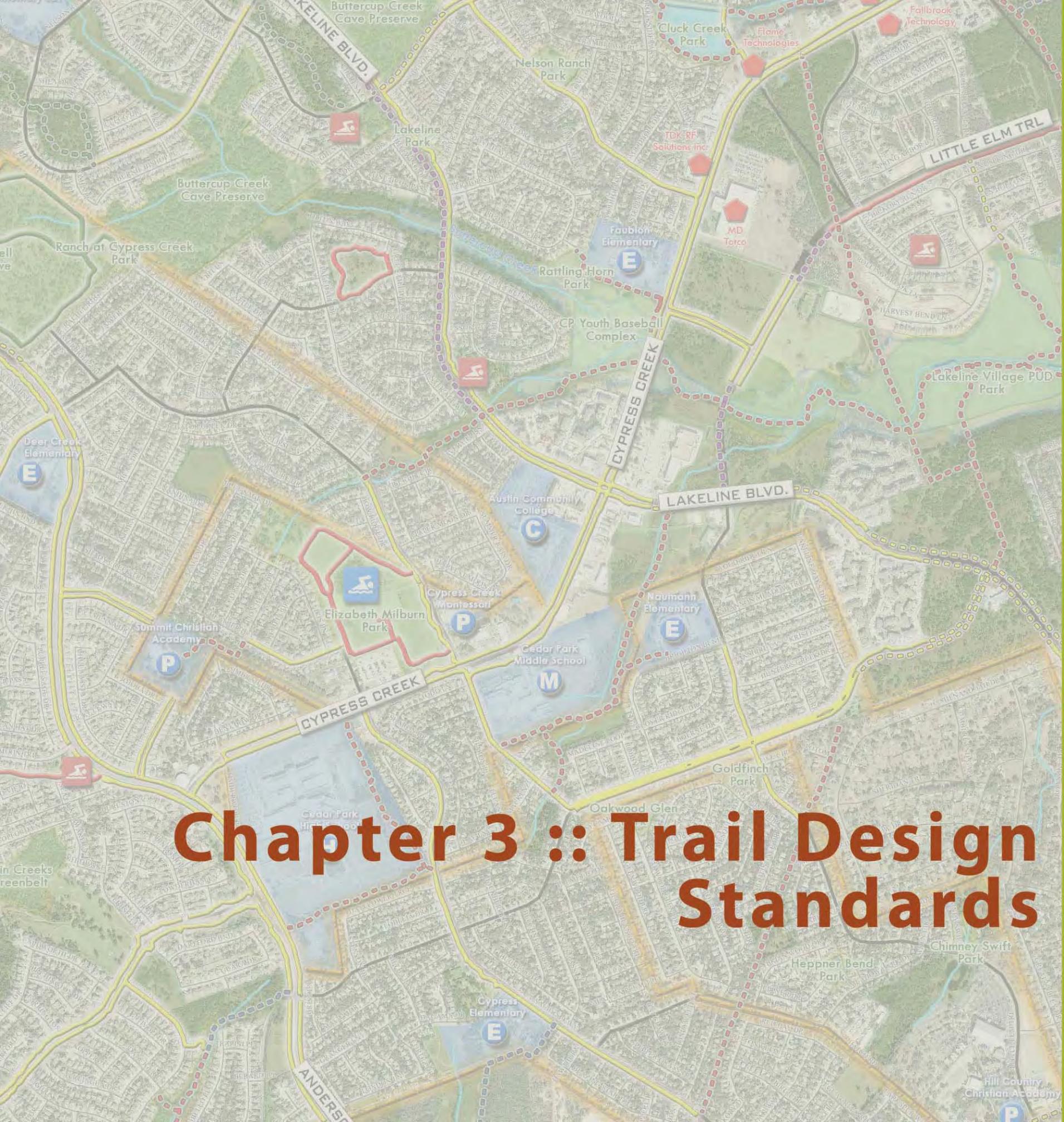


Existing Trail Facilities

CITYWIDE HIKE AND BIKE TRAILS MASTER PLAN
CITY OF CEDAR PARK, TEXAS



chapter 2 :: trails today in Cedar Park



Chapter 3 :: Trail Design Standards





Introduction

Trails appeal to everyone. Whether young or old, active or wanting no more than a few minutes out in a beautiful area, all of us can find something to do on a trail. This plan recommends a variety of trail types in all areas of Cedar Park so that everyone can easily access and use a trail that appeals to them. This section lays the foundation for trail types to be built in Cedar Park so that a clear picture of what the entire system will be like in the future can be created.



Trail Users

Trails should be designed to accommodate a variety of users. Activity on a trail lends a sense of safety and comfort to a trail and encourages others who are not as active to use the trail. Users of trails may include:

- ◆ **Walkers seeking exercise and recreation** are typically relaxed, walking along a pleasant corridor. These users may include senior citizens, parents with children, or someone walking their dog. Walkers may occupy a significant portion of the trail due to walking side-by-side.
- ◆ **Joggers and runners** use trail corridors for exercise and activity. The higher speed of these users may conflict with slower users of the trails. Softer trail surfaces, such as decomposed granite, are preferred.
- ◆ **In-line skaters** require more space of the trail because of the swinging motion of their arms to increase momentum. Like joggers and runners, the speed of in-line skaters may conflict with slower users of the trails.
- ◆ **Recreational and inexperienced cyclists** use trails for exercise and activity. These users are interested in scenic appeal, connectivity of the trail system, and prefer more interesting trail alignments rather than trails that favor high speeds. This group may also include children going to school.
- ◆ **Mountain biking** users can travel on crushed rock or more natural trail surfaces and prefer trails with challenging terrain.
- ◆ **Higher speed, experienced cyclists and commuters** are typically more interested in higher speeds. These riders often favor roadways over off-street trails for the speed, as well as connectivity to employment centers among commuters. For off-street trails, alignments with shallower curves are favored by these users, and because of the higher speeds, increased trail widths are recommended to reduce conflicts with other trail users.





Categories of Trails

Trails in Cedar Park should encompass several key types of facilities, each with its own size and character requirements. The Cedar Park Trails Master Plan is based on a core system of regional and community trails, supported by neighborhood trails and street enhancements. This trail system will link community destinations with an integrated network of trails designed for users of all ages, skill levels, and environments.

Design standards are an important component for a working trail system because they outline the recommended minimum requirements and additional support items for all types of trails. Recommended trail types are discussed in greater detail below. At a minimum, trails should follow the standards established by the American Association of State Highway Transportation Officials (AASHTO). These standards have been developed and refined over a significant period of time and offer the most comprehensive safety standards.

Where feasible, though, those standards should be exceeded. This is especially true for multi-use trails, signage, lighting, and traffic signals and detectors. In some specific cases, variations from

AASHTO may be acceptable to respect the character or special conditions of an area.

Listed below are some sources for the most commonly used standards for trail design. This plan shall comply with current and up to date standards:

- ◆ AASHTO (American Association of State Highway and Transportation Officials)
- ◆ ADAAG (Americans with Disabilities Act Accessibility Guidelines)
- ◆ TTI (Texas Transportation Institute)
- ◆ TMUTCD (Texas Manual on Uniform Traffic Control Devices)
- ◆ TxDOT (Texas Department of Transportation)
- ◆ TAS (Texas Accessibility Standards)
- ◆ ITE (Institution of Transportation Engineers)

Many necessary trail-related improvements can be incorporated into the regular maintenance schedule of the existing road

system, such as the upgrade of traffic lights, widening of roads and shoulders or addition of lighting with needed repairs.

To facilitate the future development of Cedar Park, it is recommended to develop customized design standards in written and graphic format and make these accessible to all applicable builders and developers. The illustrations that follow indicate typical preferred trail section characteristics and clearances.

Typical Trail Type Cost Estimates

Trail costs vary considerably based on the type of material used for the trail, the number of bridges or drainage crossings that are required, and the type of amenities that are included in each trail segment. Cost projections for a typical one mile length of trail, using different materials, are shown on the following pages. Each projection also includes a contingency amount, since all trails in this plan are at an order of magnitude. Projections also include an allowance for surveying, design, and construction administration associated with the design of each trail, but do not include property acquisition.

Table 3.1

Trail Type Standards

	Recommended Trail Width	Surface Material	Access Points	Minimum Corridor Width	Other Amenities
Community Arterial Trails	10' - 12'	Concrete or asphalt (concrete preferred)	Every 1/4 to 1/2 mile (Minimum 1/2 mile walk or ride to access point)	Varies - 50' width minimum	Parking, locator maps, water fountains, shade shelters, bicycle racks, interpretive / historic signage
Neighborhood Trails	6' to 10' (8' preferred)	Concrete, asphalt, crushed granite	From neighborhood streets, parks, or schools	20' width	
Parkway Trails	8' to 10' (10' preferred)	Concrete, crushed granite (concrete typical)	Adjacent to major arterials and collector streets, parks	15' width (6' min. from back of curb preferred, 1' to property line)	Streetscaping elements, including trees, benches, lighting
Sidewalks	4' to 6' (5' preferred)	Concrete	Adjacent to neighborhood streets and collectors, schools, parks		Crosswalks, signage
Natural Corridor and Greenway Trails	6' to 10' (12' to 15' for better visibility)	Natural surface, crushed granite	Varies	8' to 20' min. width	Interpretive / historic signage, bridges as necessary to pass drainage corridors, creeks, and other natural features

Table 3.2

Summary of Trail Costs per Linear Foot

Trail Type	Cost per Linear Foot
10' to 12' community wide trail, concrete	\$150 to \$175 / linear foot
8' wide neighborhood trail, concrete	\$140 to \$152 / linear foot
8' wide parkway trail, concrete	\$110 to \$135 / linear foot
6' wide sidewalk	\$80 to \$90 / linear foot
8' wide decomposed granite trail	\$70 to \$140 / linear foot
8' wide natural trail	\$65 to \$110 / linear foot



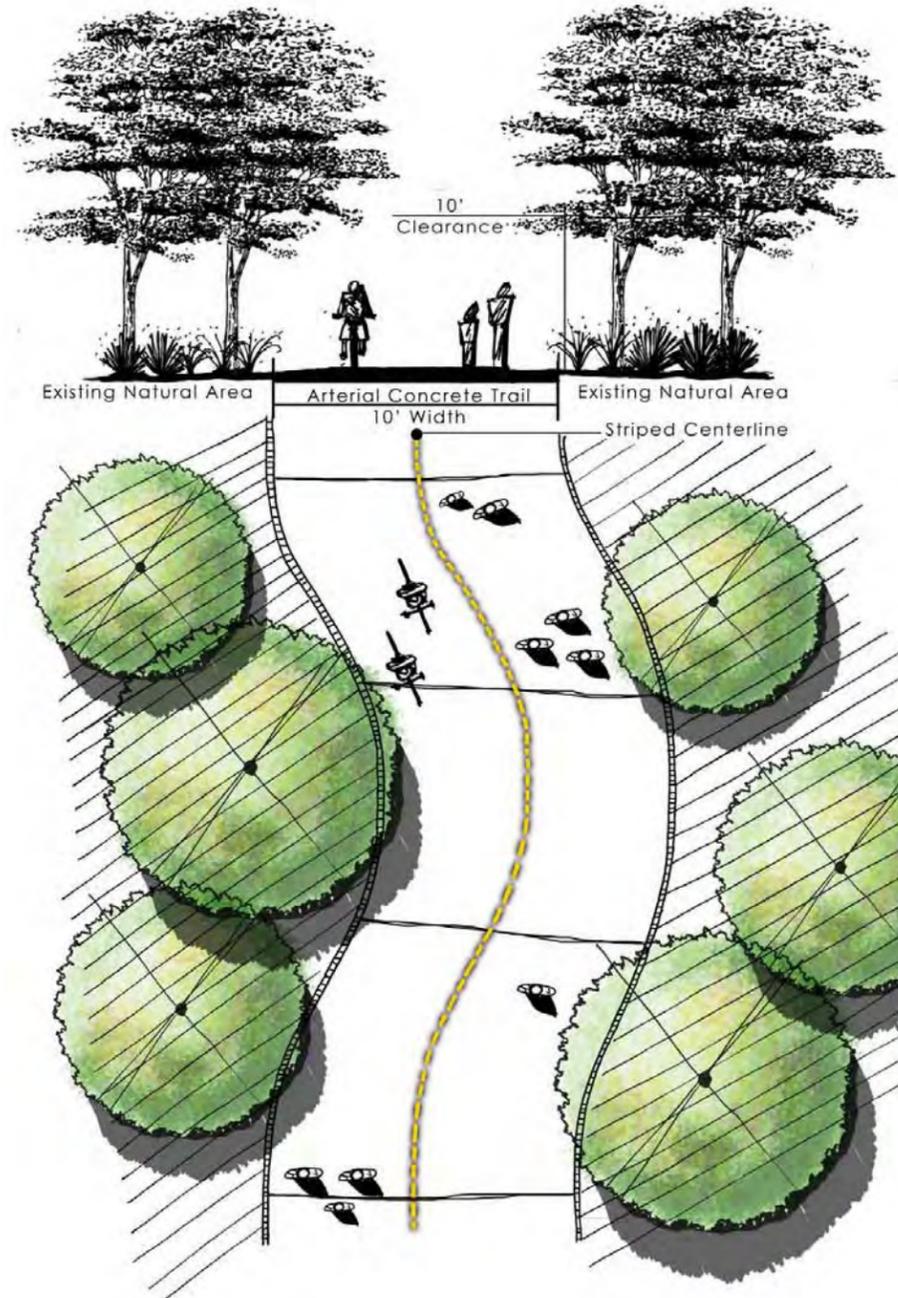
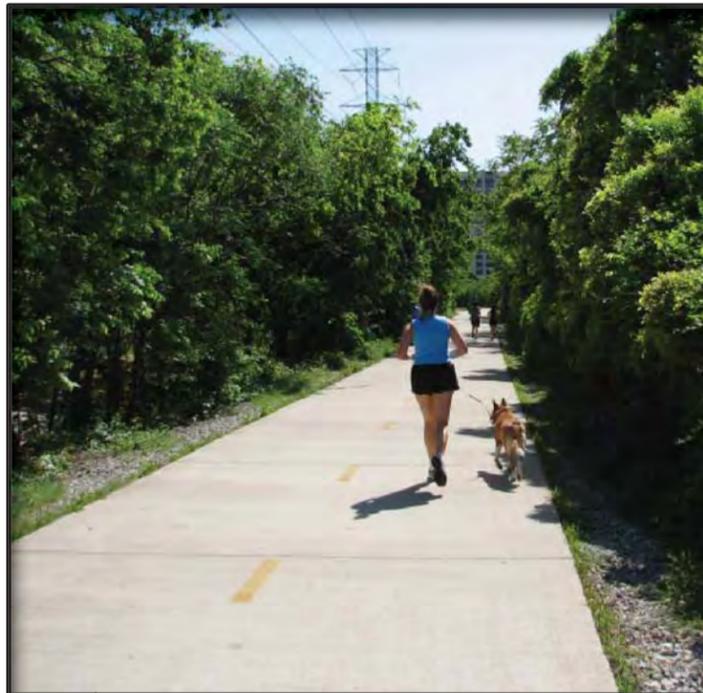
Community Arterial Trails

These community-wide trails are intended to provide access from one part of the city to another. In essence, these trails become the “spine” system for the city, providing an easy route to travel longer distances. This connectivity typically makes them a high priority. Additionally, because they provide connectivity, multiple types of users are expected.

To accommodate the large volume and multiple users expected, community trails are typically designed to accommodate two-way bicycle and pedestrian traffic, have their own right-of-way, and can accommodate maintenance and emergency vehicles. These trails are at least 10’ in width, but in some cases may be up to 12’ in width where a significant volume of users is anticipated. These trails should be constructed using concrete or asphalt, but can also be a surface that provides a smooth surface, as long as it meets ADA requirements. To serve the multiple types of users expected to use a regional trail, a popular option is to provide a soft-surface running trail along one side of the concrete trail.

Access points to the trail should be located every ¼ to ½ mile along the trail, with a minimum ½ mile distance to the access point to the trail. Other facilities offered at or along a regional trail include parking, locator maps, water fountains, shade shelters, bicycle racks, and interpretive/historic signage. While vegetation is encouraged to enhance the trail experience, complete blocking out of the trail by vegetation from neighborhood view is discouraged.

This results in a “tunnel” effect on the trail, creating the impression of decreased safety (as illustrated in the picture).



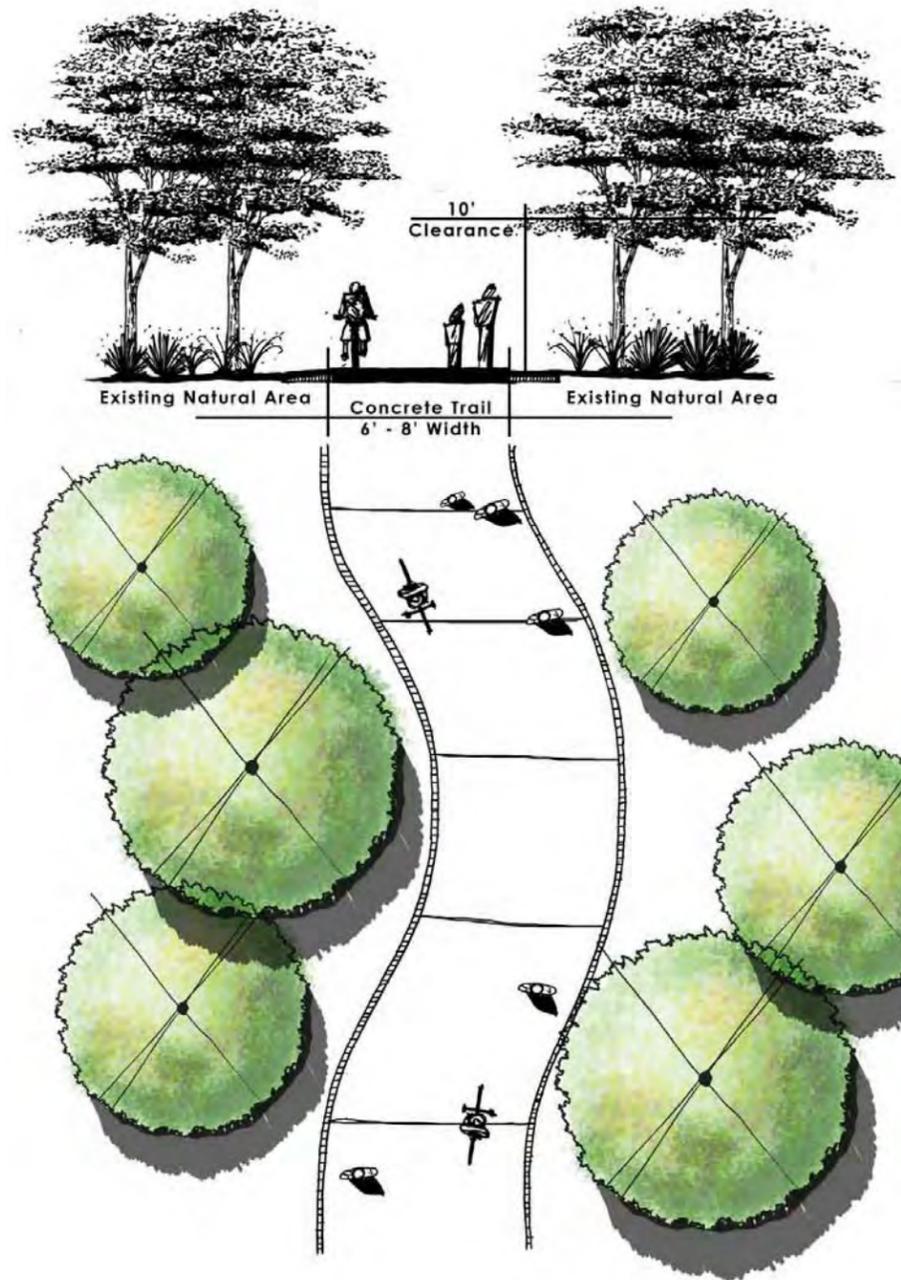
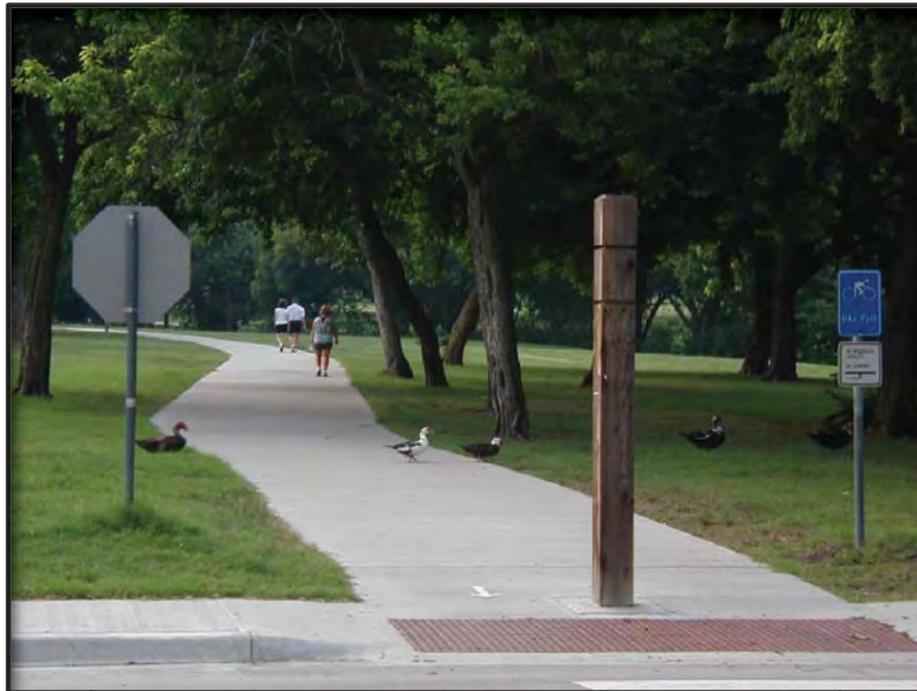
Potential Development Cost					
Community Arterial Trail (Concrete, 10' width)					
Description - Planned as major trail connecting sectors of the City. Ten-foot wide concrete all weather trail, centerline stripe, straight to curvilinear alignment as corridor permits. 4 to 6" thick concrete to allow for some use as maintenance track. Includes some amenities at key intersection or access point nodes. Additional amenities such as shade structures and benches can be added in the future.					
	Item	Quantity	Unit	Unit Price	Amount
Base Cost					
1	Grading Allowance (per linear foot - assumes 0.5 ft depth fine grading under trail to generate allowance amount)	5,280	LF	\$12	\$63,360
2	Concrete Trail, 4 to 6 inch depth, 10' width, includes base material	5,280	LF	\$75	\$396,000
3	Trail Striping	5,280	LF	\$4	\$21,120
4	Culverts (12" diam. Max. for local drainage only). Allowance for one every 250 linear feet	21	EA	\$1,000	\$21,000
5	Major drainage culverts (36" to 48" box culvert, assume two every 2000 linear feet)	3	EA	\$20,000	\$60,000
6	Trail directional/safety signs (assume 1 every 500 linear feet)	10	EA	\$500	\$5,000
7	Intersection crosswalk striping	4	EA	\$1,000	\$4,000
8	Intersection and access point accessible ramps (assumes 8 at every intersection)	8	EA	\$1,000	\$8,000
9	Turf re-establishment (allowance for 5' on either side of trail corridor)	52,800	SF	\$0.5	\$26,400
Subtotal Base Cost					\$604,880
Amenity Cost					
10	Drinking fountain (one per mile)	1	EA	\$5,000	\$5,000
11	Information kiosk (assume ratio of one per mile)	1	EA	\$5,000	\$5,000
12	Major trail access point sign (1 every 2500 linear feet)	2	EA	\$3,000	\$6,000
13	Security lighting at access point (1 pole per access point)	4	EA	\$2,500	\$10,000
14	Bench node (2 per every mile, includes bench, trash receptacle, decorative pavement)	2	EA	\$15,000	\$30,000
Subtotal Amenity Cost					\$56,000
Subtotal Construction Cost					\$660,880
Design, Testing, Administration, Misc. Costs (15%)					\$99,132
Contingency at Pre-Design Level (20%)					\$152,002
Total					\$912,014
Estimated Overall Cost per Linear Foot					\$173
Estimated Base Cost per Linear Foot					\$158
<i>Note: Order of Magnitude estimate only, without detailed design</i>					
<i>This estimate is intended only to establish a range of potential costs for this construction effort. Costs shown are in 2009 dollars.</i>					



Neighborhood Trails

Like neighborhood streets that connect to larger arterials and boulevard streets, neighborhood trails provide access to and from a regional trail. Neighborhood trails connect the neighborhoods of Cedar Park to the larger “arterial” trails. Access points to these trails are from neighborhoods, streets, parks, or schools.

Neighborhood trails are typically only 6’ to 10’ in width and should be constructed with concrete for long range durability. Tighter curves are allowed to introduce interest into the trail segments. As in the case of arterial trails, some neighborhood trails can have a crushed granite component for runners directly adjacent to the concrete trail; if no danger of excessive flooding occurs, neighborhood trails may also be built out of decomposed granite.



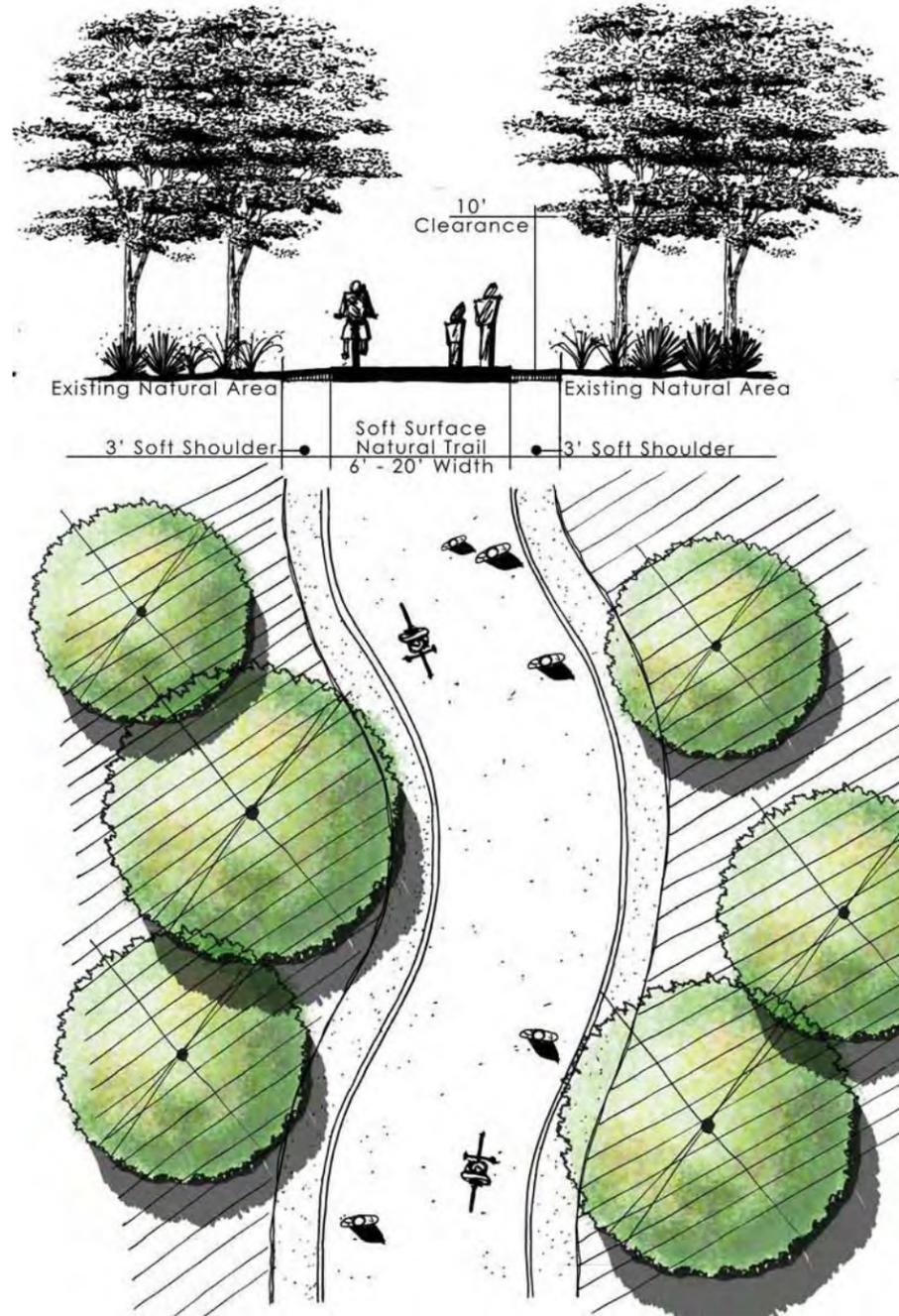
Potential Development Cost					
Neighborhood Trail (Concrete, 8' width)					
Description - Planned as neighborhood trail segments connecting to major arterial trails. 8' wide concrete all weather trail, straight to curvilinear alignment as corridor permits. 4 to 6" thick concrete to allow for some use as maintenance track. Includes some amenities at key intersection or access point nodes. Additional amenities such as shade structures and benches can be added in future.					
Item	Quantity	Unit	Unit Price	Amount	
Base Cost					
1	Grading Allowance (per linear foot - assumes 0.5 ft depth fine grading under trail to generate allowance amount)	5,280	LF	\$9	\$47,520
2	Concrete Trail, 4 to 6 inch depth, 8' width, includes base material	5,280	LF	\$65	\$343,200
3	Trail Striping	5,280	LF	\$4	\$21,120
4	Culverts (12" diam. Max. for local drainage only). Allowance for one every 250 linear feet	21	EA	\$1,000	\$21,000
5	Major drainage culverts (36" to 48" box culvert, assume two every 5000 linear feet)	2	EA	\$20,000	\$40,000
6	Trail directional/safety signs (assume 1 every 500 linear feet)	10	EA	\$500	\$5,000
7	Intersection crosswalk striping	4	EA	\$1,000	\$4,000
8	Intersection and access point accessible ramps (assumes 8 at every intersection)	8	EA	\$1,000	\$8,000
9	Turf re-establishment (allowance for 5' on either side of trail corridor)	52800	SF	\$0.5	\$26,400
Subtotal Base Cost				\$516,240	
Amenity Cost					
10	Drinking fountain (one per mile)	1	EA	\$5,000	\$5,000
11	Information kiosk (assume ratio of one per mile)	1	EA	\$5,000	\$5,000
12	Major trail access point sign (1 every 2500 linear feet)	2	EA	\$3,000	\$6,000
13	Security lighting at access point (1 pole per access point)	4	EA	\$5,000	\$20,000
14	Bench node (2 per every mile, includes bench, trash receptacle, decorative pavement)	2	EA	\$3,000	\$6,000
Subtotal Amenity Cost				\$42,000	
Subtotal Construction Cost				\$558,240	
Design, Testing, Administration, Misc. Costs (15%)				\$83,736	
Contingency at Pre-Design Level (20%)				\$128,395	
Total				\$770,371	
Estimated Overall Cost per Linear Foot				\$146	
Estimated Base Cost per Linear Foot				\$135	
<i>Note: Order of Magnitude estimate only, without detailed design</i>					
<i>This estimate is intended only to establish a range of potential costs for this construction effort. Costs shown are in 2009 dollars.</i>					



Natural Corridor & Greenway Trails

Natural trails are located mainly in rural or natural resources areas where the natural environment can be emphasized. The surface is typically a compacted earth surface with normal obstructions, such as roots, rocks, and understory vegetation, cleared from the walking pathway. They should be at least 6' to 10' in width but in some cases may be 12' to 15' to allow for greater visibility within the understory. An additional 2' to 4' shoulder zone is desired on either side. Bridges and drainage crossings should be constructed using metal bridge structures, but with a rustic natural appearance if possible.

Potential natural corridors exist along many of the creeks, rivers, and drainage corridors in Cedar Park. In some cases, these corridors may incorporate walking trails, but with only minimal improvements to address street crossings. Like natural corridor trails, trail surfaces should create an atmosphere that is compatible with the natural beauty of the corridor and that results in a very pleasant trail environment.



Potential Development Cost Nature Trail (Natural Surface, 8' width)

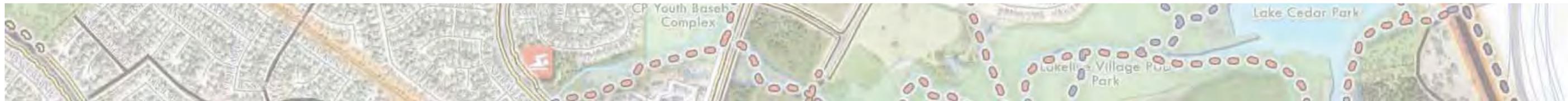
Description - natural surface trail through creek corridors and greenbelt corridors. Includes concrete landings and allowance for some fully accessible areas. Includes small bridges to cross drainage swales, and one major bridge every three miles.

Item	Quantity	Unit	Unit Price	Amount	
Base Cost					
1	Grading Allowance (per linear foot - assumes 0.5 ft depth fine grading under trail to generate allowance amount)	5,280	LF	\$3	\$15,840
2	Concrete Trail, 4 to 6 inch depth, 8' width, includes base material	520	LF	\$65	\$33,800
3	Natural trail - includes clearing of 15 to 20' wide corridor, fine grading, construction of some steps to improve access	5,000	LF	\$15	\$75,000
4	Trail Striping (not required for this type of trail)	0	LF	\$4	\$-
5	Culverts (12" diam. Max. for local drainage only). Maximum of 10 per mile assumed	10	EA	\$1,500	\$15,000
6	Major drainage culverts or small bridges (36" to 48" box culvert, assume two every 2000 linear feet)	2.5	EA	\$25,000	\$62,500
7	Major pedestrian bridge - assumes one every three miles	0.33	EA	\$150,000	\$49,500
8	Trail directional/safety signs (assume 1 every 500 linear feet)	5	EA	\$500	\$2,500
9	Intersection and access point accessible ramps (assumes 8 at every intersection)	2	EA	\$1,500	\$3,000
				Subtotal Base Cost	\$257,140

Amenity Cost					
10	Landscape allowance at entrances	5,280	LF	\$8	\$42,240
11	Bench nodes (4 per mile, includes stone benches, table flagstones set in concrete, seating wall)	4	LF	\$15,000	\$60,000
12	Drinking fountain (one per entrance area)	1	EA	\$5,000	\$5,000
13	Information kiosk (assume ratio of one per mile)	1	EA	\$10,000	\$10,000
14	Major trail access point sign (1 every 5000 linear feet)	1	EA	\$5,000	\$5,000
15	Emergency call box - solar powered, one per 1/2 mile	2	EA	\$15,000	\$30,000
16	Security lighting at access point (1 pole per access point)	1	EA	\$5,000	\$5,000
				Subtotal Amenity Cost	\$157,240

				Subtotal Construction Cost	\$414,380
				Design, Testing, Administration, Misc. Costs (15%)	\$62,157
				Contingency at Pre-Design Level (20%)	\$95,307
				Total	\$571,844
				Estimated Overall Cost per Linear Foot	\$108
				Estimated Base Cost per Linear Foot	\$67

Note: Order of Magnitude estimate only, without detailed design
This estimate is intended only to establish a range of potential costs for this construction effort. Costs shown are in 2009 dollars.

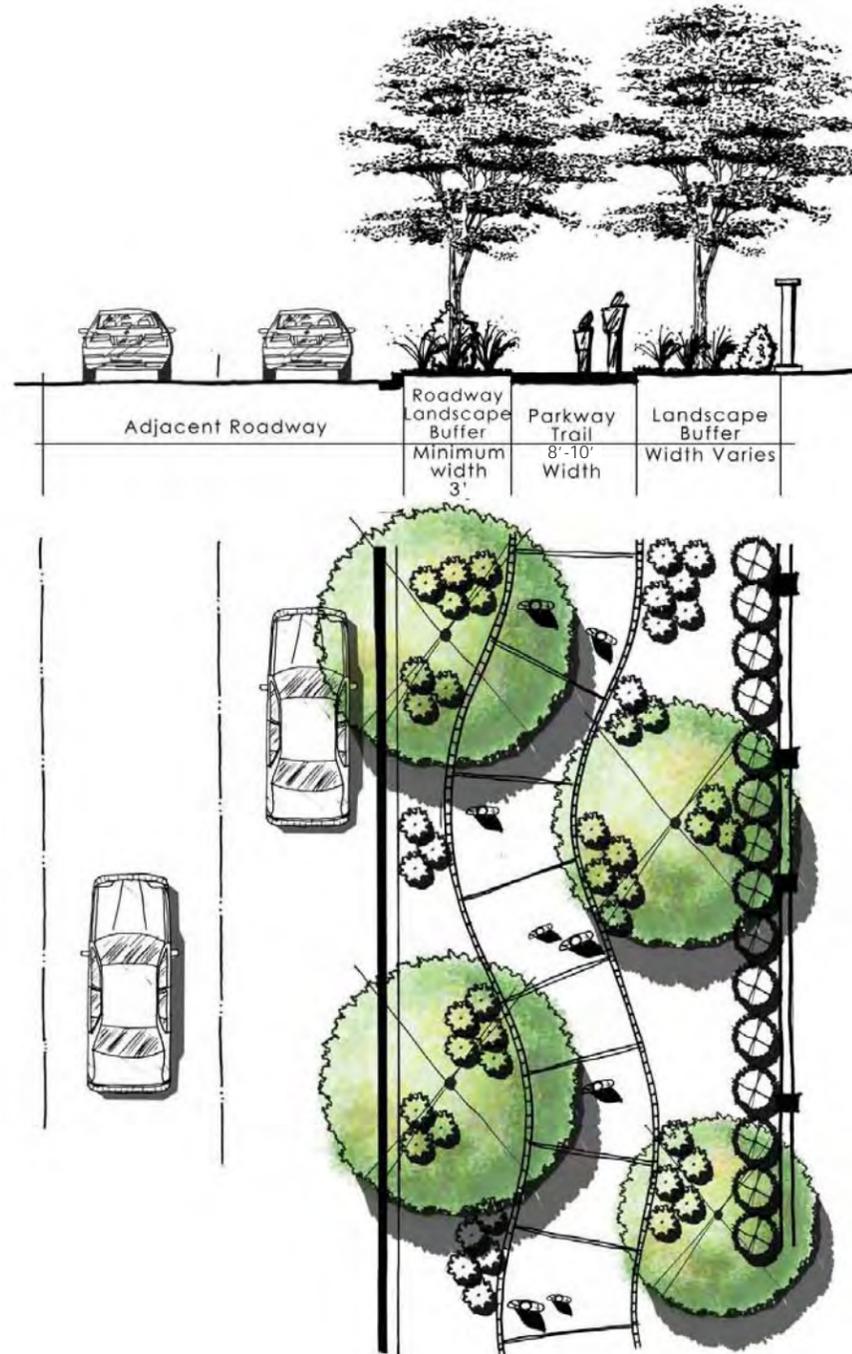
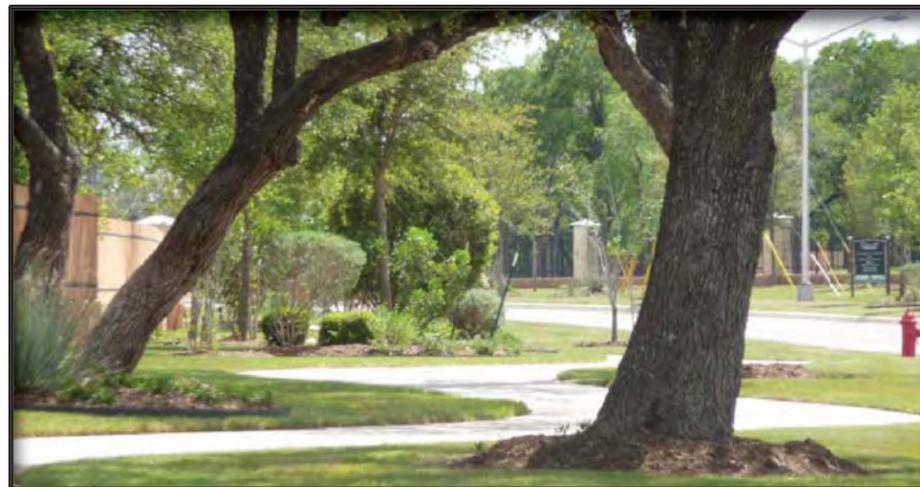


Parkway Trails

Often times the best trail corridors are adjacent to major collector or boulevard streets. Unlike sidewalks, these trails are wider, and a minimum width of 8' to 10' is preferred. A surface of concrete is preferred for durability; however, crushed granite can also be used. Amenities are important to enhance the pedestrian environment along auto-centric streets. Amenities can include decorative light fixtures, landscaping and ground cover, and varying surface treatments at intersections and crosswalks. The overall parkway width should be at least 15' to 20', to allow for at least 6' of clearance between the street curb and the walkway and another 4' +/- between the walkway and the adjacent property line. In many cases additional width may be required to accommodate drainage or other utilities. The picture below shows a parkway trail along a roadway. Parkway trails typically include landscaping that beautifies the road corridor such as a row of large, mature trees in this case. Access to the trail should be adjacent to major arterials and collector streets as well as parks.

Street enhancement is appropriate for trails along roadways and thoroughfares in Cedar Park to improve the pedestrian environment. The setback from the roadway should be based on the classification of the adjacent roadway, as shown in Table 3.3 below.

Roadway Classification	Recommended Minimum Trail Setback
Residential	Minimum 2 feet without trees
Collector	Fifteen Feet
Arterials and Highways	Twenty-five Feet

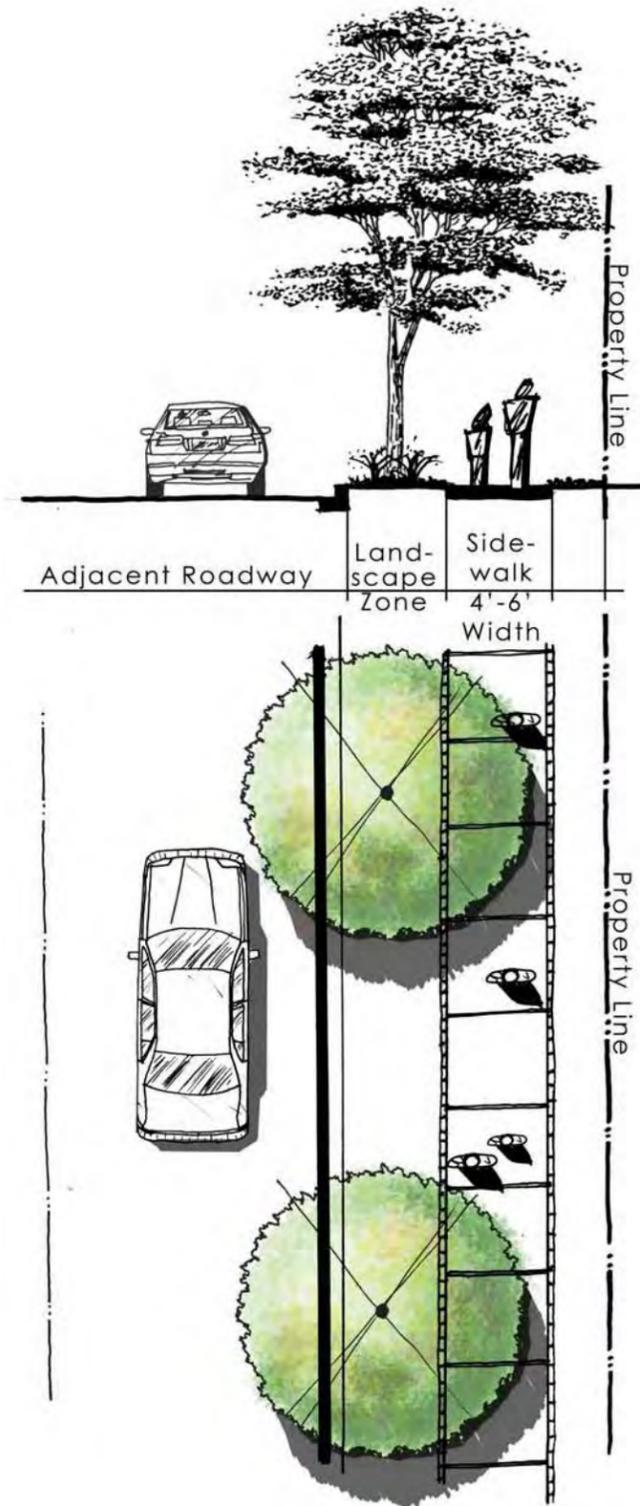


Potential Development Cost					
Parkway Trail (Concrete, 8' width)					
Description - Straight to semi-curved alignment where possible, constructed adjacent to major boulevards. 8' width, 4'+ thickness. Because these trails are in highly visible locations, they must include landscaping and decorative features such as benches, groundcover, and signs at key node areas.					
Item	Quantity	Unit	Unit Price	Amount	
Base Cost					
1	Grading Allowance (per linear foot - assumes 0.5 ft depth fine grading under trail to generate allowance amount)	5,280	LF	\$3	\$15,840
2	Concrete Trail, 4 to 6 inch depth, 10' width, includes base material	5,280	LF	\$65	\$343,200
3	Trail Striping (not required)	0	LF	\$4	\$-
4	Culverts (not required)	21	EA	\$1,000	\$21,000
5	Major drainage culverts (36" to 48" box culvert, assume two every 2000 linear feet)	0	EA	\$20,000	\$-
6	Trail directional/safety signs (assume 1 every 500 linear feet)	10	EA	\$500	\$5,000
7	Intersection crosswalk striping	4	EA	\$3,000	\$12,000
8	Intersection and access point accessible ramps (assumes 8 at every intersection)	8	EA	\$1,500	\$12,000
9	Turf re-establishment (allowance for 5' on either side of trail corridor)	40,000	SF	\$0.5	\$20,000
Subtotal Base Cost					\$429,040
Amenity Cost					
10	Landscape allowance	5,280	LF	\$10	\$52,800
11	Benches (8 per mile)	8	LF	\$1,200	\$9,600
12	Drinking fountain (one per mile - not provided with this type of trail)	0	EA	\$5,000	\$-
13	Information kiosk (assume ratio of one per mile)	1	EA	\$5,000	\$5,000
14	Major trail access point sign (1 every 2500 linear feet)	2	EA	\$3,000	\$6,000
15	Security lighting at access point (1 pole per access point - assumed to be already in place along streets)	0	EA	\$2,500	\$-
Subtotal Amenity Cost					\$73,400
Subtotal Construction Cost					\$502,440
Design, Testing, Administration, Misc. Costs (15%)					\$75,366
Contingency at Pre-Design Level (20%)					\$115,561
Total					\$693,367
Estimated Overall Cost per Linear Foot					\$131
Estimated Base Cost per Linear Foot					\$112
<i>Note: Order of Magnitude estimate only, without detailed design</i>					
<i>This estimate is intended only to establish a range of potential costs for this construction effort. Costs shown are in 2009 dollars.</i>					



Sidewalks

Sidewalks are an important component of an overall plan to improve walkability. Sidewalks that are a minimum of 5' wide are recommended along collectors and arterial roads. Sidewalks invite walking, and wider sidewalks tell pedestrians that they can walk side by side and that the walkway can accommodate significant volumes of walkers. Similarly, streets with no sidewalks convey the message very clearly "don't walk here." Sidewalks also provide safe routes for children to travel to school.



Potential Development Cost					
Sidewalk (Concrete, 6' width)					
Description - Major sidewalk connection through neighborhoods and commercial areas.					
	Item	Quantity	Unit	Unit Price	Amount
Base Cost					
1	Grading Allowance (per linear foot - assumes 0.5 ft depth fine grading under trail to generate allowance amount)	5,280	LF	\$9	\$47,520
2	Concrete Trail, 4 to 6 inch depth, 6' width, includes base material	5,280	LF	\$50	\$264,000
3	Trail Striping	0	LF	\$4	\$-
4	Culverts (12" diam. Max. for local drainage only). Allowance for one every 250 linear feet	0	EA	\$1,000	\$-
5	Major drainage culverts (36" to 48" box culvert, assume two every 5000 linear feet)	0	EA	\$20,000	\$-
6	Trail directional/safety signs (assume 1 every 500 linear feet)	0	EA	\$500	\$-
7	Intersection crosswalk striping	0	EA	\$1,000	\$-
8	Intersection and access point accessible ramps (assumes 8 at every intersection)	0	EA	\$1,000	\$-
9	Turf re-establishment (allowance for 5' on either side of trail corridor)	52,800	SF	\$0.5	\$26,400
Subtotal Base Cost					\$337,920
Amenity Cost					
10	Drinking fountain (one per mile)	0	EA	\$5,000	\$-
11	Information kiosk (assume ratio of one per mile)	0	EA	\$5,000	\$-
12	Major trail access point sign (1 every 2500 linear feet)	0	EA	\$3,000	\$-
13	Security lighting at access point (1 pole per access point - assumed to be already in place along streets)	0	EA	\$5,000	\$-
14	Bench node (2 per every mile, includes bench, trash receptacle, decorative pavement)	0	EA	\$3,000	\$-
Subtotal Amenity Cost					\$-
Subtotal Construction Cost					\$337,920
Design, Testing, Administration, Misc. Costs (15%)					\$50,688
Contingency at Pre-Design Level (20%)					\$77,722
Total					\$466,330
Estimated Overall Cost per Linear Foot					\$88
Estimated Base Cost per Linear Foot					\$88
<i>Note: Order of Magnitude estimate only, without detailed design</i>					
<i>This estimate is intended only to establish a range of potential costs for this construction effort. Costs shown are in 2009 dollars.</i>					



Other Specialized Types of Trails

Paddling Trails

Paddling trails allow access to water features in a community that could open doors to and promote a variety of activities in Cedar Park. Cedar Park has several creeks that present an opportunity for a paddling trail that can become an attraction. A casual trip in a canoe along Brushy Creek allows a much different perspective of the water. Canoes or kayaks could be an amenity for these paddling trails, and marker poles with information could be added to create interest. Boat launches will be necessary for those paddling trails.

Equestrian Trails

Locations to ride horses are rare so close to cities and offer an opportunity for a unique recreational venue in Cedar Park. Equestrian trails require additional clearance, and parking for trailers is required at the trailhead. A close permanent stabling operation could greatly increase the use of these trails.

On-Street or Striped Bicycle Lanes

Off street trails that are intended to accommodate bicycles are referred to as shared use paths. Most trails should be designed to readily accommodate bicycles.

On-street bicycle facilities are equally important. Neighborhood routes should be identified that permit relatively easy riding. Specific facilities for cyclists include striped bicycle lanes that are a minimum 4' (5' is preferred for inexperienced rider comfort) in width from the street edge of the gutter pan, or in some cases the use of the "sharrow" which indicates a shared use lane (SLM). The sharrow is in the final stages of approval for inclusion in the Manual of Uniform Traffic Control Devices (MUTCD), but municipalities may apply for permission to use this new symbol prior to its formal adoption.

Bicycle facilities are discussed further in Chapter 5.





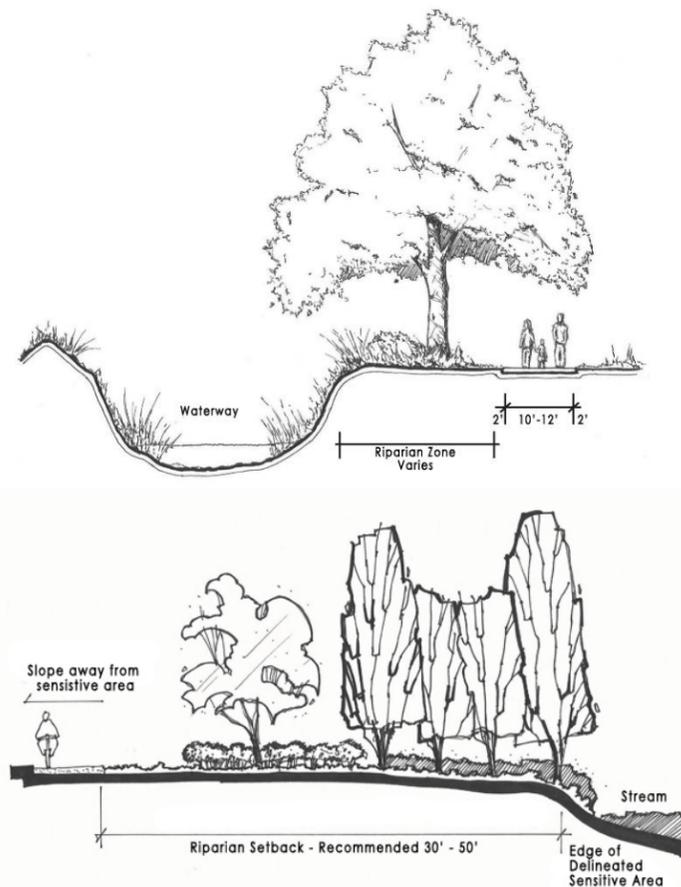
Other Design Considerations

Trails in Sensitive Areas

For community trails that will be located in environmentally sensitive areas, several measures are recommended to lessen the impact of the trail and trail users on the area:

- ◆ The riparian setback should be as wide as possible: 30-50' recommended.
- ◆ Slope the trail away from the waterway or pre-treat trail run-off with a trailside swale.
- ◆ Limit vegetation removal.
- ◆ Locate the trail outside the 100-year floodplain wherever possible.
- ◆ Remove invasive plant species.

Use the trail as an opportunity to restore and enhance the waterway or environmentally sensitive area.



Trails with Accommodation for Runners and Joggers

Community trails that accommodate runners and joggers have a concrete trail and a decomposed granite or asphalt trail next to the concrete one. For community trails designed to accommodate runners and joggers, as well as other users, several measures are recommended to ensure a quality trail experience for both runners and other community trail users:

- ◆ The concrete community trail still needs to be designed to the standards of a community trail with 10' to 12' preferred widths and 10' vertical clearance.
- ◆ This type of trail is not recommended in sensitive stream corridors.

