

2012 PARKS, RECREATION, TRAILS & OPEN SPACE VISIONING MASTER PLAN



SEPTEMBER 2012





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Many individuals volunteered a significant amount of their time and energy in the preparation of this 2012 Parks, Recreation, Open Space and Trails Visioning Master Plan. This plan would not have been possible without the leadership and guidance provided by Cedar Hill's citizens, elected and appointed officials, and city staff.

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TABLE OF CONTENTS

Chapter 1: Introduction.....	1-1
Background & Purpose	1-2
Vision & Branding.....	1-4
Methodology.....	1-12
 Chapter 2: Context.....	 2-1
Background	2-2
Natural & Cultural Resources.....	2-4
Demographic Analysis	2-8
Overview of Previous Plans	2-12
Trends in Parks & Recreation	2-18
Community Outreach	2-26
 Chapter 3: Parks & Open Space	 3-1
Introduction.....	3-2
Classification System	3-4
Neighborhood Parks	3-8
Community Parks	3-30
Other Parks	3-48
Outdoor Facility Needs Assessment	3-60
System Wide Recommendations.....	3-64
Potential Funding Sources	3-72
 Chapter 4: Aquatics & Indoor Recreation.....	 4-1
Introduction	4-2
Recreation Center.....	4-4
Senior Center	4-12
Crawford Park Pool.....	4-14
Implementation	4-18
 Chapter 5: Trails & Bikeways	 5-1
Introduction	5-2
Bicycle & Pedestrian Planning Framework	5-4
Trails.....	5-12
Bikeways	5-28
Potential Funding Sources	5-38

Chapter 6: Streetscapes 6-1

Introduction.....	6-2
Assessment of Existing Conditions.....	6-4
Streetscape Concept.....	6-6
Freeway.....	6-8
Core Arterials	6-14
Transition Arterials.....	6-22
Greenway Arterials	6-30
Connector Arterials	6-38
Collectors	6-44
Site Furnishings & Amenities	6-50
Implementation	6-56

Chapter 7: Next Steps..... 7-1

Introduction.....	7-2
Action Plans & Cost Estimates.....	7-4
Park Land Dedication Ordinance Revision	7-14
TPWD Master Plan Compliance.....	7-16

Appendices A-1

Summarized Focus Group Meeting Notes.....	A-2
Telephone Survey Cumulative Results	A-6
League RFI Responses	A-14
Trail & Bikeway Design and Maintenance Standards	A-16
Recommended Plant Palette	A-50
Park Land Dedication Ordinance Methodology.....	A-66

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“The future belongs to those who believe in the beauty of their dreams.”

– Eleanor Roosevelt (1884-1962)



INTRODUCTION

2012 PARKS, RECREATION, TRAILS & OPEN SPACE
VISIONING MASTER PLAN

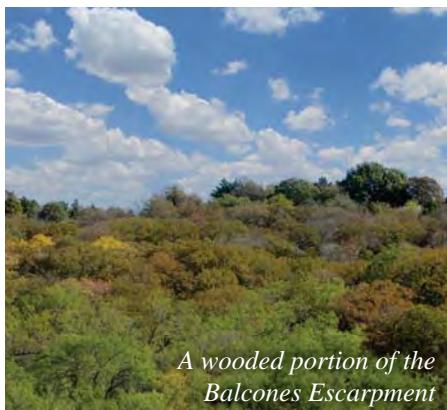
1.1

BACKGROUND & PURPOSE

Background

Cedar Hill is a premier City, a very desirable place to live, and one of the most unique and distinctive places within the Dallas-Fort Worth Metroplex. Our city is known for its natural beauty—a direct result of its location along the Balcones Escarpment—and its diverse culture. These two elements set the foundation for the 2012 Parks, Recreation, Trails and Open Space Visioning Master Plan (the Master Plan).

Natural Beauty



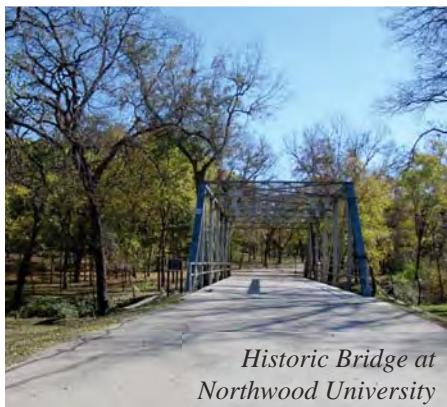
A wooded portion of the Balcones Escarpment

The Balcones Escarpment is the dividing line between two ecoregions and affords unique geological formations, natural overlooks with wide vistas, secluded and forested valleys and canyons, and rich blackland prairies. In addition, it makes Cedar Hill the highest point in the Metroplex. People are able to experience Cedar Hill's natural beauty in all its glory at places like Dogwood Canyon, which boasts the greatest variety of rare plant species in North Texas, and the beautiful and well-maintained Cedar Hill State Park, which is located at the foot of the Escarpment on the shores of Joe Pool Lake. The beauty of the city is perhaps most easily experienced as one enters Cedar Hill along Mansfield Road or FM-1382, both of which follow the foot of the Escarpment along the State Park before sweeping upward toward the blackland prairie.



Diverse & Progressive Culture

Cedar Hill has a rich cultural history with many old structures in the historic district. Even so, Cedar Hill has a modern outlook with a state of the art Government Center and Uptown Village as a major shopping destination for both Cedar Hill residents and people from across the region. Our citizens have diverse backgrounds, but are united as a caring and cooperative community with a can-do spirit and people that are willing to lend a hand. We are a part of the Best Southwest—which includes Cedar Hill, Duncanville, Desoto and Lancaster—and serve as an anchor for quality of life and economic development in southern Dallas County.



Historic Bridge at Northwood University

Purpose

This Master Plan is different from a traditional parks master plan. It is inspired by the City leaders' vision to simultaneously address the image of the city while identifying needs for capital projects. As such, the Master Plan includes the traditional elements of a parks master plan, along with a vision and branding for the physical character of the city. The key to this approach is that public facilities—especially streetscapes—strongly convey the image, character, and first impressions of Cedar Hill.

At its core, the purpose of this Master Plan is to identify preferences and needs, and provide guidance for the continued development of Cedar Hill's parks, recreation, trails and open space system, while addressing streetscapes as an integral part of the image of the city. The specific objectives of this Master Plan are to:

- Recognize the uniqueness of Cedar Hill found in the natural landscapes that comprise the Balcones Escarpment, creeks, and tree massings;
- Identify the needs of existing parks, trails, and recreation facilities;
- Identify the need for additional parks, park land, trails, and recreation facilities;
- Evaluate the spatial location of Cedar Hill's parks and recreation facilities and recommend measures to ensure a balanced distribution of facilities within the City that are easily accessible to pedestrians;
- Prioritize key park, recreation, and open space improvements;
- Develop a palette of cycling and pedestrian facilities and prioritize a citywide network of connections;
- Create streetscape improvements that will contribute to the image and branding of the city and provide pedestrian and bicycle connections;
- Guide City staff and City leaders in determining appropriate funding levels;
- Develop goals and objectives for improving quality of life within the City; and
- Provide a plan which is consistent with the funding and grant requirements for the Texas Parks and Wildlife Department.

In addition, this plan serves as a tool to help staff coordinate between City departments, with other planning efforts (such as Historic Downtown initiatives, the 2008 Comprehensive Plan, and the 2010 City Center Vision Plan), non-municipal agencies (such as utility companies and railroads), and other jurisdictions (such as adjacent cities, counties, the Cedar Hill Independent School District, and the Texas Parks and Wildlife Department/TPWD). This plan will also help the City of Cedar Hill compete for grants from various regional, state, and federal sources, including the North Central Texas Council of Governments and TPWD.



Cedar Hill State Park



*Cedar Hill
Recreation Center*

1.2

VISION & BRANDING

Vision

This Master Plan is built upon the community's vision of how Cedar Hill should evolve, change, and develop in the coming decades. This vision is the foundation of the Master Plan's goals; branding concepts; and future park, recreation, open space, trail, and streetscape improvements. Cedar Hill has a Citywide Vision Statement that serves as a guide and measure for decision making within the City¹:

Citywide Vision Statement

We envision Cedar Hill as a premier city that retains its distinctive character, where families and businesses flourish in a safe and clean environment.

While this existing Citywide Vision Statement remains powerful and relevant, it does not fully define the community's vision for the physical future of Cedar Hill. That is, the future lay-out and visual character of urban development, streets, parks, etc. The vision described in this chapter is intended to supplement the Citywide Vision Statement by physically defining the community's dreams for the future. The Master Plan's vision is based on three innovative concepts, each of which establishes standards at some of the highest known levels nationally and internationally: City Within a Park, 20% Open Space Goal, and Nature/Urban Interface.



1 The City has also adopted seven core values intended to guide the future actions and growth of the community. These values include: Distinctive Character; Safe; Texas Schools of Choice; Clean; Vibrant Parks and Natural Beauty; Strong and Diverse Economy; and Excellent, Safe and Efficient Infrastructure.

City Within a Park

Cedar Hill will grow and flourish as a city within a park, rather than simply be a city containing parks. In other words, infrastructure, buildings, and neighborhoods will be integrated into the fabric of parks, open space, and greenbelts within the City. These areas will be highly visible from roadways and neighborhoods and will serve as essential elements of “green infrastructure”—providing trail connections, linear parks, natural drainage ways, and wildlife habitat. Perceived as the “front door” to the community, streets will play a significant role in implementing this vision concept.



20% Open Space Goal

As a city within a park, 20% of the City’s land area will consist of public and private open space. These areas will include City parks, greenbelts, and open spaces; county parks; Cedar Hill State Park; Northwood University; and Mount Lebanon Baptist Encampment¹. Today, 16.3% of Cedar Hill consists of open space. With the overwhelming support of the community (as evidenced in the telephone survey) and in keeping with City Council priorities, the goal of 20% of City area dedicated to parks and open space is set to serve as a tremendous milestone, making the city distinct from any other in Texas and catapulting Cedar Hill to be on par with world-class cities.



Nature/Urban Interface

With an abundance of park and open space land in Cedar Hill today and in the future, there will be many places where the natural and built environments meet. Translated as the juxtaposition of nature and culture, it calls for contemplation and inspires creativity. As abstract imagery, the nature/urban interface will be celebrated and will influence the design of Cedar Hill’s streets, gateways, facilities, and parks serving as landmarks and destinations on which community life focuses. The goal of emphasizing the interface between nature and urban is to complement and amplify the distinctiveness of each. With both nature and urban receiving the same level of attention, a synergy will be achieved whereby the whole is greater than the sum of the parts.



¹ The inclusion of these specific private open spaces is with the understanding that these areas will remain in their natural state in perpetuity with complete or partial public access.



*Cedar Hill's Characteristic
White Rock Outcroppings*

“The white rock outcroppings and undulating topography are the most distinctive natural features in our City.”

Branding

As a community, we see Cedar Hill as being a Premier City. While being premier remains a worthy goal, truly effective branding should celebrate the qualities that make Cedar Hill markedly different from other cities in the region, state, and nation. In fact, branding is at its most powerful when it is based upon prominent aspects of the community, whether physical (such as New York City's Central Park) or cultural (such as Santa Fe's nationally-recognized arts community).

Branding the City is then really about expressing Cedar Hill's distinctiveness. Creating an identity around the very qualities that make our City different will set Cedar Hill apart as a unique place within the Metroplex and will serve as a beacon around which the community flourishes. This can be done in a very physical manner with city gateways, monumentation, streetscape, and protection of the natural qualities of the City. The design of such elements requires inspiration from what is apparently distinct within the City in order to ensure effective branding.

Inspiration

Cedar Hill's unique, beautiful, and diverse natural environment is perhaps its most distinct feature, and therefore serves as the inspiration for a City-wide branding concept. The convergence of the Cross Timbers and Blackland Prairie along the Balcones Escarpment lend Cedar Hill an unprecedented quality of natural beauty and ecological diversity. While there are many inspirational features of natural beauty in the City—such as creeks, forests, water bodies, and prairies—it is the white rock outcroppings and undulating topography that are the most distinctive natural features in our City. Focused through the lenses of the community's distinctive character and cultural diversity, these natural features serve as the inspiration for the branding of Cedar Hill, rendering it truly unique and apart from other cities.



Entering Cedar Hill along FM 1382

Branding Theme

The visual essence of the white rock outcroppings and undulating topography is found in their rectilinear and curvilinear qualities. The outcroppings are inherently linear and have both horizontal and vertical forms displayed through their striations and vertical faces. In contrast, the rolling hills are curvilinear with moderate vertical undulation expressed along the horizontal horizon.

Developing a branding theme from these features requires distilling their qualities into a design proposition that has physical expression as well as metaphoric meaning. Physical expression is found in the interface between rectilinear and curvilinear features. Metaphorically, such proposition may be expressed as the interface between culture and nature whereby the geometric character of rectilinear features represents culture and the organic character of curving features represents nature. This is particularly significant in Cedar Hill where a high premium is placed both on the protection of the natural landscape and the development of quality facilities and destinations in the City, including the Government Center, Uptown Village, and the future City Center TOD development.

“Physical expression is found in the interface between straight and curving horizontal features. Metaphorically, such proposition may be expressed as the interface between culture and nature.”

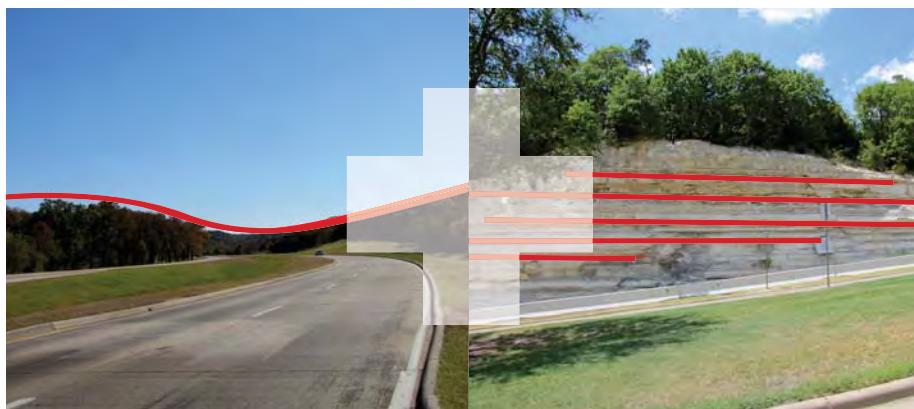
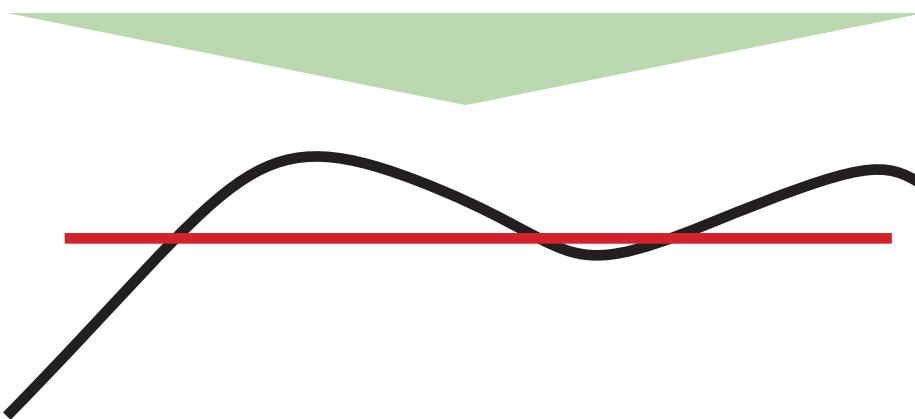


Figure 1.1 – Branding Theme

This graphic illustrates the undulating topography in contrast with the rectilinear striations of the Escarpment's white rock outcroppings. The resulting abstraction illustrates a curvilinear line intersecting with a straight horizontal line.



“The application of City branding... is based upon the concept of Nature/Urban Interface...”

“The common design language is distilled in creating contrast...”

Branding Application

Cedar Hill's branding theme for master planning purposes is based on the concept of Nature/Urban Interface, as described on page 1-5. This theme is physically expressed through a common design language that is inspired by the juxtaposition of ideas and constructs including: nature/culture; urban/rural; and curvilinear/rectilinear. This common design language is distilled in creating contrast in form, material, texture, color, scale, and formality as applied to physical features within the City such as: gateway features; monuments; paving patterns; and elements within parks, including park signs, pavilions, and overlooks.

The following principles serve as a guide for the design of these physical features:

- **Form** – Inspired by undulating topography and the rectilinear character of the white rock outcroppings, contrast is achieved with rectilinear forms designed in juxtaposition with curvilinear forms. In urbanized areas, design forms will generally be geometric to be intersected by a curvilinear element. Design forms in rural and natural areas will generally be more organic to be intersected by geometric elements.
- **Material & Texture** – Contrast is found in the juxtaposition of natural materials (in the form of native plants and natural stone) and man-made materials (in the form of metal). Contrast is also achieved with the juxtaposition of living plants with inanimate metal/stone. With innovation, the texture of materials can be applied to create contrast and visual interest. For example, natural-quarried stone contrasted with smooth-cut stone; polished stainless steel contrasted with weathered Corten steel; and finely-leaved Cedar Elm trees contrasted with coarsely-leaved Bur Oaks.

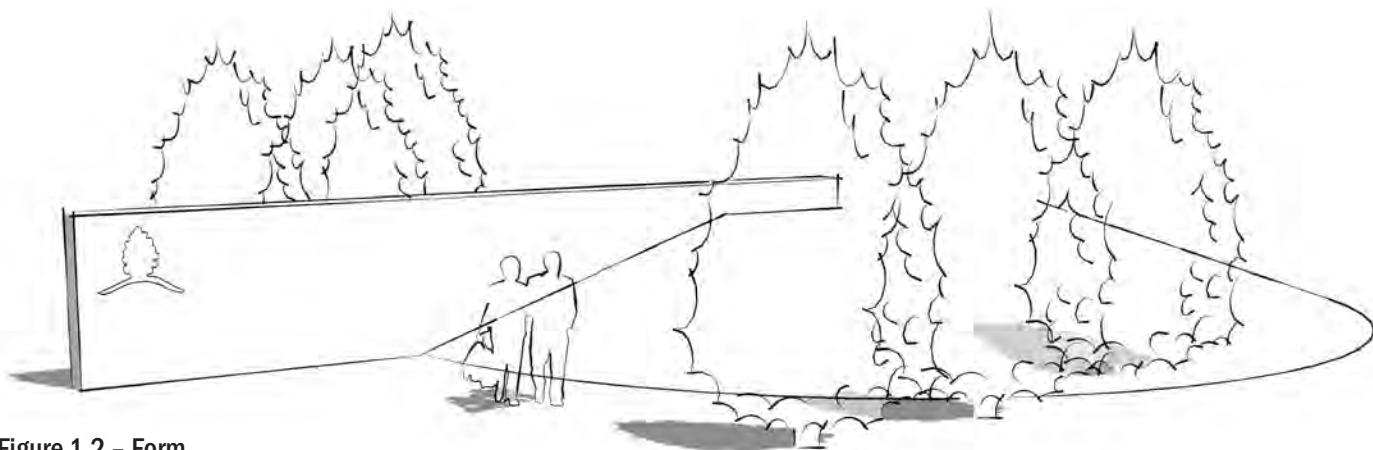


Figure 1.2 – Form

The image illustrates the potential application of the branding theme by means of a linear form (such as a stone wall) that interfaces with a curving landform.



Figure 1.3 – Material

These images provide an example of a common material (limestone) with different texture treatments. The left example is suitable for formal applications in urbanized areas while the right example is more suitable for organic applications in natural areas.

- **Color** – As much as possible, the inherent colors of materials are allowed to shine through, which adds an element of authenticity and can reduce maintenance needs. The colors derived from natural materials include buffs, whites, and tans of the rock outcrops; bold greens and browns of the forests; piercing blue of the sky; and explosive yellows and reds of fall foliage. The colors derived from man-made materials include rust brown of Corten steel and silver of stainless steel. The predominant colors are the more muted earthtones, while vibrant hues are used to highlight key icons and details. Similar to texture, color contrast can be achieved through the juxtaposition of different types of materials.

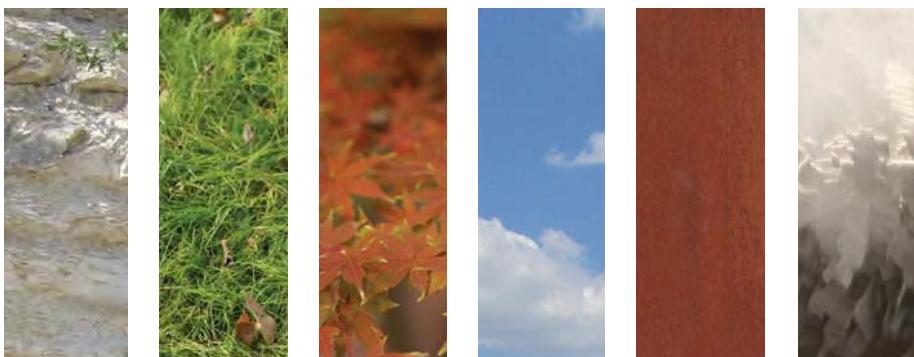


Figure 1.4 – Color

Nature provides a broad and vibrant range of colors. Augmented by Corten and stainless steel, the natural colors of the materials used provide the foundation for the palette with minimal need for paint.

- **Context** – The context in which a particular branding element is located shapes the scale and formality of each branding element. In natural and low-density areas, often within the expanse of open space, elements may be larger in scale and more natural and organic in design (however, smaller-scaled elements may be preferred to reduce visual impact). In contrast, elements in urbanized environments are scaled down and more formal or refined. This translates into bold designs at the edges of the City transitioning into more refined smaller-scale applications in the City Core, e.g. the use of large, rough-cut quarried stone at the city edge and the use of small and smooth-cut stone in the city center. Speed of the viewer also plays a role, with elements along roadways necessitating a larger scale than elements along trails or interior roadways with slower-moving traffic.

Branding Coordination

Successful city branding furthermore identifies features and destinations in the City that should be celebrated for their sheer beauty and quality. Such branding-related destinations that are truly unique to the City include Cedar Hill State Park and Dogwood Canyon. It is prudent for the City to align itself closely with these destinations and continue to market and publicize them as a way to distinguish ourselves from other cities.



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1.3 Planning Process

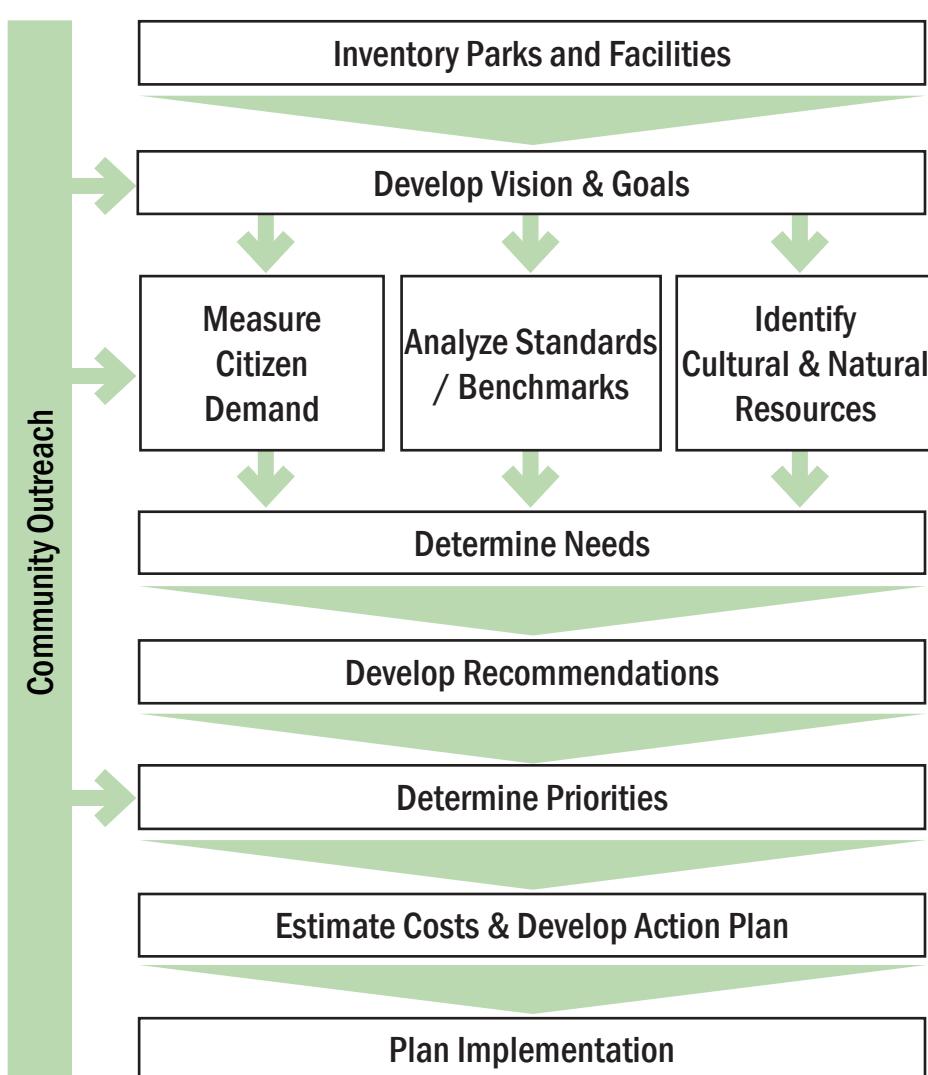
METHODOLOGY

This Master Planning process is illustrated in Figure 1.4. The development of the Master Plan was guided by a Master Plan Visioning Committee, represented by the Park Board, Cedar Hill Community Development Corporation, and City Council. The ultimate goal of the Visioning Committee was to champion the Master Plan not only with their input and guidance, but also by motivating its importance to City Council and the public at large.

The Planning Team was lead by Halff Associates, Inc. with the assistance of Brinkley Sargent Architects and Raymond Turco and Associates. The analysis performed as part of this Master Plan and the resulting recommendations and priorities are based on the needs of the citizens as identified through a wide-reaching public involvement process. The Master Plan results in an Action Plan, which includes specific items to be implemented in the near-term (5 year) and long-term (10 year) future.

Figure 1.4 – Planning Process

This diagram illustrates the planning process followed during the development of this Master Plan.



Report Outline

This Master Plan is organized into eight chapters. Each of these chapters details a major component of the master planning process.

Introduction (Chapter 1)

In addition to defining the purpose of this Master Plan and the process by which it has been produced, this chapter also reflects Cedar Hill's vision and goals as the guiding principles for the development of the parks, recreation, trails and streetscape system within the city.

Context (Chapter 2)

Chapter 2 examines the internal and external factors influencing Cedar Hill's parks, recreation, trails and streetscape system including the city's history. The natural resources, regarded as important image defining elements of the city, are briefly described. The community's demographics are analyzed and several of the City's previous studies are reviewed to better understand the past, present, and future of Cedar Hill. Regional and national trends related to parks and recreation are also analyzed. Community outreach and public involvement are core components of the Master Plan process. The summary of this input directly impacts the recommendations of the Master Plan.

Parks & Open Space (Chapter 3)

This chapter focuses on the provision of parks and recreation facilities and the protection of open space. Included in this chapter is an overview of Cedar Hill's existing parks, recreation, and open space system; an analysis of needs based on regional and national benchmarks and standards; recommendations; cost estimates; and prioritized future actions.

Aquatics & Indoor Recreation (Chapter 4)

The existing Recreation Center, Senior Center, and Crawford Park pool are analyzed in this chapter and recommendations are made for their improvement. In addition, regional benchmarks are considered and used to determine future needs based on the growing population.

Trails & Bikeways (Chapter 5)

The Trail Master Plan and Bikeways Master Plan are the subject of this chapter. The Trails Master Plan focuses on the provision of paved or unpaved shared-use pathways for pedestrians, cyclists, and other user groups that are typically located along creeks, greenbelts, nature areas, utility corridors, and sometimes roadways. The Bikeways Master Plan focuses on facilities specifically for cyclist use, including bike lanes, that are located on roadways.

Streetscapes (Chapter 6)

The focus of this chapter is the development of a set of aesthetic guidelines that will help the City enhance its visual character and appeal along roadways. The chapter includes an analysis of streetscape types within the City, an overview of a design theme for streetscapes, concepts for gateways, roadway sections and plans for all thoroughfare types, and a palette of materials.

Implementation Summary (Chapter 7)

Strategic policy recommendations and a summary of action items are the foci of this chapter. In addition, a summary of the key priorities resulting from this Master Plan and the costs associated with its implementation are provided.

“If you don’t know where you’ve come from, you don’t know where you are.”

– James Burke (1936-)



CONTEXT

2012 PARKS, RECREATION, TRAILS & OPEN SPACE
VISIONING MASTER PLAN

2.1 BACKGROUND

Cedar Hill is located approximately 18 miles southwest of downtown Dallas. The City is mostly situated in Dallas County, with some small portions located in Ellis County. Cedar Hill is bisected by US Highway 67, which is the primary gateway into the City. Cedar Hill is surrounded by the cities of Dallas, Duncanville and DeSoto to the north and east, and Glen Heights, Ovilla, Midlothian and Grand Prairie to the south and southwest. Joe Pool Lake and Cedar Hill State Park are to the west. According to the US Census Bureau, Cedar Hill comprises a total area of 35.2 square miles.

Founded in the 1850s, Cedar Hill was originally the county seat of Dallas County. Its place in Texas history is highlighted by the branch of the Chisholm Trail that once passed through the area. In 1856, a tornado struck the town destroying most of the buildings and homes. Shortly after, the county seat was moved to Dallas. In 1890, the population had grown to over 500 people. By 1915, the town had three churches, two banks, several businesses, and other professional services. The City officially incorporated in 1938. The nearby Joe Pool Lake was constructed in the 1980s, providing recreational opportunities for Cedar Hill and the region. Around the same time, Cedar Hill's population grew rapidly (tripling between 1980 and 1990), largely because of this new resource.



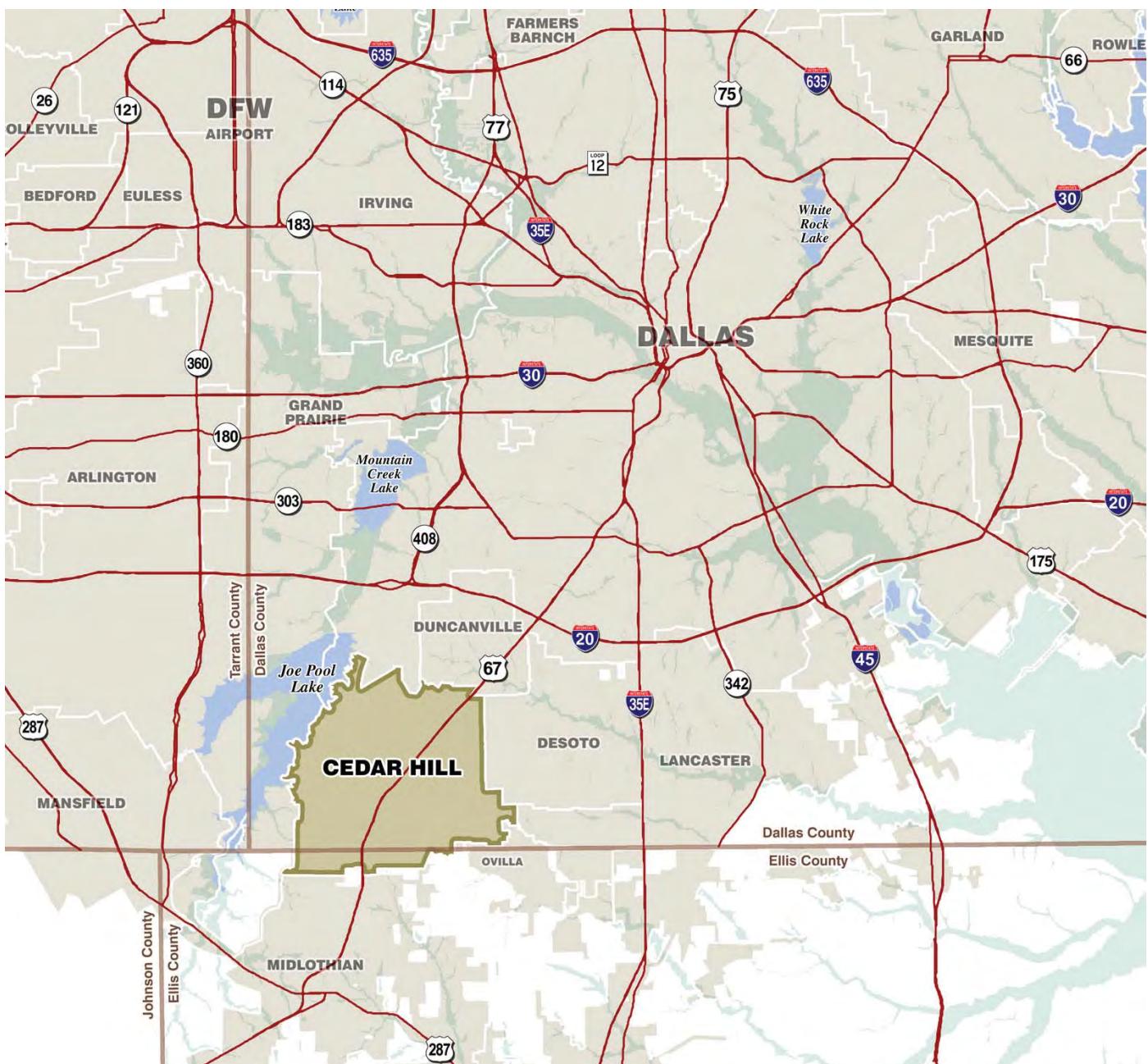


Figure 2.1 – Regional Context

Cedar Hill is in southwestern Dallas County and is conveniently located along US Highway 67. The City is 18 miles from downtown Dallas, 30 miles from downtown Fort Worth, and 27 miles from DFW Airport. Joe Pool Lake constitutes much of the City's western border.

2.2

NATURAL & CULTURAL RESOURCES

Often referred to as “The Hill Country of the Metroplex,” Cedar Hill contains the highest elevation point in Dallas County. In addition, it is the highest point between the Red River and the Texas Gulf Coast, with an elevation of 830 feet. It is for this reason that our trademark radio towers are located in Cedar Hill. Because of the elevation, topography, and groves of native cedar trees, Cedar Hill is one of the most distinctive cities in the Metroplex.

The natural and cultural resources in Cedar Hill are numerous and provide ample opportunities for recreational use while also serving to influence and define the character of the community, thereby shaping the City’s branding and vision for the future.



Balcones Escarpment

The rugged, undulating topography between Joe Pool Lake and US Highway 67 is a familiar sight and can be experienced by driving along FM 1382 or Mansfield Road. However, it is not readily apparent that this area is actually the most prominent and visible part of a much larger limestone formation known as the Balcones Escarpment. The beauty and unique physical and ecological character of the Escarpment are defining features for Cedar Hill, as is demonstrated by the number of Escarpment-related areas preserved by the City, Dallas County, the State of Texas, and the Audubon Society. Continuing to preserve the escarpment and its associated landscape through development restrictions, providing greater public access via trails, and building upon this unique feature as a marketing and branding tool are among the most important considerations for the future.

Creeks and Streams

The natural beauty of Cedar Hill’s creek corridors contributes to the image and quality of the City, serving as natural gateways where they intersect with streets and roads. Cedar Hill’s creeks and their floodplains also provide environmental services such as flood protection, wildlife habitat, and improved water quality through natural filtration. In addition, these corridors provide excellent recreation opportunities for trails, linear parks, and “green ribbons,” throughout the City. While Red Oak Creek and Bentle Branch Creek are perhaps Cedar Hill’s most prominent creeks and greenbelts, there are also several smaller creeks and streams. Because the highest point in the City is near downtown, Cedar Hill’s creeks flow in all directions away from the center of the City, which can serve as the foundation for an exemplary greenbelt and trail system. It is important to ensure that these areas remain to provide the full recreational, ecological and economic benefits for the community.

A Regional Detention Study has been developed for the City of Cedar Hill, which broadly explores the opportunity to develop regional detention ponds across the city. The study identified 18 potential detention sites along creeks and streams, which were narrowed down to six sites for which more detailed studies were recommended. These six to 18 sites provide opportunities for locating parks, open space, and other recreational amenities in conjunction with the detention ponds.



Cedar Hill State Park

The 1,826 acre state park is located on the west side of the City and the eastern shore of Joe Pool Lake. This urban nature preserve was acquired in 1982 and opened in 1991. It is the most visited state park in Texas, with over a half million visitors per year. Owned by the US Army Corps of Engineers and operated by the Texas Parks and Wildlife Department, Cedar Hill State Park offers camping, hiking, mountain biking, bird watching, picnicking, fishing, swimming, and boating. The location of this park within Cedar Hill is an opportunity not present in any other Metroplex city in terms of protected open space and recreational amenities. Opportunities to connect to the State Park via trails for bikes, pedestrians, and possibly horses should be explored.

Rural & Cultural Landscapes

As with many cities, Cedar Hill is transforming from a once rural community to a highly-urbanized area. In order for our community to recognize and sustain our cultural roots, we must protect the cultural landscapes that are representative of our rural and farming history.

The National Park Service describes cultural landscapes as follows:

Settings we have created in the natural world. They revive fundamental ties between people and the land—ties based on our need to grow food, give form to our settlements, meet requirements for recreation, and find suitable places to bury our dead. Cultural Landscapes are intertwined patterns of things both natural and constructed: plants and fences, watercourses and buildings... They are special places: expressions of human manipulation and adaptation of the land.

There are many areas in Cedar Hill that are rich in history and culture—including amongst others, various historic homesteads, barns, and outbuildings; old river and creek crossings; areas of pasture and crop land; prairies; and other places that can be considered “Americana” including the historic presence of the Balcones Escarpment. The protection of these types of historic elements is important in preserving Cedar Hill’s culture.

“The natural and cultural resources in Cedar Hill are numerous and provide ample opportunities for recreational use while also serving to influence and define the character of the community.”





A prime example of a very visible cultural landscape in Cedar Hill is the grazing fields and farm structures to the north of FM 1382 as it traverses the Balcones Escarpment. Another area with tremendous cultural value is Cedar Hill's historic downtown. The historic district and surrounding area encompasses a number of historical properties, homes, and archaeological sites that represent some important aspects of the early settlement and subsequent development of Cedar Hill and the surrounding area.



Protecting Natural and Cultural Landscapes

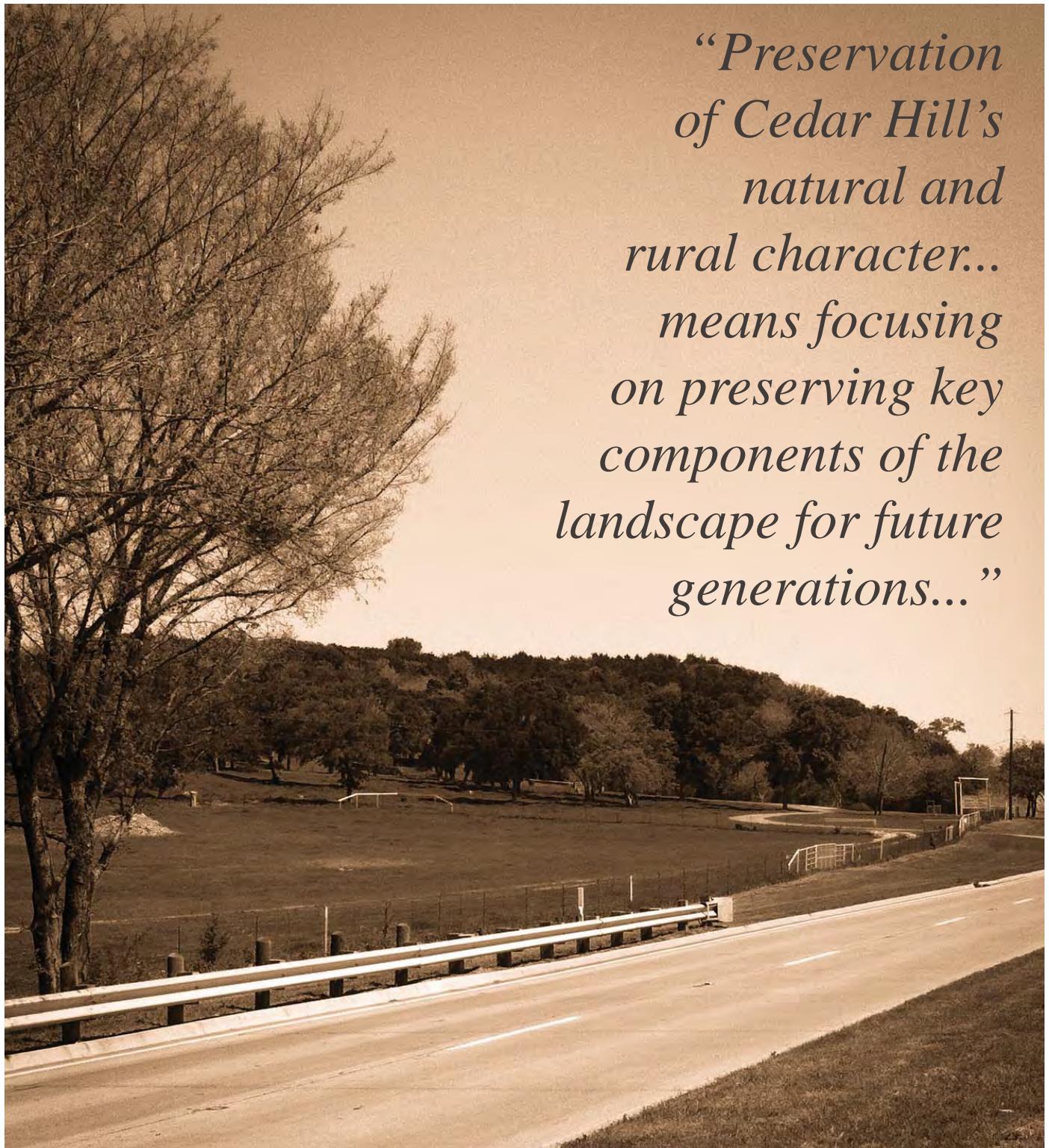
Preservation of Cedar Hill's natural and rural character does not mean turning away from new development. Rather, it means focusing on preserving key components of the landscape for future generations to continue to experience Cedar Hill's natural beauty, cultural history, and rural qualities.

The recognition and preservation of individual historic sites and structures are not enough to ensure the protection of the cultural landscape as a whole, which is essential in evoking the quality and essence of the history of the area. In fact, Cedar Hill's historical and cultural heritage is inextricably linked to the natural environment. It is thus imperative to protect the integrity and context of the entire landscape in which the cultural features and sites are contained.

It is important to make a determined effort to identify and preserve the most valuable components of the natural and cultural landscapes within and around the city. This may mean acquiring land where possible and partnerships between the City, landowners, and homeowners to preserve Cedar Hill's natural and rural landscapes. Future development can also help to preserve natural and rural landscapes through applying the principles of Conservation Planning and Design¹ to the development's layout.

¹ See: Arendt, Randall, and Holly Harper. *Conservation Design for Subdivisions: a Practical Guide to Creating Open Space Networks*. Washington, D.C.: Island, 1996. Print.

*“Preservation
of Cedar Hill’s
natural and
rural character...
means focusing
on preserving key
components of the
landscape for future
generations...”*



This view from FM-1382 toward pasture land and a farm house at the foot of the escarpment quintessentially represents the natural and rural character of Cedar Hill that is worth preserving for the enjoyment and appreciation of future generations.

2.3

DEMOGRAPHIC ANALYSIS

Understanding the current and future size and characteristics of the population to be served is a key part of the park and recreation master planning process. Demographic characteristics and projected populations contained in this section are derived from the 2010 U.S. Census as well as the Cedar Hill Economic Development Corporation, the Texas Water Development Board, and North Central Texas Council of Governments. The population projections shown are approximate, but they do indicate the general size of the service area population.

Population Growth

Table 2.1 shows the population growth of Cedar Hill since 1970. The growth in Ellis County and Dallas County is also shown. This table illustrates the substantial growth that occurred in the 1980s, largely contributed to the completion of the Joe Pool Dam in 1985 and subsequent opening of Joe Pool Lake.

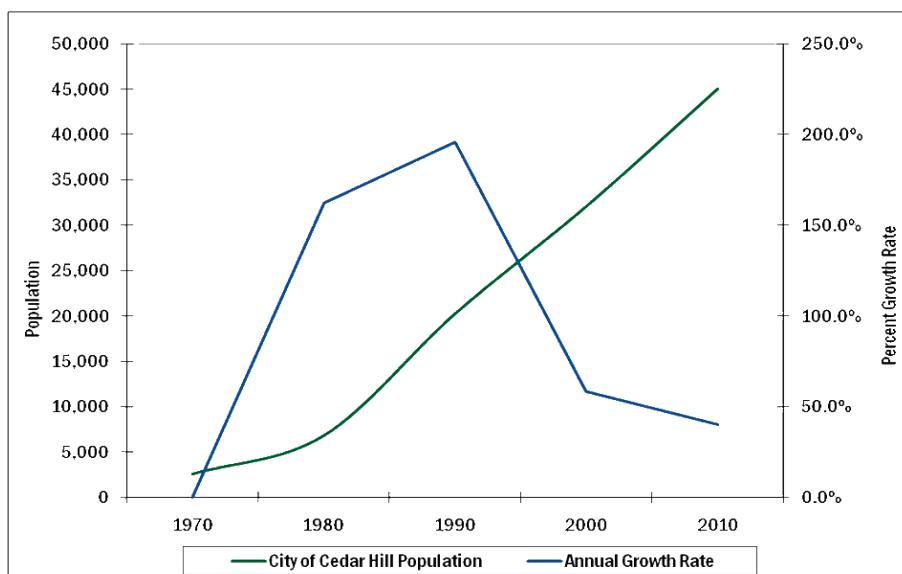
Table 2.1 – Population Growth in Cedar Hill

Year	Cedar Hill		Dallas County		Ellis County	
	Population	Growth	Population	Growth	Population	Growth
1970	2,160	--	1,327,321	--	46,638	--
1980	6,847	162.3%	1,556,390	17.3%	59,743	28.1%
1990	20,267	196.0%	1,852,810	19.0%	85,167	42.6%
2000	32,093	58.4%	2,218,889	19.8%	111,360	30.8%
2010	45,028	40.3%	2,368,139	6.7%	149,610	34.3%

Source: United States Census Bureau; 2010 Census

Figure 2.2 – Historic Population Growth in Cedar Hill

This figure illustrates the growth of Cedar Hill's population between 1970 and 2010. The Annual Growth Rate line (shown in blue) depicts the City's growth boom in the 1980s and 1990s. While the growth rate has decreased over the last 20 years, the City's population has continued to grow steadily and at a rate much higher than that of Dallas and Ellis Counties.



Projected Population Growth

The 2010 population is from the 2010 Census and the estimated population for 2011 is sourced from the North Central Texas Council of Governments. The population projections for the City of Cedar Hill were derived from the Texas Water Development Board. The projected population shows significant growth is expected to continue for the next decade; that is, through the lifetime of this Master Plan.

Age Characteristics

Cedar Hill has a population that is fairly similar when compared to the State of Texas as a whole. One-third of the Cedar Hill population is school-aged children and youth, which is an important consideration when determining the types of recreation and programs to offer. Young families with children and adolescents are significant users of recreation facilities and point to the need for active recreation facilities and programs within the City.

Table 2.2 – Projected Population Growth in Cedar Hill

Year	Projected Population	Growth
2010	42,028	--
2011	45,260	7.7%
2020	66,728	47.4%
2030	78,085	17.0%

Source: United State Census Bureau (2010 Data); NCTCOG (2011 Data); Texas Water Development Board (2020 and 2030 Data)

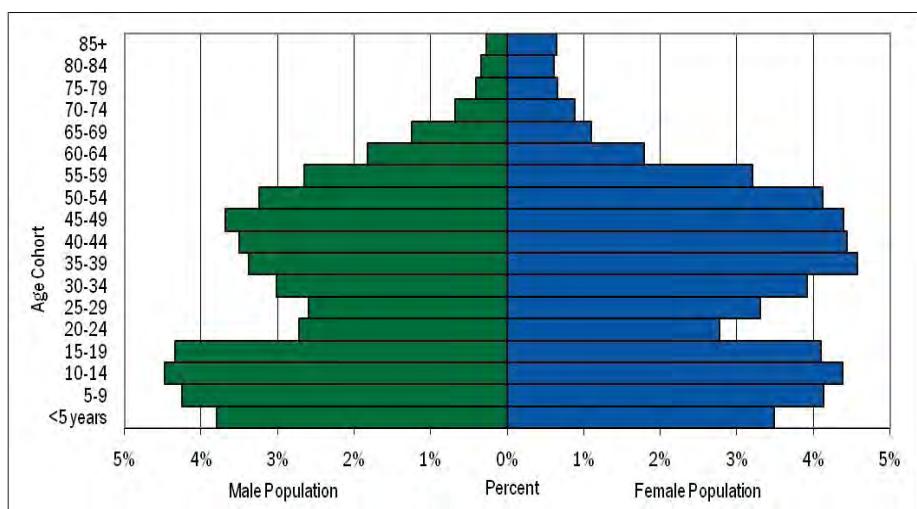
Table 2.3 – Age Characteristics

Age Group	Cedar Hill		Texas	
	Population	Percent	Population	Percent
19 and Younger	14,846	33.0%	7,621,714	30.3%
20-24	2,471	5.5%	1,817,079	7.2%
25-44	12,935	28.7%	7,071,855	28.1%
45-59	9,587	21.3%	4,858,260	19.3%
60 and Older	5,189	11.5%	3,776,653	15.0%

Source: United State Census Bureau; 2010 Census

Figure 2.3 – Population Pyramid (Population by Age and Sex)

This figure shows the population of Cedar Hill broken down by 5-year age cohorts and sex. The “onion dome” shape of this pyramid is typical of suburban communities where young adults typically move away, only returning when they are ready to have children.



Racial Characteristics

The racial characteristics of Cedar Hill are shown in Table 2.4. The United States Census Bureau does not consider Hispanic/Latino a race in and of itself; rather, it is considered an ethnicity. A person of Hispanic/Latino ethnicity may be of any race. Therefore, in the table, the percentages add up to more than 100%.

Table 2.4 – Racial Characteristics of Cedar Hill

Race	Percent of Population
Black/African American	54.9%
White	35.4%
Other	10.0%
Two or More Races	2.8%
Hispanic/Latino	18.7%

Source: United State Census Bureau; 2010 Census

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2.4

OVERVIEW OF PREVIOUS PLANS

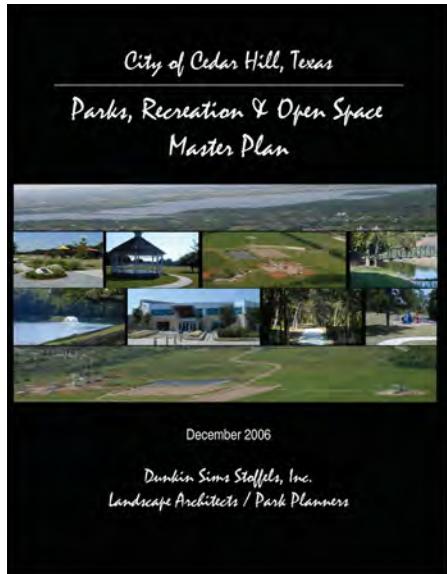
This section serves as an overview of the City's previous plans that are most relevant to the development of this Master Plan.

2006 Parks, Recreation, and Open Space Master Plan

The 2006 Parks, Recreation, and Open Space Master Plan identified a series of goals and objectives to achieve the 2006 vision for parks, recreation, and open space in Cedar Hill. It also developed a ten-year action plan to guide implementation of the goals and objectives, identifying the Park Board, City staff, Community Development Corporation, and City Council as key implementers of the plan.

The goals of the 2006 Parks, Recreation, and Open Space Master Plan were:

- Provide a system of outstanding parks and open space areas which are responsive to the leisure needs of the City of Cedar Hill and sensitive to the conservation of natural resources.
- Offer a variety of facilities, programs and park areas to meet the recreational needs of a diverse population with various levels of ability and skill.
- Provide an equitable geographic distribution of parks and recreational facilities.
- Plan for the orderly replacement of existing parks and recreational infrastructure to ensure existing recreational opportunities are not lost within the park system.
- Encourage cooperation with the County, community organizations and other agencies, to provide cost-effective services and optimize benefits to citizens.



The 2006 Parks, Recreation, and Open Space Master Plan also included a trail system element. The plan recognized trails as an important component of the recreation and transportation systems of the city and their role in regional planning purposes. Linking the local network to regional networks was emphasized throughout the document.

The plan identified a prioritized list of park improvements in the form of a 10-Year City Action Plan List. That list prioritized specific recreational facilities for outdoor activities and indoor recreation.

Table 2.5 identifies the progress the City has made toward implementing the plan as measured by the 10-Year Priority Recommendations for park improvements

Table 2.5 – 10-Year Priority Recommendations for Park Improvements from the 2006 Parks, Recreation, and Open Space Master Plan

Recommendation	Status
1 Provide assistance to Audubon Texas, developing Dogwood Canyon, and providing additional trail/educational opportunities.	The Dogwood Canyon Audubon Center was constructed and opened in 2011.
2 Develop an overlook along the Escarpment in Cedar Mountain Preserve that is accessible via the city's trail system.	Not implemented; to be reviewed by this 2012 Master Plan.
3 Develop existing neighborhood parks and develop additional parks to address park distribution deficiencies. These include Highland Recreation Area, Bear Creek Subdivision, and Neighborhood Parks in the southeast sector.	Not implemented; to be reviewed by this 2012 Master Plan.
4 Develop second phase of the recreation center, including additional parking estimated at approximately 100 spaces; 4 spaces per 1,000 sq. feet of indoor aquatic space. An aquatic facility of approximately 25,000 square feet is recommended, to include a leisure pool, therapy pool, and lap lanes for recreational swimming.	The need for these actions is studied in this 2012 Master Plan (see Chapter 4).
5 Upon completion of the aquatic facility, phase out the outdoor park and bathhouse at Crawford Park.	Not implemented; to be reviewed by this 2012 Master Plan.
6 Develop 2.25 miles of trails, starting with the core system of trails. Develop other trails opportunistically as development or major improvements occur.	The first phase of the core spine trail system—Red Oak Creek Trail—will be complete at the end 2013.
7 Acquire land for a 75 to 100 acre community park on the east side of the city.	Not implemented; two potential community park sites are identified in this 2012 Master Plan (see Chapter 3)
8 Acquire land (5-10 acres) for a neighborhood park on the far eastern side of the city, as development requires.	The City acquired the former YMCA property on Joe Wilson Road, an unnamed neighborhood park near Plummer Elementary, and David Rush Neighborhood Park.
9 Develop an additional 11.25 miles of trails focusing on the core system of trails.	Trails along Mansfield Road, FM-1382, Lake Ridge Parkway, Pleasant Run Road, and the Dogwood Canyon trail connection to the existing Cedar Mountain Preserve Trail are in various stages of planning or construction.
10 Develop neighborhood parks, as required, on the eastern side of the city.	Not implemented; to be reviewed by the this 2012 Master Plan.

“The Cedar Hill Comprehensive Plan will be a statement [to guide] plans to maintain and improve our premier community.”

– Comprehensive Plan Mission Statement

2008 Comprehensive Plan

The Cedar Hill 2008 Comprehensive Plan guides the City’s leaders and decision makers as they address issues facing the community. The mission statement of the Comprehensive Plan reads:

The Cedar Hill Comprehensive Plan will be a statement of policy, priority, and direction that will be used to guide the City, community organizations, and businesses as they develop plans to maintain and improve our premier community.

Incorporated within its Transportation, Future Land Use, Livability, Community Facilities, and Housing and Neighborhood elements, the plan includes several specific goals and objectives related to parks, recreation, and open space planning. The Implementation Strategy of the 2008 Comprehensive Plan identifies a number of prioritized actions that will be wholly or partially addressed by this Master Plan.

Through a public process, the 2008 Comprehensive Plan identified the characteristics and issues affecting the community. Among the strengths of Cedar Hill as identified by this analysis are many of the city’s natural resources, such as the topography, its natural beauty, the Balcones Escarpment, Joe Pool Lake, Cedar Hill State Park, the elevation, and open/green space. Among the opportunities are views of the lake, preserving natural features, tourism related to the State Park, and natural resources. Through the 2008 Comprehensive Plan process, citizens identified the importance of the city’s natural resources to themselves and the future of Cedar Hill.

The 2008 Comprehensive Plan also includes a Streetscape Plan that is based upon and supersedes the concepts developed in the 2006 Streetscape Plan. This plan was created to enhance the identity and character of Cedar Hill through roadway beautification at key gateways and intersections. The plan identifies four corridor types and gateways. The corridor types are parkways, approaches, core loop, and freeway. These earlier planning efforts provide guidance for the preparation of the streetscape component of this 2012 Master Plan.

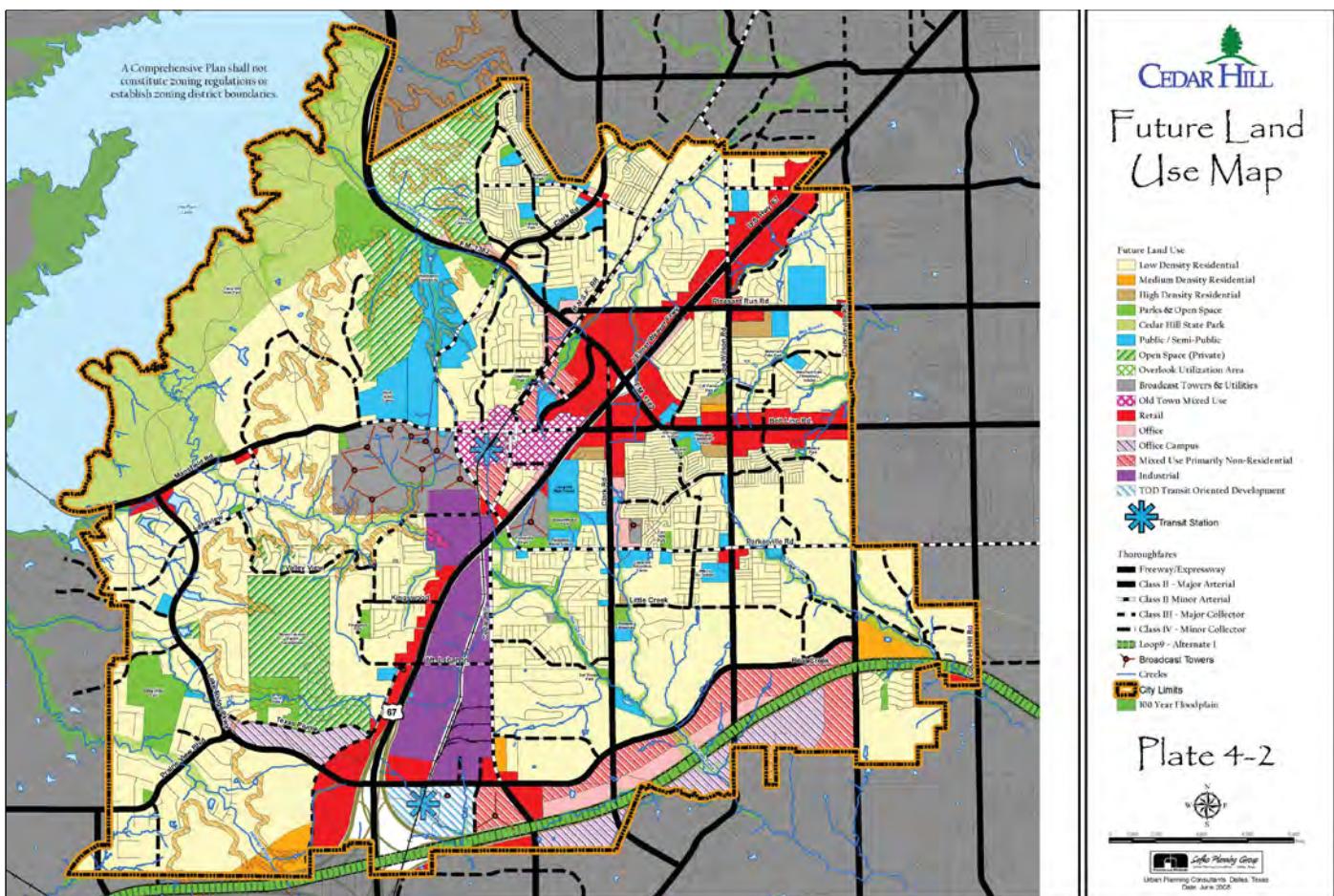


Figure 2.4 (above) – Future Land Use Map from the 2008 Comprehensive Plan

This map shows the planned development patterns for Cedar Hill's long-term future. This provides a basis for the location and character of future parks, recreation facilities, trails, and streetscape improvements.

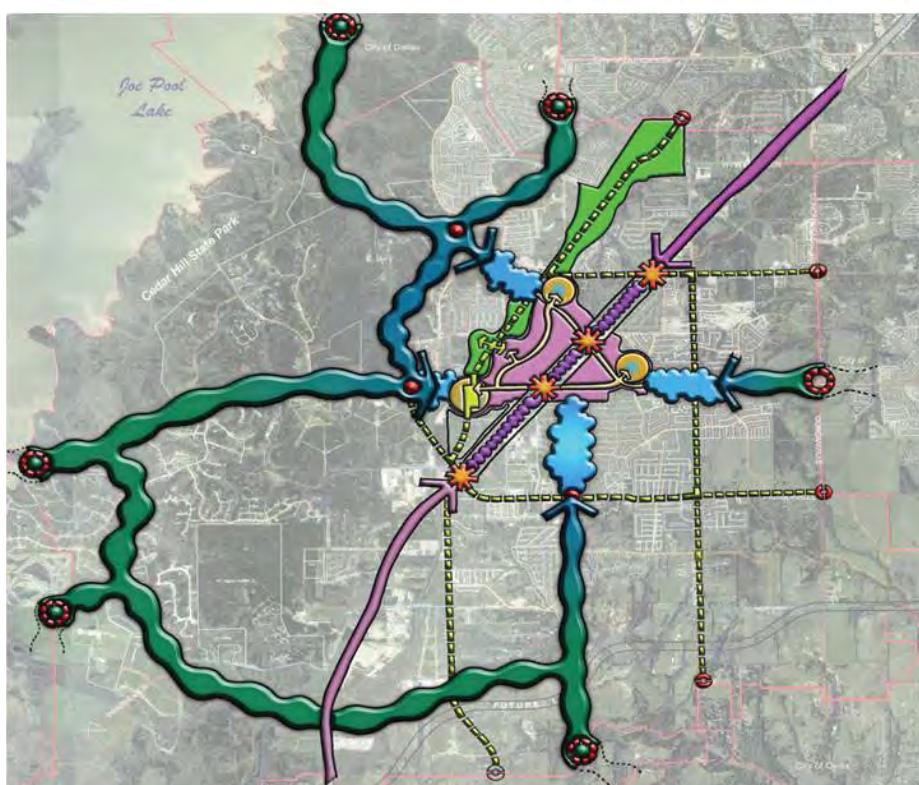


Figure 2.5 (left) – Streetscape Concept from the 2006 Streetscape Plan and 2008 Comprehensive Plan

This map illustrates the streetscape concept developed in the 2006 Streetscape Plan, which was elaborated upon and superseded by the 2008 Comprehensive Plan's Streetscape Plan component.

2010 City Center Vision Plan

In 2010, the Cedar Hill City Council adopted the City Center Vision Plan, a document prepared as part of the first phase of the City Center initiative—a transit-oriented development in Cedar Hill. This document established a vision and goals for this area that promote a more sustainable future by addressing air quality, water and energy resources, and maintaining a high quality of life in Cedar Hill. The vision for the Cedar Hill City Center is:

We envision the City Center as a premier transit-oriented destination, building upon unique local character, promoting safe community interaction, and expanding local opportunities for a sustainable future.

The plan provides additional direction and guidance as to park and open space, bicycle, trail, and streetscape planning in the City Center area of Cedar Hill (see Figure 2.6). With a focus on trails, open space, Complete Streets, streetscapes, and public space, the goals of the City Center Vision Plan help support the purpose of this Master Plan.



Figure 2.6 – Public Space Network Concept Plan from the City Center Vision Plan

This map shows the planned locations of public squares, plazas, trails, and greenbelts as they relate to the future development of the City Center Transit-Oriented Development. The circles indicate 1/4 mile radius service areas for the public squares and plazas included in the plan.

2.5

TRENDS IN PARKS & RECREATION

“The parks, open spaces, and recreational offerings of a city play a large role in defining quality of life and the city’s identity and image.”

The parks, open spaces, and recreational offerings of a city play a large role in defining quality of life and the city’s identity and image. Relative to the mobile nature of society today, especially in North Texas, these offerings play a large role in determining where people choose to reside, which consequently affects population and economic growth. It is therefore important to understand regional and national trends related to parks and recreation facilities. Below, several of the most prevalent national trends in the recreation profession are discussed. They are expected to carry forward into the near future and be relevant for the lifespan of this Master Plan.

- **More Options** – We have many more leisure activity choices. Greatly increased at-home leisure opportunities are available today, such as hundreds of channels on television, sophisticated computer games, and the internet.
- **Safety** – Safety is a great concern to parents. Many parents do not allow their children to go to parks unattended. In many places the use of neighborhood parks has gone down.
- **Instant Gratification** – We live in an era of instant gratification. We expect to have high quality recreation, and to be given activities that we will like. We have many other leisure activities and outlets, and can pick and choose what we want to do. Cities must be willing to provide a much broader menu of recreation activities, but must draw the line if those activities become too costly.
- **High Expectations** – Through the media and internet, we are exposed to the best from around the world. Because of this, we expect our facilities and activities to be of the highest quality possible.
- **Health** – Concern over the health of our population is rapidly growing. Obesity is now recognized as a nationwide problem. Funding to reduce obesity rates by increasing outdoor activities may be more readily available in the future. It may also be a source of grants for parks and recreation programs and facilities.
- **Limited Funds** – New revenue sources for public funding are difficult to come by. The federal surpluses briefly experienced at the turn of the century are now a thing of the past, and deficit spending is probable for the next decade. As a result, little assistance can be expected from the federal government, and even popular grant programs such as enhancement funds for trails and beautification may not always be available. In addition, less available outside funding also means an increased level of competition for these funds.

Outdoor Recreation Trends

- **Passive Recreation** – One of the most important and impactful trends in parks and recreation today is the increased demand for passive recreation activities and facilities. Passive recreation, as compared to active recreation, includes activities such as walking on trails, cycling, picnicking, enjoying nature, and bird watching. It focuses on individual recreation rather than organized high-intensity pastimes like league athletics (which has long been the focus of parks and recreation departments nationwide). People desire opportunities to use parks and open space on their own time and in their own way.
- **Trails** – Across the North Texas region, the provision of trails is the top priority for citizens. Numerous telephone surveys, public meetings, questionnaires, and in-person interviews have shown that people, on average, place the importance of trails above the provision of any other single type of recreation amenity or facility. Many factors contribute to this, including the demand for passive recreation (as discussed above), greater focus on health, rising transportation costs, and increasing funding opportunities for bicycle and pedestrian facilities.
- **Open Space Protection** – Related to the previous two trends, the protection of and access to open space and natural areas is growing in popularity across the nation. As people are increasingly using trails, they generally prefer to use trails that are located in scenic areas in order to enjoy being outdoors.
- **Changing Participation Rates** – While passive recreation is in greater demand, active recreation activities still play a large role in city parks and recreation systems. One major trend in the Metroplex over the last few years has been changing participation rates in various City-sponsored league sports. Examples of these changing participation rates include decreased participation in youth softball, dramatically increased participation in youth soccer, and the emergence of new league sports such as adult soccer and youth lacrosse. It continues to be the case that league sport participation rates vary greatly from city to city depending, in part, on activities offered by the school district and other organizations such as the YMCA, Boys and Girls Club, and in some cases churches.





Indoor Recreation Trends

- **Consolidated Recreation Centers** – There is a movement away from providing multiple smaller recreation centers to providing a single large center that is within a 15 to 20 minute travel time of its users. This trend responds to increased diversity of programming that can be provided at these larger centers, while also being more convenient for families to recreate together. These types of centers also provide increased staff efficiency.
- **Combined Facilities** – There is a trend of combining dry side recreation with indoor aquatics for wellness and leisure activities. This reduces initial costs and reduces continuing operation costs for staff while providing more activity choices for its visitors.
- **Integrated Senior Activity Space** – There is a trend of providing dedicated senior activity areas within a large community center. Such an area with a distinct entrance separate from the main center entrance provides the desired autonomy of seniors while providing convenient access to the various opportunities in a recreation center including indoor walking track, warm water exercising, and adequately-sized exercise areas. Furthermore, different time periods of use make the combination of senior centers within a larger community center more feasible.
- **Cost Recovery** – Many Cities are seeking higher fee structures to help offset operational costs. Observation reveals a range from 50–60% operational cost recapture rate all the way to a 100% recapture rate in the North Texas region.
- **Quality of Life** – University students today have elaborate recreation and aquatic facilities at their disposal. New graduates are leaving their universities with expectations for cities to provide comparable facilities. Quality of life is an important component of a new graduate's job search and decision about where to live and has influenced what new centers will provide.

Outdoor Aquatics Trends

- **Multifunctional Leisure Aquatics** – Outdoor aquatic facilities have seen dramatic shifts in the last 15 to 20 years. They have transitioned from square boxes with barbed wire around the tops of fences located in numerous spots around town to more consolidated and larger leisure aquatic centers. These typically have spray pads, current channels, zero beach entries, play features, large slides, multiple shade areas, and 25-yard lap pools.
- **Entertainment** – The new generation of aquatic centers have the entertainment value to create attendances that allow operators with modest fees to actually generate more revenues than expenses. This has allowed cities to develop fewer and larger centers to properly serve its citizens.

General Trends

- **Open Space Value** – As North Texas cities continue to grow and expand, citizens are becoming increasingly aware of the diminishing amounts of open space and natural areas in and around their communities. Similarly, this increased awareness parallels an increased interest in preserving open spaces, rural landscapes, and natural areas along creeks, lakes, wooded areas, prairies, and other environmentally and culturally significant locations.
- **Changing Development Patterns** – There is an increased interest among citizens to consider alternative development strategies in order to improve their communities. These improvements include preserving and providing access to natural areas, decreasing traffic congestion, encouraging walking and bicycling, enhancing property values, and increasing and enhancing recreation opportunities. Alternative development strategies often considered include mixed-use development, new urbanism, conservation development, context sensitive solutions (CSS), and complete streets.
- **Quality Environment** – The attributes of a community play a large role in attracting (or detracting) people to a city or region. Research shows that the quality of a city's environment (its climate, park space, and natural resources) is the most significant factor in attracting (or detracting) new residents. As such, high-quality, high-quantity parks and open space systems will attract people while low-quality, low-quantity parks and open space systems will detract people.





Baby Boomer Trends

It is projected that there are 77 million Americans born between the years of 1946 and 1964. The Baby Boomer generation comprises one-third of the total U.S. population and over one-fourth of Cedar Hill's population. With such a significant portion of the population entering into the retirement age, Baby Boomers are essentially redefining what it means to grow old. According to Packaged Facts, a demographic marketing research firm, trends that are beginning to take off because of the Baby Boomers include:

- Prevention-centered healthcare to keep aging bodies free from disease.
- Anti-aging products and services that will keep mature adults looking as young as they wish.
- Media and internet technology to facilitate family and social ties, recreation and lifelong learning.
- Innovation in housing that allows homeowners to age in place.
- Increasing entrepreneurial activity among those who have retired, along with flexible work schedules that allow for equal work and leisure time.
- Growing diversity in travel and leisure options, especially with regard to volunteer and eco-friendly opportunities.
- Opting not to retire at a traditional retirement age and therefore remaining in the workforce longer.

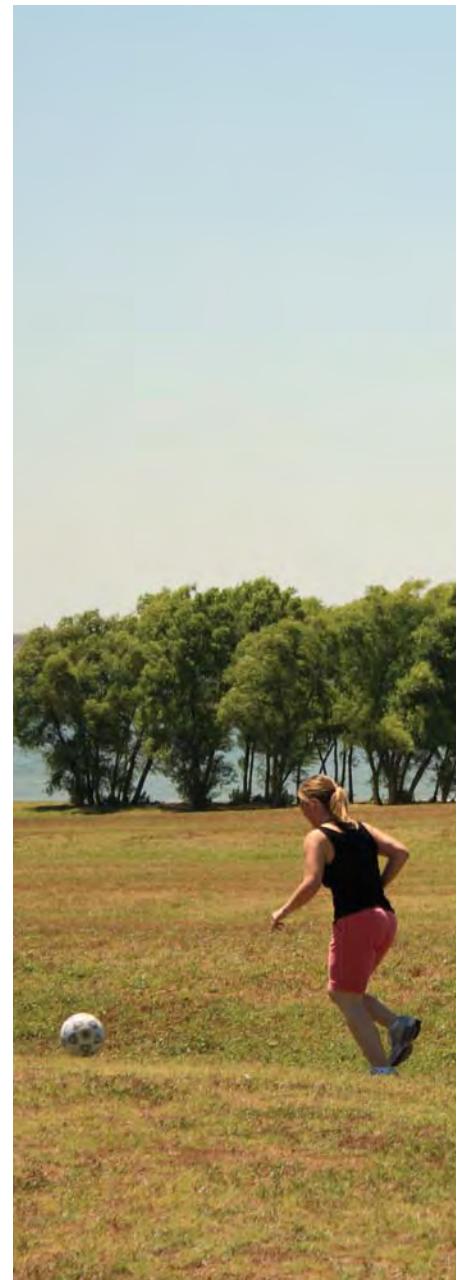
The relevance of these facts comes to light when considering the active recreation needs of this significant population and the impact that these needs will have on traditional senior center programming and attracting and retaining these residents.

High School Sports Trends

The National Federation of State High School Associations records the number of high school students participating in sport activities every year. These trends can have an influence on the types of programs that are offered by a city's parks and recreation department. A city can focus on offering youth leagues in the same sports for those that are interested from an early age; as well as offer different teen sports so that services are not duplicated by the athletic opportunities offered by the school system.

The top ten sports for girls in Texas for the 2010/2011 season (most recent data available) by number of students participating are:

1. Basketball – Approximately 23% of all high school girls participating in sports play basketball. However, this sport has seen a decline in the number of overall participants since the year 2007.
2. Track and Field – On a national scale, this sport was the most popular girls' sport. However, it is only the second-most popular in Texas and has seen a decline every year in the number of participants since 2007.
3. Volleyball – This sport experienced a significant drop in participation in the 2004/2005 season, but has steadily increased since.
4. Fast Pitch Softball – This sport has experienced a slight increase in participation every year since 2007.
5. Cross Country – This sport has decreased in overall participation every year since 2007, with the most significant drop in participation experienced in this reporting period (2010/2011).
6. Soccer – A significant increase in participation occurred in the 2007/2008 season and growth has occurred every year since.
7. Tennis (individual) – This sport has experienced moderate levels of increased participation every year since 2005.
8. Team Tennis – A significant increase was experienced for a number of years in the mid-2000s, but it has annually declined since 2009.
9. Swimming and Diving – This sport has had steady growth in participation since 2003. It has experienced the highest percentage growth of all the sports in this list.
10. Golf – This sport has a tendency to slightly fluctuate in the number of participants every year, some years it will increase while other years it decreases.





The top ten sports for **boys** in Texas for the 2010/2011 season by number of students participating are:

1. Football – This sport has the highest number of participants (approximately 35% of boys that participate in sports) and has experienced relatively stable rates of participation with minor fluctuation since 2003.
2. Track and Field – Similar to the girls sport, this has experienced a decrease in participation every year since 2007.
3. Basketball – This sport has experienced a decrease in participation every year since 2008.
4. Baseball – This sport has had a slight increase in the number of participants every year since 2003.
5. Soccer – There was a significant increase in participation in the 2006/2007 and 2007/2008 seasons, and it has experienced a steady increase every year since 2008.
6. Cross Country – This sport has experienced significant decreases in participation every year since 2007.
7. Tennis (individual) – This sport experienced steady growth in the past, but has declined in total participation over the last two years.
8. Golf – This sport has experienced an increase in participation over the past two years; however, it experienced a decline in the two years prior.
9. Team Tennis – This sport had a slight decline in the number of participants in the past two years; however, it had significant increases every year for the three years prior.
10. Swimming and Diving – Based on percentage growth, this sport had the largest amount of growth when compared to any other high school sport. For the first time, swimming and diving replaced wrestling in the list of top ten boys sports in Texas.

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2.6 COMMUNITY OUTREACH

“The residents of Cedar Hill determine what they want to have in their community through their current use of facilities, comments, and input.”

Public input is a critical part of any planning process. The City of Cedar Hill works for the citizens by managing and providing the types of facilities that the residents and taxpayers of the community want to have. In essence, our citizens are our “customers” and it is in the City’s interest to provide what our customers seek. In the planning process, citizen input helps identify what types of existing facilities are being used, where key deficiencies may occur, and how the citizens of Cedar Hill would like to see the City allocate its resources. In essence, the residents of Cedar Hill determine what they want to have in their community through their current use of those facilities, their comments, and expressed desires.

Community Outreach Process

This Master Plan incorporates a large amount of public input, utilizing several different methods. By using these methods of public input, feedback from many varying parts of the community were received, leading to a broader consensus on the direction that the Master Plan should take. The methods used to generate citizen input during the planning process included workshops with City leaders, Visioning Committee meetings, three focus group meetings, a public workshop, a citywide statistically valid telephone survey, and a questionnaire.

City Leaders’ Workshops

Cedar Hill’s leadership—the elected and appointed officials, City management, and department heads—provided a wealth of knowledge regarding the City’s history and future plans. They also have a strong sense of the community’s priorities and needs, which served as a starting point for the community outreach process. In order to learn from the City leaders, three workshops were held to discuss technical and operational issues, a broad vision for the future of Cedar Hill, over-arching goals, and branding.



Visioning Committee

A Visioning Committee made up of City Council, Park Board, and the Cedar Hill Community Development Corporation (CHCDC) Board members served as the primary reviewing body for the Master Plan. The Committee helped define the vision and goals for the Master Plan; influenced and participated in the community outreach process; and reviewed the Master Plan outcomes at several stages during the process.



Focus Group Meetings

Three focus group meetings were held, each catering to different user and stakeholder groups as follows:

- **Meeting 1: March 29, 2011** – Representatives from various government and public agencies (Best Southwest Cities, Cedar Hill State Park, Dallas County, Cedar Hill Independent School District (CHISD), and the Dogwood Canyon Audubon Center).
- **Meeting 2: March 29, 2011** – Representatives from various non-profit organizations and local businesses (Northwood University, Friends of the Library, Rotary Club, Boy Scouts of America, Tourism Committee, Main Street Board, Chamber of Commerce, and Uptown Village)
- **Meeting 3: March 31, 2011** – Representatives from special interest groups (Senior Center, Homeowners Associations, and Sports Associations).



Public Workshop – April 30, 2011

An open public workshop was held to give the general public—people not specifically affiliated with any sports organization, club, non-profit, or other group—an opportunity to give their input on the Master Plan. Several people from the Focus Group Meetings, the Visioning Committee, and the City Leadership also attended. The workshop was held in the Government Center Court Chamber and was organized as an open house, with four booths focused on different topics. The meeting began with a presentation that provided an overview of the Master Plan process and the work completed to-date. People were then invited to visit each of the booths—Parks & Open Space, Trails & Bikeways, Streetscapes, and Indoor Recreation Facilities & Aquatics—and provide their comments, as well as fill out a questionnaire.



Telephone Survey

A citizen telephone survey was conducted as part of the planning process. The survey was designed to examine residents' participation in recreational activities; it also helped to assess the recreational needs in Cedar Hill. The survey allows elected officials and City staff to better understand the recreational needs and desires of its citizenry. The survey was conducted by a professional public input firm with extensive experience in recreation attitude surveys.

The survey used telephone contacts rather than a mail-out format to ensure unbiased and statistically relevant results. The contact time for each survey lasted approximately 20 minutes. A total of 326 surveys were completed, resulting in a statistically valid sampling (with an error rate of $+/-5.6\%$ at 95% confidence level).

Questionnaire

A questionnaire was developed as a way to gain input from the Focus Group Meeting and Public Workshop attendees and was also made available to homeowner/neighborhood associations. In total, 158 responses were received. As compared to the telephone survey, the questionnaire is not statistically valid because it was not randomly administered. Some of the questions in the questionnaire were the same as or similar to questions in the telephone survey, but many of the questions were unique.



Community Outreach Results

There is a strong level of support across the community for beautifying Cedar Hill's streetscapes and public spaces, providing additional trails and on-street bikeways, developing parks in under-served areas, and developing an indoor aquatic facility. The top priorities from the community outreach process are shown in Table 2.6. These priorities were primarily determined by the statistically-valid telephoner survey, which ranked responses. These priorities were indirectly confirmed during focus group and public meetings.

Table 2.6 – Top Priorities from the Community Outreach Process

Rank	Description
1	Develop a network of multi-use trails and greenways along roadways, creeks, and other linear features that weave throughout the City and connect to adjacent cities.
2	Acquire and protect environmentally-sensitive and aesthetically-valuable open space areas, especially along the Balcones Escarpment and the City's creeks.
3	Enhance and beautify streetscapes to convey Cedar Hill's distinctiveness and provide safe and comfortable corridors for bicycles and pedestrians.
4	Develop an indoor aquatics center including exercise areas, lap lanes, play features, and slides as part of the Cedar Hill Recreation Center.
5	Acquire land for future parks to meet the needs of current and new residents as the City continues to grow.
6	Improve existing parks by increasing the diversity of amenities provided—such as tennis courts, upgraded playgrounds, picnic pavilions, shade, and restrooms.



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“Thousands of tired, nerve-shaken, over-civilized people are beginning to find out that...parks and reservations are useful not only as fountains of timber and irrigating rivers, but as fountains of life.”

— John Muir (1838-1914)



PARKS & OPEN SPACE

2012 PARKS, RECREATION, TRAILS & OPEN SPACE
VISIONING MASTER PLAN

3.1 INTRODUCTION

Some of the most beautiful and fascinating parks and open space areas in the State of Texas are located in Cedar Hill. From Cedar Hill State Park, which receives more than a half million visitors per year, to Dogwood Canyon Audubon Center, which has one of the greatest naturally occurring varieties of plant species in the region, parks in Cedar Hill are famous and well-known destinations. We also have a variety of neighborhood and community parks, which provide places for people to play and relax, and a system of greenbelts that will one day include trails to connect the entire city. Unique opportunities in Cedar Hill include utilizing regional stormwater detention/retention basins for open space preservation and context-sensitive streetscapes as linear parks.



The enhancement and expansion of Cedar Hill's parks and open space system is critical in achieving all three of the primary vision components of this Master Plan. An interconnected park and open space network linked by greenbelts is the primary way to become a City Within a Park. Acquiring additional land for new parks and nature areas will help us achieve our goal of 20% Open Space. Finally, the design of individual parks will help to celebrate the Nature/Urban Interface across Cedar Hill.

Goals

- Acquire land to preserve Cedar Hill's distinctive natural landscapes, serve the city's growing population, and achieve the vision of open space comprising 20% of Cedar Hill's land use.
- Create a City Within a Park by integrating parks, greenbelts, streetscapes and other public spaces into urban areas.
- Implement sustainability measures in parks and open spaces that minimize environmental impact and reduce maintenance needs.
- Design parks that are multi-functional and provide recreation and leisure opportunities for people of all ages and abilities.
- Develop a world-renowned parks and open space system that establishes Cedar Hill as the greenest city in Texas.
- Partner with other entities, including Northwood University, Cedar Hill State Park, Cedar Hill ISD, churches, private developers, surrounding Cities, and Dallas and Ellis Counties to enhance open space protection and preservation of environmentally sensitive areas.

Purpose

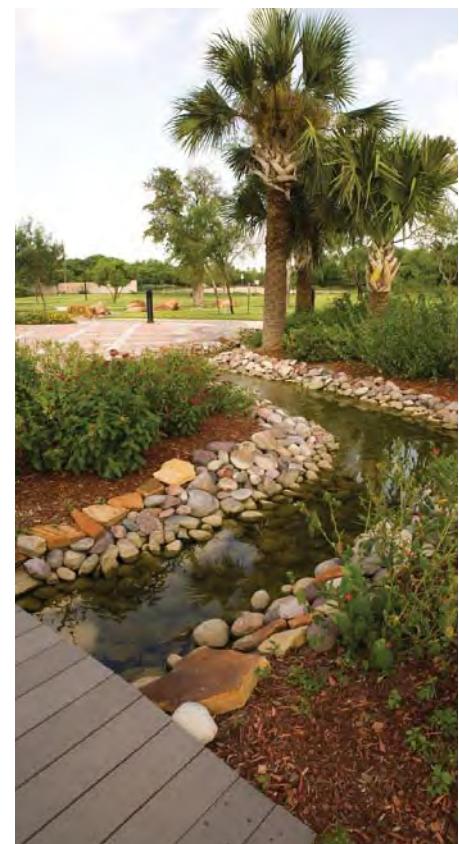
This chapter includes an analysis of Cedar Hill's existing parks, recreation, and open space facilities; an assessment of needs based on standards and level of service; and a series of priorities for studies and policies, land acquisition, park development, and outdoor recreation facilities.

Pertinent Citizen Input

The focus group meetings, public meetings, and telephone survey provided a significant amount of insight regarding the public's opinion on Cedar Hill's parks and open space. One of the primary goals of the community is to acquire and protect environmentally-sensitive and aesthetically-valuable open space areas, especially along the Balcones Escarpment and the City's creeks. The community has also identified the need to acquire land for new parks and improve existing parks to meet the needs of current and new residents as the City continues to grow. Through actions like developing new athletic facilities to host tournaments, there is support for making Cedar Hill a destination for outdoor activities. Finally, the community identified needs for tennis courts, additional playgrounds, shade and trees in parks, and other additional amenities.

The telephone survey included several questions regarding parks and open space.

- 87% of respondents agree that the Balcones Escarpment is a very valuable feature and needs to be protected. 77% think it is important to acquire land to preserve the Escarpment.
- Nearly all (97%) agree that natural areas are important and should be preserved where available. 80% think it is important to acquire land to preserve environmentally sensitive areas in general.
- Regarding future park development actions, 82% think it is important to renovate and expand existing parks. 78% think it is important to acquire land for future parks.
- There is strong support for developing linear parks along creeks (82%) and small neighborhood parks (81%).
- In general, the survey revealed that there is a significantly higher level of support for non-athletic recreation facilities (especially picnic areas and playgrounds) than for athletic facilities.



3.2 CLASSIFICATION SYSTEM

In analyzing Cedar Hill's current parks and open space system, it is important to identify the functional classification of each of the City's parks. While each park in the City is unique in its own right, each can also be assigned to one of three categories. The neighborhood and community park categories represent the backbone of Cedar Hill's park system and are considered "essential infrastructure." They should be plentiful, adequately-sized, and well-distributed across the City to serve the entire population. The other parks category comprises several sub-types of parks that are provided as opportunities or special needs arise.

Neighborhood Parks



Neighborhood parks are typically between 5 and 10 acres in size (larger parks being most desirable for efficient maintenance and operation) and are designed and located to serve the surrounding neighborhoods. Located within 1/4–1/2 mile of the neighborhoods they serve, these parks are accessible by walking or bicycling. Neighborhood parks constitute the core of the parks system and generally serve 3,000 to 4,000 residents. As a rule of thumb, all neighborhood parks should have a playground, pavilion, a loop trail, and open areas for free play. Additional amenities often provided at neighborhood parks include benches, picnic tables, basketball courts, multi-purpose fields (for formal practice and/or informal play), and backstops. There are more neighborhood parks in Cedar Hill than any other single type of park.



Community Parks

Community parks are larger than neighborhood parks – typically 25 to 100+ acres in size – and have more amenities. Although these parks often serve specific neighborhoods, it is ideal to evenly distribute these parks across the City so that they are easily accessed by all residents. The ideal distribution is such that all residents are within a 1 to 2 mile radius of a community park. Typically, community parks will have all of the amenities of a neighborhood park (playgrounds, pavilions, open areas for free play, trails, basketball courts, multi-purpose practice fields, backstops, etc.). In addition, these parks usually have amenities such as lighted competitive athletic fields, larger areas of open space for free play, natural areas, and restrooms. Quite often, community parks will include special facilities such as recreation centers and skateboard parks.

"Neighborhood and community parks serve as the backbone of Cedar Hill's park system..."

Other Parks

There are also many other types of parks within Cedar Hill. These are parks that are designed to meet special needs, capitalize upon opportunities, and/or complete the parks system.

Special Purpose Parks

This subcategory includes 1-3 acre pocket parks, 1-2 acre trailheads, 0.25-1 acre plazas, athletic complexes, and practice fields. It also includes “special interest” parks that are not otherwise part of another neighborhood or community park. Examples of special interest parks include dog parks, skate parks, or any other type of park designed to accommodate a limited number of specific recreation activities. While parks less than 5 acres are typically discouraged because they are often difficult to maintain efficiently, small park areas are often necessary to serve special purposes. Smaller parks are also desirable in highly urbanized and dense mixed-use areas, such as around Uptown, Downtown, and future commuter rail stations.

Greenbelts & Wildlife Corridors

Greenbelts are corridors typically following creeks, railroads, or utility lines and in unique situations as part of the roadway system (such as Greenway streetscapes; see Chapter 7). Greenbelts usually contain trails and are therefore ideal for providing alternative, non-motorized transportation to parks, schools, neighborhoods, libraries, retail, and other major destinations. Other than simply providing connections, these parks provide recreational value by themselves. In fact, using trail facilities is one of the most popular recreation activities in most, if not all, communities. In addition, greenbelts along creeks have the added benefit of providing habitat and migration/movement corridors for wildlife. They also provide opportunities for improving watershed management in an aesthetically-pleasing and sustainable manner.

Unique to Cedar Hill and not found in most parts of the Metroplex, wildlife corridors and management zones exist due to the abundance of healthy habitat in the Balcones Escarpment area. In addition to protecting wildlife, these areas help preserve open space, which adds to Cedar Hill’s distinctive character.

“[Other parks] are designed to meet special needs, capitalize upon opportunities, and/or “round out” the parks system.”



Open Space Preserves/Nature Areas

These parks serve to protect and provide access to natural areas such as along creeks, floodplains, wooded areas, the shores of Joe Pool Lake, prairies, and the Balcones Escarpment or other areas of topographic change. As unprogrammed space, an added benefit is that these areas are “self-maintaining.” While there may be the occasional need to check for hazards, maintenance is generally not a significant factor.



Other Significant Public & Private Facilities

A unique aspect of Cedar Hill is the large amount of park and open space land owned and managed by other entities present within the City limits. These include the Dogwood Canyon Audubon Center, Camp Ellowi, Mount Lebanon Baptist Camp, Cedar Hill State Park, and Northwood University. These areas constitute more than 3,000 acres of land that is either public or semi-public with the expectation that it will be preserved in perpetuity as open space in its natural state. These areas are crucial in achieving and maintaining Cedar Hill’s goal to have 20% of its area protected as parks and/or open space.

The presence of these facilities presents the opportunity for joint ventures with the City of Cedar Hill. The City and the Cedar Hill State Park are currently considering an opportunity to improve facilities at the State Park. The State Park would provide the funding for an enclosed pavilion and easement for 3.6 miles of trail (see Figure 5.4) and the City would provide funding for the trail construction and manage the development of the projects. Joint opportunities of this magnitude should become high priorities as they arise.

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3.3 **NEIGHBORHOOD**

PARKS Development Guidelines

Cedar Hill's Existing Neighborhood Parks:

Bear Creek Park

Bradford Park

Calf Pasture Park

David Rush Park

Dot Thomas Park

Highlands Recreation Area

J.W. Williams Park

Kingswood Park

Liberty Park

Longhorn Park

Meadows Park

Prairie View Park

Ramsey Park

Waterford Oaks Park

Wildwood Park

Windsor Park

*Unnamed Park near
Plummer Elementary*

Neighborhood parks constitute the most prominent type of park in Cedar Hill. As the category name implies, these parks are typically located in neighborhoods within easy access of surrounding residents.

Neighborhood parks are the backbone of Cedar Hill's park system. The development and general design of neighborhood parks is important to ensure that they serve the needs of the surrounding neighborhoods. But beyond simply meeting certain levels of service, it is important to ensure that neighborhood parks are unique in character, respond to the surrounding environment, provide a variety of experiences for the park's users, and unify the neighborhood informally. The following development guidelines (that focus on size, location, facilities, design, and parking) were developed to ensure that the City is able to efficiently provide the best possible neighborhood parks for its citizens.

Size

The size of a neighborhood park may vary considerably due to the physical location of the park and condition of the site. Generally, neighborhood parks should be 5 to 10 acres or larger, with 10 acres being the ideal size. A typical neighborhood park would generally serve 3,000 to 4,000 residents per park.

Location

If possible, neighborhood parks should be centrally located in the neighborhoods they serve and should consider the following location attributes:

- Neighborhood parks should be accessible to pedestrian traffic from all parts of the area served. Ideally, neighborhood park facilities should be located within a one-quarter mile radius (five minute walk) or one-half mile radius (ten minute walk) of the residents who will use those facilities.
- These parks should be located adjacent to local or minor collector streets that do not allow high-speed traffic. A neighborhood park should be accessible without having to cross major arterial streets and should be far enough from major streets that traffic noise is not obvious in the park.
- It is desirable to locate neighborhood parks adjacent to creeks and greenways, which allows for trail connections to other parks and City amenities.

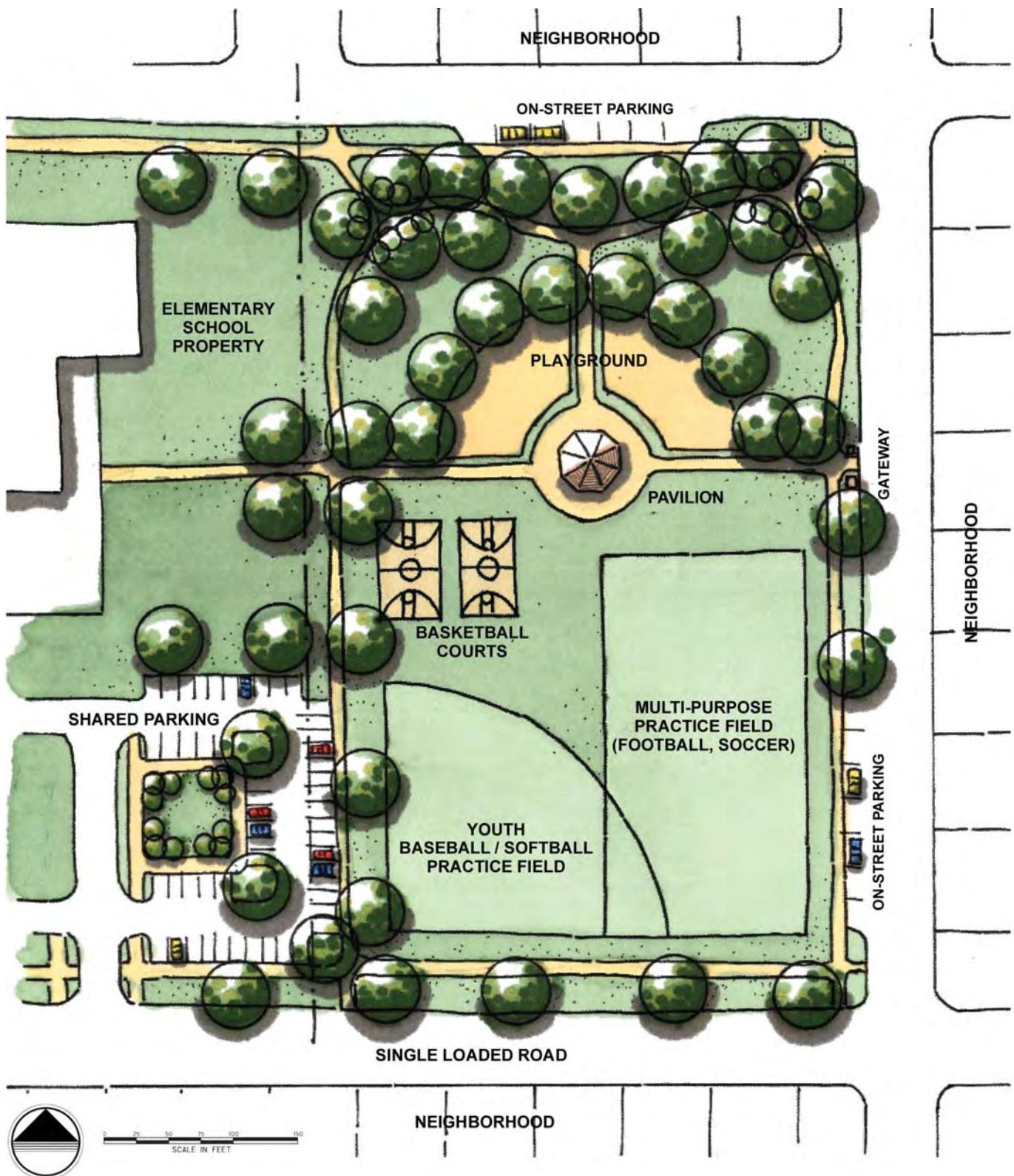


Figure 3.1 – Typical Neighborhood Park Layout

This figure illustrates a typical neighborhood park and some of the elements that the park might contain. Note that this is simply a typical arrangement, and each neighborhood park should be designed in the context of the neighborhood that surrounds it.



- It is ideal for neighborhood parks to be located adjacent to elementary schools in order to share acquisition and development costs with the school district. Adjacencies of park and school grounds allow for joint use and sharing of facilities, such as parking, which is typically not necessary for a stand-alone neighborhood park. It also lends itself to the community's involvement with the school grounds and vice versa, leading to a synergistic result that adds to the quality of life for everyone.

Facilities

Neighborhood parks would ideally include the following facilities:

- Playground equipment with adequate safety surfacing
- Playground equipment that allows for easy use by children with disabilities or limited mobility impairment
- Unprogrammed and unstructured free play areas
- Adequately sized pavilions with multi-tiered roofs
- Loop trails or a connection to the city-wide trails system

Additional facilities often provided in a neighborhood park include (but are not limited to):

- Unlighted basketball courts and half courts
- Picnic areas with benches, picnic tables, and cooking grills
- Unlighted tennis courts
- Skate parks
- Security lighting
- Drinking fountains

Design

The overall design and layout of a neighborhood park is an important determinant of its final quality and timelessness. These parks should generally be designed with the programmed space (playgrounds, pavilions, basketball courts, etc.) clustered into an “activity zone” within the park. These areas need ample seating and shade to be hospitable year round. Placing these areas near existing stands of trees is recommended as this eliminates the years of waiting for shade trees to mature. The open/unprogrammed space should be visible from this activity area but should be clearly delineated through plantings and hardscape features such as paved trails and seatwalls. Finally, a loop trail is a preferred component of a neighborhood park. When a segment of the city-wide trails system passes through a neighborhood park (which is recommended), it is important to connect it to the park’s loop trail.



Adjacency and Interaction

How the park integrates with the surrounding land uses (residences, schools, wooded areas, etc.) is crucial to the quality of experience within the park. When a road borders the park, the houses across the street should face the park. It is recommended that at least 80% of the park's boundary be bordered by single-loaded roads or creeks. No more than 20% of any park's boundary should be bordered by the backs of houses. When houses must back up to a park, the fencing between the houses and the park should be transparent (such as wrought iron fencing or similar) rather than opaque wooden fortress fencing. Transparent fencing allows a softer transition between park and residence and provides for informal surveillance of the park. High-limbed trees along fence lines can allow for a combination of privacy and transparency. When a park is constructed adjacent to a school, the two sites should interact. That is, there should be pedestrian connections between the school and the park and it could even be recommended that when schools are constructed, expanded, or renovated, windows overlooking the park should be provided.

Parking

In general, the use of shared-use trails, sidewalks, and bike routes should be encouraged to decrease automobile traffic in and around neighborhood parks. Therefore, off-street parking is not typically needed as part of neighborhood park development. When parking is deemed necessary, the number of parking spaces will vary based on the size of the park, the facilities it contains, and the number of users. Generally, depending on the carrying capacity of adjacent streets, parallel on-street parking may provide sufficient parking space. Opportunities to share parking may be beneficial to different yet compatible functions, such as churches, schools, libraries, and other City facilities.



Inventory & Analysis

Cedar Hill currently has 16 neighborhood parks, most of which are located on the more developed portions of the City. The neighborhood parks in Cedar Hill range in age, size, and level of amenities and include parks like J.W. Williams Park and Ramsey Park (which are both older, about 6 acres in size, and include numerous amenities) and Bear Creek Park and an unnamed park near Plummer Elementary School (which are 5 and 6 acres in size, respectively, and are not yet developed). Neighborhood Parks total more than 115 acres.

Table 3.1 – Neighborhood Park Inventory

Name	Size (acres)	Playgrounds	Pavilions	Paved Loop Trail (miles)	Open Play Areas	Other Amenities
Bear Creek Park	5.00			0.60		
Bradford Park	5.60			0.65	1	Fishing pond, gazebo
Calf Pasture Park	10.07	1	1	0.50		Basketball court, backstop
David Rush Park	8.24					
Dot Thomas Park	6.5	1		0.3	1	2 Baseball competition fields, basketball court
Highlands Recreation Area	8.25			0.25		Backstop, 2 soccer practice fields
J.W. Williams Park	6.00	1	1	0.40	1	Backstop, football/soccer field, 2 tennis courts, fitness course
Kingswood Park	12.50	1	1	0.30	1	
Liberty Park	6.92	1	1	0.20		
Longhorn Park	8.60	1	1	0.50		Fitness course
Meadows Park	3.00	1	1	0.20		Basketball court
Prairie View Park	6.60	1	1		1	Backstop
Ramsey Park	6.02	1	1	0.30	1	Football/soccer field, backstop, 2 tennis courts, multi-purpose court, fitness course
Waterford Oaks Park	6.37			0.40		Fishing pond, gazebo
Wildwood Park	5.58	1		0.25	1	
Windsor Park	4.03	1	1	0.30		
Unnamed Park near Plummer Elementary	5.98			0.20		
Total	115.26	11	9	5.35	7	

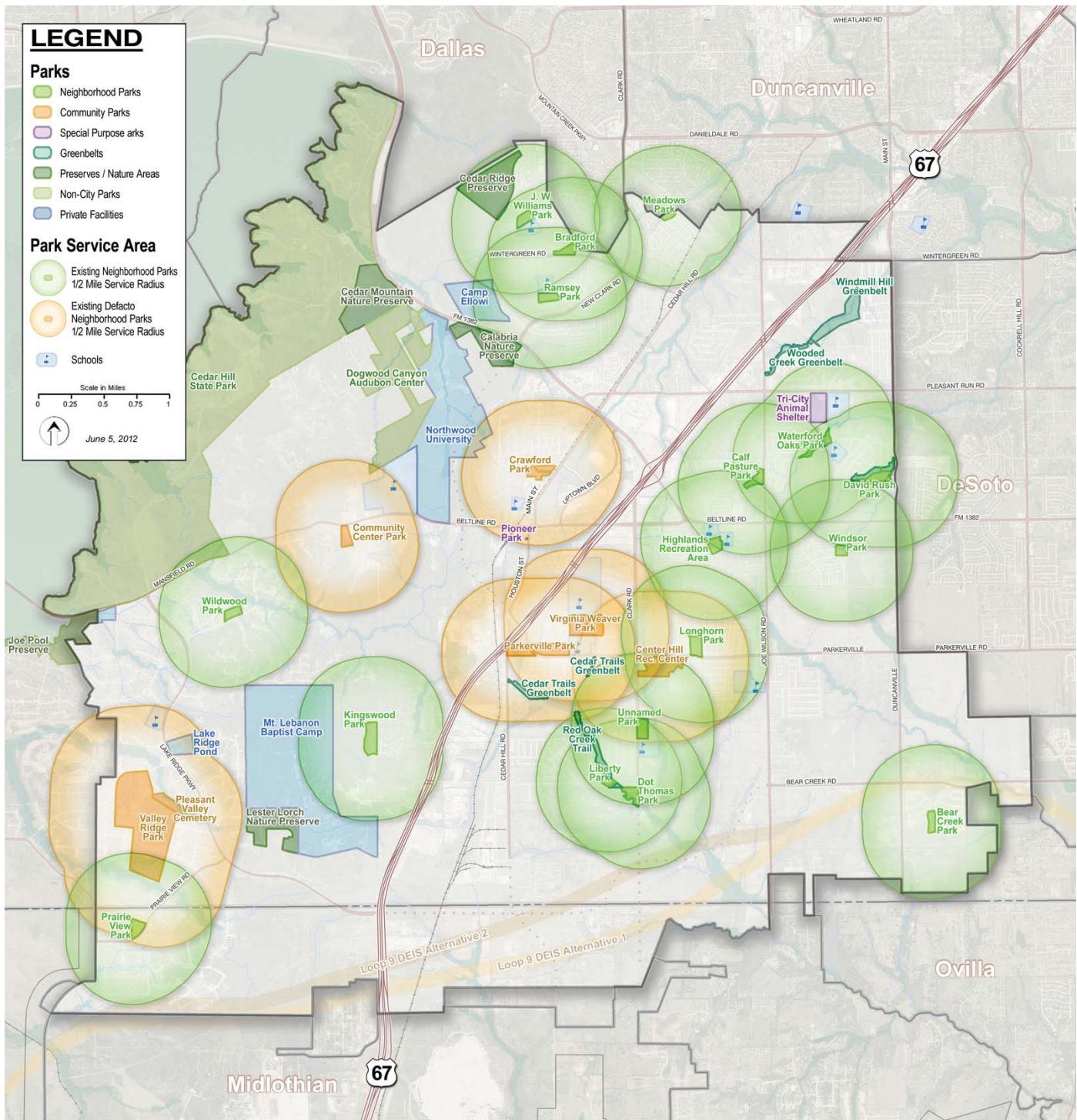


Figure 3.2 – Existing Neighborhood Parks

This figure illustrates the location and spatial distribution of neighborhood parks in Cedar Hill. Included in this map are community parks, which are considered “de facto” neighborhood parks because in addition to ballfields, recreation centers, etc., they also include all of the amenities of a typical neighborhood park.

Neighborhood parks best serve households within walking distance and therefore are shown with a half-mile service radius (which roughly equates to a 10 minute walk). The service area radii should be seen as guidelines, as physical barriers such as railroads, major roads, and creeks often prevent a park from serving the entire area within its ideal service area.

Existing Neighborhood Parks

The following pages include analyses of each of the existing neighborhood parks in Cedar Hill.



Bear Creek Park

- Size: 5.0 Acres
- Location: 1620 Midlake Drive

Bear Creek is an undeveloped park in the southeastern portion of the community. It is surrounded on all sides by streets and has a row of trees that run along what was likely an old fence line. Aesthetically, the row of trees serves to define the park. The location of this park in a developing portion of Cedar Hill makes it an important site for a future neighborhood park. Its relatively open and flat nature could make it a prime location for sports practice fields. Consideration must be given to connectivity to the surrounding neighborhood and nearby planned trails.

Recommended Improvements

- Develop as a neighborhood park: \$1,200,000
- **Total:** \$1,200,000



Bradford Park

- Size: 5.6 Acres
- Location: 401 W. Wintergreen Drive

This park is located in the northern portion of the community. It is a constrained site due to its linear shape and the presence of the large detention pond in its center. However, these characteristics lend to the park's quaint charm. While the park and the surrounding neighborhood would benefit from a playground, site constraints might lend this unfeasible. Minor improvements (e.g., the introduction of native plants and grasses) will help refresh the park.

Recommended Improvements

- Widen Trail from 5' wide to 8' wide: \$57,000
- Additional landscaping: \$30,000
- Standardize and replace tables/benches and park sign: \$30,000
- Restore or replace existing gazebo: \$100,000
- **Total:** \$217,000

Calf Pasture Park

- Size: 10.07 Acres
- Location: 335 N. Joe Wilson Road

Being the ideal size for a neighborhood park, Calf Pasture is located along a major roadway. Some vegetative screening has been provided as a buffer, but additional physical buffers may be desirable. However, it is important to not make the park feel secluded. The primary recommendation for this park is that its playground and pedestrian bridge be replaced or refurbished.



Recommended Improvements

- Lights for paved path or trail: \$105,600
- Shade structure for playground: \$25,000
- Replace playground: \$70,000
- Replace pedestrian bridge: \$50,000
- Standardize and replace park sign: \$10,000
- **Total:** **\$260,600**

David Rush Park

- Size: 8.24 Acres
- Location:

David Rush is an undeveloped park in the eastern portion of Cedar Hill, near Duncanville Road between Pleasant Run and Belt Line Roads. This park has a unique opportunity to serve the neighborhood to the north by including a pedestrian bridge and trails when the park is designed.

Recommended Improvements

- Develop as a neighborhood park: \$1,200,000
- **Total:** **\$1,200,000**



Dot Thomas Park

- Size: 6.5 Acres
- Location: 1401 S. Clark Road
- Classification: Special Purpose Park

This park is located at the southern extent of the new Red Oak Creek Trail. The primary function of this park is baseball league play. With only two fields, however, this park does not efficiently serve the needs of the baseball league. Therefore, the opportunity to redevelop and repurpose Dot Thomas as a neighborhood park should be explored. The cost indicated below includes parking improvements, a loop trail, demolition, playground replacement, and repurposing the current athletic field area. Proper drainage must also be provided.

Recommended Improvements

- Develop as a neighborhood park: \$1,000,000
- **Total:** \$1,000,000



Highlands Recreation Area

- Size: 8.25 Acres
- Location: 225 Sims Drive

Located between Highlands Elementary School and Beltline Intermediate School, this neighborhood park lacks the primary neighborhood park amenities (see page 3-8). In addition, its openness and lack of vegetation in the form of trees make the park feel exposed.

Recommended Improvements

- Loop trail: \$60,000
- Pavilion: \$50,000
- Playground: \$75,000
- Landscape and irrigation: \$60,000
- Standardize and replace park sign: \$10,000
- **Total:** \$255,000

J.W. Williams Park

- Size: 6 Acres
- Location: 1605 High Pointe Lane

This park is located in the northern portion of Cedar Hill. It is well integrated into the surrounding neighborhood and is adjacent to West Intermediate School. The park includes a good variety of amenities, but many of them are aged and should be replaced. In addition, the line of residential wooden fences that constitute one edge of the park are unsightly and should be replaced with transparent wrought iron fencing (or similar) or otherwise screened. Fence replacement may be achieved through a City-wide incentive to improve parks with similar conditions. This park is a good example of how an elementary school and a neighborhood park can be symbiotic.



Recommended Improvements

- Improve landscaping and irrigation \$100,000
- Replace playground and add shade structure: \$100,000
- Replace picnic tables and grills: \$25,000
- Vegetative buffer along fences: \$45,000
- Standardize and replace park sign: \$10,000
- Refurbish backstop: \$5,000
- **Total:** \$285,000

Kingswood Park

- Size: 12.5 Acres
- Location: 1528 Sharon Drive

Kingswood Park is located in the southwestern portion of Cedar Hill. It is a fairly secluded park, bordered by the backs of houses on one side and by forested areas on the other three sides. Transparent wrought iron fencing (or similar) will help alleviate the sense of seclusion. Because of the park's very large size, the opportunity exists to provide additional amenities at this location or feature large areas of grasslands and forest.



Recommended Improvements

- Develop the remaining 6 acres of the park: \$600,000
- Trail development (3,500 L.F. x 8'): \$165,000
- Irrigation and additional landscaping: \$120,000
- Standardize and replace park sign: \$10,000
- **Total:** \$995,000



Liberty Park

- Size: 6.92 Acres
- Location: 301 Capricorn Drive

This park is located in the southern portion of Cedar Hill along the new Red Oak Creek Trail. The park is bordered on one side by a single-loaded road and on the other by the wooded Red Oak Creek corridor. The park serves its function well and will become a more popular destination upon the completion of the trail.

Recommended Improvements

- Playground shade structure: \$25,000
- Enhance pavilion: \$50,000
- Standardize and replace park sign: \$10,000
- ***Total:*** \$85,000



Longhorn Park

- Size: 8.6 Acres
- Location: 425 E. Parkerville Road

This park is uniquely situated to provide access from two locations opposite each other while being surrounded by the backs of houses on three sides. The park includes the basic neighborhood park amenities and an attractive grove of Cedar trees. The primary need is for additional minor amenities and repainting several of the existing elements within the park. In addition, property owners should be encouraged to install transparent wrought iron fencing (or similar).

Recommended Improvements

- Additional benches, tables, trees: \$50,000
- Playground shade structure: \$25,000
- Relocate exercise stations to improve drainage: \$10,000
- Repaint metal surfaces as needed: \$5,000
- Standardize and replace park sign: \$10,000
- ***Total:*** \$100,000

Meadows Park

- Size: 3 Acres
- Location: 1555 Hamilton Road

This small but attractive park is located in the northern portion of Cedar Hill, directly on the border of Duncanville. The wooded edge enhances the aesthetics of this park and makes it a comfortable place to be. The primary consideration for this park is its proximity to the Veloweb and other planned, regional trails. The park may serve as a minor trailhead in the future. For now, the incorporation of additional minor amenities is the main recommendation.



Recommended Improvements

- Additional benches, tables, trees: \$50,000
- Install basketball goal: \$500
- Standardize and replace park sign: \$10,000
- **Total:** **\$60,500**

Prairie View Park

- Size: 6.6 Acres
- Location: 2600 Prairie View Boulevard

This is one of Cedar Hill's newest neighborhood parks. As such, no recommendations are made at this time. Currently, the lack of mature vegetation lends a feeling of exposure within the park. However, this will dissipate as the park ages and vegetation matures. The pavilion appears somewhat stark; a cost-effective improvement would be to clad the bottom half of the metal posts with stone. Landscaping will further help to define the space associated with the pavilion.



Recommended Improvements

- Landscaping and irrigation: \$100,000
- Site grading to improve drainage: \$50,000
- Pavilion improvements: \$8,000
- **Total:** **\$158,000**



Ramsey Park

- Size: 6 Acres
- Location: 1313 High Pointe Lane

This park is located adjacent to High Pointe Elementary school. It is bordered by the backs of houses on two sides and a road on another. Many of the facilities in this park are aged and should be replaced or renovated. Otherwise, the park is appropriately-located and serves its function well.

Recommended Improvements

- Additional benches, tables, trees: \$50,000
- Playground shade structure: \$25,000
- Replace pavilion: \$50,000
- Renovate playground: \$20,000
- Standardize and replace park sign: \$10,000
- Replace exercise course: \$20,000
- **Total:** \$175,000



Waterford Oaks Park

- Size: 6.37 Acres
- Location: 320 N. Waterford Oaks Drive

This park is linear in form and consists primarily of a large detention pond set in the center of the site. It is bordered by single-loaded roads on both sides and wooded areas on both ends. The park site is very attractive and the use of its space is generally maximized. The park would benefit from a wider loop trail. However, the topography around the edges of the park will make such an action challenging.

Recommended Improvements

- Standardize and replace park sign: \$10,000
- Widen loop trail: \$100,000
- **Total:** \$110,000

Wildwood Park

- Size: 5.58 Acres
- Location: 2415 Lakeview Drive

This relatively new park benefits from a wooded backdrop provided by a tree-lined drainageway. However, little vegetation exists within the park itself, which is the primary recommendation for this site. Of mention is the park's innovative design, that forgoes a traditional pavilion for a curved pergola that wraps around the playground.



Recommended Improvements

- Additional trees, landscaping, and irrigation: \$70,000
- Add a pavilion: \$50,000
- Standardize and replace park sign: \$10,000
- ***Total:*** ***\$130,000***

Windsor Park

- Size: 4.03 Acres
- Location: 200 Lakeside Drive

This park is located in the eastern portion of Cedar Hill. It is bordered by single-family residential, a senior living facility, and undeveloped land. A large portion of the park's area is dedicated to a pond, which serves as an amenity and as a detention vessel. A trail loops around the pond and the park. The park is accessible to the surrounding neighborhood and serves its function well.



Recommended Improvements

- Landscaping and irrigation: \$100,000
- Additional playground shade: \$20,000
- Standardize and replace park sign: \$10,000
- ***Total:*** ***\$130,000***

**Unnamed Park near Plummer Elementary School**

- Size: 5.98 Acres
- Location: Clark Road

This unnamed park is undeveloped, other than a sidewalk along one of its sides. This park is bordered on two sides by roads, one side by a Plummer Elementary School, and one side by a creek corridor (along which a trail is planned). The park is fairly well wooded and is an attractive site.

Recommended Improvements

- Develop as a neighborhood park: \$1,200,000
- ***Total:*** \$1,200,000

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Needs Assessment

In addition to citizen input, needs for neighborhood parks are determined by analyzing level of service (LOS) for park acreage and service area.

Acreage LOS

Acreage LOS is typically expressed as a per-capita figure. For example, the acreage LOS for neighborhood parks might be expressed as “*X acres per 1,000 population*.” Referencing the established National Park and Recreation Association (NRPA) standard as a starting point, a unique target LOS (TLOS) was developed for neighborhood parks in Cedar Hill. This TLOS goes beyond the NRPA standard, reflective of Cedar Hill’s commitment to achieve the goal of 20% open space.

- **NRPA Acreage Standard:** 1-2 acres/1,000 population
- **Cedar Hill Acreage TLOS:** 2.5 acres/1,000 population

Service Area TLOS

Park Service Area LOS represents the spatial distribution of neighborhood parks. For example, a target park service area LOS might be expressed as “*one neighborhood park within one half-mile of every residence in Cedar Hill*.” The regional benchmark for neighborhood park service area TLOS is:

- **Neighborhood Park Service Area** – quarter-mile to half-mile radius, or approximately a five to ten minute walk

This service area is general. While a half-mile radius is a good guideline for the area that is well-served by a neighborhood park, not all parks will fully serve these areas. Physical barriers (such as railroads and major thoroughfares) limit connections between parks and access from some of their intended service areas. Consideration should be given when developing new parks to the physical barriers that separate it from some or all of the neighborhoods that it is intended to serve.

Needs Assessment Results

Currently, Cedar Hill has approximately 52% of the acreage for neighborhood parks required at build-out based upon the 2012 TLOS for neighborhood parks (see Table 3.2). Considering that Cedar Hill’s current population is at approximately 51% of its anticipated build-out, the City is generally on-track in terms of neighborhood park acreage compared to the current population. Beyond acreage LOS, there is a moderate park service area deficit as illustrated in Figure 3.3.

Table 3.2 – Current and Target Level of Service for Neighborhood Parks

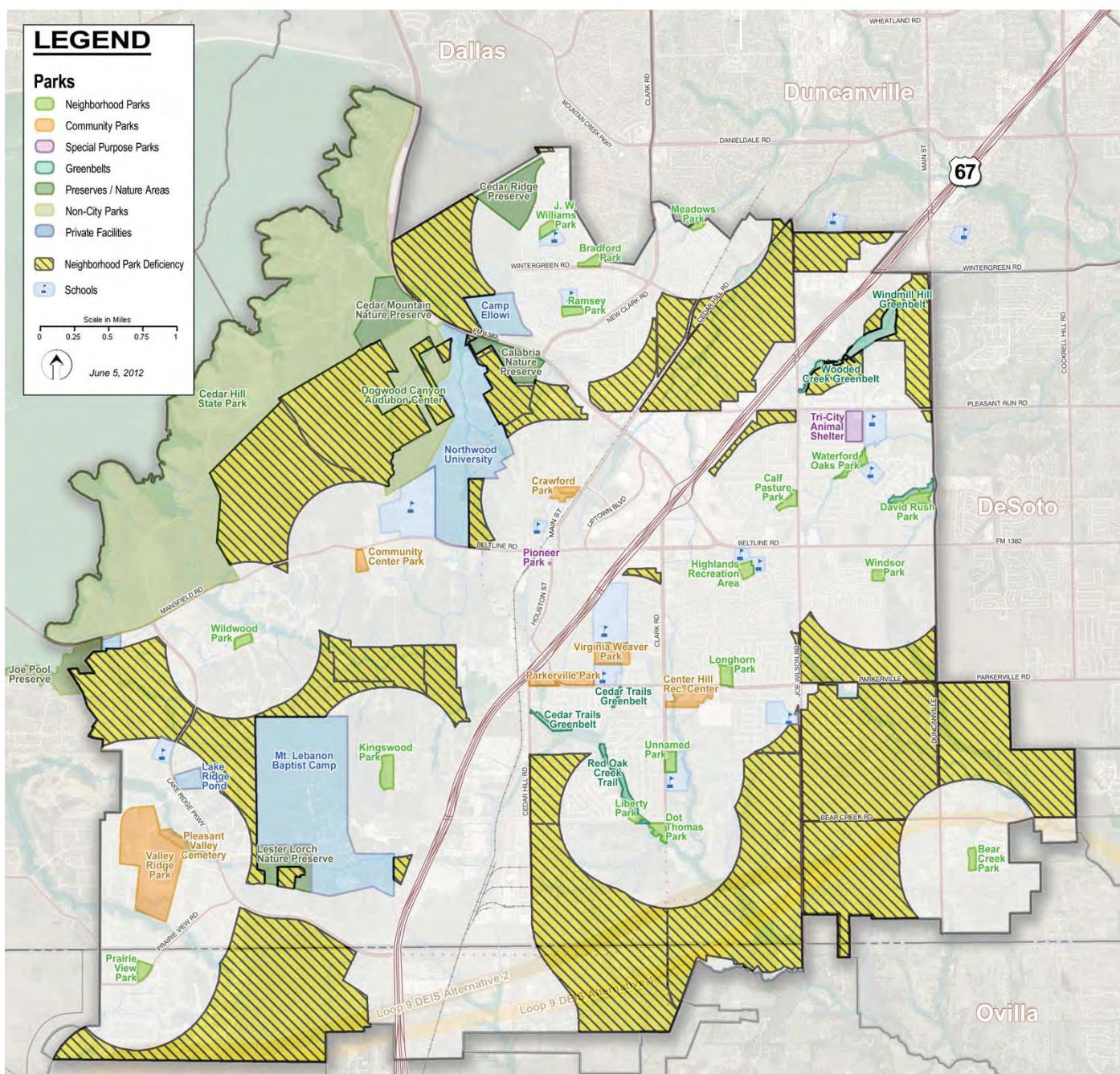
Existing Acreage	115.26
Current LOS	2.5 Acres/1,000 Population
Target LOS	2.5 Acres/1,000 Population
Target Acreage at Build-Out*	222
Acreage to Acquire to meet Target	106.74

Existing acreage is 52% of the target for build-out conditions.

*Population of 88,956

Figure 3.3 – Neighborhood Park Service Area Deficit

The yellow areas in this figure indicate the residential areas according to the City's Future Land Use Plan that are not within a half-mile of an existing neighborhood park. As it can be seen, there are significant areas within the northern and southern portions of the community that are currently under-served.


Figure 3.3 – Neighborhood Park Service Area Deficit

Recommendations

Land Acquisition & Park Development

Cedar Hill's current and future LOS indicates a need for 107 additional acres of land for neighborhood parks, as well as a significant service area deficit. In order to address these needs, 11 additional neighborhood parks are recommended to accommodate Cedar Hill's population at build-out conditions (forecasted for the year 2030). While some of the land to be acquired might need to be purchased outright by the City, it is the intent that the majority of the necessary land acquisition will occur through parkland dedication during the development process (either through outright dedication or acquired fees in lieu of land) so that accommodating the needs of additional residential growth is shared between the City and the development community. In addition, one of the proposed park sites is located on existing City-owned land. This would reflect a reallocation of land, rather than an acquisition.

Figure 3.4 shows locations of existing, potential, and “de facto” neighborhood parks. The locations for new parks were chosen based on perceived land availability, proximity to natural features and potential trail corridors, and their ability to provide service area coverage for existing and future residential areas. A “de facto” neighborhood park indicates the location of a community park, which also serves as a neighborhood park because of the amenities that it provides. The potential neighborhood parks shown along Joe Wilson Road between Belt Line Road and Parkerville Road would not require land acquisition since this land is already owned by the City

The following specific acquisition and park development actions are recommended per sector for neighborhood parks (these sectors correspond with the study areas used during the telephone survey).

- ***Sector 1*** (East of US-67/South of FM-1382):
6 Neighborhood Parks (one on existing City-owned land)
- ***Sector 2*** (North of FM-1382):
2 Neighborhood Parks
- ***Sector 3*** (West of US-67/South of FM-1382):
3 Neighborhood Parks

Figure 3.5 on page 3-28 shows the location of proposed neighborhood parks by sector.

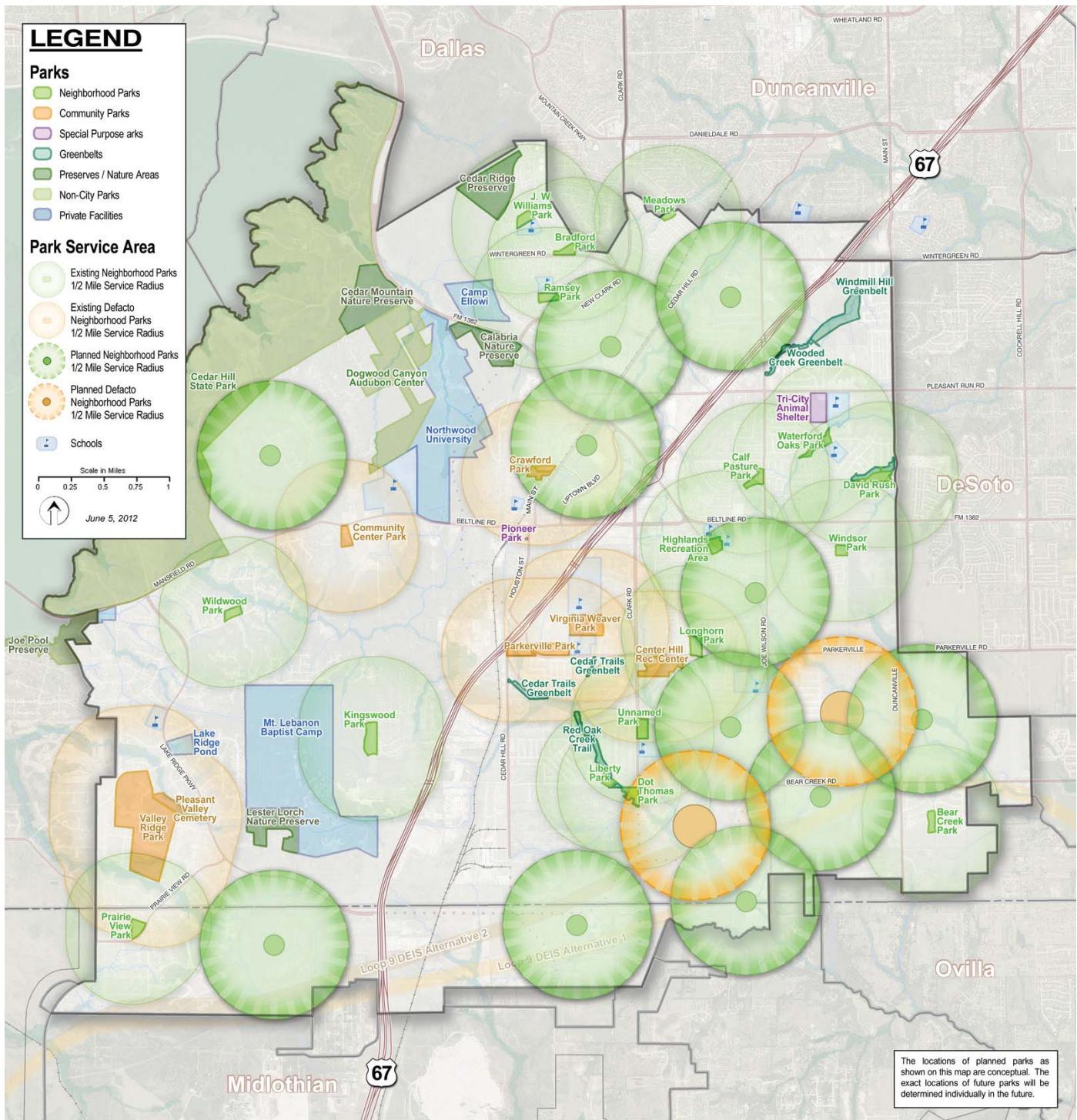


Figure 3.4 – Existing & Proposed Neighborhood & De Facto Neighborhood Parks

This figure illustrates the location of existing and proposed neighborhood and “de facto” neighborhood parks in Cedar Hill. “De facto” parks are community parks that also serve as neighborhood parks because in addition to ball fields, recreation centers, etc., they also include all of the amenities of a typical neighborhood park.

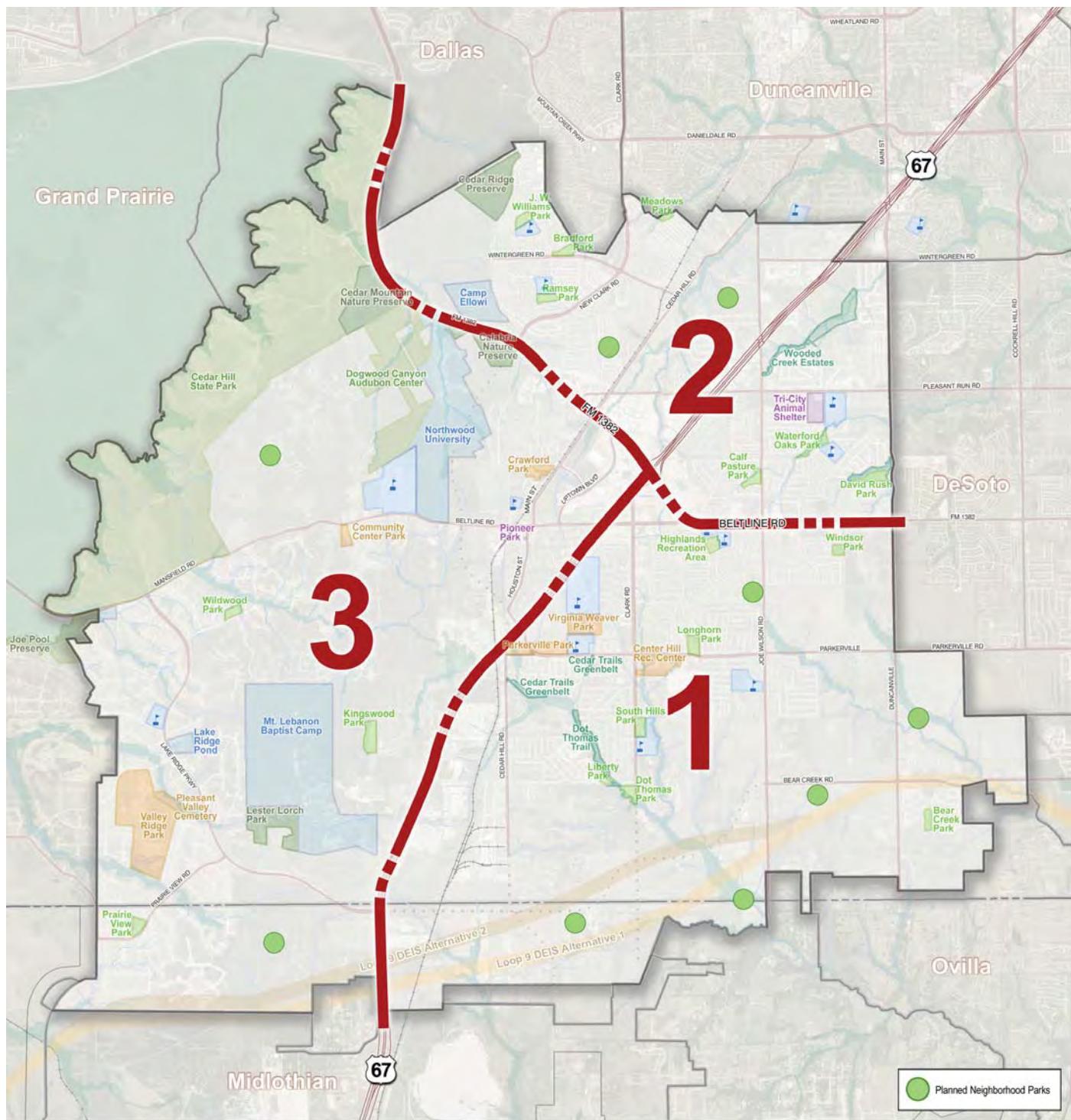


Figure 3.5 – Proposed Neighborhood Parks by Sector

This figure illustrates the location of proposed neighborhood parks by city sector. These sectors correspond with the study areas used during the telephone survey.

Neighborhood Park Action Plan

Table 3.3 lists the action items for these neighborhood park recommendations.

Table 3.3 – Neighborhood Park Action Items

Action ID	Action
1	Land for New Neighborhood Parks – Acquire and/or reallocate 105 acres of land for 11 future neighborhood parks (average of 10 acres each). Includes 5 acres of City-owned land at the former YMCA site.
2	Develop 10 New Neighborhood Parks on Dedicated Land - Develop 10 neighborhood parks on future park land dedicated to the City through Parkland Dedication as development occurs.
3	Develop Neighborhood Park Amenities in Four Undeveloped Parks - Develop neighborhood park amenities on existing park land (City-owned land at the former YMCA site, David Rush Park, Bear Creek Park, and the unnamed park near Plummer Elementary School)
4	Neighborhood Park Improvement - See recommendations as per the park reviews on pages 3-14 to 3-22 (one park per year).
5	Redevelop & Repurpose Dot Thomas Park - Redevelop Dot Thomas Park as a neighborhood park with a trail head and passive open space.
6	General Athletic Facility Development – Develop baseball/softball competitive and practice fields, a multi-purpose practice field, and outdoor basketball goals with new park development.
7	Support Facility Development – Develop playgrounds, pavilions, loop trails, and open play areas with new park development.
Total	

3.4 **COMMUNITY PARKS**

Along with neighborhood parks, community parks serve as the backbone of Cedar Hill's park system. Community parks are larger than neighborhood parks and include a wider array of amenities, which may include lighted sport fields, swimming pools, amphitheaters, and much more. Because they also include the amenities typically found in neighborhood parks—playgrounds, pavilions, loop trails, free play areas—community parks also double as “*de facto*” neighborhood parks, thereby serving two roles simultaneously.

Cedar Hill's Existing Community Parks:

Community Center Park

Crawford Park

Parkerville Park

Recreation Center Park

Valley Ridge Park

Virginia Weaver Park

Development Guidelines

Community parks typically include facilities that serve the entire city (such as lighted playing fields for organized sports) and therefore have a larger service area, attract more users, and require higher-intensity facilities such as considerable off-street parking. Because they are often in fairly close proximity to neighborhoods, community parks can serve many of the same functions as neighborhood parks because of similar basic amenities. As such, it is crucial to consider the needs of the immediately surrounding residents as well as the community as a whole when developing a community park.

Size

The size of a community park should be large enough to provide a variety of amenities while still leaving open space for unstructured recreation, practice space, and natural areas. The park should also have room for expansion as new facilities are required. Although a standard size is between 25 and 100 acres, community parks may be over 200 acres depending on needs and site opportunities.

Location

Because they are intended to serve large portions of the city, community parks should be centrally located and easily accessible by major thoroughfares and trails. When connected by major trails and greenbelts, community parks are not only more easily accessed, but they also serve as a hub for the trails system and other parks in the community. Care should be taken when locating a high-intensity community park adjacent to or near residential areas. In these instances, it is important to provide adequate buffers to minimize noise and bright lights at night when possible. Because of the requirement for lighted facilities, it is often preferred to have higher-intensity or “active” community parks located adjacent to commercial, retail, and/or light industrial areas, rather than residential neighborhoods.



Figure 3.6 – Typical Community Park Layout

This figure illustrates a typical community park and some of the elements that the park might contain. Note that this is simply a typical arrangement, and each community park should be designed according to the specific needs of the community.



Facilities

Community parks would ideally include the following facilities:

- Playground equipment with adequate safety surfacing
- Playground equipment that allows for easy use by children with disabilities or limited mobility impairment
- Unprogrammed and unstructured free play areas
- Adequately sized pavilions with multi-tiered roofs
- Picnic areas
- Unlighted multi-purpose practice fields for soccer and football
- Backstops for baseball and softball practice
- Loop trails or connection to the City-wide trails system
- Sufficient off-street parking based on facilities provided and size of park

Additional facilities often included in a community park include (but are not limited to):

- Restrooms
- Natural open space where available or present including access to these areas via trails
- Lighted competitive baseball, softball, soccer, and football fields (the actual type and number of competitive fields should be based on demonstrated need as per the facility target LOS put forth in this Master Plan)
- Lighted multi-purpose practice fields
- Security lighting
- Other facilities as needed which can take advantage of the unique characteristics of the site, such as fishing piers near ponds, swimming pools, open air amphitheaters, etc.



Design

The design of a community park is largely dependent on the intended character of and facilities included in each individual park and can generally be classified as active or passive. Active community parks tend to include and focus on high-intensity facilities such as lighted competitive game fields, aquatic centers, and manicured landscaping. Passive community parks, on the other hand, typically have low-intensity uses such as hiking, picnicking, free play, and generally have a large amount of natural and un-programmed space in the park. The general design of a park, therefore, will vary depending on the intended character of the park; as such, the amount of natural open space, number of game fields, amount of parking, and spatial orientation of amenities will vary.

As is the case with neighborhood parks, the overall design and layout of a community park is important to the park's final quality and timelessness. Activity zones of programmed space are important within community parks. Playgrounds, pavilions, and basketball courts make up one type of activity zone while ballfields, concession stands, and equipment storage buildings make up another type. Providing shade by means of placing the former of these two activity zone types near existing stands of trees is recommended, as is the provision of benches and picnic tables. In community parks and other large parks, it is often desirable to delineate between activity zones and unprogrammed areas by the use of natural features, such as stands of trees and creek corridors. This helps break up the park visually and delineate programmed space. Paved trails should connect these various areas with each other, as well as provide a walking/jogging loop for recreational use.

The interaction between a community park and the surrounding areas is crucial to the quality of experience within the park. As with neighborhood parks, a community park should be bordered by single-loaded roads and creeks or other natural areas. When development does border the park, the type of neighboring development dictates how the edge is addressed. If the development is residential, the fencing between the houses and the park should be transparent (such as wrought iron fencing or similar). In addition, a row of trees and/or shrubs may be used along this fence line to soften its appearance. However, if the development is industrial in nature or otherwise aesthetically unpleasing or potentially a nuisance, the border should be well-screened with dense plantings of trees and shrubs. It may also be desirable to place a fence and/or masonry wall at these borders for safety reasons (such as reducing the likelihood of a ball rolling out of the park or debris entering the park). Community parks often interface well with schools. In such instances, work with the school district to provide visual and physical connections between the school and the park.





As a final consideration, it is important to understand that community parks themselves can sometimes be a nuisance to nearby residential neighborhoods. Bright lighting at night, excessive noise from cheering spectators, or the overflow of parking onto neighborhood streets can all become issues. If a park is to be developed in close proximity to a neighborhood, take measures to address these issues and identify any other potential issues. Specifically related to the issue of light impacts, a good option to be considered is “cut-off” lighting, which allows light patterns to be controlled, thus minimizing light spill-over into surrounding areas.

Parking

This varies based on the facilities provided and the size of the park. The National Recreation and Park Association (NRPA) recommends a minimum of five spaces per programmed acre, plus additional parking for specific facilities within the park, such as pools or ballfields. The actual amount of parking provided in each park should be determined by the facilities provided in that park. Even so, consideration should always be given to the concept of “shared parking.” The benefit of shared parking is the reduction in the number of parking spaces that need to be built. There are two ways shared parking can be implemented in a park:



- Typically, the number of spaces required to be constructed in a park is determined by the peak parking requirements of each of the uses. This can result in the provision of excessive amounts of parking. Instead, determine the number of parking spaces by considering the different peak parking schedules of various uses, thereby potentially reducing the number of parking spaces needed by “sharing” parking between uses (i.e., football fields and baseball fields can share parking since football and baseball games are typically not played concurrently).
- The traditional concept of shared parking is to create an agreement with adjacent land uses like schools, churches, and other City facilities so that parking can serve both the park and the adjacent land use.

Finally, in addition to reducing the overall amount of off-street parking, it is important to consider the design and construction of parking and its impact on the park and the environment. In order to offset the surface water runoff and pollution from large areas of parking, it is recommended that consideration be given to Low Impact Development (LID), which includes the use of permeable paving combined with shade trees and bio-swales to bio-filtrate runoff water.

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Inventory & Analysis

Six community parks currently exist in Cedar Hill. These parks vary in character from Crawford Park, which is smaller and offers more passive amenities (such as playgrounds, natural areas, open play areas, tennis courts, and a swimming pool), and Valley Ridge Park, which offers predominately active amenities (specifically, competitive baseball, softball, football, and soccer fields). At just over 6 acres, Community Center Park, which is where the Senior Center is located, is the smallest community park in the City. Valley Ridge Park is the largest at 164 acres. There are 261 acres of community park land in Cedar Hill.

Table 3.4 – Community Park Inventory

Name	Size (acres)	Baseball Fields*	Softball Fields*	Soccer Fields*	Football Fields*	Open Play Areas	Basketball Courts	Playgrounds	Large Pavilions	Paved Loop Trail (miles)	Other Amenities
Community Center Park	6.50	2						1	1	0.30	
Crawford Park	10.76					1	3	1	1	0.25	Backstop, 2 soccer practice fields, 2 tennis courts, swimming pool
Parkerville Park	24.10	5				1		1			Baseball, softball, football, and soccer practice, as well as spill-over games for these sports.
Recreation Center Park	28.43							1			Observation deck
Valley Ridge Park	164.00	6	4	18	3	1		4		1.50	Multi-purpose court, fishing pier, amphitheater
Virginia Weaver Park	27.64		4 [†]				1	1	1	0.30	
Total	261.43	13	8	18	3	3	4	9	2	2.35	

*Competitive game fields

[†]Adult softball fields

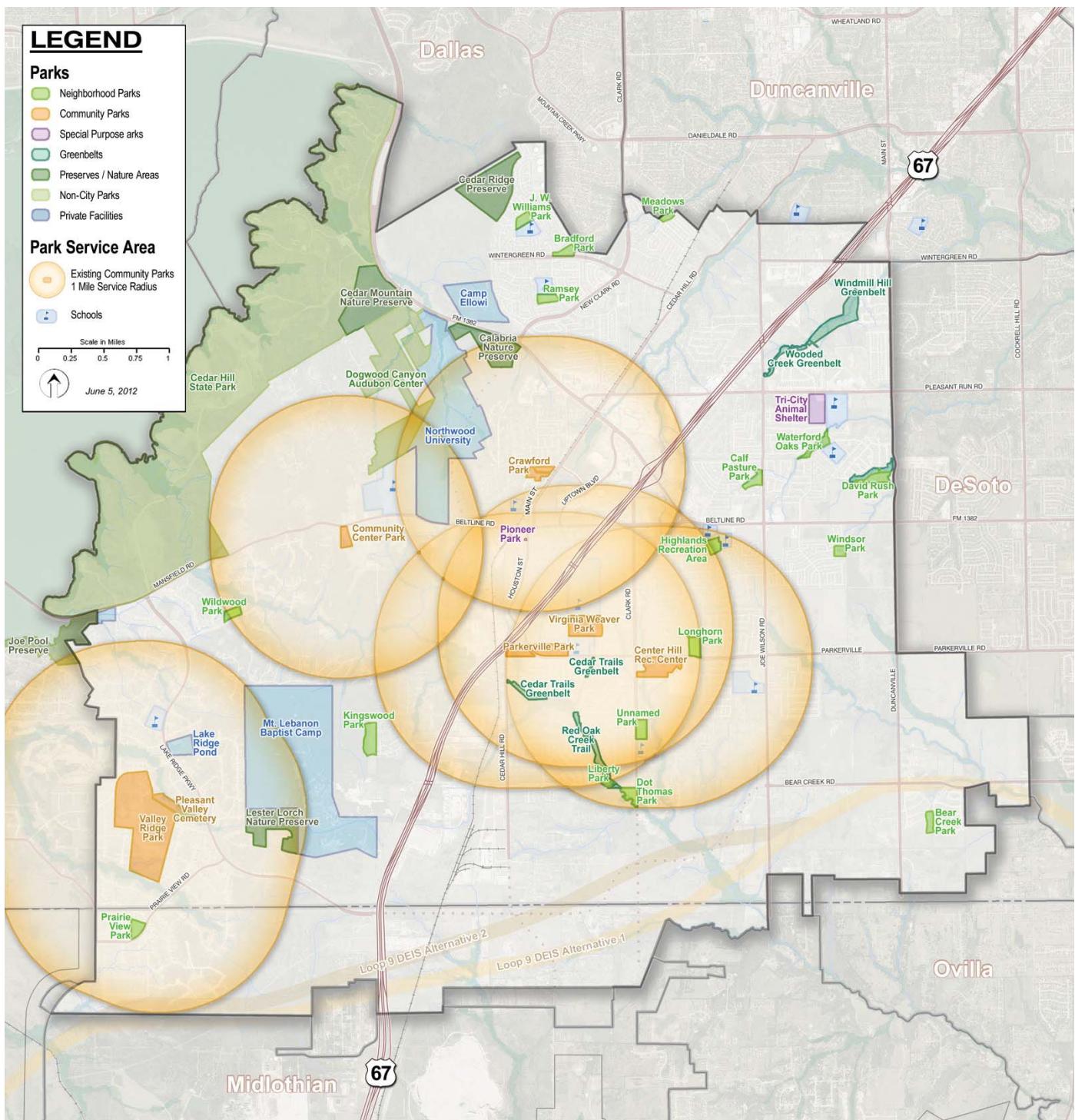


Figure 3.7 – Existing Community Parks

This figure illustrates the location and spatial distribution of community parks in Cedar Hill.

Community parks best serve households within a short driving distance. As such, community parks are each shown with a one-mile service radius (which roughly equates to a five-minute drive). These radii are calculated from the edge of the park, resulting in a polygon rather than a circle. The service area radii should be seen as guidelines, as physical barriers such as railroads, major roads, and creeks often prevent a park from serving the entire area within its ideal service area.

Existing Community Parks

The following pages include analyses of each of the existing community parks in Cedar Hill.



Community Center Park (Senior Center location)

- Size: 6.5 Acres
- Location: 1740 Mansfield Road

This park is very small for a community park; however, it is considered as such due to its amenities. In addition to housing the Senior Center, this park includes a playground, two baseball competition fields, and a small amount of wooded open space. The park is adjacent to Cedar Hill's famous communications towers and large amount of surrounding vacant land. Opportunities to extend paved or natural surface trails into these large wooded areas should be explored in the future (the Trails Master Plan shows such a trail connection). Future improvements to the park should focus on amenities geared toward senior citizens given their existing presence in the park.

Recommended Improvements

- Master plan for site development when the planned east side community park is under design: \$50,000
- Provide additional benches, tables, and shade trees: \$20,000
- Improve the parking lot and improve ingress/egress: \$100,000
- Replace the playground: \$50,000
- Upgrade irrigation: \$15,000
- Standardize and replace park sign: \$10,000
- ***Total:*** **\$245,000**

Crawford Park

- Size: 10.76 Acres
- Location: 401 Straus Road/530 Krantz Road

Crawford Park is also smaller than typical for a community park. But, as with Community Center Park, it is considered a community park due to the types of amenities it provides (multiple practice fields, tennis courts, and a swimming pool). This park is somewhat difficult to access due to the surrounding street network. Pedestrian/bicycle connections along and over or under the adjacent railroad tracks would improve access to the park. Otherwise, the primary issue with Crawford Park is that it is in need of general repair and renovation. A discussion on the long-term viability of the swimming pool can be found in Chapter 4.



Recommended Improvements

- Master plan for park development when the Recreation Center expansion is under design: \$50,000
- General repairs and renovations of several elements: \$100,000
- Standardize and replace park sign: \$10,000
- ***Total:*** ***\$110,000***



Parkerville Park

- Size: 24.10 Acres
- Location: 501/701 West Parkerville Road

The primary function of this park is to provide space for youth sports practice and league play. There is currently an ownership dispute regarding this property. Resolving this dispute and ensuring the land's long-term availability for park use is highly important. Otherwise, the park's facilities would need to be provided elsewhere, which would likely require the acquisition and development of additional land. As shown in the Trails Master Plan (see Chapter 5), this park has the opportunity to be connected to Virginia Weaver Park.

Recommended Improvements

- Master plan for park development when the planned east side community park is under design: \$50,000
- Provide standardized park sign: \$10,000
- Pavilion: \$50,000
- **Total:** **\$60,000**



Recreation Center Park

- Size: 28.43 Acres
- Location: 310 E. Parkerville Road

Primarily known as the Recreation Center site, this park contains a sizeable amount of undeveloped land that will eventually house various community park amenities. In addition, the expansion of the Recreation Center to include indoor aquatics should occur in the future (see Chapter 4). Considering the existing and future development on this land (the Recreation Center, its future expansion, and the large parking lots), this park will likely never be a site for sports fields. Instead, the park is a prime site for specialty facilities, such as a skate park and spray park. The specific program for the park should only be determined after a dedicated master plan for the site has been developed along with community input.

Recommended Improvements

- Master plan for park development as part of the: Recreation Center expansion: \$50,000
- Park Development: \$3,000,000
- **Total:** **\$3,050,000**

Valley Ridge Park

- Size: 164 Acres
- Location: 2850 Park Ridge Drive

In comparison with Cedar Hill's other community parks, Valley Ridge Park is very large. With 31 athletic fields, four playgrounds, a multi-purpose court, and a large amphitheater, it also provides a greater number of amenities than all of Cedar Hill's other community parks combined. The southern portion of the park—a large wooded area including multiple ponds—is relatively undeveloped. It is recommended that this area remain in its natural state with minimal improvements other than nature trails to provide access and encourage exploration.



Recommended Improvements

- Master plan remaining undeveloped park land: \$60,000
- Provide walking trails with signage: \$500,000
- Shade structure package for fields: \$500,000
- Benches, tables, and shade trees: \$20,000
- Replace and redesign large park entry signs: \$250,000
- **Total:** **\$1,330,000**

Virginia Weaver Park

- Size: 27.64 Acres
- Location: 631 Somerset Drive

Situated between Cedar Hill High School, Permenter Middle School, and open space that surrounds a broadcast tower, this park provides adult softball fields and a large, community-built wooden playground structure. Almost all of the park's land has been developed to some degree, limiting the addition of amenities. The condition of the wooden playground, which is aging and requires regular maintenance, must be monitored constantly. Though it has sentimental value, the replacement of the playground should be evaluated to minimize long-term maintenance and repair costs.



Recommended Improvements

- Evaluate playground and replace: \$300,000
- Standardize and replace park sign: \$10,000
- **Total:** **\$310,000**

Needs Assessment

In addition to citizen input, needs for community parks are determined by analyzing level of service (LOS) for park acreage and service area:

Acreage LOS

Acreage LOS is typically expressed as a per-capita figure. For example, the acreage LOS for community parks might be expressed as “*X acres per 1,000 population.*” Based on established National Park and Recreation Association (NRPA), a target LOS (TLOS) was developed for community parks. This TLOS is reflective of Cedar Hill’s commitment to achieve the goal of 20% open space.

- **NRPA Acreage Standard:** 5-8 acres/1,000 population
- **Cedar Hill Acreage TLOS:** 7 acres/1,000 population

Service Area TLOS

Park Service Area LOS represents the spatial distribution of community parks. For example, a target park service area LOS might be expressed as “*one community park within one mile of every residence in Cedar Hill.*” The regional benchmark for community park service area TLOS is:

- **Community Park Service Area** – 1 mile radius, or approximately a five minute drive

This service area is general. While a 1 mile radius is a good guideline for the area that is well-served by a community park, not all parks will fully serve these areas. Physical barriers (such as railroads and major thoroughfares) limit access between parks and some of their intended service areas. Consideration should be given when developing new parks to the physical barriers that separate it from some or all of the neighborhoods that it is intended to serve.

Needs Assessment Results

Currently, Cedar Hill has approximately 42% of the acreage for community parks required at build-out based upon the 2012 TLOS for community parks (see Table 3.5). Considering that Cedar Hill’s current population is at approximately 51% of its anticipated build-out, this represents a slight deficit in terms of park acreage compared to the current population. In order to meet the TLOS at build-out, it is essential that land be acquired while it is still available and at a relatively low cost. In addition to a deficit with regard to acreage LOS, there is also a moderate park service area deficit as illustrated in Figure 3.8.

Table 3.5 – Current and Target Level of Service for Community Parks

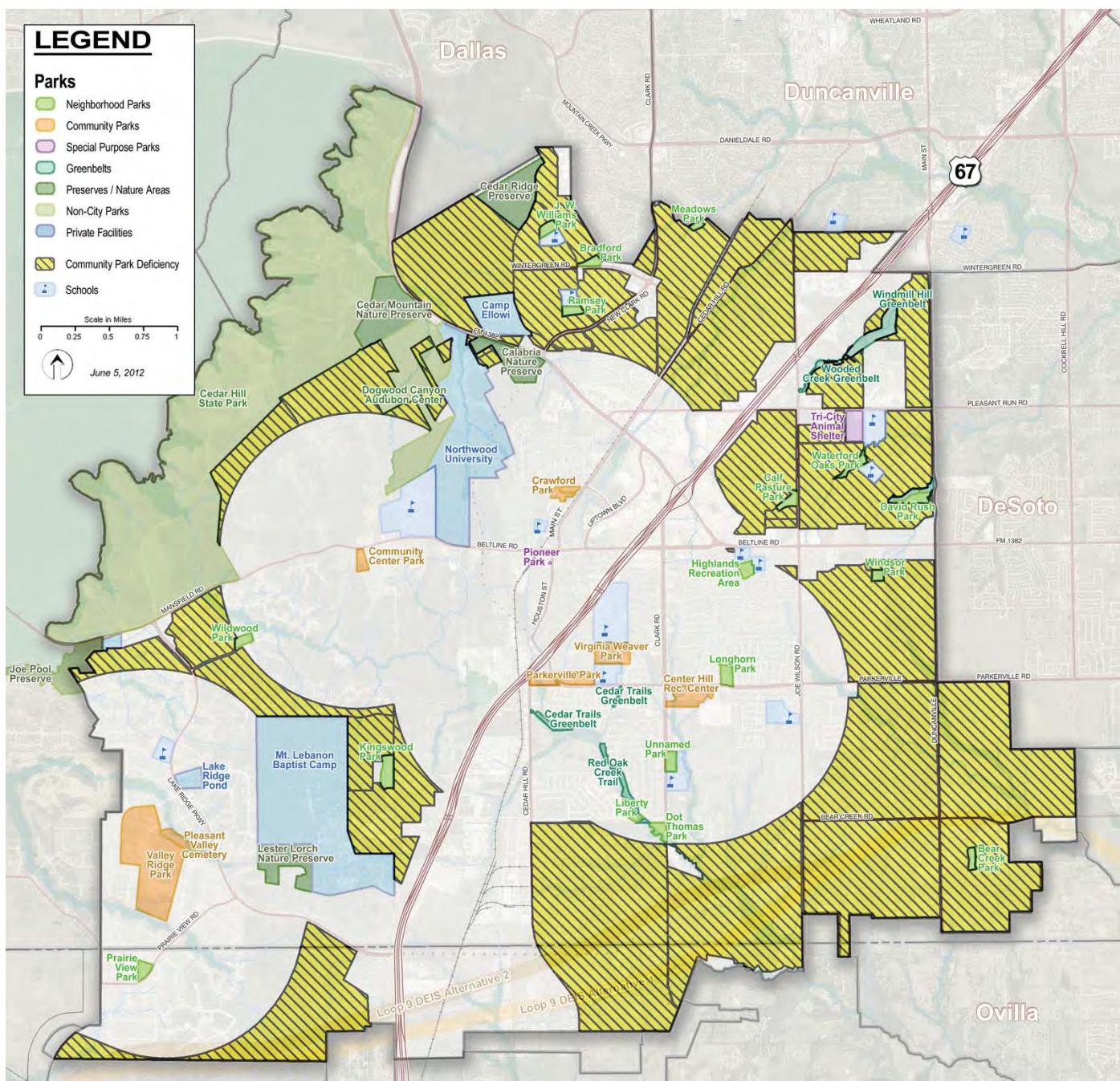
Existing Acreage	261.4
Current LOS	5.8 Acres/1,000 Population
Target LOS	7 Acres/1,000 Population
Target Acreage at Build-Out*	623
Acreage to Acquire to meet Target	362

Existing acreage is 42% of the target for build-out conditions.

*Population of 88,956

Figure 3.8 – Community Park Service Area Deficit

The yellow areas in this figure indicate the residential areas according to the City's Future Land Use Plan that are not within one mile of a community park. As it can be seen, there are significant areas in the northern, eastern, and southern portions of the community that are currently under-served.



Recommendations

Land Acquisition & Park Development

Cedar Hill's current and future LOS indicates a need for 362 additional acres of land for community parks. In order to address these needs, additional community park land is recommended in the southeastern portion of the City. In addition to generally addressing the acreage deficit, additional community park land can help address the need for athletic and non-athletic facilities (namely baseball and softball fields, practice space, tennis courts, and a skate park).

While this Master Plan considers acreage in terms of needs at build-out, it considers outdoor recreation amenities (e.g., sport fields) on a five year horizon since league participation rates fluctuate regularly. If the near-term needs for sport fields is extrapolated to the build-out population, this indicates a need for approximately twice the number of athletic fields as are currently provided by the City. As such, there are two scenarios for the provision of future community park space. Both scenarios assume the resolution of the Parkerville Park ownership dispute.

Scenario 1

An additional community park on the scale of Valley Ridge Park would be provided as one of the two proposed community parks shown in Figure 3.9. A second community park that is more passive in nature—somewhat similar to Crawford Park—and incorporates preserved open space would also be provided. A passive community park would include basic amenities such as one or more playgrounds, pavilions, trails, open play areas, and protected open space.

Scenario 2

Alternatively, a single, very large community park could be provided. This could serve the build-out population's needs and combine active and passive characteristics and amenities, allowing all needs to be met.

It is important to locate future community parks such that they have access to an existing or future arterial thoroughfare. In addition, consider potential locations alongside with new schools, which can increase the apparent size of the parks without requiring additional land acquisition. Community parks can be located along with regional detention/retention ponds, which can serve double-duty as amenities. Both Parkerville Park and the eastern planned community park shown on Figure 3.9 are in close proximity to potential future regional detention ponds.

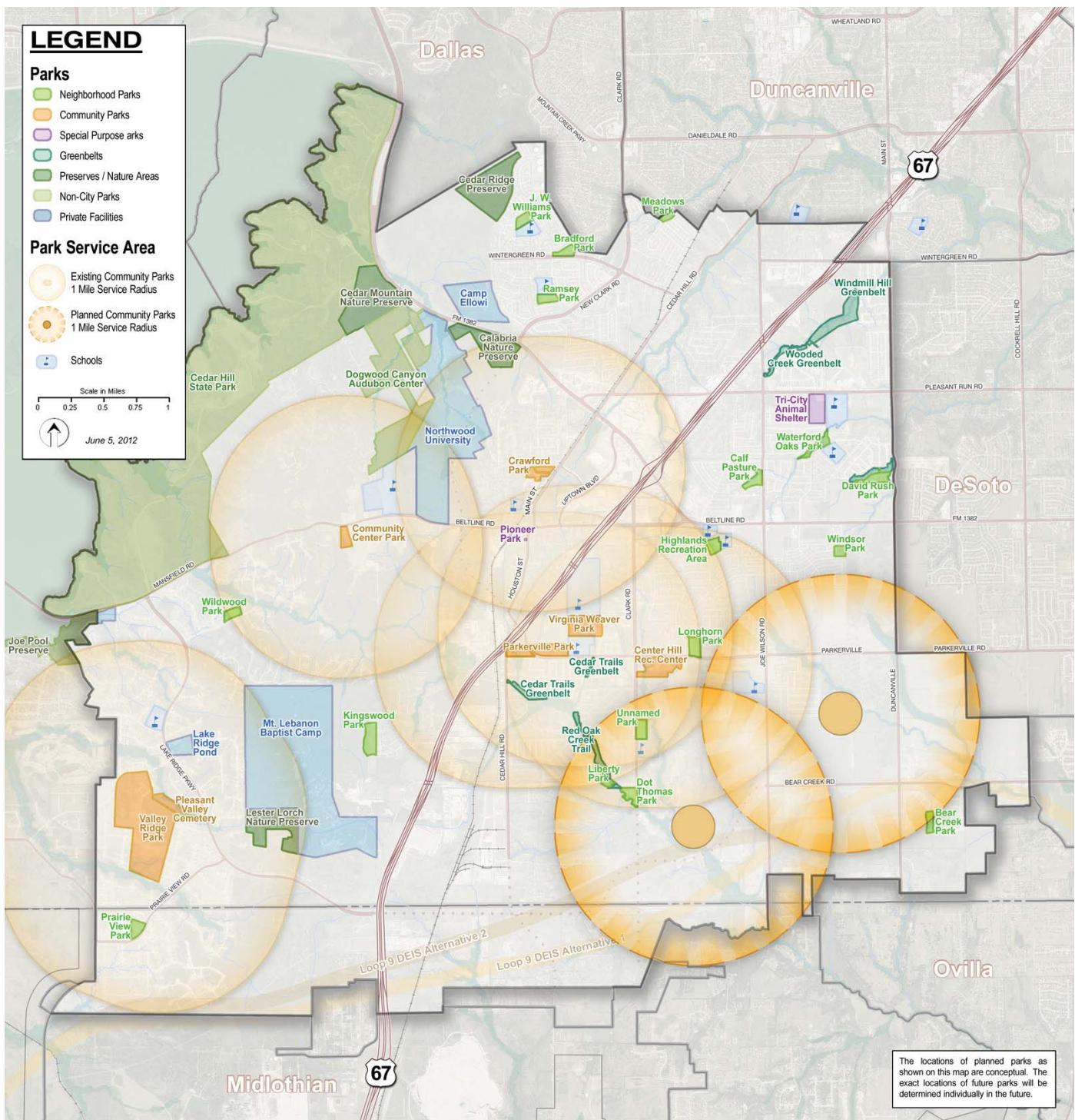


Figure 3.9– Existing & Proposed Community Parks

This figure illustrates the location of existing and proposed community parks in Cedar Hill.

Considerations for Parkerville Park

Parkerville Park (which is located on land originally leased by the City in 1964) serves an essential function in Cedar Hill's system of community parks. It should ideally remain available to the community. However, it will be necessary to replace its facilities elsewhere if its use is terminated.

Community Park Action Plan

Table 3.6 lists the action items for these community park recommendations.

Table 3.6 – Community Park Action Items

Action ID	Action
1	Parkerville Park - Resolve contested land ownership issue.
2	Land for New Community Parks - Acquire 350 acres of land for two future community parks (one active community park and one passive community).
3	New Community Park Development -Develop two future community parks or one combined community park. Include facilities to replace those removed from Dot Thomas Park, Crawford Park, and Community Center Park (see Table 3.3).
4	General Athletic Facility Development – Develop baseball/softball competitive and practice fields, a multi-purpose practice field, and outdoor basketball goals with new park development.
5	Tennis Center Development – Develop an eight-court tennis center. (Alternatively, develop four tennis courts for a lower cost).
6	Support Facility Development – Develop playgrounds, pavilions, loop trails, and open play areas with new park development.
Total	

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3.5 **OTHER PARKS**

Cedar Hill's Existing Special Purpose Parks:

Pioneer Park

Cedar Hill's Existing Greenbelts:

Cedar Trails Greenbelt

Regional Detention Pond

*Waterford Oaks East
Greenbelt*

Windmill Hill Greenbelt

Wooded Creek Greenbelt

Cedar Hill's Existing Open Space Preserves/ Nature Areas:

Calabria Nature Preserve

*Cedar Mountain Nature
Preserve*

Lester Lorch Nature Preserve

The “Other Parks” category includes any other type of park within the City that is not a “close-to-home” park—namely, special purpose parks, greenbelts and wildlife corridors, and open space preserves/nature areas. The majority of parks that fall within this category are greenbelts (five of Cedar Hill’s parks) and open space preserves (three of Cedar Hill’s Parks).

Classification

Detailed development guidelines have not been created for parks in the other parks category, as the design of each park is unique to its context and purpose.

Special Purpose Parks

Special purpose parks are provided in order to meet a specific need or take advantage of a unique opportunity and therefore are not of any one typical design. Rather, the design of the park—including size, layout, and parking—is determined by the need for which the park is provided.

Greenbelts & Wildlife Corridors

Greenbelts usually do not provide many amenities other than trails and their support facilities (such as benches, picnic tables, and interpretive signage). Wildlife Corridors typically do not provide any amenities and often do not allow public use. Along creek corridors, development should be sensitive to prevent impacts on floodplains and stream banks. Greenways may also be defined as greenbelts when purposefully designed as recreation corridors with adequate landscaping that includes the application of Low Impact Development principles. Parking is typically unnecessary unless a trailhead exists within the greenbelt.

Open Space Preserves/Nature Areas

Open space preserves and nature areas vary in size depending on the scale of the unique or ecologically valuable land that is identified as important to protect. These areas typically have very few facilities other than trails, interpretive signage, small parking lots, and perhaps gathering spaces.

Inventory & Analysis

Currently, Cedar Hill has one special purpose park—Pioneer Park. This park is considered a special purpose park because it provides one primary recreation function (live performances). In addition, Recreation Center Park and Community Center Park (which are classified as community parks) as well as Dot Thomas Park (which is classified as a neighborhood park) would generally be considered special purpose

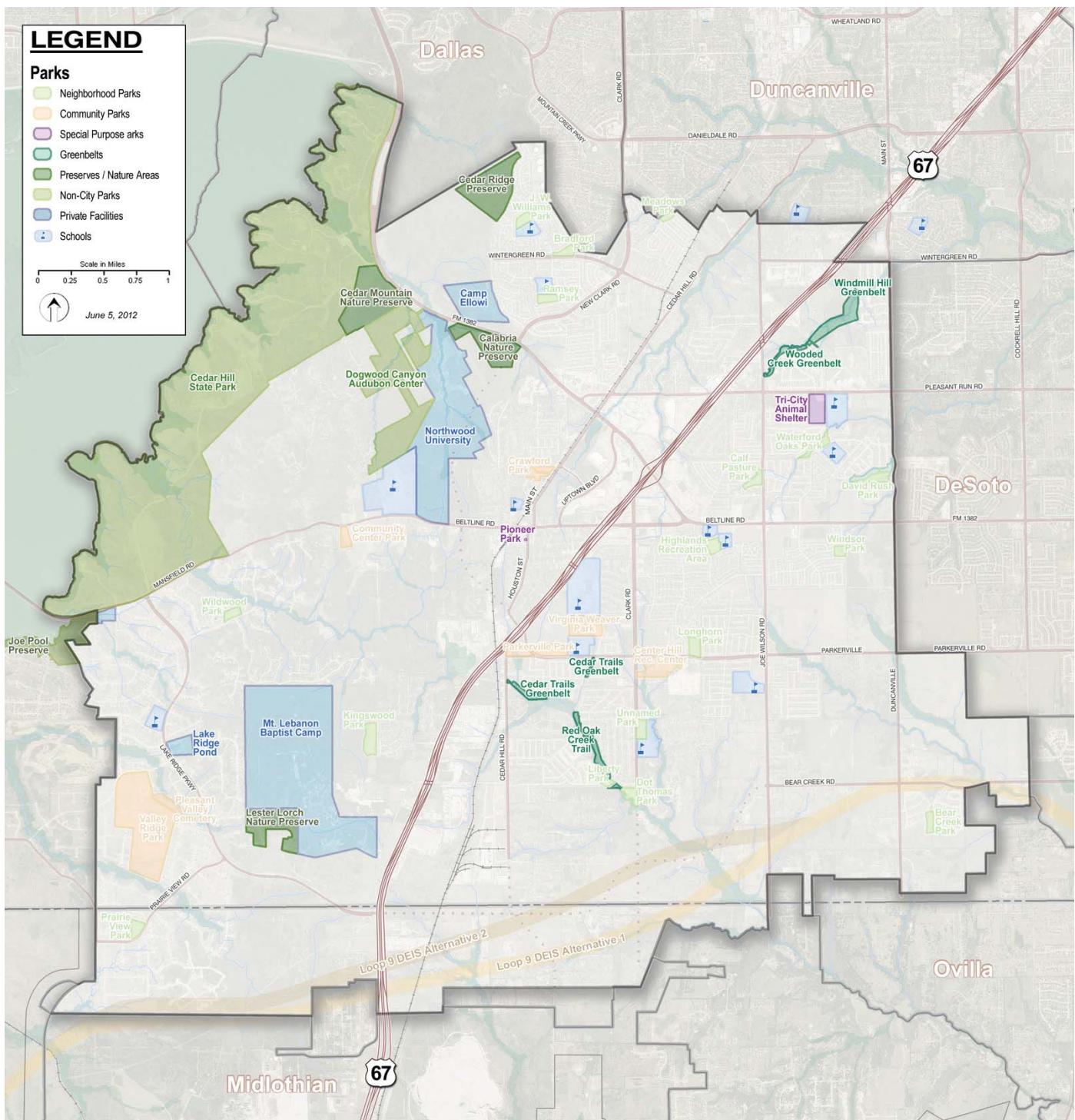


Figure 3.10 – Other Existing Parks

This figure illustrates the location and spatial distribution of special purpose parks, greenbelts, and open space preserves/nature areas in Cedar Hill. In addition, non-city parks (such as the State Park) and significant private facilities (such as Northwood University) are shown.

parks in their current state. However, if the recommendations of this Master Plan are implemented, they would exist as true community or neighborhood parks.

Cedar Hill has six greenbelts totaling nearly 41 acres of park land. The majority of these parks exist along creeks and drainage ways and many include trails.

There are currently four open space preserves/nature areas in Cedar Hill that are owned, managed, or otherwise supported by the City. These range in size from the nearly 52 acre Calabria Nature Preserve to the 110 acre Cedar Mountain Nature Preserve. This category also includes Lester Lorch Park (owned by Dallas County and maintained by the City). Although not included in the City's inventory, it is important to note that 74 of the 600 acres in the Cedar Ridge Preserve (owned by Dallas County, managed by Audubon Dallas) are in Cedar Hill. In total, this category constitutes approximately 248 acres of park land within Cedar Hill.

Table 3.7 – Other Parks Inventory

Name	Size (acres)	Amenities
Special Purpose Parks		
Pioneer Park	0.25	Band shell
Subtotal	0.25	
Greenbelts		
Cedar Trails Greenbelt	13	Basketball court, playground, pavilion
Regional Detention Pond	11-12	
Waterford Oaks East Greenbelt	6.37	0.6 miles of paved loop trail, fishing pond
Windmill Hill Greenbelt	3.0	0.3 miles of paved loop trail
Wooded Creek Greenbelt	7.0	0.6 miles of paved loop trail, playground, pavilion
Subtotal	40.87	
Open Space Preserve/Nature Areas		
Calabria Nature Preserve	51.86	
Cedar Mountain Nature Preserve	110.00	0.3 miles of paved loop trail, 0.7 miles of nature trail
Lester Lorch Nature Preserve	86.00	7.3 miles of natural surface trail, 36 hole disc golf course, fishing pond
Subtotal	247.86	
Total	288.98	

The following pages include analyses of each of the existing special purpose parks, greenbelts, and open space preserves/nature areas in Cedar Hill.

Special Purpose Parks

Pioneer Park

- Size: 0.25 Acres
- Location: 600 Cedar Street
- Classification: Special Purpose Park

This small plaza is situated in historic downtown and includes a band shell, landscaping, and a historical marker. Its amenities are limited due to its size. The plaza is located on a corner and is bordered on two sides by the brick walls of adjacent buildings.



Recommended Improvements

- Paint murals on buildings: \$10,000
- Standardize and replace park sign: \$10,000
- **Total:** \$20,000

Greenbelts

Cedar Trails Greenbelt

- Size: 13 Acres
- Location:
- Classification: Greenbelt

This greenbelt serves as the land on which the new Red Oak Creek Trail will be constructed. In addition to the trail, the greenbelt contains a basketball court, a playground, and a pavilion, in separate locations. This greenbelt provides excellent connectivity within the south-central part of Cedar Hill, linking Dot Thomas, Liberty, and Virginia Weaver Parks, as well as the Recreation Center and Permenter Middle School.



Recommended Improvements

- New park sign: \$10,000
- **Total:** \$20,000



Waterford Oaks East Greenbelt

- Size: 6.37 Acres
- Location: Stoney Hill @ Duncanville Road
- Classification: Greenbelt

This narrow greenbelt runs along a wooded creek surrounded by houses. It provides connections to Waterford Oaks Park, Bessie Coleman Middle School, and Waterford Oaks Elementary School.

Recommended Improvements

- New park sign: \$10,000
- **Total:** \$20,000



Windmill Hill Greenbelt

- Size: 3 Acres
- Location: Duncanville Road @ Wintergreen Road
- Classification: Greenbelt

This short greenbelt is located along a beautiful creek corridor at the far northeastern corner of Cedar Hill. It contains a trail that is very close to the top of the creek's bank, which provides dramatic views but will cause maintenance issues in the future. Already, a significant amount of erosion and undercutting has occurred at the trail's northern end.

Recommended Improvements

- Erosion Mitigation: \$200,000
- New park sign: \$10,000
- **Total:** \$210,000

Wooded Creek Greenbelt

- Size: 3 Acres
- Location: Joe Wilson Road @ Pleasant Run Road
- Classification: Greenbelt

This greenbelt and its accompanying trail run parallel between the creek and Wooded Creek Drive. At its southern end, there is a small pocket park environment with a playground and a pavilion. Although park signs are not essential for greenbelts, one is recommended here because of its inclusion of additional amenities.



Recommended Improvements

- Standardize and replace park sign: \$10,000
- **Total:** **\$10,000**

Open Space Preserves/Nature Areas

Calabria Nature Preserve

- Size: 51.86 Acres
- Location: 750 W. FM 1382
- Classification: Open Space Preserves/Nature Area

This nature preserve—located in the beautiful wooded area between the top of the Balcones Escarpment and Joe Pool Lake—is protected in its natural state. Because of the beauty and sensitive nature of the land, nature trails, overlooks, and basic support amenities are all that is appropriate for this park.



Recommended Improvements

- Master plan for future development: \$30,000
- Standardize and replace park sign: \$10,000
- Future low-impact park development: \$500,000
- Low-impact trails that connect to future trails along FM-1382 and Northwood University: \$300,000
- **Total:** **\$840,000**



Cedar Mountain Nature Preserve

- Size: 110 Acres
- Location: 1300 W. FM 1382
- Classification: Open Space Preserves/Nature Area

This land is owned by Dallas County and managed by the City of Cedar Hill. It is located between the Dogwood Canyon Audubon Center and the Cedar Hill State Park. The park includes basic improvements—namely a concrete trail and a trailhead with parking. The trail provides users with beautiful views of the rugged terrain present in the area.

Recommended Improvements

- Construct overlook and extend trail: \$25,000
- Study feasibility of trail opportunities: \$500
- Standardize and replace park sign: \$10,000
- **Total:** \$35,500



Lester Lorch Nature Preserve

- Size: 86 Acres
- Location: 1823 Texas Plume Road
- Classification: Open Space Preserves/Nature Area

Lester Lorch Nature Preserve is owned by Dallas County and managed by the City of Cedar Hill. This large park includes several miles of trail and two of North Texas' premier disc golf courses. A large pond in the middle of the park provides habitat for many water-oriented species of wildlife.

Recommended Improvements

- Update the west entry, driveway, and parking lot: \$250,000
- Standardize and replace park sign: \$10,000
- **Total:** \$260,000

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Needs Assessment

In addition to citizen input, needs for other parks are determined by analyzing level of service (LOS) for park acreage. Park service area does not apply to the “Other Parks” category.

Acreage LOS

Acreage LOS is typically expressed as a per-capita figure. For example, the acreage LOS for special parks might be expressed as “X acres per 1,000 population.” A target LOS was developed for the entire “Other Parks” category. Individual TLOS were not developed for each of the types of parks that comprise this category because the need for such park land is variable over time. This TLOS is reflective of Cedar Hill’s commitment to achieve the goal of 20% open space and is based on the desire to improve the current LOS in order to preserve open space and to accommodate the need for future special purpose facilities.

- **NRPA Acreage Standard:** (none)
- **Cedar Hill Acreage TLOS:** 8 acres/1,000 population

Needs Assessment Results

Cedar Hill currently has approximately 40% of the acreage for Other Parks (special purpose parks, greenbelts, open space preserves / nature areas, and all other City-owned park land other than neighborhood and community parks) required at build-out based upon the 2012 Target LOS for other parks (see Table 3.8). This results in a need to acquire about 428 acres of other park land by build-out. As park service area is not a significant consideration for Other Park types, there is not a need to perform a service area deficit analysis such as was performed for neighborhood and community parks.

Table 3.8 – Current and Target Level of Service for Other Parks

Existing Acreage	288.98
Current LOS	6.38 Acres/1,000 Population
Target LOS	8 Acres/1,000 Population
Target Acreage at Build-Out*	712
Acreage to Acquire to meet Target	423

Existing acreage is 41% of the target for build-out conditions.

*Population of 88,956

Recommendations

The provision of new special purpose parks, greenbelts, and open space preserves/nature areas is largely dependent on specific needs and opportunities. It is impossible to accurately forecast all of the needs for parks of these types for this reason. The recommendations for new parks of these types are therefore broad, except where specific, immediate needs have been identified.

Special Purpose Parks

Special purpose parks are provided in order to meet specific needs or to take advantage of specific opportunities. The size, location, and character of land acquired for parks of this type will depend on the park's intended purpose. Many special-purpose recreational facilities can be provided on existing park land. However, some may require the acquisition of additional land in order to accommodate the facility's size or site requirements. Three specialty facilities are recommended by this Master Plan—three water spray parks, a skate park, and a dog park. These specialty facilities could be developed as stand-alone special purpose parks. The dog park is earmarked to be located on the 10 acre piece of land behind the Tri-City Animal Shelter and will be a joint-venture between Cedar Hill, DeSoto, and Duncanville.

Greenbelts & Wildlife Corridors

It is recommended that the City acquire or otherwise ensure the protection of key pieces of natural open space along creek corridors for use as greenbelts and wildlife corridors. In general, the City should target land that is along a planned trail corridor or that has unique ecological value. Potential maintenance challenges should be considered when determining whether a parcel of land should be acquired. In some instances, the City may choose to acquire a permanent trail easement rather than purchase land. This will reduce overall costs to the City and might require less maintenance. Another opportunity is to utilize existing and future regional stormwater detention/retention sites as greenbelts themselves or as links between greenbelts. Access to these areas via public roads is critical for maintenance and operations and public safety.

Open Space Preserves/Nature Areas

While Cedar Hill already has almost 250 acres of land (including regional detention ponds) dedicated to open space preserves and nature areas, the acquisition of additional acreage may be desirable to protect key, unique pieces of land or to help implement the proposed Floodplain Protection & Regional Detention Plan and Balcones Escarpment Protection Plan.

Trailheads

Expanding the City's trail system is one of the citizens' top priorities. In addition to constructing additional trails, it is important to provide trailheads to allow access to the system. Each existing park that is connected to the trail system can automatically serve as a trailhead if appropriate facilities are provided. However, it may also be necessary for the City to acquire land for stand-alone trailheads in order to meet citizen demand for trail access. These sites should be evenly distributed across the City and along the trails.

Other Parks Action Plan

Table 3.9 lists the action items for recommendations and associated actions related to the “Other Parks” category.

Table 3.9- Other Parks Action Items

Action ID	Action
1	Special Purpose Parks - Acquire 20 acres of land for special purpose parks including trail heads, trail gateways, a dog park, a skate park, and other as yet unforeseen special purpose use.
2	Open Space Acquisition and Protection (Floodplain) - Acquisition of 180 acres along creek corridors (100' wide corridors along ~ 15 miles of floodplain or the 100-year floodline at build-out conditions, whichever is greater).
3	Open Space Acquisition and Protection (out of Floodplain) - Acquisition or non-acquisition protection programs of 230 acres of other important Open Space land not within the floodplain.
4	Support Facility Development – Develop playgrounds, pavilions, loop trails, and open play areas with new park development.
5	Water Spray Parks – Develop three water spray parks.
6	Skate Park – Develop a skate park as a joint-venture with surrounding cities.
7	Dog Park – Develop a dog park as a joint-venture with surrounding cities.
Total	

3.6 OUTDOOR FACILITIES NEEDS

ASSESSMENT

The following recommendations for outdoor facilities are based on an analysis of level of service (LOS), public demand, and the needs of Cedar Hill's sports organizations. These recommendations relate to the provision of new facilities and the redevelopment of existing facilities. Many of the recommended new facilities can be provided at existing parks. However, some of the larger, higher-intensity, or specialized facilities might require land acquisition.

Athletic Facilities

Overall, the City is adequately meeting the majority of the community's athletic facility needs. However, there are a few key recommendations for new or expanded facilities that should be considered within the next five years. There is a significant need for competitive baseball fields, competitive softball fields, and tennis courts. It is recommended that priority be given to developing these facilities. As discussed earlier, tennis courts are typically provided in intervals of four in a single location. This makes them functional for tournaments and league use and allows for efficient maintenance and operations. Similarly, baseball and softball fields are typically provided in intervals of four or five fields in a single location for the same reasons.

The specific recommendations for athletic facilities are:

- **Competitive Baseball Fields** – 4 or 5 fields in an existing or future community or special purpose park.
- **Competitive Youth Softball Fields** – 5 fields in an existing or future community or special purpose park.
- **Baseball/Softball Practice Fields** – 1 field with a backstop in an existing or future neighborhood, community, or special purpose park. Baseball/softball practice fields can range from a backstop in an open field to a more defined practice facility with fencing, dirt infield, and lighting.
- **Multi-purpose Practice Fields** – 1 field with combination football uprights/soccer goals in an existing or future neighborhood, community, or special purpose park. A multi-purpose practice field is a facility that is used primarily for soccer and football practice but can also be used for baseball or softball practice. Striping, lighting, and the provision of goals or backstops are optional for these facilities.
- **Outdoor Basketball Goals** – 3 goals (3 half-courts or 1 full-court and 1 half-court) in existing or future neighborhood, community, or special purpose parks.

- **Tennis Courts** – 4 traditional tennis courts or 8 tennis courts in the form of a tennis center with locker rooms and concession area that provides a higher level of service for the community with the added benefit of league tournament possibilities.

Support Facilities

There is a set of core facilities, including playgrounds, pavilions, open play areas, and loop trails, that should be provided at every neighborhood and community park in the City. These can also be provided in special purpose parks to add recreational value. The following specific facilities are recommended:

- **Playgrounds** – As a general practice, the City should provide a playground at each neighborhood park and community park. A playground should be added at six existing neighborhood parks without playgrounds as well as the nine proposed neighborhood parks and two proposed community parks identified earlier in this chapter.
- **Pavilions** – As with playgrounds, the City should generally provide a pavilion at every neighborhood and community park. These should be provided at the seven neighborhood parks that do not currently have pavilions or large shade structures. In addition, each of the proposed neighborhood and community parks should include pavilions.
- **Loop Trails & Circulation** – Simple yet very popular, a loop trail can be as short as one-eighth of a mile and as long as the park allows (though it is generally desirable to provide cut-offs or shortcuts that provide quarter-mile loops). It is recommended that loop trails be provided within every neighborhood and community park. It is desirable to connect these loop trails to the City-wide trail system where possible (see Chapter 5). At a minimum, loop trails or trails connecting to the City-wide trail system should be eight feet wide to be comfortable for multiple user types—walkers, joggers, strollers, etc.
- **Open Play Areas** – It is important for each park to have a balance between programmed and unprogrammed space. Open play areas provide space for playing catch and informal games and should be provided at each neighborhood and community park. Baseball/softball practice fields and multi-purpose practice fields for football and soccer can help meet the need for open play areas. It is important to ensure that many existing open play areas remain and additional areas are provided at new parks.

Specialty Facilities

Specialty facilities provide an additional level of recreational value beyond the core facilities and athletic facilities discussed previously. They are intended to diversify the recreational offerings of the City's parks system and to meet the needs of often under-served groups.

- **Water Spray Park** – Also called “spray grounds” or “splash pads,” water spray parks provide unique recreation opportunities for children. As a relatively low-cost aquatic facility, they include amenities like water jets and cannons, fountains, and dump buckets. It is recommended that three water spray parks be provided where and when the opportunity arises.
- **Skate Park** – Skate parks have rapidly become popular with teenagers and young adults. They provide active recreation opportunities for youth that do not participate in traditional sports programs. It is recommended that the City construct a skate park either in one of its existing parks or on new park land. As they serve regional users as well as local, skate parks are good joint-development opportunities with nearby cities.
- **Dog Park** – Dog parks are increasingly popular amenities, both with people that have yards and those that do not. They offer the opportunity for dogs and their owners to socialize and play freely. Typically, a dog park will have a small dog side (for dogs 30 pounds or less) and a big dog side (for dogs over 30 pounds). The small dog side is usually smaller (0.5 to 1 acre) while the big dog side is larger (1 to 2 acres). In addition to the fact that big dogs need more space, they also cause more wear and tear on the turf than do small dogs. A larger space allows the dogs to disperse and thereby reduce turf damage. Dog parks typically contain seating areas for owners, water fountains (for people and dogs), and one or two hose-down areas. It is recommended that a dog park be placed along an existing or future trail and also have an adequately-sized parking lot. Choosing a site with existing trees will provide a more enjoyable environment for dog owners. Finally, this type of amenity is also a good joint-development opportunity with nearby cities.

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3.7 SYSTEM WIDE RECOMMENDATIONS

The over-arching greatest needs identified for this component of the Master Plan are to upgrade and modernize existing parks, preserve open space, and prepare for the future park, recreation, and open space needs created by the City's future growth.

Achieving the 20% Parks & Open Space Goal

One of the three primary goals of this Master Plan is to have 20% of the City's land area dedicated to parks and open space at build-out. This figure will include City parks, State and County parks, and private lands that will be held as open space in perpetuity (such as Mount Lebanon Baptist Encampment and Northwood University). Currently, these areas total 3,729 acres, which constitute 16.3% of Cedar Hill's land area. Compared to cities across the country, Cedar Hill's existing percentage is comparable with some of the highest-ranking cities. Our goal of 20% would place us near the top of the list (see Table 3.10).

Table 3.10– Park Land Percentage of City Area Comparison

Cities with Large Percentages of Park Land	Park & Open Space Acres as Percent of Land Area
Anchorage, AK	39.9%
Albuquerque, NM	30.5%
New Orleans, LA	25.3%
San Diego, CA	22.7%
Virginia Beach, VA	21.2%
Cedar Hill (Goal)	20.0%
New York City, NY	19.5%
Washington, DC	19.4%
El Paso, TX	18.4%
San Francisco, CA	18.0%
Raleigh, NC	16.9%
Austin, TX	16.7%
Cedar Hill (Current)	16.3%
Portland, OR	15.7%
Dallas, TX	13.4%

Source: The Trust for Public Land, 2010 City Park Facts

Achieving the 20% goal will require an additional 903 acres of public and private open space, resulting in a total of 4,632 acres. Two-thirds of the land comprising the 20% goal is non-City-owned land (primarily Cedar Hill State Park). Of the remaining one-third of the 20% total (the proportion related to City parks), slightly less than half of the needed acreage exists within Cedar Hill's park system currently. Significant land acquisition for neighborhood, community, and other parks will be necessary to reach the 20% goal. However, partnerships with private entities, the County, the State, and others can help Cedar Hill protect open space and ultimately reach this goal. See Figure 3.11.

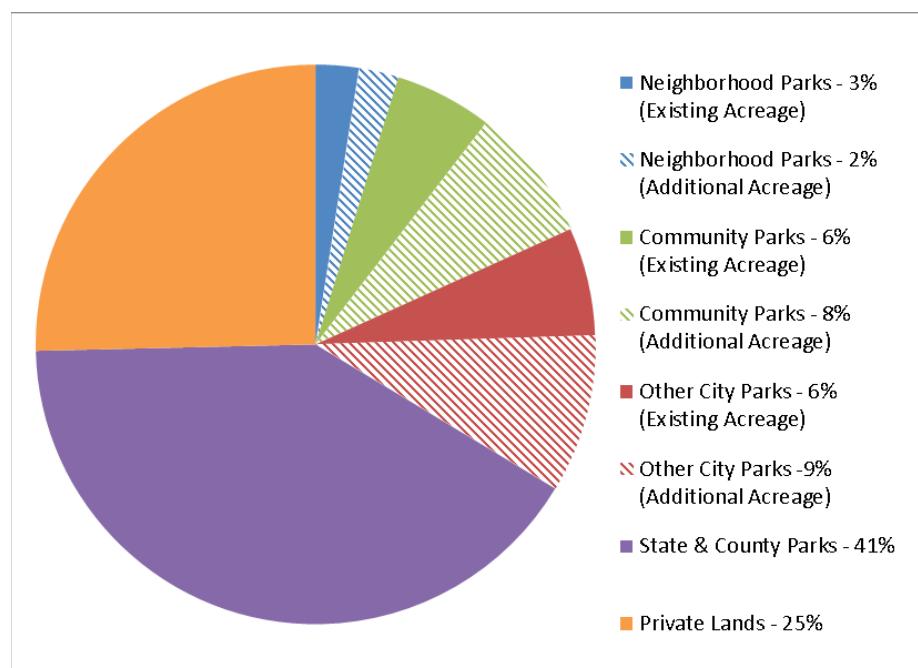
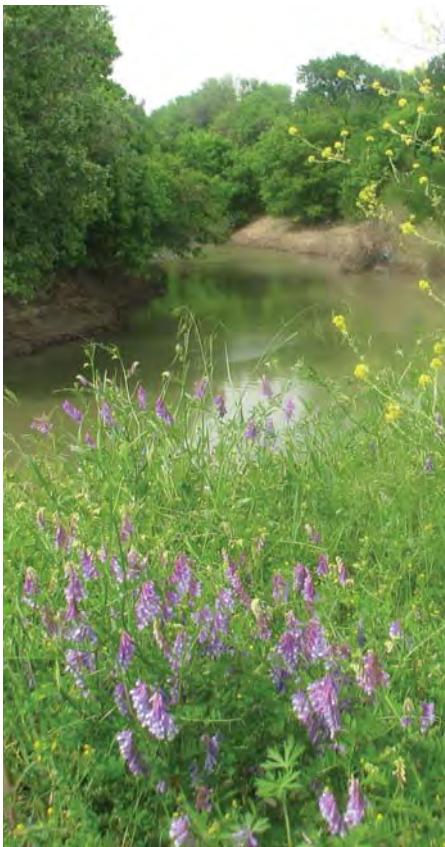


Figure 3.11 – 20% Open Space Goal Composition

This chart illustrates the break-down of open space types that will ultimately comprise the 20% of Cedar Hill's land area dedicated to parks and open space.



Cultural Landscape & Open Space Preservation

The protection and preservation of open space, which includes natural areas, creek corridors, prairies, floodplains, wooded areas, and especially the Balcones Escarpment, is an increasingly important goal for the citizens. In the Citizen Attitude Survey (telephone survey), 97% of respondents agreed that “natural areas are important and should be preserved where it is available.” There are a multitude of potential physical and policy-based actions which the City can and should take in order to ensure the protection of the distinctive cultural landscapes and natural areas that make Cedar Hill unique; however, the following actions are arguably the most important for the City to take over the next five to ten years.

Floodplain Protection & Stormwater Management Study

Rivers, creeks, and streams provide both challenges and opportunities for Cedar Hill. On the one hand, drainage systems are by nature dynamic and change over time through erosion and sedimentation processes, typically exacerbated by upstream development. Therefore, creeks and streams must be carefully managed in order to ensure adequate flood conveyance and to protect water quality and public safety. On the other hand, they also provide ample opportunities for recreational use, as well as corridors and habitat for wildlife and unique areas of vegetation. Therefore, these pieces of “green infrastructure” are of vital importance to the health of the community and should be protected in a comprehensive manner.

In order to manage floodplains for public use, public safety, water quality, and the protection of open space, it is recommended that the City (through a joint effort by the Public Works Department, Planning Department, and Parks and Recreation Department) create a City-wide Floodplain Protection Plan. The major component of such a plan would be the development of a detailed hydraulic and hydrology study that identifies the fully-developed 100-year floodplain at anticipated build-out conditions for all major drainage corridors in the City. It is important to consider fully-developed conditions in order to ensure the long-term health and quality of floodplains and economic sustainability of the City. Furthermore, protecting the floodplain at fully-developed conditions affords more opportunities for recreational uses, such as trails, nature exploration, and open space preserves, along creek corridors.

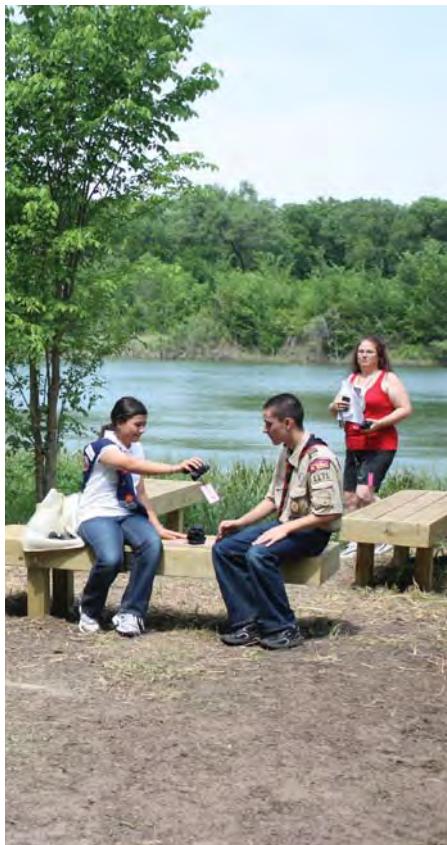
In addition, it is suggested that the City build upon the Draft Regional Detention Study by beginning to implement its recommendations. Specifically, more detailed studies of six of the 18 individual detention sites identified in the study be further investigated to confirm their viability in providing regional detention hydraulic benefits to each watershed. It is also recommended that the City restudy/update the hydrology, hydraulics, and floodplain mapping for any watershed areas where regional stormwater detention will be pursued further (i.e. the 6 suggested sites). A city-wide Stormwater Management Study would accomplish this as well as complete the final planning and selection process for regional stormwater detention within the City. During this studies, opportunities for simultaneously acquiring additional land for parks and open space should be considered.

Floodplain Management Strategy

In addition to the Floodplain Protection & Stormwater Management Study (as described above), the City can take immediate actions that will provide long-term benefit to the community. It is recommended that the City adopt a floodplain management strategy that preserves its creek corridors by means of guidelines, public-private partnerships, and developer incentives. Such a strategy may include policies relative to five concepts:

- Consider allowing no reclamation within the 100-year fully-developed hydrologic floodplain. Reclaiming floodplain can impact public safety, water quality, erosion, wildlife habitat, visual quality, and tree cover, as well as greatly reducing outdoor recreation opportunities. Otherwise, the City should provide best practice guidelines for limited floodplain reclamation, the placement and design of structures, and the provision of trails and other amenities in environmentally sensitive areas.
- Acquire floodplain land for public use or otherwise ensure its protection and acquire access easements for linear trails. While preserving the floodplain (regardless of ownership) is the primary goal, it is also important to ensure that people can access floodplains and creek corridors by means of trails.
- Do not locate high-intensity recreation facilities within the floodplain. Ball fields and other recreation facilities often require floodplain reclamation, the removal of trees, and disturbance of floodplain vegetation, which has the function of absorbing floodwater and filtering pollutants. While it is often desirable to have parks that include these types of facilities adjacent to creek corridors, it is important to ensure that the highly-developed portions of these parks are outside of the floodplain.





- Develop guidelines regarding the management of floodplain land (including the clearing/removal of vegetation, mowing, and wildlife management). Educate landowners (large and small) and developers on the value of floodplains and provide them with these floodplain management guidelines.
- The City should consider incentivizing developers for exercising LID (Low Impact Development, a form of stormwater best management practices) and LEED (Leadership in Energy and Environmental Design) Sustainable Sites practices. Employing these practices can result in improved water quality, reduced property damage, the slowing of water runoff thereby reducing erosion, and the reduction of flood intensity.

Cultural & Environmental Resource Inventory

Cedar Hill has unique cultural and natural characteristics, including the Balcones Escarpment, creek corridors, Joe Pool Lake, prairie remnants, and historic neighborhoods. Protecting culturally and ecologically valuable areas requires having a firm grasp on what resources exist and the relative quality and quantity of each. It is recommended that the City creates a Cultural and Environmental Resource Inventory of the important areas within Cedar Hill that provide wildlife habitat, reflect the City's identity, provide ecosystem services (such as carbon sequestration, water filtration, and pest control), and/or include other characteristics that warrant their protection. This inventory should specifically include key areas within and around the Balcones Escarpment that are critical to its ecological and aesthetic integrity—this inventory would then serve as the basis for the Balcones Escarpment Protection Plan discussed below. Other benefits of developing and maintaining such an inventory include aiding the City in guiding future development actions, developing policy, and prioritizing open space acquisition.

Open Space Acquisition & Protection

While ensuring the preservation of open space through ordinances and regulations is important, it is also essential to actually acquire open space or gain permanent access easements to allow public use. It is recommended that the City acquires at least enough open space to provide trails along all major creek corridors in the City and through the Balcones Escarpment area between Lake Ridge Parkway and Northwood University, as well as space for trailheads and access points. Other areas may include sites of important ecological value including tree covered areas, zones of topographic interest, and the United States Army Corps of Engineers land along Joe Pool Lake. It is recommended that the City strive to locate many of its parks along open space corridors so that the

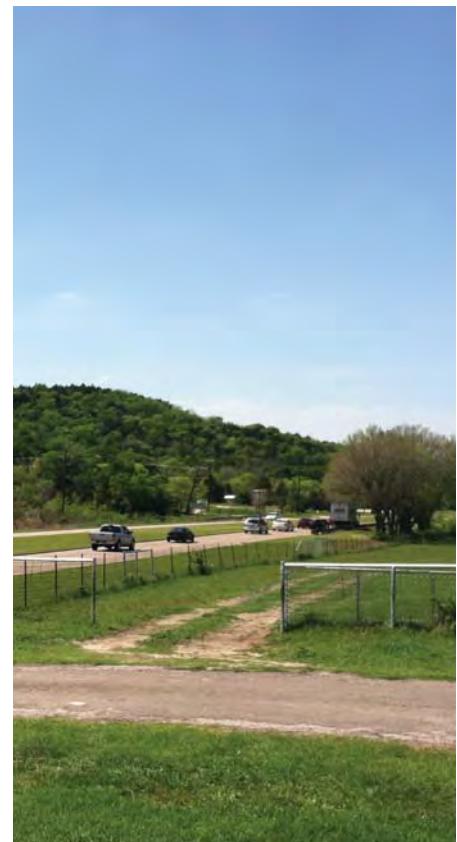
establishment of a network of trails and open spaces will also serve as physical linkages and habitat corridors between parks.

In addition to acquiring land or permanent easements, the protection of private open space is also important. Open space protection may be accomplished through restrictive ordinances (limiting development, clearing, etc.) or incentives (via tools such as purchase/transfer of development rights, which encourages landowners to preserve their property; see page 3-73). The previously-described Floodplain Protection & Regional Detention Plan should incorporate mechanisms to protect open space along creek corridors. Similarly, the following Balcones Escarpment Protection Plan should specifically address protection strategies for the Escarpment area.

Balcones Escarpment Protection Plan

The Balcones Escarpment is an incredibly valuable natural resource for many reasons. It is aesthetically beautiful, it provides wildlife habitat, and it offers many recreation opportunities. However, perhaps most importantly, it is one of the most powerful image-defining elements within Cedar Hill, making the City truly unique within the Metroplex. Its protection is paramount for the preservation of Cedar Hill's distinctive character and natural beauty. It is recommended that a Balcones Escarpment Protection Plan be developed that includes strategies relative to five concepts:

- Maintain the aesthetic value of the area by minimizing the visual impact of new development. Identify and maintain important viewsheds so that new development is not visible from Cedar Hill State Park, Dogwood Canyon, Calabria Nature Preserve, or Cedar Mountain Nature Preserve. New development should be restricted from topographical high points—or if allowed, not visible from surrounding areas.
- Identify and protect landscapes that are visually contextual to the escarpment. Protect landscapes that are representative of the cultural and farming history of Cedar Hill. A prime example is the pasture land north of FM-1382, east of Camp Ellowi. Protect natural and cultural landscapes that serve as the foreground to Escarpment views. For example, unobstructed views from FM-1382 toward the Escarpment are key to maintain its visual quality.





- Avoid the reduction and segmentation of wildlife habitat. Understand the species living within the area, their movement patterns and habitat requirements, and accordingly preserve contiguous habitat areas and corridors. In addition to benefitting wildlife, maintaining adequate habitat will reduce the displacement of animals that would otherwise end up in neighborhoods and backyards.
- Acquire land or permanent access easements for trail corridors. Trails are one of the most cost-effective and least invasive ways to provide recreational opportunities within nature areas. The Trails Master Plan (see Chapter 6) outlines potential trail corridors through the area. Trails may be paved or constructed using less impactful methods.
- Minimize the impact of tree and understory clearing. Clearing trees and brush is often necessary for the construction of new structures in the area. Minimize the level of clearing performed on and around the Escarpment; when clearing is necessary, provide guidelines and assistance to developers and landowners regarding selective and low-impact clearing.
- Determine the maximum percentage of the area that is allowed to be developed. Base this percentage on habitat requirements, potential run-off and drainage issues, and the maintenance of the area's aesthetic integrity. Once this maximum percentage is reached, do not allow the construction of a new structure until an existing structure with a footprint of equal or greater size is removed.

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3.8 **POTENTIAL** **FUNDING** **SOURCES**

Municipal Bonds

Debt financing through the issuance of municipal bonds is the most common way in which to fund park and open space projects. This type of funding is a strategy wherein a city issues a bond, receives an immediate cash payment to finance projects, and must repay the bond with interest over a set period of time ranging from a few years to several decades. General obligation bonds—the most common form of municipal bond—is the primary bond type for park and open space projects.

Developer Requirements

This tool can be used to require new development to provide a dedication of land for neighborhood and community parks (or fee-in-lieu of land) and park development fees to offset the City's costs. This is accomplished through the Park Land Dedication Ordinance, which is recommended to be revised, as discussed earlier in this chapter.

Tax Increment Financing/Public Improvement Districts

These related tools allow a development district to divert a portion of its property taxes to fund infrastructure improvements within its area. This can include plazas, pocket parks, linear parks, and other types of facilities.

Private Sponsorship Programs/Naming Rights

Obtaining private sponsorship for parks and recreation facilities—often by selling naming rights—can be an effective tool for acquiring additional financing. The long-term success of this financing tool depends greatly on a concerted effort by the City to ensure the ongoing prominence of the sponsored facilities through appropriate marketing efforts and a commitment to an excellent maintenance program.

Outdoor Recreation Grants

This Texas Parks & Wildlife Department (TPWD) program provides 50% matching grant funds to municipalities and other local units of government with a population less than 500,000 to acquire and develop park land or to renovate existing public recreation areas as identified and described per a TPWD-approved Parks Master Plan. There are two funding cycles per year with a maximum award of \$500,000. Eligible sponsors include cities, counties, municipal utility districts, river authorities, and other special districts. Projects must be completed within three years of approval. Application deadlines are March 1st and August 1st each year (the Parks Master Plan submission deadline for TPWD

approval is 60 days prior to application deadline). Award notifications occur six months after deadlines.

Purchase and Transfer of Development Rights

Purchase of development rights (PDR) and transfer of development rights (TDR) are programs for landscape preservation whereby a municipality, county, or other entity can pay landowners (typically farmers and ranchers) to limit development on their land. Through PDR, landowners are paid an amount relative to the development potential of their land, required to maintain their land generally as-is (greatly limiting any future development), and maintain ownership of the land and residence. The land is thereby conserved, either in a natural or cultivated state. Taking the PDR model a step further, TDR programs conserve rural landscapes through “trading” potential development intensity between sending areas and receiving areas. Areas to be protected (significant cultural, rural, or natural landscapes) are designated as sending areas while areas where more intense development is desirable are designated as receiving areas. In this model, landowners in sending areas are allowed to sell their right to develop their land to developers in receiving areas. Both of these programs can offer a financially competitive alternative to selling land for development.

Tree Mitigation Funds

The source of such a fund results when a city levies fines against developers for removing quality trees for development. The revenue generated is used to plant trees and to irrigate city properties, thereby enhancing the community.

Electric Utility Partnerships

This type of partnership can be established for the purpose of providing and enhancing linear parks and trails along utility easements. This partnership typically does not involve monetary contributions. However, through use agreements and/or easements, it makes land for trail corridors accessible at little or no cost to the community.

Utility Bill Contributions

In many cities, residents are allowed to electively add a small amount to their utility collection bills to fund park improvements. As an example, the City of Colleyville has a Voluntary Park Fund, which allows citizens to donate \$2.00 per month through their water utility bills. This results in approximately \$150,000 per year, which is used to fund park improvements throughout their community.

Land Trusts

Land trusts provide a valuable service to municipalities across the country in helping to acquire natural areas, open space, and other land for public use. Typically, land trusts not only assist in funding land acquisition but also assist in managing the transaction and financing. Often, each land trust will have a specific set of requirements for the types of land they are willing to help acquire and/or how that land will be used. The Texas Land Trust Council can be contacted for more information.

“When we build, let us think that we build forever. Let it not be for present delight nor for our use alone. Let it be such work as our descendants will look upon with praise and thanksgiving in their hearts.”

– John Ruskin (1819-1900)



AQUATICS & INDOOR RECREATION

2012 PARKS, RECREATION, TRAILS & OPEN SPACE
VISIONING MASTER PLAN

4.1

INTRODUCTION

Cedar Hill is committed to providing state-of-the-art facilities—such as the Government Center—in order to maintain the high quality of life expected in a premier city. Part of maintaining our diverse culture and remaining an anchor for economic development in the Best Southwest is that we provide premier recreation facilities that attract and retain residents. Indoor recreation facilities and aquatic centers are prime opportunities for providing places for families to flourish and can become hubs for community life.

It is our vision that recreation facilities include state-of-the-art amenities and be integrated into Cedar Hill's park environments by being linked with neighborhoods, parks, and other landmarks via trails, bikeways, and greenbelts. The design of indoor recreation and aquatic facilities should provide a near-seamless interface between the natural and built environments. The use of large, full-height windows; large doors to provide open-air opportunities; and overhangs for shade will provide transparency to buildings both visually and physically. This will allow nature to flow into buildings and places of indoor recreation. Furthermore, the use of natural materials and forms as included in the branding theme (see Chapter 1) will add an organic element to these places while providing aesthetic coordination with park, trail, and streetscape elements.



Goals

- Provide safe, family-friendly environments for indoor recreation & aquatics that meet the needs of Cedar Hill's diverse culture, including all age groups, abilities, and socioeconomic categories.
- Develop facilities and programs that reflect new trends in indoor recreation and aquatics, while anticipating the future growth of the community.
- Practice sustainability by developing facilities that are energy efficient; structures that follow the principles of LEED (Leadership in Energy and Environmental Design); and improve the operations, maintenance and efficiency of existing facilities.
- Conveniently locate recreation and aquatic facilities and connect each to the City-wide trail and bikeway systems.
- Consider alternative approaches, including partnerships with Cedar Hill Independent School District and nearby cities.

Purpose

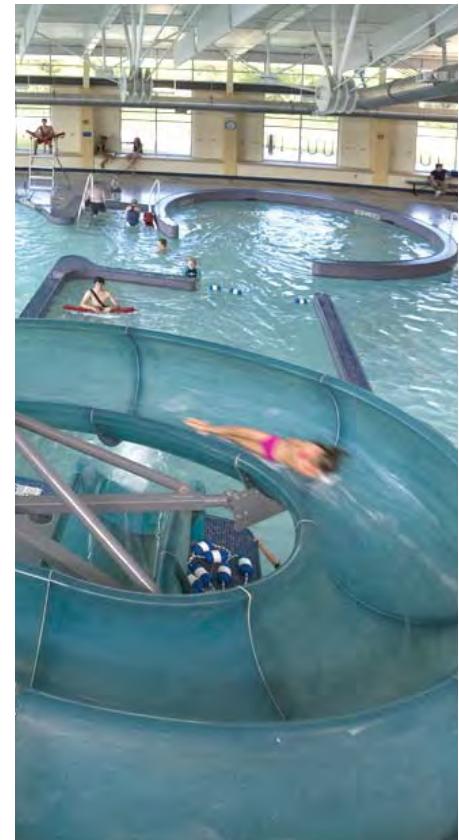
The purpose of this section of the Master Plan is to analyze the City's existing indoor recreation and aquatic facilities (the Recreation Center, the Senior Center, and the Crawford Park Pool), determine the needs of

the community relating to indoor recreation and aquatics, and develop priorities and cost estimates for future projects.

Pertinent Citizen Input

The Citizen Attitude Survey included several questions regarding indoor recreation and indoor/outdoor aquatic facilities. The following serves as an overview of some of the more relevant results.

- When asked about the frequency of participation in various activities, there was a high percentage of regular indoor fitness activity users (57%). This was the highest level of use for any indoor activity.
- When asked what one recreation facility Cedar Hill is lacking, the top three responses were:
 1. Indoor Pool/Aquatic Center (36%)
 2. Outdoor Pool/Aquatic Center (20%)
 3. Trails/Bike Lanes on Roads (11%)
- In response to the question “What would you consider the most important recreation facility to construct?” some of the most common responses were:
 - Indoor Pool (30%)
 - Trails (13%)
 - Children’s Spray Park (10%)
- When asked what actions at Crawford Pool would they support, most people (79%) wanted to revamp and modernize the pool to better meet the needs of residents.
- A vast majority (81%) of people strongly support or support expanding the current Recreation Center to include an indoor aquatic component.



RECREATION CENTER

4.2 Existing Facility Inventory

- Built in 2003
- 54,000 square feet
- Amenities:
 - Double Gymnasium
 - Fitness Area
 - Elevated 3 lane walking/jogging track
 - Game Room
 - Drop-in Child Care
 - Multipurpose Rooms with Kitchen
 - Aerobics Exercise Room
 - Support Lockers and Showers



Aerial image of the Cedar Hill Recreation Center.

Observations & Suggestions

The current center has served the City well since its opening and in order to maintain this high level of service some modifications are offered for consideration. These include:

- Maximize the utilization of current lobby space.
- Locate the control desk closer to entrance for better control of existing center as well as aquatic expansion.
- Position the control desk to allow visual monitoring of all areas of the lobby.
- Improve and expand the cardio area and provide better and more energy-efficient lighting.
- During renovation, consider replacement of tile with an improved flooring as patching may be problematic.
- Make the storage area more accessible to increase the efficiency of staff use.
- Rework the staff area to allow better communication between staff and close proximity to the control desk.
- Replace meeting room floors.
- Consider methods to control access into meeting rooms section of the center from recreation areas and the lobby (card, vicinity readers, etc.).
- Use landscape to soften the hardscape entrance sequence to the building.
- Improve acoustics in the gymnasium, which will also reduce transfer of sound to the lobby from the gymnasium.
- Improve and upgrade locker rooms for efficiency and general appearance.
- Update the lounge area with new furniture, flooring, and lighting.
- Use appropriate and effective sustainable design practices in the renovation/expansion phase.



Level of Service Analysis

In reviewing the needs of the community to determine the size and need of the aquatic expansion and recreation center renovation, four different variables were analyzed. These four influences include:

1. National Park and Recreation Association Standards.
2. Benchmarking of facilities provided by other cities in the Metroplex.
3. Results of citizen surveys that directly addressed recreation center and indoor aquatic needs.
4. Evaluation of trends in the recreation/aquatic industry.

The following section expands on the first two of these items. Citizen Attitude Survey results can be found in the appendix and a discussion of relevant trends can be found on pages 2-20 and 2-21.

NRPA Standards

The National Recreation and Park Association (NRPA), in their publication “Recreation, Park and Open Space Standards and Guidelines,”¹ defines recreation and park standards in this manner:

“Community recreation and park standards are the means by which an agency can express recreation and park goals and objectives in quantitative terms, which in turn, can be translated into spatial requirements for land and water resources. Through the budget, municipal ordinances, cooperative or joint public-private efforts, these standards are translated into a system for acquisition, development and management of recreation and park resources.”

The publication further describes the role standards have in determining the community’s acceptable minimum for facility provision, correlating needs to spatial requirements, and providing justification for expectations and needs.

Recognizing that national and state standards are general in nature and speak to minimums, Cedar Hill has established its own goals. These goals are consistent with being a premier city that is committed to maintaining our high level of service as the community grows.

¹ 1990, edited by R.A. Lancaster

The NRPA Standards are as follows:

- Community Center (20,000 square feet). 1 facility/20,000 pop.
- Community Center (10,000 square feet). 1 facility/20,000 pop.
- Swimming Pool (approximately 4,000 square feet water surface). 1 facility/25,000

Benchmark Analysis

Since the NRPA standards are very general, benchmarks have been developed based on Metroplex cities that provide premier recreation services consistent with Cedar Hill. Benchmarks were established by developing ratios of square footage per population. This research allowed us to see a broad overview of other cities with cutting edge facilities. The selection of benchmark cities included:

Allen	Grapevine	Lewisville
Coppell	Hurst	McKinney
Grand Prairie	Keller	North Richland Hills

Recreation Center Benchmarks

Several of the comparison recreation centers included indoor aquatics; these square footages have been included in the comparison numbers. Comparison facilities included both built and facilities in the planning or construction phases. Results ranged from a low of 0.32 square feet per person to a high of 1.92 square feet. The average is approximately 0.95 square feet per person for the comparable cities (see Figure 4.1).

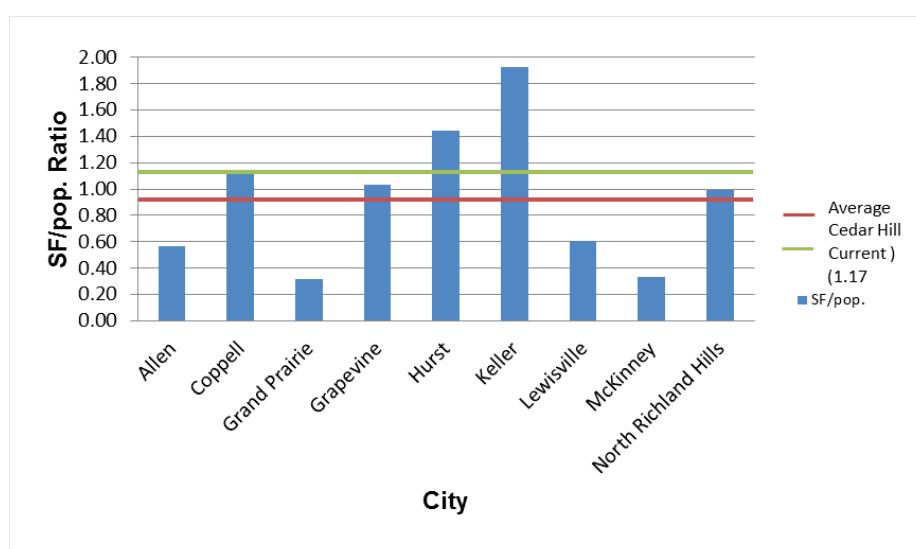


Figure 4.1

Recreation Center Benchmark Analysis

Based upon the current population, the current level of service for recreation center space in Cedar Hill is 1.17 square feet per person. In order to stay on target with the benchmark level of service (0.95 square feet per person) as the City grows to its projected 88,956 build-out population, there is a need for a total of 84,500 square feet of recreation center space (including the existing Recreation Center) to be comparable to the benchmark cities used in this report.

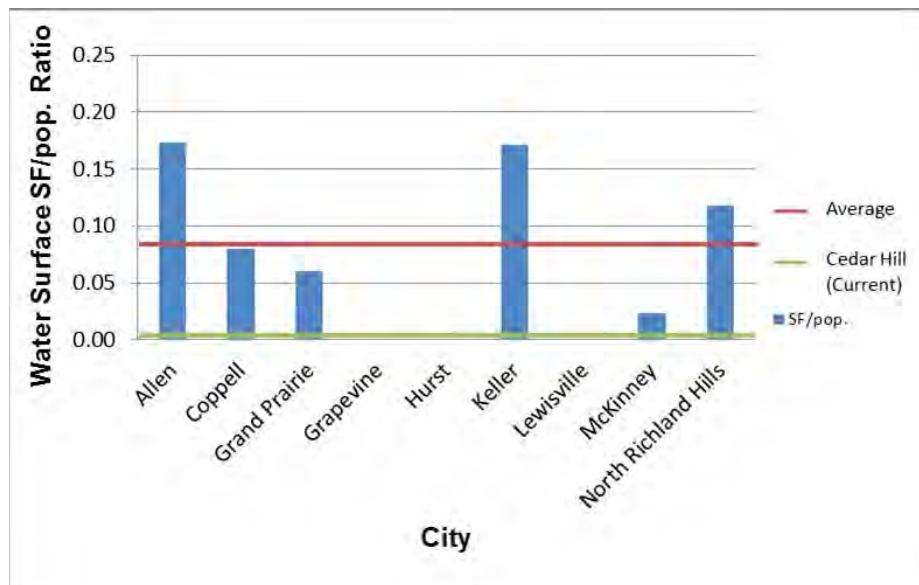
Indoor Aquatic Benchmarks

When comparing indoor aquatic facilities, the water surface of indoor pools on a square foot per population basis was analyzed. This provides a more precise measure of aquatic level of service than the size of the structure covering the indoor water. The average indoor aquatic water surface area of these benchmark cities is .075 square feet per person.

Based upon the projected 88,956 build out population of Cedar Hill, this translates to a need of 6,670 square feet of water surface area.

Figure 4.2

Indoor Aquatics Benchmark Analysis



Summary of Evaluation Factors & Recommendations

Based upon review of the influences mentioned previously, it is clear that the citizens' priorities and the actual needs of the community based upon industry trends and city benchmarks are consistent.

An indoor aquatic center is needed and is a citizen priority. Such a center should be sized at approximately 6,500 square feet of water surface area. It is recommended that it be attached to the west side of the existing Recreation Center.

The deficiencies of the current Recreation Center should be addressed as individual projects prior to or as one project in conjunction with the aquatic expansion (see Page 4-5).

Preliminary Concept

Figure 4.3 and Figure 4.4 illustrate a design approach that may have merit for the future expansion of the Recreation Center. The concepts are not to provide a final solution, but merely give a sense of options, scale, and estimate of probable cost.

Figure 4.3

Cedar Hill Recreation Center Expansion Concept (First Floor)

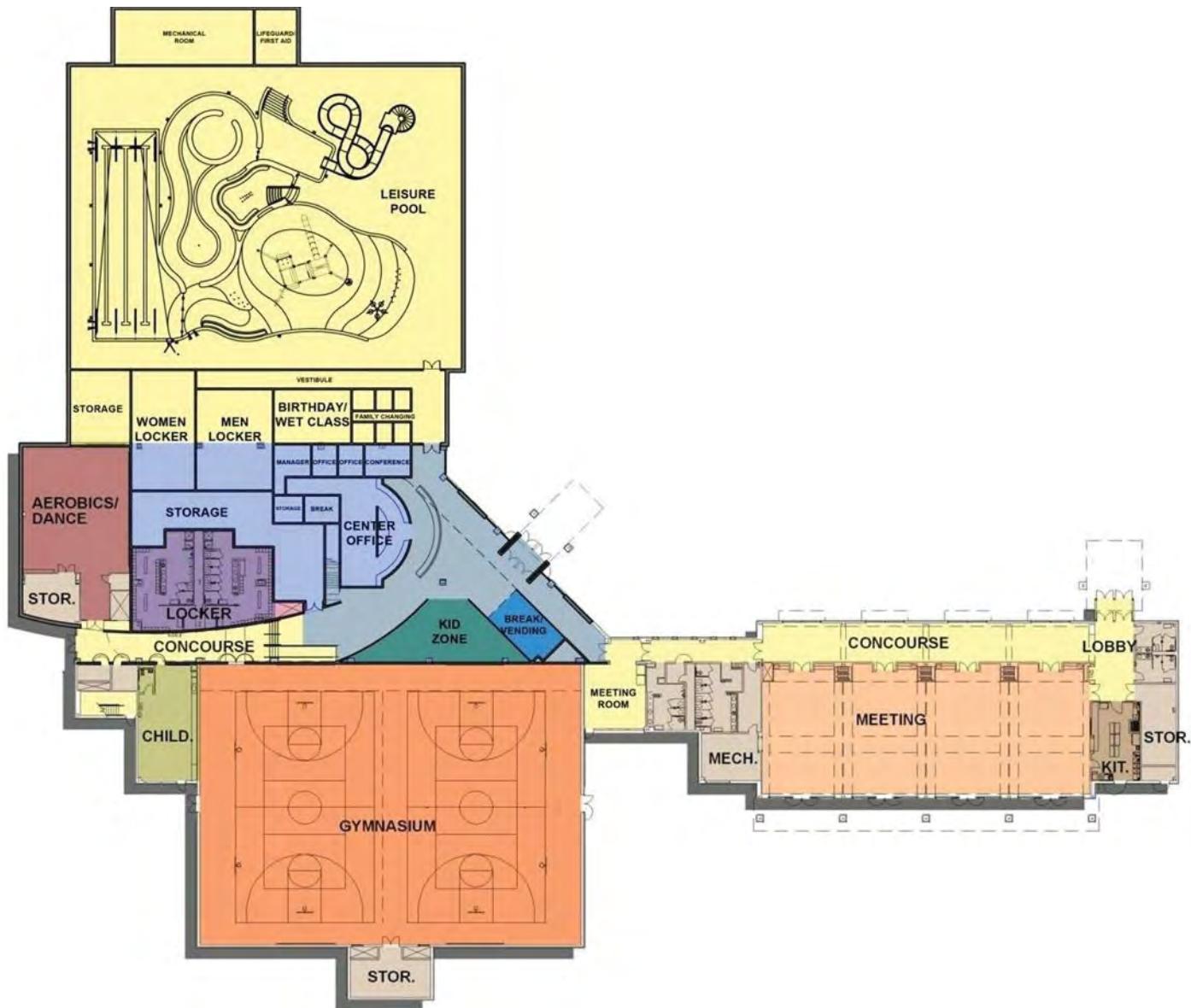
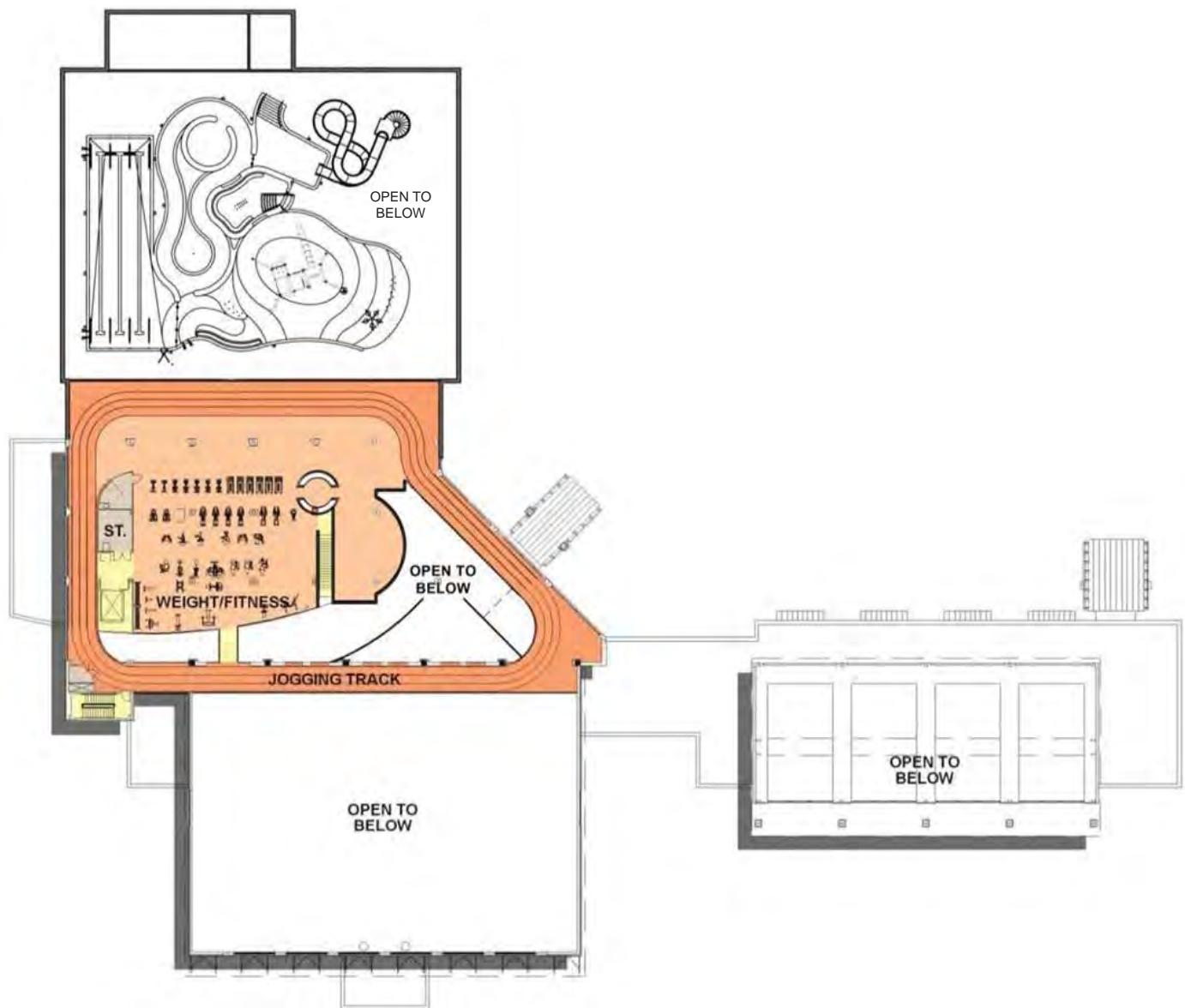


Figure 4.4

Cedar Hill Recreation Center Expansion Concept (Second Floor)



4.3 SENIOR CENTER

Existing Facility Inventory

- Built in 1967, renovated and expanded in 1987 and 1997
- Approximately 4780 square feet
- Attendance has grown by 265% over last 8 years, currently ~10,000 seniors
- Amenities:
 - Kitchen
 - Game Room
 - Multipurpose Classroom
 - Library/Reading Room/Craft Room Combination



Observations & Suggestions

The Senior Center has been expanded/remodeled twice. The facility has been extremely well maintained but the lack of rooms is limiting the growth of the center. It has a dedicated parking lot, but the approach from the road is somewhat difficult to maneuver. The center is experiencing great attendance success, which in turn creates a need for an expanded facility. In fact, attendance for many of the programs is being limited by the size and makeup of the center. The City may consider expansion of the center that would provide a divisible multipurpose room, adequate toilets, additional classrooms and adequate facility storage for the multiple uses in this facility. Other needs include a secure area for staff and an area for specialty equipment.



Level of Service Analysis

In reviewing the needs of the community to determine senior center needs, three different variables were analyzed:

1. Benchmarking of facilities provided by other cities in the Metroplex.
2. Results of citizen surveys that directly addressed senior needs.
3. Evaluation of trends for senior centers.

The following section expands on the first of these items. Citizen Attitude Survey results can be found in the appendix and a discussion of relevant trends can be found on pages 2-20 and 2-22.

Benchmark Analysis

The Senior Center has seen exceptional growth in attendance, but any further growth will be capped by the size of the facility. In comparing senior center sizes of benchmark cities¹, the ratios range from 0.10 square feet to 0.72 square feet per capita, with the average of 0.23 square feet per capita. Cedar Hill's current level of service is 0.10 square feet per capita. This is below average and with a projected population of 88,956, it is recommended that the City expand its Senior Center space to a total of 20,378 square feet in keeping with the benchmark city average.

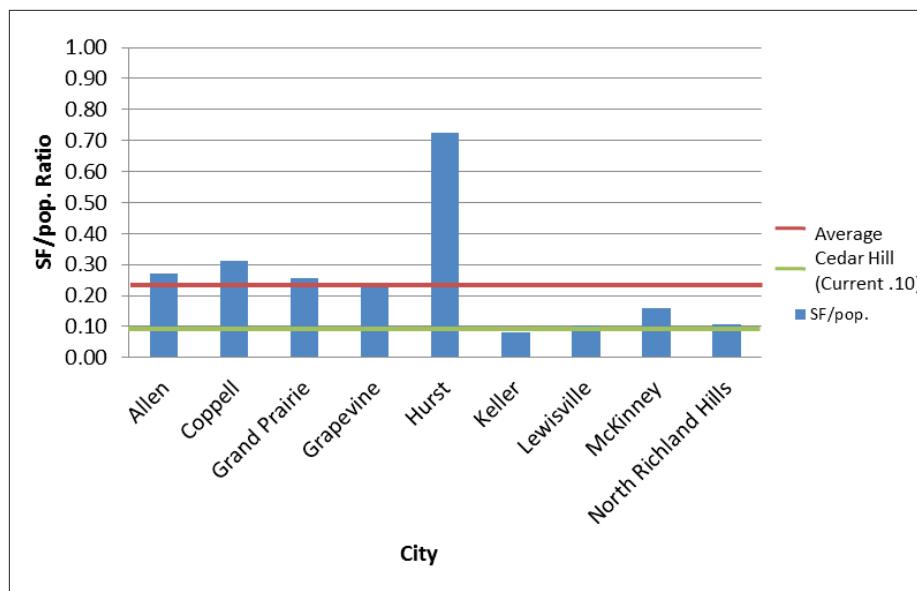


Figure 4.5

Senior Center Benchmark Analysis

Summary of Recommendations

Based upon this analysis and the utilization of the current Senior Center, there are at least two viable options:

- **Option One** – Expand the current Senior Center by 4,000 square feet by adding ADA-compliant toilets, a multipurpose room, and storage areas. Concurrently build a new senior wing onto the Recreation Center of approximately 7,000 to 8,000 square feet. This would have dedicated classrooms, kitchen, game room, and support areas for the senior group. It would be physically connected to the current Recreation Center to allow easy access to the amenities of the center.
- **Option Two** – Construct a new 20,000 square-foot Senior Center with multipurpose rooms, kitchen, crafts, library, storage, fitness room, and normal support areas. The existing Senior Center would be vacated and replaced by this new facility. Location options include the current Senior Center site or a site adjacent to the Recreation Center.



¹ These benchmark cities are listed on page 4-7.

4.4 Existing Facility Inventory

CRAWFORD PARK POOL



Existing Facility Inventory

- Built in 1986
- Amenities:
 - 25-yard Competition Pool
 - Diving Board Area
 - Tot Pool
 - Limited Deck Area
 - Bathhouse and Office
 - Outdoor Pool Pump Equipment Area
 - 4,750 square feet of water surface area

Observations & Suggestions

Crawford Park is a mature park that has a very natural setting and is an historic asset for the city. Crawford Pool occupies the southwest section of the park and includes the pool and associated parking.

The existing bathhouse/lockers and pool equipment areas could all use extensive renovation or replacement if the pool is maintained. There is no shade around the pool and the deck width is very limited. The existing pool is approaching its useful life with 10-15 years being a good estimate for the remaining useful life of the facility and is therefore a good candidate for replacement.

Level of Service Analysis

Analyzing outdoor aquatic center needs involved three different variables. These are:

1. Benchmarking of facilities provided by other cities in the Metroplex.
2. Results of citizen surveys that directly addressed outdoor aquatic needs.
3. Evaluation of trends for outdoor aquatics.

The following section expands on the first of these items. Citizen Attitude Survey results can be found in the appendix and a discussion of relevant trends can be found on pages 2-21.

Benchmark Analysis

Benchmark cities³ have an average of 0.19 square feet of water surface per capita. Cedar Hill currently provides approximately 0.10 square feet of water surface per capita. In order to meet demands of the current population, this would translate to approximately 8,800 square feet of water surface needed. Considering the build out population (88,956) this translates to a need of approximately 16,900 square feet of water surface.

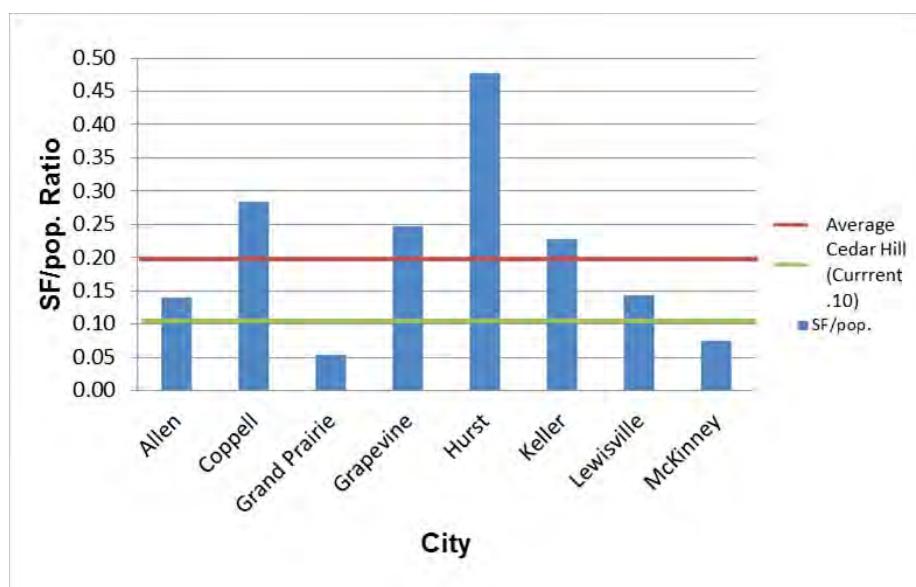


Figure 4.6

Outdoor Aquatics Benchmark Analysis

³ These benchmark cities are listed on page 4-7.

Pool Attendance Impact Analysis

The Pool Attendance Analysis (Table 4.1) illustrates the current Crawford Park Pool attendance. Considering the success of the Bad Konigshofen Aquatic Center in Arlington and the West Irving Aquatic Center, there is an opportunity to serve many more citizens with a new facility (see Figures 4.7 and 4.8)

Table 4.1 – Pool Attendance Analysis

Season	Open Swim	Rentals	Swim Lesson Participants	Aqua Zumba Monthly / Day Passes
2009 - 2010	6,531	23	436	12
2010 - 2011	8,643	24	442	175

Figure 4.7 – Outdoor Aquatic Center Case Study #1

Bad Konigshofen Aquatic Center, City of Arlington (2006)

This aquatic center attracts an annual attendance of 90,000.



Figure 4.8 – Outdoor Aquatic Center Case Study #2

West Irving Aquatic Center, City of Irving (2009)

In its first year of operation, this aquatic center exceeded the attendance of the pool it replaced by over 200%.



Summary of Recommendations

Based upon the age, size, and location of the Crawford Park Pool, as well as the benchmarking of other cities for outdoor pools, the following is recommended:

- Construct a new outdoor aquatic center with approximately 10,000 square feet of water surface area that is more centrally-located within the City with easy access from trails and streets. Considering the national trend toward providing consolidated outdoor aquatic centers rather than multiple, smaller swimming pools with limited amenities, a single new outdoor aquatic center is a more sustainable approach that is more likely to recoup the taxpayers' investment.
- Maintain an outdoor aquatic presence in Crawford Park by replacing the current pool facility with a water spray park with proper shade and landscaping. This will allow the park to maintain its relaxed atmosphere while still providing an attractive aquatic amenity for the community.
- As the City continues to grow, the need for more outdoor aquatics will be realized. This can be accomplished by either expanding upon the new 10,000 square-foot outdoor aquatic center referenced above or construction of an additional outdoor aquatic center in a different area of need within Cedar Hill.

4.5 Priorities & Costs

IMPLEMENTATION

In order to meet existing and future indoor recreation and aquatic needs, several facility development and redevelopment actions are needed (see Table 4.2).

Priority One

The top priority is the enhancement and expansion of the existing Cedar Hill Recreation Center by 24,200 square feet to accommodate indoor aquatics (6,500 square feet of water surface area), supporting locker rooms, and mechanical areas. This will also include extensive renovations to the lobby, office, kids zone, and upstairs cardio area; storage and staff offices; gym improvements; locker room improvements; enhancements to meeting rooms; and improvements to landscaping and the building's entrance.

Priority Two

Develop an outdoor aquatic center with 10,000 square feet of water surface area to replace the service provided by the Crawford Park Pool.

Priority Three

Expand the existing Senior Center by 4,000 square feet and perform minor renovations to the existing structure. Add dedicated senior space to the Recreation Center during its expansion.

Table 4.2 – Indoor Recreation & Aquatics Action Plan

Priority	Action
1	Recreation Center Expansion & Indoor Aquatics
2	Outdoor Aquatic Center
3	Senior Center Expansion
4	Convert Crawford Park Pool to a Water Spray Park

Potential Funding Sources

Municipal Bonds

Debt financing through the issuance of municipal bonds is the most common way in which to fund indoor recreation and aquatic projects. This type of funding is a strategy wherein a city issues a bond, receives an immediate cash payment to finance projects, and must repay the bond with interest over a set period of time ranging from a few years to several decades. There are two main types of municipal bonds, either of which can be used to fund the projects included in this chapter:

- ***General Obligation Bonds*** – This is the standard type of municipal bond and is repaid through property taxes. This is the most common form of municipal bond.
- ***Revenue Bonds*** – This type of bond is repaid through revenues generated by a facility, such as the user fees generated by a recreation center, senior center, aquatic centers, and other recreation facilities that charge entry or membership fees.

Texas Parks and Wildlife Department – Outdoor Recreation Grants

This program provides 50% matching grant funds to municipalities and could be used to develop or renovate outdoor aquatic centers. There are two funding cycles per year with a maximum award of \$500,000. Projects must be completed within three years of approval. Application deadlines are March 1st and August 1st each year.

Texas Parks and Wildlife Department – Indoor Recreation Grants

This program provides 50% matching grant funds to municipalities to construct recreation centers, senior centers, and other facilities. The grant maximum is \$750,000 per application. The application deadline is August 1st each year.

Cuts in the State budget have greatly impacted both of these grant programs. The probability of being able to rely on these programs as a significant source of funding is minimal.

Public/Private Partnerships

Partnerships with private entities to provide aquatic facilities and indoor recreation is an opportunity for the City. Examples of public/private partnerships include joint-funding projects, private operation of a public facility, and achieving sponsorship through selling naming rights.

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“When I see an adult on a bicycle, I do not despair for the future of the human race.”

– H.G. Wells (1866-1946)



TRAILS & BIKEWAYS

2012 PARKS, RECREATION, TRAILS & OPEN SPACE
VISIONING MASTER PLAN

5.1

INTRODUCTION

“...a world-class system of trails and bikeways to attract and retain residents and businesses alike.”



Every year, more people discover the benefits and excitement of activities like cycling, jogging, and walking. Across the region—and especially in Cedar Hill—trails are the most sought-after recreational amenities. Similarly, the emergence of cycling as not only a popular sport but also a viable mode of transportation has resulted in high demand for on-street bikeways¹. Considering this, it is crucial for Cedar Hill to develop a world-class system of trails and bikeways to attract and retain residents and businesses alike.

To achieve the vision of becoming a City Within a Park, trails and bikeways must be considered “essential infrastructure” (just as are streets, water, sewer, and electricity). In the form of greenbelts and greenways, trails can significantly help Cedar Hill achieve the goal of 20% open space and weave ribbons of natural open space into urbanized areas, which will emphasize the nature/urban interface. This necessitates the development of networks of trails and bikeways along roads, utility corridors, creeks, railroads, and other linear features.

Goals

- Develop a fully-integrated system of trails and bikeways that provide connections to all parts of Cedar Hill for recreation and transportation uses.
- Identify Core trails that create major cross-town routes and loops that serve as the backbone or arterial network of the trail system.
- Plan and design bikeways that provide a high ease of use for B-cyclists² and balance the needs of cars and people.
- As far as possible, connect all existing parks and open spaces to the trail and bikeway system. Locate future parks along greenbelts and major trail corridors, thereby providing connectivity and access to the natural environment.
- Encourage people to walk, jog, and bike to nearby destinations, such as schools, parks, and businesses, by ensuring the safety and security of trails and bikeways.

1 The term “bikeways” is used throughout this chapter in reference to on-street facilities for bicycles. This all-encompassing term includes shared lanes, dedicated bike lanes, sidepaths, and any other type of facility for bicycles on or along roadways.

2 The term “B-cyclists” refers to the average bike rider. See page 5-5.

Purpose

The purpose of this chapter is to identify the needs of different types of trail and bikeway users, analyze opportunities and constraints, and develop a comprehensive network of trails and bikeways across the city. The approach, terminology, and recommendations contained in this chapter have been designed to be compatible with the 2011 Dallas Bike Plan, the Veloweb element of the North Central Texas Council of Governments’ (NCTCOG) Mobility 2035 Plan, and NCTCOG’s Regional

Bicycle and Pedestrian Design Guidelines. The alignments and recommended typologies for trails and bikeways are also compatible with the Transportation element of the Comprehensive Plan and were developed concurrently with the Streetscape Plan (Chapter 6 of this document). In addition to coordinating with established minimum standards for signage² and design geometry³, the National Association of City Transportation Officials' (NACTO) Urban Bikeway Design Guide also greatly influenced the design standards contained in this chapter and in the appendix.



Pertinent Citizen Input

There is a strong level of support for improving bicycle and pedestrian access across Cedar Hill and linking to other communities via trails and bikeways. This support was demonstrated in the comments heard during the focus group meetings and public meetings. Some of the more innovative ideas discussed during the meetings include a multi-use trail encircling Joe Pool Lake and passing through Cedar Hill State Park, as well as the incorporation of cutting-edge, on-street bicycle facilities that appeal to a broad range of people with differing abilities.

The telephone survey also showed a strong level of support for trails and bikeways in Cedar Hill.



- Building multi-use trails was the most supported amenity to construct out of a list of 36 choices (87% support this action).
- People strongly prefer trails in or near scenic areas (88% support) more so than trails along utility rights-of-way (50%), major roads (33%), and railroad corridors (29%).
- Bike routes on roadways are supported by 73% of respondents.
- 60% of respondents would consider using trails instead of driving if they connected throughout the city.
- There is a strong desire to connect trails to Downtown (77%) and Uptown (68%).



2 Texas Department of Transportation, "Texas Manual on Uniform Traffic Control Devices"

3 American Association of State Highway and Transportation Officials (AASHTO), "Guide for the Development of Bicycle Facilities, 3rd Edition"

5.2

BICYCLE & PEDESTRIAN PLANNING FRAMEWORK

“The primary goal is to identify meet the common trail and bikeway needs of the community.”

Planning interconnected trail and bikeway systems that are comprehensive in nature and meet the needs of multiple user groups requires identifying common ground. Careful consideration must be given to the diverse needs of various types of users and the challenges associated with each. In addition, analyzing the unique opportunities and constraints reveals the latent (or potential) demand for trails and bikeways.

Trails & Bikeways

There are two categories of infrastructure that constitute the bicycle and pedestrian system: trails and bikeways. While there is variability in each of these categories, they can be broadly defined.

- **Trails** are generally multi-use pathways that follow greenbelts away from roadways, although sidepaths along roadways can be considered trails as well as bikeways. While they can be provided with natural surfaces, trails are typically paved to accommodate the widest range of users, including pedestrians and cyclists.
- **Bikeways** are typically part of the roadway or are within the road right-of-way. Bike lanes and bike routes fall within this category. Sidepaths along the sides of roadways can also be considered bikeways.

User Groups

One of the primary challenges in developing trail and bikeway systems that meet the needs of the entire community is understanding the characteristics, preferences, and challenges presented by the multiple user groups that will utilize the system. In addition to the traditional recreational walking and recreational cycling groups, the spectrum of current and potential trail and bikeway users also includes runners, joggers, and advanced and novice cyclists. The primary goal is to identify the common and specific needs of the groups and develop the trail and bikeway system accordingly.

Pedestrians

Pedestrians (including walkers and runners) utilize trails primarily for the recreational experience that they provide, as well as an alternative mode of transportation. It is important to provide connectivity between neighborhoods and destinations so people can walk instead of drive. However, comfort and accessibility are typically the pedestrian's primary determinants when judging the quality of a trail and desirability for its use. Therefore, shade along trails; well-distributed amenities like benches, mile markers and wayfinding signage; and access points



spaced no more than one mile apart are all essential considerations when designing a trail. It is also important to consider how pedestrian users access trails; some will walk to the trail but many will drive, which requires the provision of adequate parking space at strategically-placed trailheads.

The needs of people with physical disabilities and people pushing strollers should be considered. The maneuverability requirements of these two groups are similar and can be met by designing trails to meet the requirements of the Americans with Disabilities Act and the Texas Accessibility Standards.

Finally, while it is the goal of the Trails Master Plan to develop a continuous network of trails, most pedestrian users are satisfied with trail segments of between one and three miles long, which allow two to six mile “out-and-back” trips. This should be considered when developing trail segments in multiple phases.

Cyclists

Planning for cyclists creates a unique challenge due to the bicycle’s place in American society. On the one hand, bicycles are ridden by people of all ages (including very young children) purely for recreational purposes; on the other hand, bicycles are ridden by skilled adults as a mode of transportation. The bicycle is considered either a toy, sports equipment, or a vehicle¹, depending on the user. Planning for bicycles as part of a City-wide system of trails and bikeways, therefore, requires recognizing differences in abilities and perceptions amongst cyclists and motorists.

Cyclists can be differentiated by skill level. Each group has different preferences and presents unique challenges to the Trails and Bikeways Master Plans.

- **Advanced (Type A)** – These are cyclists that are very experienced in riding as a vehicle with motor traffic and generally prefer riding on streets. These cyclists will often use on-street bikeways (if they are provided), but will usually choose their own routes and feel comfortable riding in many places that do not have any bicycle facilities.
- **Basic (Type B)** – Most people, whether they consider themselves a “cyclist” or not, fall within this group. Basic cyclists might feel comfortable riding on-street in neighborhoods with low traffic or in areas with high ease-of-use bikeways. However, many often prefer grade-separated paths (i.e., trails).
- **Children and Seniors (Type C)** – While many seniors (and some children) fall into one of the two above categories, they gener-



1 Per Sec. 551.101 of the Texas Transportation Code, “A person operating a bicycle has the rights and duties applicable to a driver operating a vehicle...”



ally fall into a third category based on their experience levels and physical abilities. Generally slower and less quick to react, children and seniors often only ride their bikes on grade-separated paths or on very low traffic streets.

Considering the above cyclists types, the majority of current or would-be cyclists are considered Type B, which is historically the least-served group in the United States. In many European countries, which enjoy extensive bicycle infrastructure and implement pro-bicycle policies, cycling is often an integral part of the daily lives of most people and basic cyclists make up the majority of users. This group has the most potential for growth in Cedar Hill and across the country and should be the primary cyclists user group considered in the planning of trails and bikeways. However, developing bikeways, especially in the scenic Escarpment and lake areas, may attract groups from outside the area and play a role in the City's tourism initiatives.

Due to the speeds at which cyclists travel, trail and bikeway facilities for bicycle use must meet state and national design standards (AASHTO and TMUTCD) for sightlines, radii of curves, and detailed regulatory/warning signage.

Other Users

Though far less common than pedestrians and cyclists, there are other types of users that should be considered. Inline skaters constitute one such user group. The characteristics and preferences of inline skaters fall somewhere between those of pedestrians and cyclists and are generally well-served by shared-use trails built with these other two groups in mind. Similarly, skateboarders and BMX riders are becoming increasingly more prevalent as a user group. While most interested in skate parks and BMX tracks, these users will often use trails and sidewalks to access these facilities. Equestrian users constitute yet another group. Equestrians are best-served by natural surface trails that are not utilized by cyclists. Physical and visual separations that minimize potential conflicts between equestrian and other trail users provide the best and safest facilities for all.



Opportunities & Constraints

In order for appropriate trail and bikeway corridors to be determined, opportunities and constraints within the City were identified. Key opportunities and constraints were mapped in order to determine hot spots of pedestrian and bicycle activity and potential alignments by which to connect these areas. Figure 5.1 illustrates the various opportunities and constraints identified. The following section examines these features in more detail and explains the impact each has on the development of the Trail and Bikeway Master Plans.

Opportunities

There are many opportunities that will guide the development of trails and bikeways in Cedar Hill. Each of these plays a large role in determining future facility alignments, the location of trailheads and access points, and the prioritization given to each facility segment.

Existing Trails

Existing trails lay the groundwork for the expansion of the City's trail system. The trail network should be based on these existing trails and build upon their successes.



Parks & Public Facilities

Research indicates that the majority of non-motorized trips taken by most Americans are for recreation purposes, so connecting parks and public facilities (such as the Recreation Center and Senior Center) with a system of trails and other pedestrian and bicycle facilities is a sensible priority that will enhance the usability and enjoyment of the City's parks and facilities. Future parks as proposed in Chapter 4 are also included as opportunities.



Schools

The provision of safe, accessible routes between neighborhoods and schools can help to encourage more children to use active transportation, which constitutes modes of travel such as walking and biking, which combine physical activity with transportation. In addition, there are grant programs—such as Safe Routes to School—which provide significant funding assistance for building such facilities near schools. It is important to note that potential actions by the US House of Representatives in the near future may jeopardize the availability of grant funds, including Safe Routes to School, Transportation Enhancements, and Recreational Trail Grants.

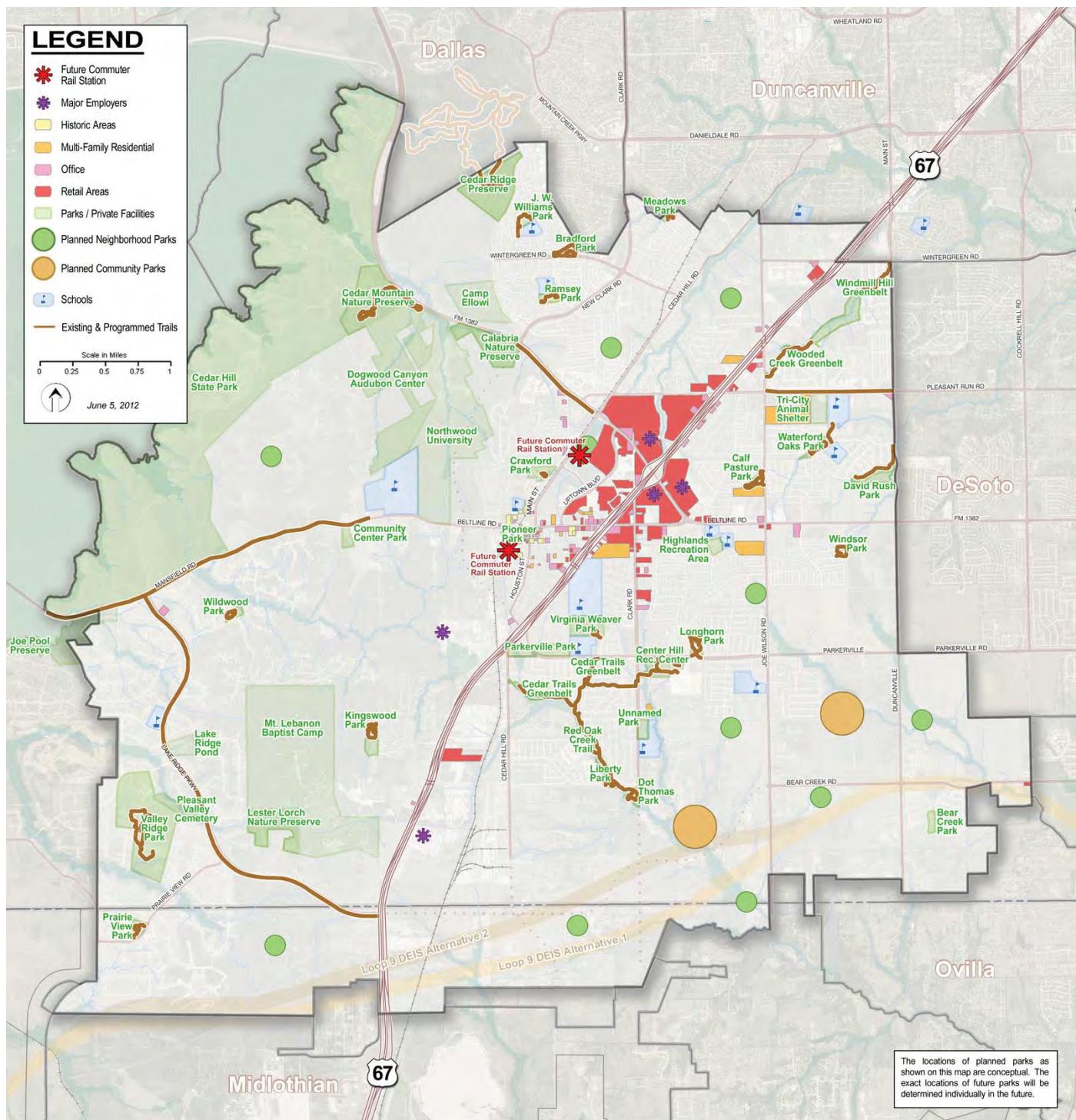
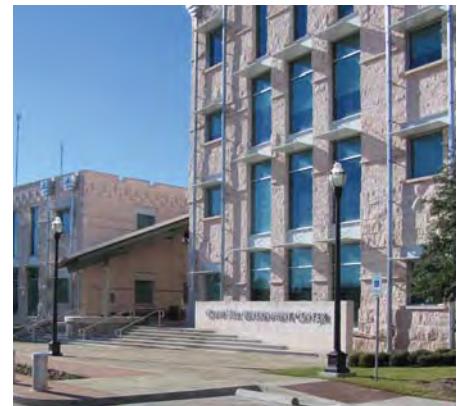


Figure 5.1 – Opportunities & Constraints

This figure illustrates the location and spatial relationship between the various opportunities and constraints that were identified and analyzed for the Trails Master Plan and Bikeways Master Plan.

Employment Centers

Major employment centers (businesses that employ 350 to 1,500 employees) are considered key destinations. While it is likely that a large portion of the employees of these companies do not live in Cedar Hill, the provision of good pedestrian and bicycle facilities linking neighborhoods with employment centers may encourage these employees to relocate here.



Population Density

Population density is an important factor in determining trail alignments since people living in higher-density areas are more likely to walk or cycle as their primary mode of transportation.



Downtown & Uptown

Centered in the heart of the City, Downtown and Uptown are important destinations that will continue to grow in their importance as pedestrian and bike-friendly areas. The small block sizes in the Downtown area naturally encourage bicycle and pedestrian activity. Uptown is a regional shopping destination and is itself very walkable. In addition, a future transit-oriented development that combines dense urban development with a commuter rail station is planned for this area. Providing connections between these districts and other parts of the City is essential.



Retail & Office Land Uses

These land uses draw a significant share of trips made by car and may therefore be key destinations for people wishing to avoid driving.

Multi-Family Residential

All trips originate from one's residence. Multi-family residential areas have a higher density of dwelling units and therefore generate more concentrated traffic (pedestrian, bicycle, or otherwise) than other types of residential land use.

Future Transit Stations

Though not yet in operation, potential station locations for the future commuter rail have been identified. These are key opportunity areas as they will generate significant bicycle and pedestrian traffic once the commuter rail line becomes operational.



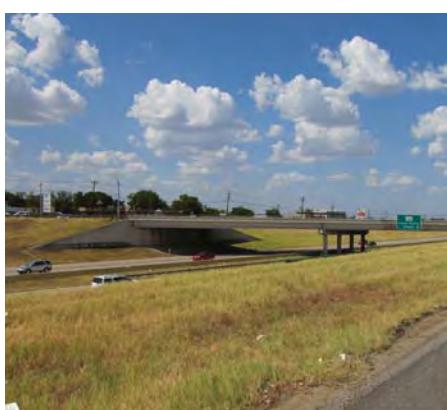
Creek Corridors

Most of Cedar Hill's existing trails are located along creek corridors for a good reason: these are some of the most attractive and most pleasant parts of the City and provide natural routes across the community.



Future Thoroughfares

Especially for bikeways, it is important to look at future thoroughfares and thoroughfare widenings to identify opportunities to provide facilities. It is much more cost-effective to design a facility into a thoroughfare corridor before it is built than to retrofit a facility into an existing thoroughfare. Planning a facility along a future corridor is often a good alternative to retrofitting one that already exists.



Utility & Railroad Corridors

Though often lacking the natural beauty of creek corridors, utility and railroad corridors often provide excellent opportunities for trails. Providing trails along these corridors requires the ability to gain access easements and the cooperation of the railroad or utility company. Electric transmission lines may sometimes be good trail corridors, but often they are in the form of an easement rather than right-of-way and therefore cross private property lines.



Constraints

While there are many opportunities for expanding the trail system in Cedar Hill, there are also many constraints or challenges which must be considered.

US-67

US-67 is a major barrier for trails and bikeways alike. It runs through the middle of the City geographically and separates east from west. This freeway limits several potential trail corridors along creeks as many of its bridges are not sufficiently elevated for a trail to pass under. In addition, several of the roadway crossings are narrow and may not be able to accommodate bikeways.

Limited Right-of-Way

Several of the City's thoroughfares have very limited right-of-way (especially Belt Line Road near Downtown), significantly limiting what improvements are possible. This constraint primarily impacts bikeways but may also impact the City's ability to provide trails.

Topographic Constraints

It is impossible to identify topographic constraints comprehensively when planning on a City-wide basis. Rather, each corridor will need to be analyzed individually as its trails are being designed. In general, practically every creek corridor will present topographic constraints (excessive slopes, cross-slopes, and undulating land). Likewise, any trail passing through the Balcones Escarpment area will most likely be challenged by topography.

Sensitive Environmental Areas

It is often the case that the most desirable places to have trails are also those that are very environmentally sensitive. Creek corridors, which provide the most ecologically diverse landscapes, are especially sensitive to erosion and pollution. Similarly, the Balcones Escarpment may contain sensitive animal habitat and geology.



5.3 TRAILS

Trails generally provide places for recreational jogging, walking, cycling, and relaxation. Because they provide enjoyable recreation opportunities, creek corridors, forests, and other scenic areas are prime places for trails. Quite often, trails are also provided along railroad tracks, utility corridors, and streets in order to create connections between greenbelt trails and destinations. There are different types of trails that serve different user groups—a nature trail, for example, might restrict bicycles from its use. Even so, the majority of trails in Cedar Hill’s system will be multi-use, accommodating pedestrians, bicycles, and any other type of non-motorized use other than equestrian.



Inventory & Assessment

Cedar Hill’s trail system is relatively young. Although there are 12.1 miles of trails that exist today, they are generally short loop trails contained within a single park and do not provide connections to other destinations. The new Red Oak Creek Trail (to be completed in 2013) adds an additional three miles to Cedar Hill’s trail system and is the first major segment of a cross-town network of trails. With the completion of four programmed⁴ trails along Mansfield Road, Lake Ridge Parkway, Pleasant Run Road, and FM-1382, the total trail mileage in Cedar Hill will reach 23.2 miles. Table 5.1 summarizes the trails within Cedar Hill and Figure 5.2 shows their locations.

Table 5.1 – Existing Trail Inventory

Segment	Length (miles)	Width	Status
Park Loop Trails (26 segments)	12.1 (0.46 average)	6'-10'	Existing
Red Oak Creek Trail	3.1	12'	Complete in 2013
Pleasant Run Trail	1.0	12'*	Complete in 2013
Lake Ridge Trail	3.6	12'*	Complete in 2013
Mansfield Road Trail	2.6	12'*	Complete in 2014
FM-1382 Trail (New Clark Road to Cedar Hill Road)	0.8	12'**	Complete in 2015
Total Mileage	23.2		

*Includes a 4' sidewalk on the opposite side of the road.

**Includes a 6' sidewalk on the opposite side of the road.

⁴ Programmed trails are those which are under design or for which funding has been secured.

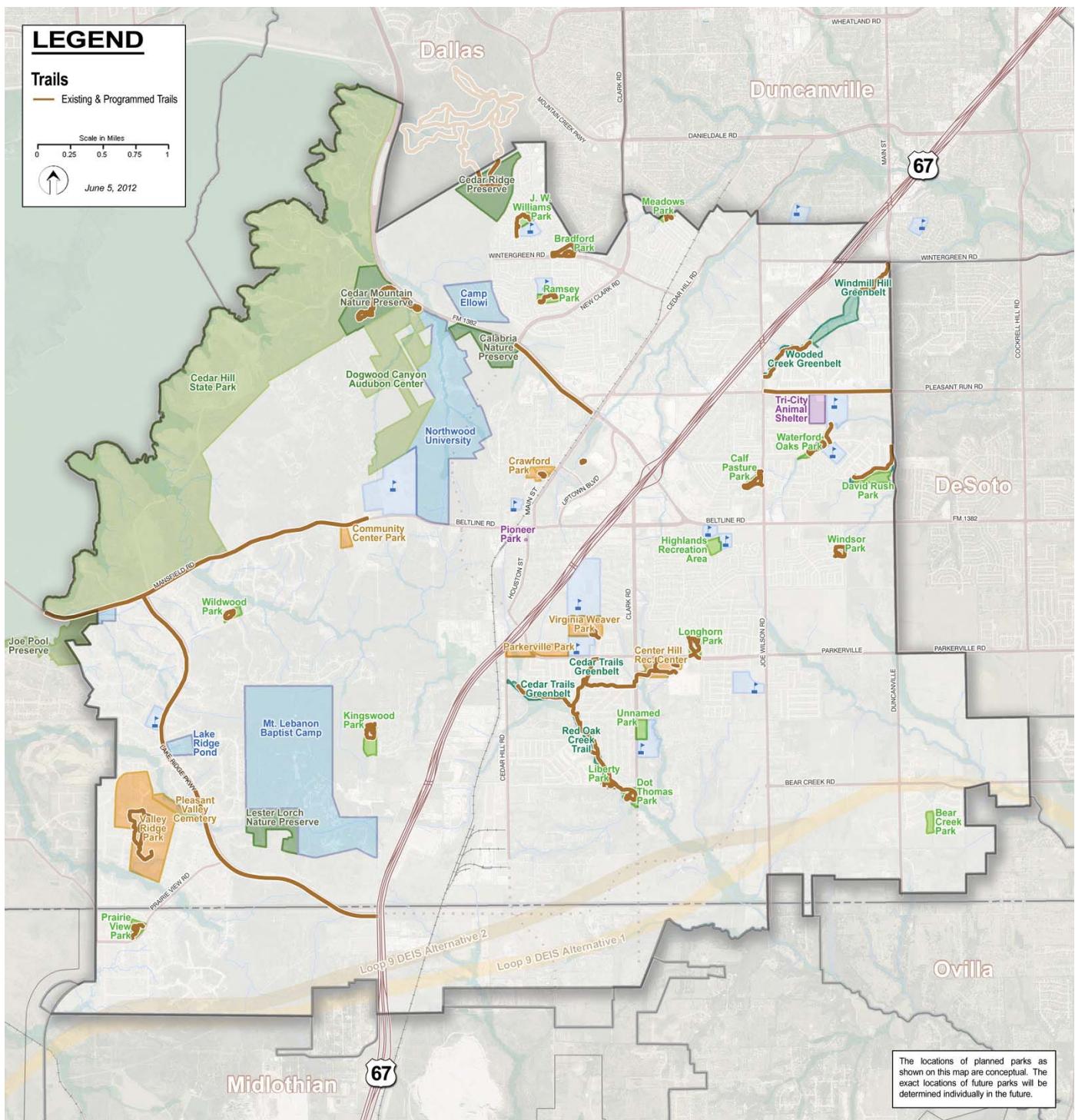


Figure 5.2 – Existing & Programmed Trails

This figure illustrates the location of existing and programmed trails in Cedar Hill. Programmed trails are those which are under design or for which funding has been secured. The trails shown along Mansfield Road, Lake Ridge Parkway, Pleasant Run Road, and FM-1382 are programmed.



Needs

The need for additional trails are based on three factors:

1. Citizen demand as expressed through the public involvement process;
2. A level of service analysis, which expresses trail mileage as a factor population; and
3. An analysis of trail network connectivity, which considers access to destinations and the elimination of gaps between trails.

Citizen Demand

As discussed on page 5-3, there is strong support for the provision of a comprehensive network of trails—especially as they provide connectivity to destinations and nearby cities. In light of the fact that trails are the most desired amenity according to the telephone survey, expanding the trail network is a top priority for Cedar Hill.

Level of Service Analysis

Level of service (LOS) is calculated as a factor of the total population. Table 5.2 provides an assessment of the current LOS and projected 2017 LOS (assuming all currently-programmed trails are constructed). Many cities in North Texas choose a target LOS between 1,000 and 2,000 people per mile of trail (a lower number indicates a higher level of service). Based on this Master Plan’s trail network, which was designed to provide a premier system of trails, the LOS for Cedar Hill at build-out would be 1 mile/750 people. This means that by 2030, Cedar Hill is planned to have 120.2 miles of trail, which includes 97.0 additional miles of trail over and above what is currently programmed.

Table 5.2 – Level of Service Analysis

Period	Total Miles of Trail	Population	Level of Service
2012*	12.6	45,260	1 mile/3,592 people
2017**	23.2	56,000	1 mile/2,414 people
2030***	120.2	88,956	1 mile/750 people (97.0 additional miles)

*Includes the Red Oak Creek Trail.

**Includes currently programmed trails. Population estimate is an average of NCTCOG’s 2011 Population Estimate and the 2020 Forecast from the Texas Water Development Board’s 2011 Regional and 2012 State Water Plan Population Projections

***Trail mileage based on the planned trails included in this Master Plan. This reflects a need of 97 additional miles of trail over and above what is currently programmed. Level of service is approximate.

Network Connectivity Analysis

The goal of the network connectivity analysis is to identify the lack of connectivity to destinations and within the trail network itself. This analysis is based on the mapping information included in Figure 5.1 (Opportunities & Constraints) and Figure 5.2 (Existing & Programmed Trails).

With many trail projects currently underway, access to destinations in Cedar Hill will greatly improve over the next five years. However, there remain many gaps in the system's overall connectivity. US-67 is the most significant barrier for trails in Cedar Hill and creates many challenges for trail crossings. Figure 5.2 illustrates the gap in connectivity across the freeway. This, in part, results in Uptown and Downtown—the core of Cedar Hill and major destinations for trail users—remaining unconnected to the trail system. Outside of the City core, there are many parks and major employment areas that are also not accessible by trail. Providing connectivity to these destinations is important.

A key priority for the trail system is to bridge the gaps between Red Oak Creek Trail and the programmed trails along FM-1382, Mansfield Road, and Pleasant Run Road. This requires identifying crossing opportunities for US-67, prioritizing the development of trails across this freeway and connecting to Uptown and Downtown.

In addition, the development of trails in and near the State Park and Escarpment provides the greatest opportunities for economic development and tourism initiatives.





Trail Typologies

The majority of trails included in this Trails Master Plan are intended to be multi-use, accommodating pedestrians and bicycles. Multi-use trails are typically two-way, striped concrete⁵ pathways between 10' and 14' wide, depending on the anticipated volume of users.

Core Trail (12-14' wide)

Core trails are multi-use and are the heart of the Trail Master Plan—they are considered the major thoroughfares of the trail system. Core trails will typically be 12' wide. However, in areas where higher volumes of trail users are expected—such as near Downtown and Uptown—widths of 14' may be warranted. In areas with severely constrained rights-of-way, it may be necessary to construct trails 10' wide (with 3' shoulders). If along a roadway with severely constrained right-of-way, 8' sidepaths⁶ on both sides of the road may constitute a core trail, as long as bicycle traffic is constrained to one-way on each side (see the sidepath typology in the Bikeways section of this chapter). However, since one-way traffic can be challenging to enforce, wider sidepaths that accommodate two-way traffic are more desirable.



Secondary Trail (10' wide)

Secondary trails are multi-use trails that connect core trails to destinations and provide additional trail connections along lower-priority corridors. While secondary trails must be 10' wide to accommodate two-way bicycle traffic, there are two alternative configurations: A) they may be as narrow as 8' wide if a parallel bikeway is provided; and B) they may be provided as dual 8' wide sidepaths and signed as one-way for cyclists and two-way for pedestrians.



Park Loop Trail (8' wide)

Loop trails within parks are on average 0.5 miles in length and are typically used by pedestrians. Other than children, these trails do not experience large volumes of bicycle traffic. In smaller neighborhood parks, where no bicycle traffic is expected, trails may be as narrow as 6'.

- 5 While concrete is the preferred material due to its durability, alternative materials such as pervious asphalt, pervious concrete, and decomposed granite may be used in ecologically-sensitive areas.
- 6 A trail along a roadway is called a “sidepath” in the Trails Master Plan and Bikeways Master Plan terminology.

Nature Trails

Nature trails provide the closest connection with the natural environment and are often built using decomposed granite or earth. These trails are often not of a constant width and vary from 4' to 6'. Nature trails are not always multi-use; some are designed specifically for mountain bikes while others prohibit bicycles altogether. As such, this typology is typically not used to make major connections within the trail system.

Trail Corridors

If land must be acquired for developing a trail along a creek, utility corridor, or railroad, it is desirable to secure a corridor at least 20' wide but preferably 32' wide. A 32' wide corridor accommodates the trail and its shoulders while providing space for grading, tree protection, trail meandering, overlooks, and rest areas. Wider trail corridors also help to maintain the visual integrity of the trail experience. In many cases, even more width may be required to accommodate drainage or other utilities.

For sidepaths (trails along roadways), a minimum corridor width of 20' is required to accommodate a 12' wide pavement section, two 3' shoulders, and a 2' setback from the roadway (18' is required for 10' sidepaths). If feasible, a 25' wide corridor is preferred to provide a wider setback from the roadway and increased distance from adjacent development.

Trail Network

The planned network of trails builds upon Cedar Hill's existing trails and the previous master plan to provide an interconnected and comprehensive network of various trail typologies. Trail alignments were chosen based on connectivity to destinations, proximity to residential areas, recreational value, ease of implementation, and in consideration of physical constraints. The foundation of the trail network is a series of six core trails, described below. However, the secondary trails shown are essential in ensuring connectivity across all parts of the community.

Core Trails

The core trail network builds upon the North-South Core Trail (shown in yellow on Figure 5.3) that served as the foundation of the previous trails plan. The Trails Master Plan adds two linear corridors across the City (shown in blue and turquoise in Figure 5.3) and three loops (shown in purple, red, and green).

- ***The North-South Core Trail*** will extend the new Red Oak Creek Trail to connect to the City core and pass through the scenic vistas along FM-1382. This will provide connections to Northwood University, Dogwood Canyon, and the Cedar Mountain and Calabria Nature Preserves.
- ***The East-West Core Trail*** connects the western and southeastern portions of the community to the City core. This alignment will provide access to the dramatic environment of the Balcones Escarpment and the rural landscapes of the Blackland Prairies to the east while also allowing linkages to historic Downtown, Uptown, the Government Center, numerous schools, and public parks.
- ***The Railroad Core Trail*** follows the existing railroad corridor that will one day carry commuter rail traffic to Cedar Hill. This alignment will provide a direct connection to Duncanville, as well as ample opportunities for future commuter rail line users to access future stations.
- ***The Inner Loop Core Trail*** will provide circulation within the City core, making connections to Uptown and Downtown while crossing US-67 twice, at Belt Line Road and FM-1382. This will serve as a major connector in Cedar Hill's business corridor.
- ***The Middle Loop Core Trail*** encircles the City core and provides access to and through Northwood University.
- ***The Outer Loop Core Trail*** encircles the entire City, passing through Cedar Hill State Park and along existing and future thoroughfares. This trail allows the greatest opportunity for a world-class trail system for future generations.

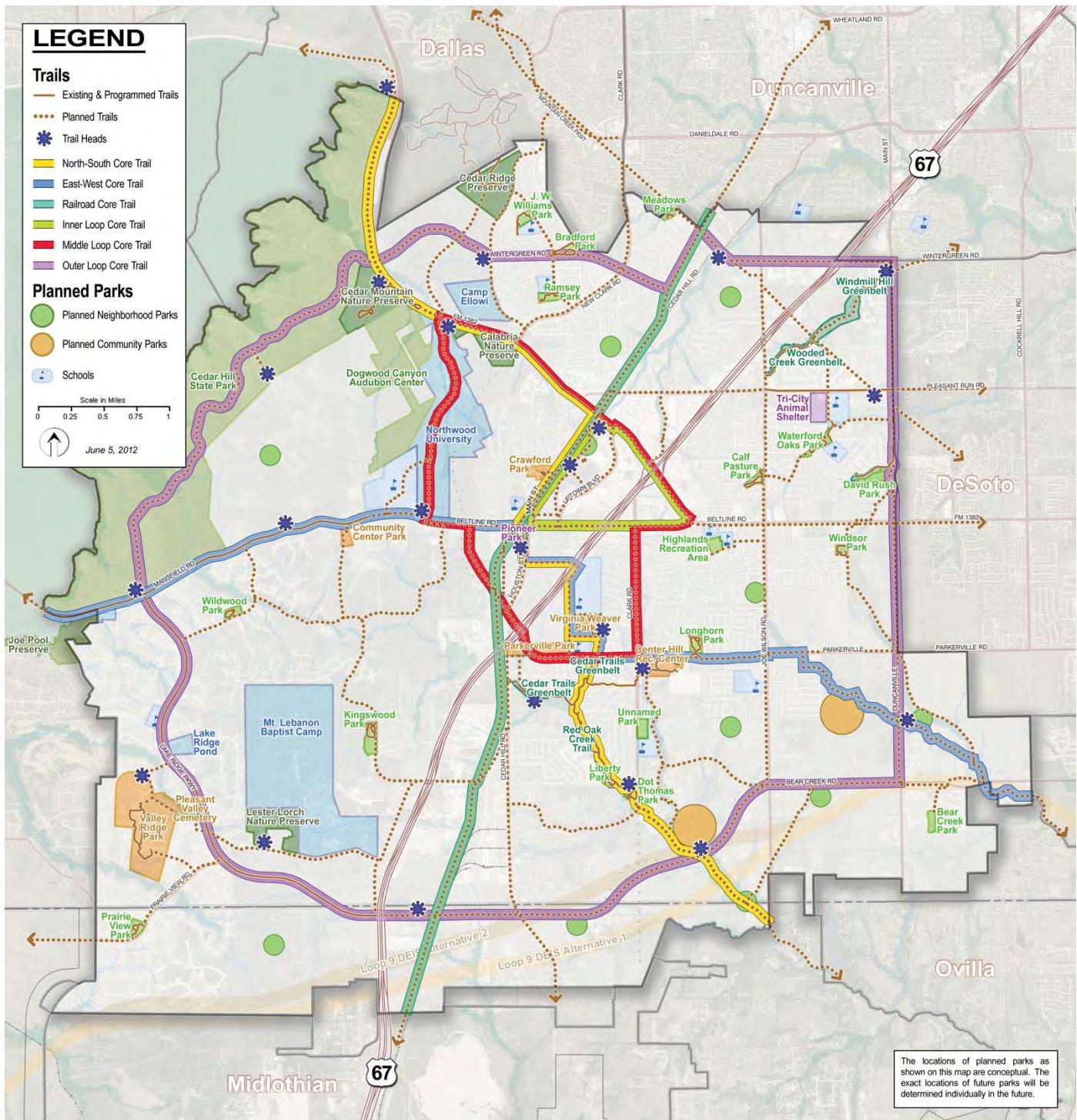


Figure 5.3 – Trails Master Plan

This figure illustrates the location of existing/programmed and planned trails in Cedar Hill. Core Trails (highlighted in yellow, blue, turquoise, green, red, and purple) will serve as the major thoroughfares of the trails system and are the highest-priority segments.

Trail Implementation

Trails Master Plan Cost Estimates

The Trails Master Plan recommends 97.0 miles of new trails in addition to the City's existing and programmed 23.2 miles of trail. Of these recommended trails, 48 miles are Core Trail segments. If fully implemented, Cedar Hill's trail system would total over 120 miles. Implementing the Trails Master Plan independent from other projects would cost an estimated \$80.3 million (see Table 6.3). However, many of these facilities can be implemented in coordination with other capital projects. For example, trails can be constructed along with road improvement projects and drainage projects, thereby reducing the cost per mile of these facilities due to an improved economy of scale resulting from being piggy-backed onto a larger project.

Many of the projects can be funded with Federal, State, and regional transportation, safety, and/or air quality grants. Trails can serve as transportation corridors for commuters, making the projects eligible for funding programs. However, some of the trails are purely recreational in nature, thereby limiting their qualification for federally-designated money and must be supplemented or wholly funded by local or private sources.

Table 5.3 – Trail Master Plan Cost Estimates

Type	Miles/Units	Typical Cost*	Total Cost
Existing & Programmed Trails	23.2	--	--
Planned Trails (all types)	97.0	\$750,000	\$73,725,000
Trailheads	17	\$350,000	\$5,950,000
Overlooks/Viewing Points	4	\$150,000	\$600,000
Total	120.2 Miles		\$80,275,000

*Estimated costs include design, administration, and miscellaneous costs as well as a 20% contingency. The cost for the Core & Loop Trail segments, as reflected in Table 5.4, are included in the totals shown on this table.

While not included as major priorities of this Trails Master Plan, additional park trails and sidewalks along roadways are important elements of the pedestrian and bicycle infrastructure system and should be provided as needed.

Core Trail Segment Prioritization

Implementation priorities have been assigned to various segments of the core trail network. The prioritization criteria chosen to evaluate the trail corridors include:

- ***Connectivity and User Generators*** – Proximity and connectivity to key destinations and generators, specifically those referenced in the previous Opportunities & Constraints section of this chapter constitute a high priority.
- ***Network Completion*** – Segments that fill in a missing gap in the trail system and maximize recreational benefit in the most cost-effective manner receive higher priority.
- ***Existing Partnership or Availability of Rights-Of-Way*** – Segments located within public rights-of-way or land owned by existing partners (e.g., Cedar Hill State Park, Northwood University, etc.) are given priority.
- ***Ease of Implementation*** – Ease of implementation in terms of topography, vegetation density, number of creek and traffic conflicts and crossings, etc. impact the prioritization.

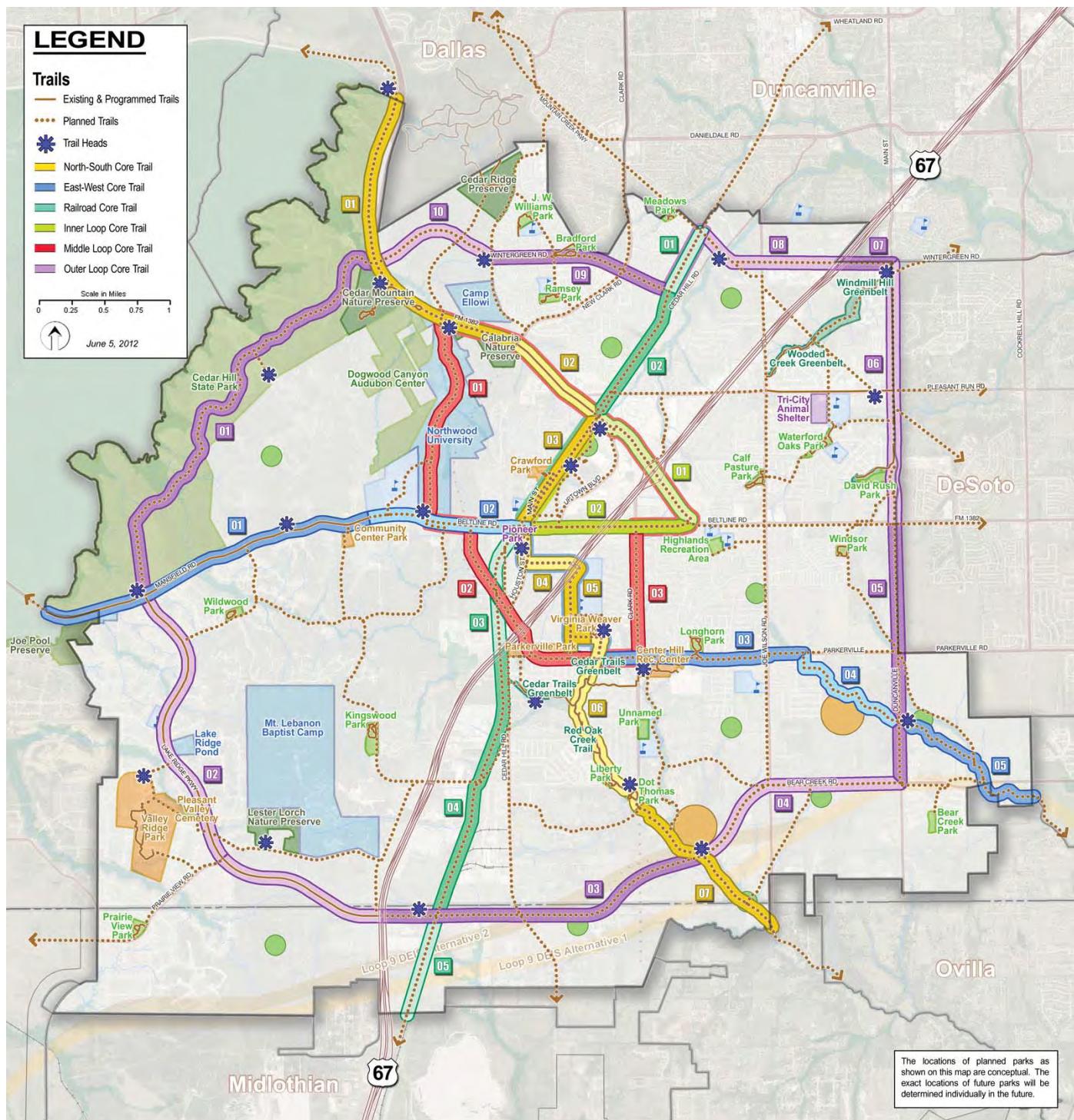


Figure 5.4 – Trails Master Plan Priorities

This figure illustrates the core trail prioritization. Fully implemented, the trail system illustrated on this map would total 120.2 miles. Of this, 21.9 miles exist or are programmed for near-term completion and 98.3 miles are planned. Nearly half of the planned trail mileage (48 miles) constitutes Core Trail segments.

Table 5.4 – Trail Master Plan Priorities

Segment ID	Priority Group	Description	Length (miles)	Width [†] (feet)	Cost [‡] (thousands)	Potential Funding Sources [△]
North-South Core Trail						
01	1	FM-1382 from northern city limits to New Clark Road	2.6	12	\$1,935	TE, RTG
02	In Progress	FM-1382 Sidepath from New Clark Road to Strauss Road	0.8	12	Funded	--
03	1	Cedar Hill Road from FM-1382 to Belt Line Road	1.0	12	\$763	SRTS, TE
04	1	Houston/Main/Cooper Streets from Belt Line Road to US-67	0.6	8/8*	\$471	SRTS, TE
05	1	Longhorn Boulevard from US-67 to Virginia Weaver Park and Parkerville Road	0.7	10-12**	\$504	SRTS, TE
06	In Progress	Red Oak Creek Trail from Virginia Weaver Park to Dot Thomas Park	1.5	12	Funded	--
07	5	Red Oak Creek from Dot Thomas Park to southern city limits	1.4	12	\$1,046	TE, RTG
			<i>Subtotal</i>	8.6		\$4,719
East-West Core Trail						
01	In Progress	Mansfield Road Sidepath from the city limit to Old Belt Line Road	2.7	12	Funded	--
02	1	Belt Line Road from Mansfield Road to Cedar Hill Road	1.2	12	\$906	SRTS, TE, RTG
03	2	Parkerville Park to Lynn Creek	1.6	8/8*	\$1,163	SRTS, TE
04	2	Lynn Creek from Parkerville Road to Duncanville Road	1.0	12	\$760	RTG
05	5	Lynn Creek from Duncanville Road to eastern city limits	1.3	12	\$972	RTG
			<i>Subtotal</i>	7.8		\$3,801
Railroad Core Trail						

[†]If feasible, all Core Trail segments will be 12' wide. This column represents predicted maximum widths based on right-of-way constraints.

[‡]Significant cost savings can be realized if projects are incorporated in other capital projects, such as street construction or rehabilitation.

[△]TE—Transportation Enhancements (TxDOT/NCTCOG); RTG—Recreational Trails Grant (TPWD); SRTS—Safe Routes to School (TxDOT)

*Dual 8 foot wide sidepaths, one on each side of the road.

**Portions of this alignment may be constrained, only allowing a 10 foot wide trail.

Table 5.4 – Trail Master Plan Priorities

Segment ID	Priority Group	Description	Length (miles)	Width [†] (feet)	Cost [‡] (thousands)	Potential Funding Sources [△]
01	2	BNSF Railroad from northern city limit to Wintergreen Road	0.5	12	\$379	TE, RTG
02	2	BNSF Railroad from Wintergreen Road to FM-1382	1.1	12	\$815	TE, RTG
03	5	BNSF Railroad from Belt Line Road to US-67	1.0	12	\$762	SRTS, TE, RTG
04	5	BNSF Railroad from US-67 to future Lake Ridge Parkway extension	2.1	12	\$1,555	TE, RTG
05	5	BNSF Railroad from future Lake Ridge Parkway extension to southern city limits	0.8	12	\$583	TE, RTG
<i>Subtotal</i>			5.5		\$4,094	
Inner Loop Core Trail						
01	3	FM-1382 from Cedar Hill Road to Belt Line Road	1.1	8/8*	\$819	SRTS, TE
02	3	Belt Line Road from FM-1382 to Cedar Hill Road	1.3	8/8*	\$963	SRTS, TE
<i>Subtotal</i>			2.4		\$1,782	
Middle Loop Core Trail						
01	2	Northwood University from FM-1382 to Belt Line Road	1.6	12	\$1,208	RTG, Northwood University
02	4	Northwood University at Belt Line Road to West Parkerville Road	1.6	12	\$1,216	SRTS, TE
03	2	South Clark Road from West Parkerville Road to Belt Line Road	1.0	10-12**	\$749	SRTS, TE
<i>Subtotal</i>			4.2		\$3,173	

[†]If feasible, all Core Trail segments will be 12' wide. This column represents predicted maximum widths based on right-of-way constraints.

[‡]Significant cost savings can be realized if projects are incorporated in other capital projects, such as street construction or rehabilitation.

[△]TE-Transportation Enhancements (TxDOT/NCTCOG); RTG-Recreational Trails Grant (TPWD); SRTS-Safe Routes to School (TxDOT)

*Dual 8 foot wide sidepaths, one on each side of the road.

**Portions of this alignment may be constrained, only allowing a 10 foot wide trail.

Table 5.4 – Trail Master Plan Priorities

Segment ID	Priority Group	Description	Length (miles)	Width [†] (feet)	Cost [‡] (thousands)	Potential Funding Sources [△]
Inner Loop Core Trail						
01	1	Cedar Hill State Park from FM-1382 to Mansfield Road	3.6	12	\$2,700	TPWD
02	In Progress	Lake Ridge Parkway Sidepath from Mansfield Road to US-67	3.6	12	Funded	--
03	5	Future Lake Ridge Parkway extension from US-67 to Red Oak Creek	2.6	12	\$1,925	TE, RTG
04	5	Bear Creek Road and its future extension from Red Oak Creek to Duncanville Road	1.8	12	\$1,378	TE, RTG
05	3	Duncanville Road from Bear Creek Road to Belt Line Road	2.0	12	\$1,496	TE, RTG
06	3	Duncanville Road from Belt Line Road to Wintergreen Road	2.0	12	\$1,525	TE
07	3	Wintergreen Road from Duncanville Road to US-67	0.4	12	\$337	TE
08	3	Utility easement and Wintergreen Road from US-67 to BNSF Railroad	1.1	12	\$822	TE
09	4	Wintergreen Road from BNSF Railroad to Strauss Road	1.4	8/8*	\$1,066	SRTS, TE
10	2	Cedar Ridge Preserve from Strauss Road to FM-1382	1.0	12	\$743	RTG
			Subtotal	19.5	\$11,992	
			Total – In Progress	8.6		
			Total – Future Planned	39.4	\$29,561	
			Grand Total	48.0		

[†]If feasible, all Core Trail segments will be 12' wide. This column represents predicted maximum widths based on right-of-way constraints.

[‡]Significant cost savings can be realized if projects are incorporated in other capital projects, such as street construction or rehabilitation.

[△]TE-Transportation Enhancements (TxDOT/NCTCOG); RTG-Recreational Trails Grant (TPWD); SRTS-Safe Routes to School (TxDOT)

*Dual 8 foot wide sidepaths, one on each side of the road.

**Portions of this alignment may be constrained, only allowing a 10 foot wide trail.

Trail Master Plan First Phase Priorities

Table 5.5 lists the top priority projects for completion or initiation in the next five years. These projects are also shown in Table 5.4.

Table 5.5 – Trail Master Plan First Phase Priorities

Segment ID	Priority Group	Description	Length (miles)	Width [†] (feet)	Cost [‡] (thousands)	Potential Funding Sources [▲]
01	1	Cedar Hill State Park from FM-1382 to Mansfield Road	3.6	12	\$2,700	TPWD
02	1	Belt Line Road from Mansfield Road to Cedar Hill Road	1.2	12	\$906	SRTS, TE, RTG
03	1	Cedar Hill Road from FM-1382 to Belt Line Road	1.0	12	\$763	SRTS, TE
04	1	Houston/Main/Cooper Streets from Belt Line Road to US-67	0.6	8/8*	\$471	SRTS, TE
05	1	Longhorn Boulevard from US-67 to Virginia Weaver Park and Parkerville Road	0.7	10-12**	\$504	SRTS, TE
01	1	FM-1382 from northern city limits to New Clark Road	2.6	12	\$1,935	TE, RTG
Total			9.7		\$7,279	

[†]If feasible, all Core Trail segments will be 12' wide. This column represents predicted maximum widths based on right-of-way constraints.

[‡]Significant cost savings can be realized if projects are incorporated in other capital projects, such as street construction or rehabilitation.

[▲]TE—Transportation Enhancements (TxDOT/NCTCOG); RTG—Recreational Trails Grant (TPWD); SRTS—Safe Routes to School (TxDOT)

*Dual 8 foot wide sidewalks, one on each side of the road.

**Portions of this alignment may be constrained, only allowing a 10 foot wide trail.

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5.4 **BIKEWAYS**

Bikeways serve both recreation and transportation functions. Every week, dozens—if not hundreds—of avid recreational cyclists take to Cedar Hill’s beautiful roadways, especially FM-1382, Mansfield Road, and Lake Ridge Parkway. The popularity of Cedar Hill for recreational road cyclists is what led to the formation of the Head for the Hills Bike Rally. In addition to recreational cyclists, there are transportation cyclists in Cedar Hill, including adult commuters and school children.

Inventory & Assessment

Cedar Hill does not currently have any formalized bikeways, though cyclists are legally allowed to ride on any roadway other than freeways. The avid recreational cyclists that ride along FM-1382, Mansfield Road, and Lake Ridge Parkway do so either on the roadways’ shoulders (where present) or in a regular travel lane.

Needs

The need for additional bikeways are based on three factors:

1. Citizen demand as expressed through the public involvement process;
2. An analysis of connectivity for cyclists using roadways; and
3. Federal and regional government initiatives.

Unlike trails, level of service is not analyzed for bikeways. The reason being that the key measure of a bikeway system’s performance is its connectivity, appropriateness to target users, and quality of design, not the miles of bikeways per capita.

Citizen Demand

As with trails, there is strong support for the provision of bikeways, especially when they are designed to provide a high level of comfort and sense of safety for novice or B-cyclists¹.

¹ The term “B-cyclists” refers to the average bike rider. See page 5-5.

Network Connectivity Analysis

The goal of the network connectivity analysis for bikeways is the same as it is for trails: to identify lack of connectivity to destinations and within the network itself. This analysis is based on the mapping information included in Figure 5.1 (Opportunities & Constraints) on page 5-8.

Considering the current lack of formal bikeways, there is not an adequate level of connectivity for general cyclists at this time. Avid cyclists that are comfortable riding with traffic enjoy a relatively adequate level of connectivity. However, novices that are not comfortable riding with traffic are forced to remain on neighborhood streets (or use trails), which limits their access to potential destinations.

The priority for the bikeways system, therefore, is to begin establishing bikeways along streets that provide the highest level of connectivity and/or would require relatively inexpensive levels of investment. Collector roads through neighborhoods and streets in Downtown and Uptown are prime for initial projects. In addition, any roadway project involving resurfacing, restriping, or pavement modifications should incorporate planned bikeway elements to the extent possible.

Special consideration should be given to intersections, which should be laid out in a way that makes motorists aware of the cyclists' intentions well in advance. Intersection improvements to consider include:

- Specific pavement markings such as "bike boxes" (also referred to as "blue boxes" or "green boxes") at intersections and solid-color bike lanes (where the entire bike lane is painted with a noticeable color, such as green, in order to be more visible);
- Warning signs wherever motorists will have to cross over an on-street bike lane (such as to enter a right-turn lane); and
- Bicycle-oriented traffic signals (which give cyclists a head-start through the intersection).

There are many nuances and details associated with providing bike lanes that can only be addressed during the design process.

Federal & Regional Government Initiatives

Recent Federal initiatives and mandates, which affect how TxDOT and NCTCOG's funding is allocated, require that new roadway projects include facilities for bicycles and pedestrians. This includes bike lanes or wide outside shared lanes (minimum of 14 feet in width¹), as well as sidewalks for pedestrians.

¹ This Master Plan recommends 14.5' minimum for shared lanes, with 16' preferred.

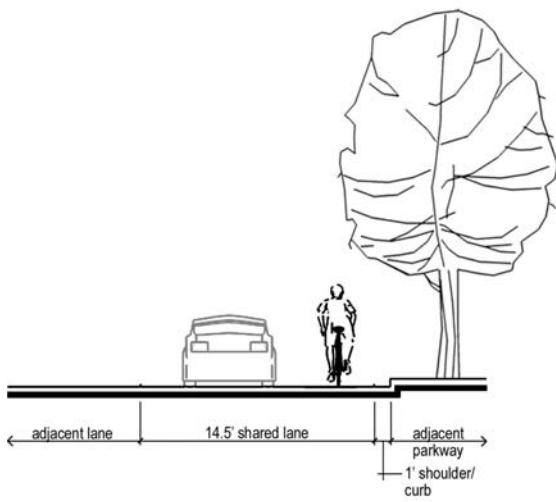
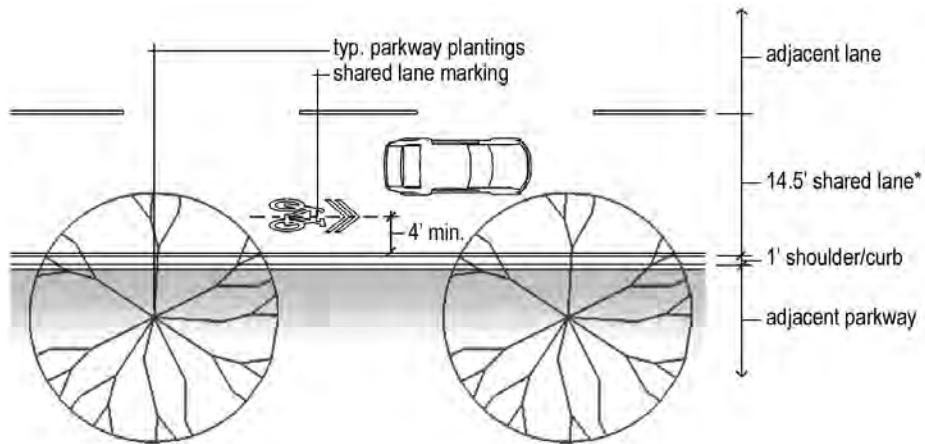
Bikeway Typologies

There are several different types of facilities that fall within the bikeways category—these include shared lanes, bike lanes, and buffered bike lanes/cycle tracks. In addition, “sidepaths” (shared-use paths along roadways) can be used where traffic volumes and speeds are extremely high. Each of these facility types are described in more detail below.



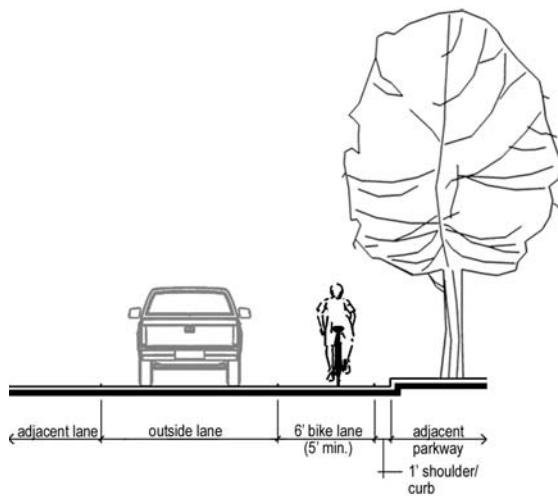
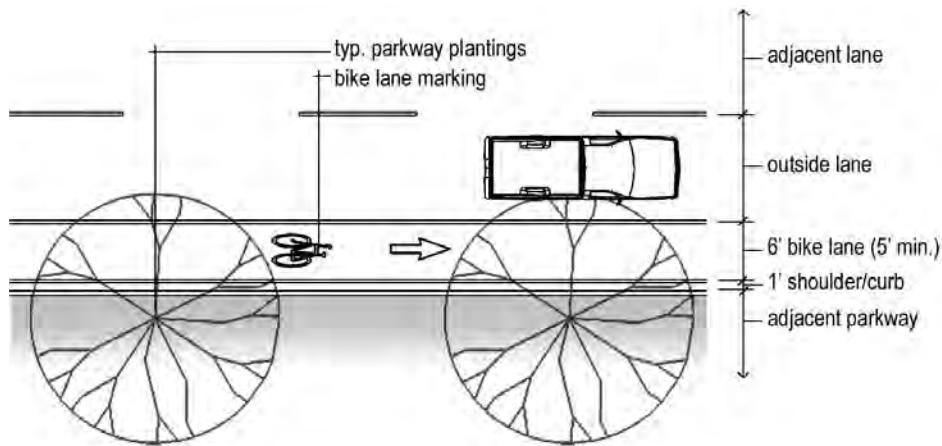
Shared Lanes

This type of facility does not include striping to delineate space for bicycles from space for automobiles. However shared lane bikeways include wider lanes (14.5' minimum [16' preferred] if on-street parking is not allowed, which gives room for a normal-sized automobile to safely pass a bicycle), pavement markings, and are most appropriate along lower-traffic streets. On four lane roads, only the outside lanes should be marked as shared lanes.



Bike Lanes

The benefits of bike lanes, which are most appropriate along moderate-traffic streets, include the clear delineation between space for bicycles and space for automobiles and their high visibility to cyclists and motorists alike (which can improve safety as well as wayfinding). Bike lanes should be a minimum 5' wide from the edge of pavement (not including the gutter) and ideally 6' wide whenever possible. Parking alongside a bike lane is strongly discouraged; however, if parking must be provided, it should stand separately from the bike lane. That is, the parking aisle should not encroach upon and should be in addition to the 5' to 6' wide bike lane. On one-way streets where a bike lane is only provided on one side of the road, parking should be located on the opposite side to minimize potential conflicts between cars and bicycles.



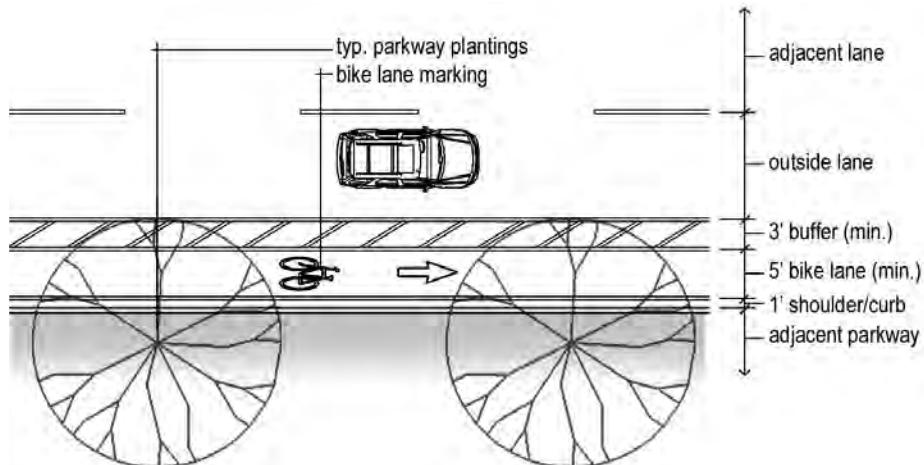
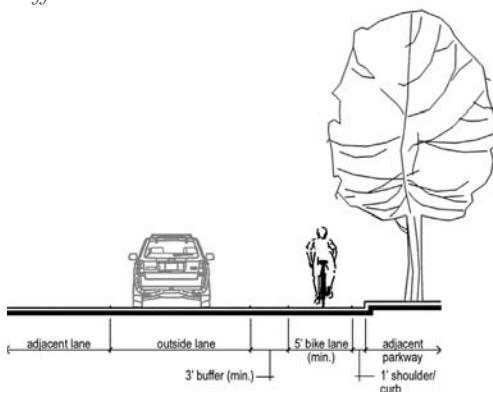


Buffered Bike Lanes / Cycle Tracks

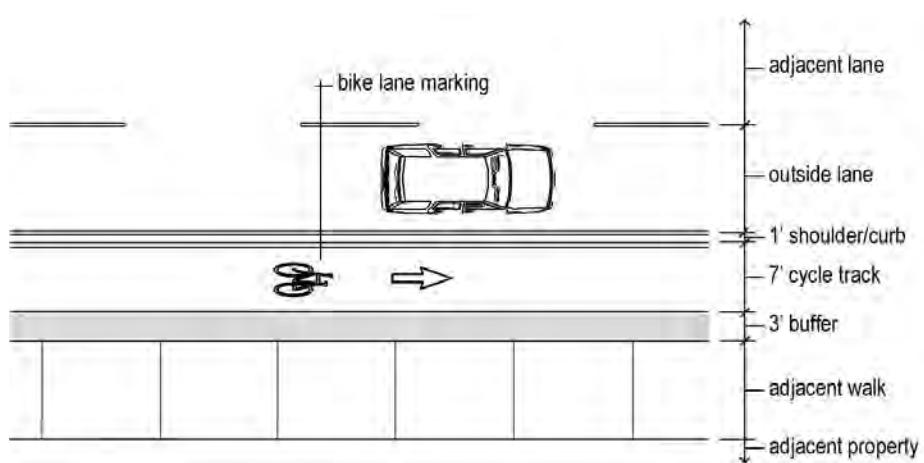
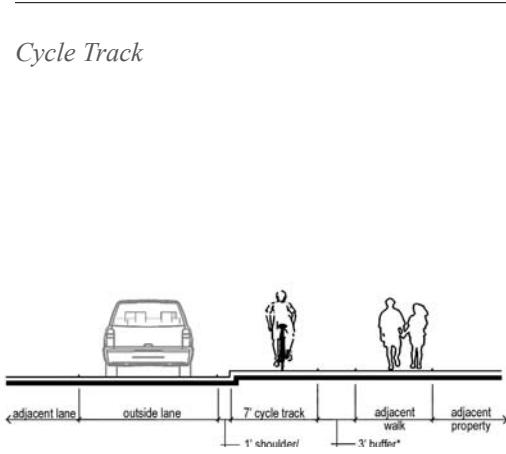
These are relatively new bikeway types in the United States (though very common in European cities such as Copenhagen, Amsterdam, and Muenster as well as Vancouver, Canada). These types of facilities are preferred for higher-traffic roadways and along major bikeway corridors that are anticipated to have a very high volume of bicycle traffic as they provide additional space between bicycles and cars.

Buffered bike lanes are simply bike lanes with an additional 3' or more of striped area between the bike lane and the regular traffic lanes. Cycle tracks, on the other hand are separated from automobiles through a curb, parking aisle, median, bollard, or similar and are separated from pedestrians through a painted stripe, grade separation, or landscaped area. Cycle tracks can be one-way or two-way; however, two-way versions are much more difficult to design and require more signage and traffic control measures than one-way versions. A typical cycle track will be 7' wide, which allows for one bicycle travel lane and one bicycle passing lane. Determining between the application of a buffered bike lane and a cycle track must be done on a case-by-case basis during the design process.

Buffered Bike Lane

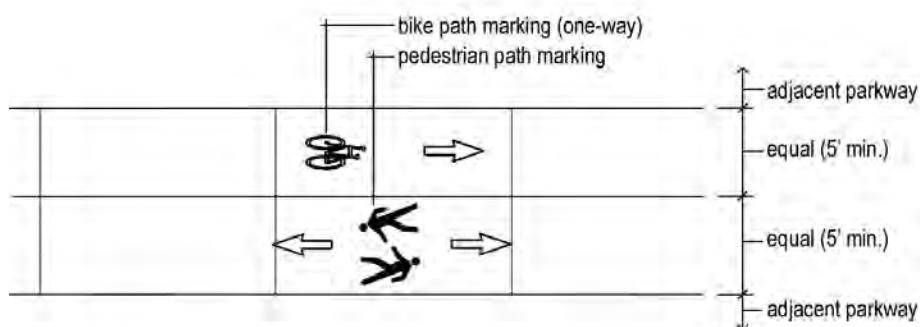
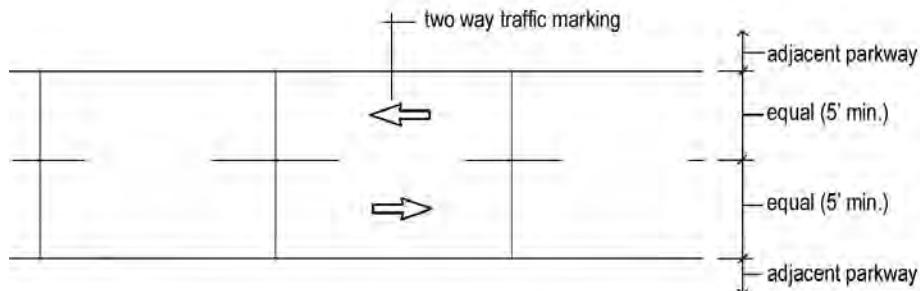


Cycle Track



Sidepaths

In some cases—either along very high-traffic roadways or where large volumes of Type B cyclists are expected—it may be preferable to provide a sidepath (a multi-use path or trail for cyclists and pedestrians along one or both sides of a roadway). Sidepaths are generally the preferred bikeway type for Greenway Arterials (see Chapter 7). Sidepaths should be designed to meet all AASHTO standards for shared use paths, including signage and trail-specific traffic control/signage. Sidepaths indicated on Figure 6.4 should be a minimum of 10' in width when provided on both sides of the roadway or 12' in width when provided on only one side. Note that the Trails Master Plan (Figure 6.2) includes trails along roadways that are not part of the Bikeways Master Plan. Those trails should be a minimum of 8' in width when provided on both sides of the roadway or 10' when provided on only one side. In instances where a sidepath is provided on only one side of the roadway, a sidewalk with a width of 6' or greater should be provided on the other side.



Bikeway Network

The purpose of the bikeways master plan is to provide a city-wide network of bicycle facilities that provide access across the entire city, connect all major destinations—including parks, shopping areas, transit stations, and major employment centers—and provide links to neighboring cities and regional trail systems. The objective is for bikeways to provide safe, quick, and direct travel along corridors with high bicycle demand and to connect discontinuous segments of multi-use trails.

The planned bikeway network has been designed to connect and support the trail system, while also serving as a stand-alone system for cyclists that wish to utilize roadways. The network is built to reflect forecasted future traffic volumes so vehicular traffic is not unduly effected by the bikeways. Another effect of this approach is that bikeway facilities are appropriate for the amount of adjacent traffic and are comfortable for users. While avid, high-speed cyclists will be able to comfortably utilize the network, it is primarily designed to appeal to average bike riders (B-cyclists), which constitute the majority of current or potential cyclists.

Alignment Selection

Bikeway alignments were chosen to provide direct routes with minimal turns. Fewer turns along a route minimize confusion and the effort required to navigate the system. An easier-to-use system will encourage greater use by a variety of cyclists. These alignments also provide route options with varying facility types, so that people with different skill levels can select a route that they are comfortable using. The bikeway system primarily utilizes existing and future arterial and collector thoroughfares for these reasons:

- They provide better cross-town connectivity than minor neighborhood streets.
- They typically have more available right-of-way than neighborhood streets.
- They are the streets with which most citizens are already familiar.
- They typically connect to neighboring cities and transit systems.

Bikeways and Trails

Where bikeways overlap the Core Trail networks (which only occurs along streets, not along greenways), a higher ease-of-use on-street facility is planned. In other words, sidepaths, buffered bike lanes, and cycle tracks are typically provided rather than shared lanes or traditional bike lanes. Examples of these situations are FM-1382, Mansfield Road, and Duncanville Road. Planned bikeways will connect to existing and planned trails to allow users to access those trails by bike, minimizing their dependency on their car.

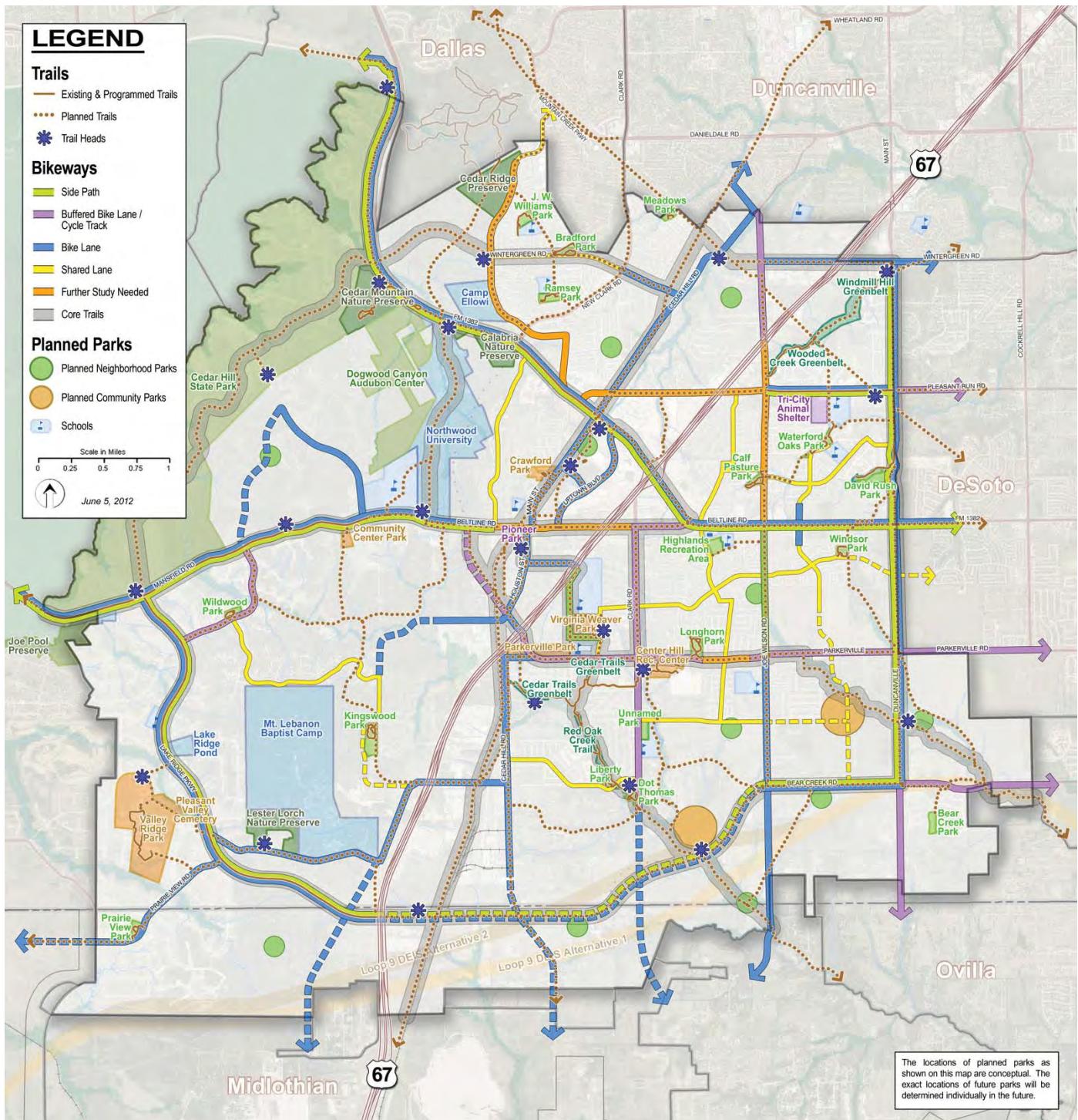


Figure 5.5 – Bikeways Master Plan

This figure illustrates the location of planned bikeways in Cedar Hill. The core trail network is shown in light grey for reference.

Bikeway Implementation

The Bikeways Master Plan recommends 85.4 miles of new shared lanes, bike lanes, buffered bike lanes / cycle tracks, and sidepaths. Sidepaths constitute 24.6 of these miles, which are also accounted for in the Trails Master Plan Cost Estimates. Table 5.6 depicts the various bikeway facility types and includes cost estimates. However, there is a great amount of variability within the cost of this type of facility. For example, striping a bike lane on a roadway with excess pavement width requires little more than the cost of the paint itself. At the other extreme, adding a bike lane to a roadway without adequate pavement width could require demolishing and reconstructing curbs, modifying drainage, potentially relocating utilities, modifying sidewalks and driveways, etc.

As with trails, many of these facilities can be implemented in coordination with road reconstruction/improvement projects. In reality, this may be the only time that the provision of bikeways is feasible from a cost point of view.

Table 5.6 – Bikeways Master Plan Cost Estimates

Type	Miles	Typical Cost per Mile (retrofit)*	Typical Cost per Mile (new construction)**
Shared Lanes	19.0	\$10,000	\$50,000
Bike Lanes	25.7	\$20,000	\$100,000
Buffered Bike Lanes / Cycle Tracks	9.7	\$30,000	\$150,000 / \$600,000
Side Paths	24.6	\$750,000	\$750,000
Further Study Needed	6.4		
Total	85.4 Miles		

*Costs for facilities retrofitted onto streets. Includes pavement markings and signage. Assumes adequate existing pavement width. Projects requiring pavement section modifications, utility relocations, right-of-way acquisition, etc. would be significantly more expensive.

** Costs for facilities constructed with other roadway projects. Includes additional pavement width, striping, and signage. Does not include additional right-of-way.

Priority Bikeway Projects

Table 5.7 lists upcoming roadway projects which will include bikeway facilities, as well as additional bikeway projects that will provide increased connectivity.

Table 5.7 – Priority Bikeway Projects

Upcoming Roadway Projects

Project	Planned Facility Type	Miles
Mansfield Road from City Limit to Belt Line Road	Bike Lanes & 12' Sidepath	3.9
Lake Ridge Parkway from Mansfield Road to US-67	Bike Lanes & 12' Sidepath	3.6
Pleasant Run Road from Joe Wilson Road to Duncanville Road	Bike Lanes & 12' Sidepath	1.0
FM-1382 from New Clark Road to Strauss Road	Bike Lanes & 12' Sidepath	0.8
South Clark Road from Belt Line Road to Parkerville Road	Buffered Bike Lane or Cycle Track	1.0
Additional Projects for Increased Connectivity		
Belt Line Road from Mansfield Road to Cedar Hill Road	Bike Lanes & 12' Sidepath	1.2
Cedar Hill Road from Belt Line Road to North City Limit	Bike Lanes	2.6
FM-1382 from North City Limit to New Clark Road	Bike Lanes & 12' Sidepath	2.6
Pleasant Run from FM-1382 to Joe Wilson Road	Bike Lanes	1.5
Parkerville Road from Houston Street to Joe Wilson Road	Buffered Bike Lane or Cycle Track	2.1
Meandering Drive/Cannaday Drive/Stone-wood Drive from Pleasant Run Road to Little Creek Road	Shared Lane	2.7
Houston Street from Belt Line Road to Parkerville Road and Cooper Street from Houston Street to US-67	Bike Lanes	0.9

5.5 **POTENTIAL**

FUNDING SOURCES

Trails and bikeways share many funding sources, including several grant programs. Many of the following funding sources can be applied to both trail projects and bikeway projects.

Municipal Bonds

Debt financing through the issuance of municipal bonds is the most common way in which to fund trail projects. This type of funding is a strategy wherein a city issues a bond, receives an immediate cash payment to finance projects, and must repay the bond with interest over a set period of time ranging from a few years to several decades. General obligation bonds—the most common form of municipal bond—is the primary bond type for trail projects.

Impact Fees & Developer Requirements

This tool can be used to require new development to provide trail rights-of-way or easements to offset the City's costs. Allowing or requiring developers to construct trails in accordance with City standards is an alternative implementation method. For bikeways, the Roadway Impact Fee will provide funding for new facilities as development occurs.

Tax Increment Financing/Public Improvement Districts

These related tools allow a development district to divert a portion of its property taxes to fund infrastructure improvements within its area. This can include trails and trailheads.

Recreational Trail Grants (Trails Only)

The Texas Parks & Wildlife Department (TPWD) administers the National Recreational Trails Fund in Texas under the approval of the Federal Highway Administration (FHWA). The grants can be up to 80% of project costs with a maximum of \$200,000 for non-motorized trail grants. 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 application deadline is May 1st each year.

Texas Department of Transportation Statewide Transportation Enhancement Program

Through the Statewide Transportation Enhancement Program (STEP), the Texas Department of Transportation (TxDOT) periodically makes funds available for the construction of bicycle routes, trails, pedestrian

safety enhancements, and landscaping of transportation facilities. To date, there have been seven program calls (1993, 1994, 1996, 1999, 2001, 2005-cancelled, and 2009) totaling \$533.4 million worth of grant dollars awarded. Grant selection and administration goes through the North Central Texas Council of Governments (NCTCOG), which reviews the projects within the Metropolitan Planning Area for eligibility, ranks the projects, and provides the State-required Letter of Transportation Improvement Program Placement.

STEP provides monetary support for transportation activities designed to strengthen the cultural, aesthetic, and environmental aspects of the transportation system. Funding is on a cost reimbursement basis and projects selected are eligible for reimbursement of up to 80%. This is one of the most important grants for trail projects.

North Central Texas Council of Governments (NCTCOG)

Sustainable Development Funding Program

The North Central Texas Council of Governments Sustainable Development Funding Program was created by its policy body, the Regional Transportation Council, to encourage public/private partnerships that positively address existing transportation system capacity, rail access, air quality concerns, and/or mixed land uses. By allocating transportation funds to land use projects promoting alternative transportation modes or reduced automobile use, NCTCOG and its regional partners are working to address mounting air quality, congestion, and quality of life issues.

The program is designed to foster growth and development in and around historic downtowns and “Main Streets,” infill areas, and passenger rail lines and stations. To support this effort, the Regional Transportation Council designated \$41 million in 2009 for sustainable infrastructure and planning projects throughout the region. Types of projects include:

- **Infrastructure:** A construction project that provides public infrastructure in the public right-of-way and can be used to support private vertical development (i.e., buildings). Examples include pedestrian amenities, landscaping, intersection improvements, lighting, street construction, traffic signalization, etc.
- **Planning:** Projects that include market, housing, and economic analyses, transit station planning; Transit Oriented Development (TOD) planning; general planning (subdivision regulations, creation of new code/zoning regulations, master planning, updates to pedestrian and/or bicycle plans, etc.); and others.

Regional Transportation Council Partnership Program

Through the Local Air Quality Program, NCTCOG's Regional Transportation Council funds transportation projects that address the new air quality standards, including traffic signal timing, trip reduction, air quality outreach and marketing programs, vanpool programs, bicycle/ pedestrian regional connections, high-emitting-vehicle programs, diesel freight programs, off-road construction vehicle emissions reduction programs, park-and-ride facilities, and other air quality strategies.

Congestion Mitigation and Air Quality (CMAQ) Improvement Program / Regional Surface Transportation Program

The CMAQ Improvement Program directs funds to transportation projects in Clean Air Act non-attainment areas for ozone and carbon monoxide. These projects should contribute to meeting the attainment of national ambient air quality standards (NAAQS). CMAQ funds may be used for construction of pedestrian walkways and bicycle transportation facilities or non-construction projects such as brochures and route maps related to safe bicycle use. Bicycle projects must be primarily for transportation rather than recreation and must be included in a plan developed by each Metropolitan Planning Organization and the State. Projects that bring sidewalks into compliance with the Americans with Disabilities Act Accessibilities Guidelines (ADAAG) are eligible for these funds. Because CMAQ funds are managed by NCTCOG, their availability is subject to that organization's current funding initiatives.

Safe Routes to School Program

The Safe Routes to School (SRTS) Program in Texas is based upon Federal funding and is administered by TxDOT. The overall purpose of this program is to improve safety in and around school areas. Projects eligible for SRTS funding are those that reflect one or more of the “5 Es” (engineering, education, encouragement, enforcement, and evaluation). Funds are available for use around schools that enroll kindergarten through eighth grade students. The amount of funding each State receives from the Federal government is based on percentage of student enrollment. This grant program is a 100% Federally-funded cost reimbursement program, which means there is no required match from the local government.

The following guidelines determine what projects can be submitted:

- Projects may be located on or off the State highway system, but must be located on public property
- Projects must be located within a two mile radius of a school
- Projects can cover multiple school sites if similar work is performed at each site
- Infrastructure projects can be awarded a maximum of \$500,000 per application
- Non-infrastructure projects can be awarded a maximum of \$100,000 per application

Non-infrastructure project types eligible for funding include:

- Education on bicycle and pedestrian safety, health, and the environment
- Traffic education and enforcement in the vicinity of identified school(s)
- Creation and reproduction of promotional and educational materials
- Public awareness campaigns and outreach efforts to the news media and community leaders
- Modest incentives for SRTS contests and incentives that encourage more walking and bicycling over time
- Safety and educational tokens that also advertise the program
- Cost for additional law enforcement or equipment needed for enforcement activities

Infrastructure projects must fall within one of six categories to be eligible for funding:

- Sidewalk improvements
- Pedestrian and bicycle crossing improvements
- On-street bicycle facilities
- Off-Street bicycle and pedestrian facilities
- Traffic diversion improvements
- Traffic calming measures for off-system roads
- Secure bicycle parking facilities

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“Everyone has the right to walk from one end of the city to the other in secure and beautiful spaces...and an unhampered view down their street, not full of railings, signs and rubbish.”

– Richard Rogers (1933-)



STREETSCAPES

2012 PARKS, RECREATION, TRAILS & OPEN SPACE
VISIONING MASTER PLAN

6.1

INTRODUCTION

“Cedar Hill’s streetscapes provide the opportunity to reflect the unique identity and natural beauty of our city.”

Streetscapes are one of the most visible components of any city—this is especially true for Cedar Hill. Several major roadways pass through the city—including US-67, which runs from Iowa to Mexico over a distance of 1,560 miles. Considering the high level of traffic passing through our community (more than 50,000 vehicles per day travel along US-67), the appearance of our roadways provides the first impression of Cedar Hill for millions of people each year. Ensuring the appearance of our streetscapes is fitting for a city of premier quality is paramount.

Streetscapes are not only about aesthetics, however. Well-planned and designed streetscapes can encourage the use of alternative transportation, improve quality of life, and spark reinvestment and economic growth. Furthermore, Cedar Hill’s streetscapes provide the opportunity to reflect the unique identity and natural beauty of our city.

Goals

- Create a cohesive connective streetscape system throughout Cedar Hill that sets the city apart from neighboring cities in and around the Metroplex.
- Emphasize the natural character of the city and focus on the preservation of its natural qualities.
- Engage, incentivize, and encourage property owners and private developers to improve their properties concurrent with streetscape improvements.
- Reflect the identity of Cedar Hill through the design of gateways and monumentation.
- Establish guidelines for the use of hardscape and landscape materials that reflect Cedar Hill’s identity and character and make efficient use of energy, water, and general maintenance.

Purpose

This Streetscape Master Plan presents ideas designed to transform Cedar Hill’s roadway system into a more effective, attractive, and cohesive multi-modal transportation system. Public participation, input from City leaders, and the 2008 Comprehensive Plan laid the groundwork for this Streetscape Plan. The streetscape concept, designations, and themes refine and consolidate the three components that make up the planned Transportation System as defined in Cedar Hill’s existing Thoroughfare Plan. The primary purpose of the Streetscape Plan is to enhance the image of Cedar Hill and convey the community’s distinctiveness through a unified plan for the implementation of streetscape improvements.



Pertinent Citizen Input

The focus group meetings, public meetings, and telephone survey provided a significant amount of insight regarding the public's opinion on Cedar Hill's streetscapes. Generally, people feel that Cedar Hill is too auto-dominated. They would like roadway corridors to be more aesthetically pleasing while accommodating bicycles and pedestrians. Enhancing the gateways to the City and improving the appearance of US-67 are also priorities. Sustainability is an important consideration, with native, drought-tolerant, perennial plants preferable to water-intensive seasonal species. The telephone survey included several questions regarding streetscapes and beautification.

- The majority of people (73%) think Cedar Hill should have on-street bike routes on some roadways.
- 85% support the enhancement of gateways into the city.
- While 74% of respondents are satisfied with how streets and intersections are landscaped, 62% think the City should plant more trees and landscaping in those areas.
- While there is some support for trails along roadways, 65% dislike this practice, preferring trails in more scenic areas.



6.2

ASSESSMENT OF EXISTING CONDITIONS

“US-67 has untapped potential to announce and celebrate the City of Cedar Hill.”

New Clark Road (below) includes trees planted in natural patterns that integrate with the character of the Balcones Escarpment. US-67 (bottom) does not effectively convey the identity of Cedar Hill.



There are many beautiful streetscapes already existing in Cedar Hill. Some of these are due to enhancements made by the City or developers—such as median plantings, decorative lighting, and monumentation—and some are results of the beauty of the natural environment through which the roads pass.

Streetscapes in the western portion of Cedar Hill afford views of the rolling hills and rock outcroppings of the Balcones Escarpment. The primary examples are Mansfield Road from where it crosses over Joe Pool Lake and FM-1382 where it follows the foot of the Escarpment along the State Park before rising in a sweeping manner towards US-67. Lake Ridge Parkway also shares many of these same qualities. While these roadways currently have very few man-made improvements, they are pleasant to travel along simply due to their surrounding environment.

Paradoxically, the uniqueness and beauty of Cedar Hill is unknown to the passersby that drives on US-67, the main northeast to southwest thoroughfare through the City. This freeway has a “sameness” to it from its intersection with IH-35E to Midlothian and beyond. There are few aesthetic enhancements along the freeway. Instead, there is a considerable amount of visual clutter resulting from billboards, signs, and overhead utilities. In addition, there are few cues to indicate that one is entering or leaving Cedar Hill other than the standard highway city limit sign. This road has untapped potential to announce and celebrate the City of Cedar Hill.

Some roadways have streetscape enhancements in place (typically special pavement patterns, landscaping, and minor monumentation). However, of those that do, there is not a consistency in their design. Overall, the majority of roadways within the City do not have streetscape enhancements that reflect the distinctiveness of Cedar Hill.





The images to the left depict two of Cedar Hill's arterial roadways. Parkerville Road, on the far left, has minimal landscaping and the sidewalk is against the road. In contrast, Pleasant Run Road has a more varied and detailed landscape and the sidewalk is buffered from the road, which provides a higher level of pedestrian comfort. Neither roadway provides dedicated lanes for bicycles.



Some of Cedar Hill's most beautiful streetscapes owe their beauty to the surrounding natural and rural environments as depicted by the image to the left (Dunncville Road) and the two images below (FM-1382)



6.3

STREETSCAPE CONCEPT

Cedar Hill's streetscape concept follows the principles of:

context sensitivity

complete streets

green infrastructure

Principles

The streetscape concept is based on a set of principles that guide the establishment and location of typologies. These principles are:

- **Context Sensitive Solutions** – The practice of designing streets that embrace rather than detract from the character of the surrounding and adjacent areas. Often, this results in changes to road configurations, design speeds, landscaping, and traffic calming. Specific to the streetscape concept, this means that the development and application of each typology is intended to reflect the diverse character of different parts of Cedar Hill.
- **Complete Streets** – An approach that encourages the use of alternative transportation by enhancing the roadway environment for cyclists and pedestrians. Typically, this involves including bike lanes, wide sidewalks, and consideration for visual and physical interaction between adjacent development and the street.
- **Green Infrastructure** – The definition of green infrastructure varies from practices that use natural processes to enhance environmental quality while providing utility services (such as stormwater drainage)¹ to interconnected networks of natural lands, open spaces, and habitat that conserve ecosystem values². Incorporating open space, drainage swales, and trails along roadways will connect and reinforce Cedar Hill's trail system, physically connect the urbanized core of the city with the natural environment of the periphery, and filter stormwater runoff.

Typologies

Considering the principles described above, a streetscape concept with three major “rings” radiating from Cedar Hill’s center was developed. The central ring (“Core”) creates a zone of high intensity and focus. The middle ring (“Transition”) establishes a transition between the downtown/urban core and the outer ring. The outer ring (“Greenway”) encircles the city, building upon the unique natural and rural characteristics of Cedar Hill, while also creating green corridors connecting to the city center. A series of streetscape typologies³ support this concept:

- 1 See the US Environmental Protection Agency's “Greening EPA Glossary.”
 - 2 See The Conservation Fund's “What is Green Infrastructure?” webpage.
 - 3 Streetscape typologies relate to the aesthetic nature of roadways and in some cases affect right-of-way width. They do not replace the functional classification of roadways. Any of the “Arterial” streetscape typologies can be applied to both Principal and Minor Arterials.
- Freeway (US-67) – Establish major gateways to Cedar Hill and improves the first impressions of passers-by.
 - Core Arterial – Encompasses Downtown and Uptown and emphasizes the heart of Cedar Hill and are formal in character.
 - Transition Arterial – Transitions from the high intensity characteristics of the Core Arterials to the natural quality of the Greenway Arterials.

- Greenway Arterial – Emphasizes and responds to existing natural features where such features exist and introduces native plantings and wide parkways into developed areas.
- Connector Arterial – Provides enhancements across the city while linking other typologies together.
- Collector – Includes moderate improvements for these lower-volume, less-prominent roadways.

The streetscape concept incorporates typical intersection treatments for the different typologies while identifying and defining major gateways and secondary gateways into Cedar Hill and into the City core. Each gateway is an opportunity to highlight the distinctive identity of Cedar Hill and serve as prominent landmarks and focal points within the community.

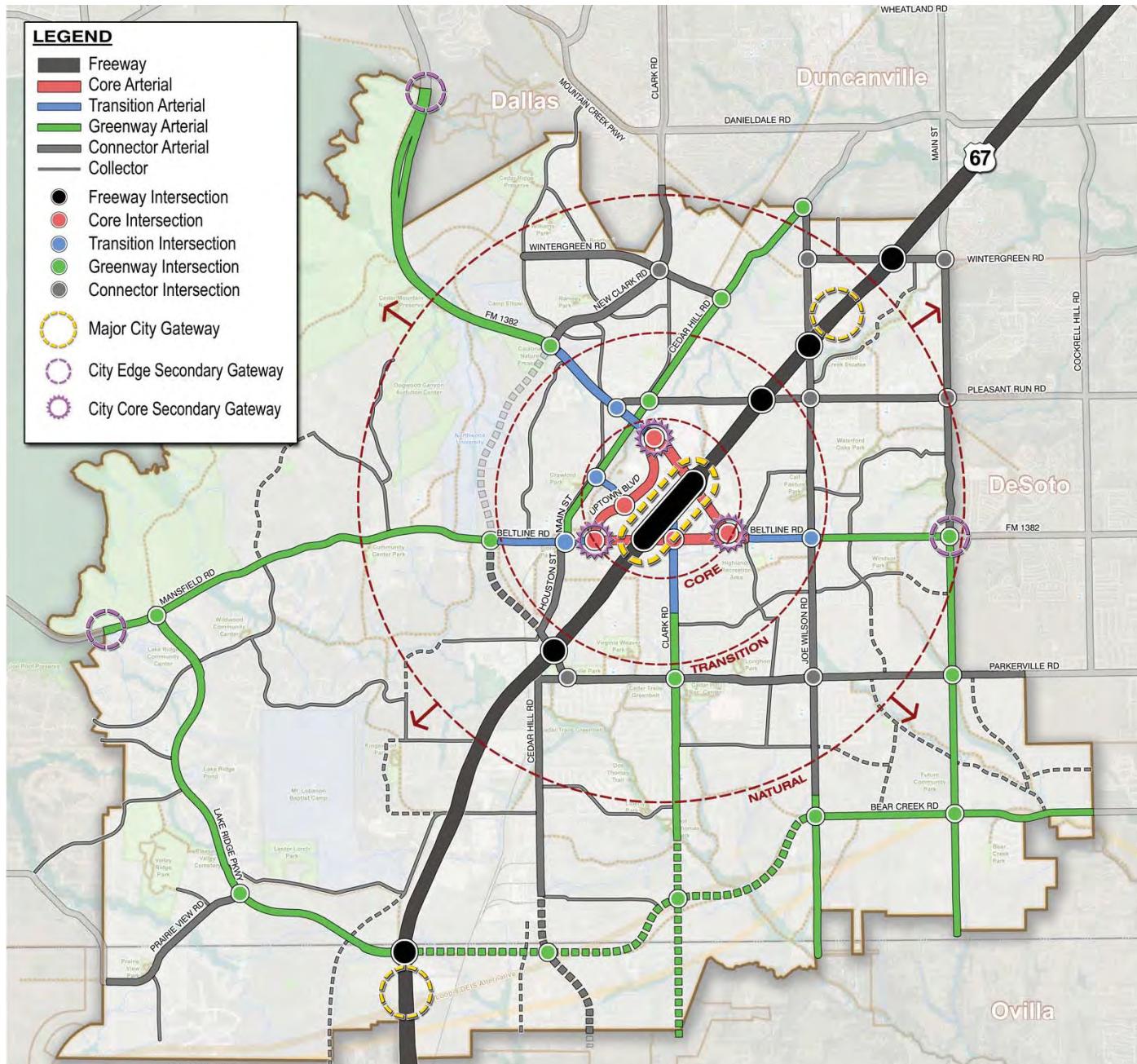


Figure 6.1 – Streetscape Concept Map

This map illustrates the general location of each of the streetscape typologies, major gateways, and intersection treatments.

6.4

FREEWAY

The freeway streetscape typology is applied to US-67 as a means to enhance the aesthetics of the most-traveled corridor through Cedar Hill, thereby improving the first impressions of visitors and passers-by.

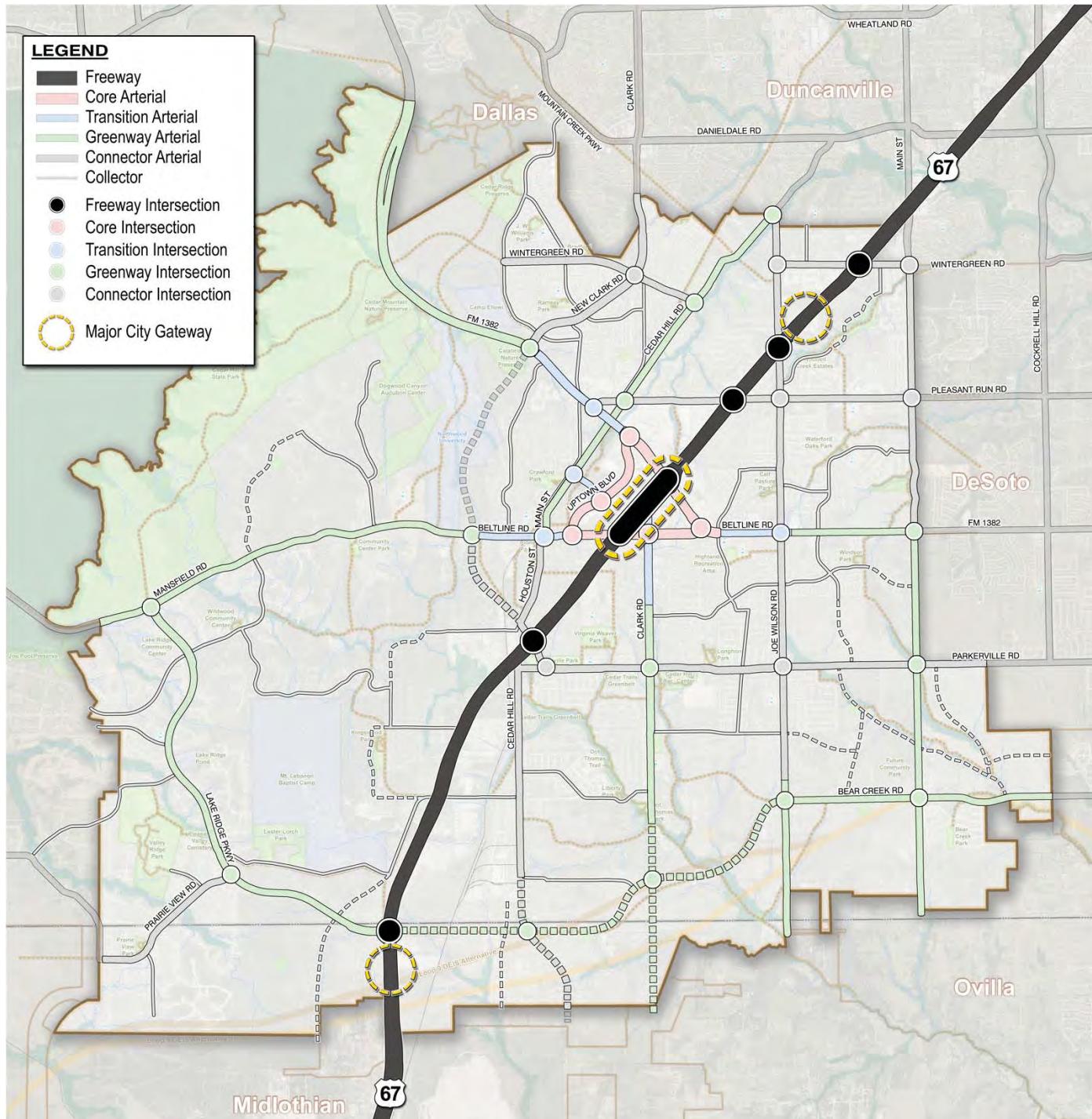


Figure 6.2 – Freeway Typology Map

This map shows the location of the Freeway streetscape typology and its major gateways.

Design Concepts

A number of design principles inform the Freeway typology:

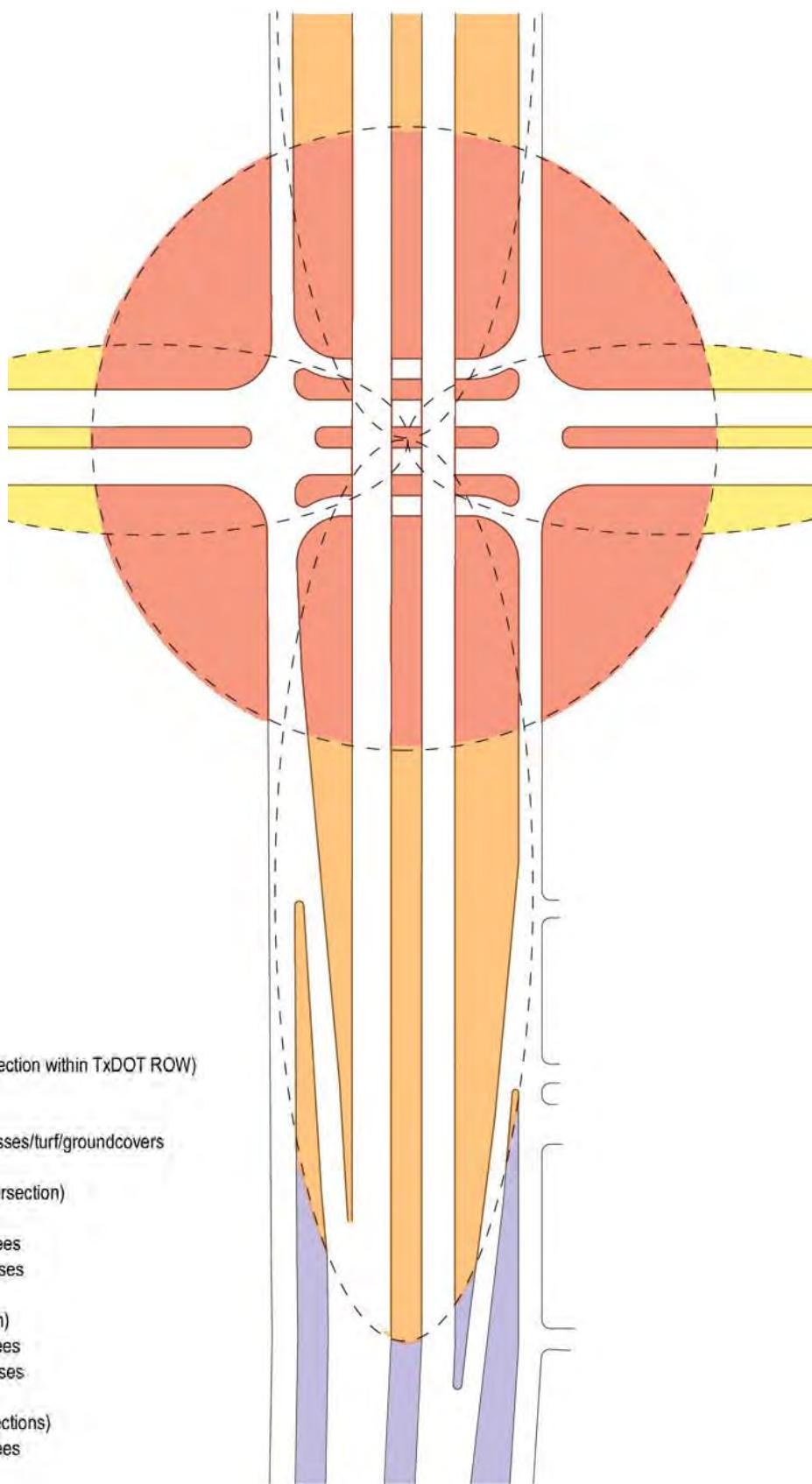
- Respond to the high-speed freeway traffic by applying elongated, large-scale, sweeping forms and simplified plant selection.
- Emphasize the existing topography and introduce physical features—such as retaining walls—to add interest to the landscape. Add walls and berms where the existing topography is relatively flat.
- Create visual interest with varying heights, colors, and textures of plant material. Utilize native species—including wildflowers—as much as possible to reduce water requirements and reflect the natural beauty of the area.
- Create gateways at the edges of the city and at Cedar Hill’s core that reflect the surrounding context:
 - **City Edges** – Reflect the natural and organic nature of the Greenways ring, which encompasses the outer portions of Cedar Hill. In these areas, create organic, naturalistic environments along the freeway by incorporating less detailed and less intense plantings and monumentation. The relatively flat existing landscape at either edge will benefit from the incorporation of berms and monumentation.
 - **Central Core** – Emphasize Cedar Hill’s vibrant core by developing a dramatic gateway that spans the distance between Belt Line Road and FM-1382. The existing embankments along the freeway will be enhanced to emphasize the importance of the area. Because of the higher intensity of the core, forms and materials will be more formal and dense in comparison with the city edges.



Figure 6.3 – Freeway Conceptual Diagram

This diagram shows the various zones along the Freeway typology, centered on a typical gateway intersection (such as Joe Wilson Road, Belt Line Road, FM-1382, or Lake Ridge Parkway). These major intersections are to have monumentation, enhanced pavement (on surface streets), and denser landscaping. Moving away from the intersections, the density and intensity of both landscaping and hardscaping decrease.

Note: A series of five zone designations are used in each of the conceptual diagrams in this chapter. Not every zone designation will apply to each conceptual diagram. While there are minor differences within a zone between diagrams, the intent is that a specific zone designation in one diagram will have similar characteristics in terms of intensity and materials as the same designation in another diagram.



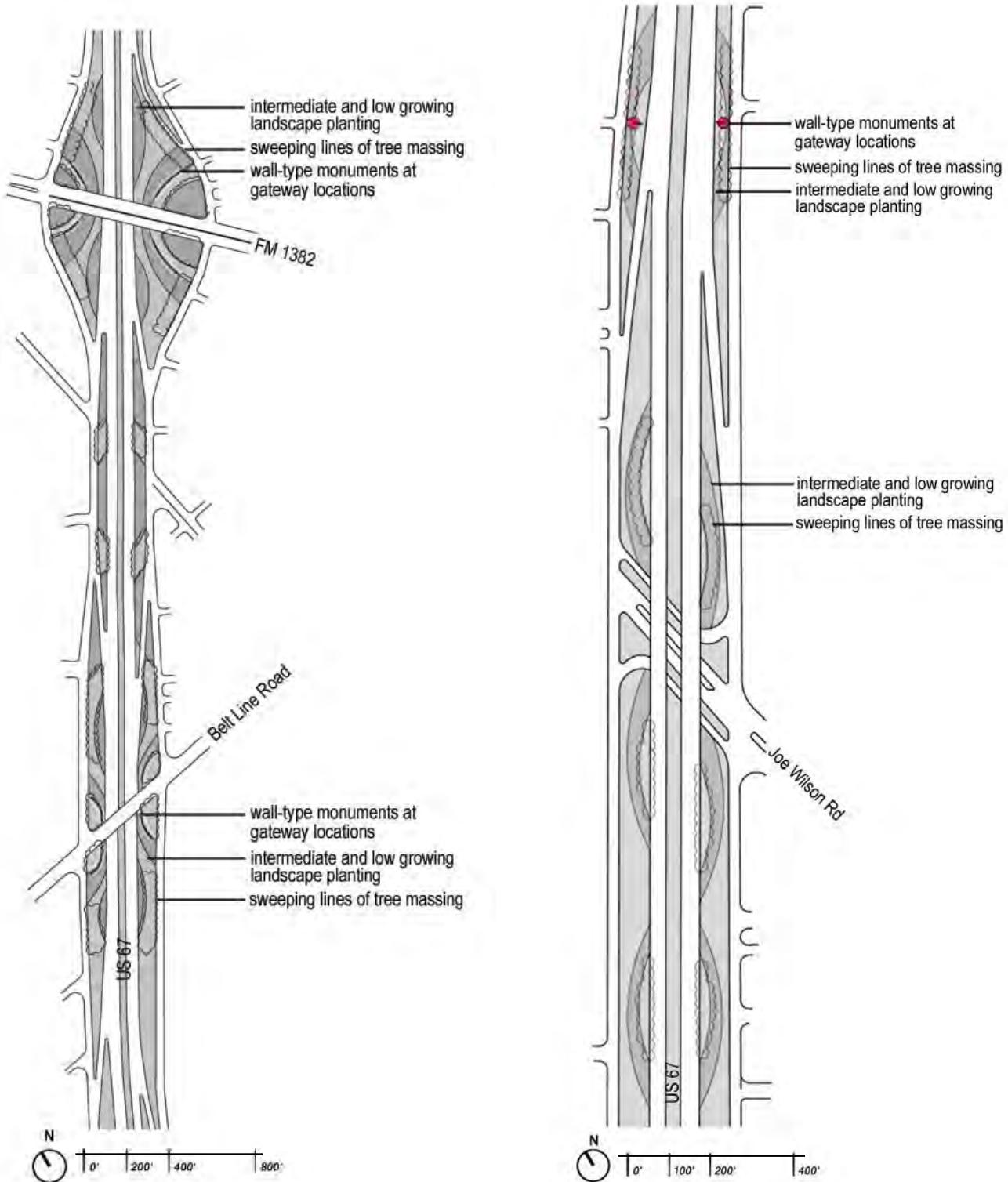


Figure 6.4 – Typical Freeway Streetscape Treatment

These graphics illustrate the intent of the conceptual diagram (Figure 6.3) as applied to two different freeway intersection types (Central Core, left; City Edge, right). The intersection of US-67 and Lake Ridge will be of the City Edge type, similar to the right diagram. The specific design for each freeway intersection will vary. The reference to gateways in these drawings is presented by virtue of their association with the specific intersections illustrated.

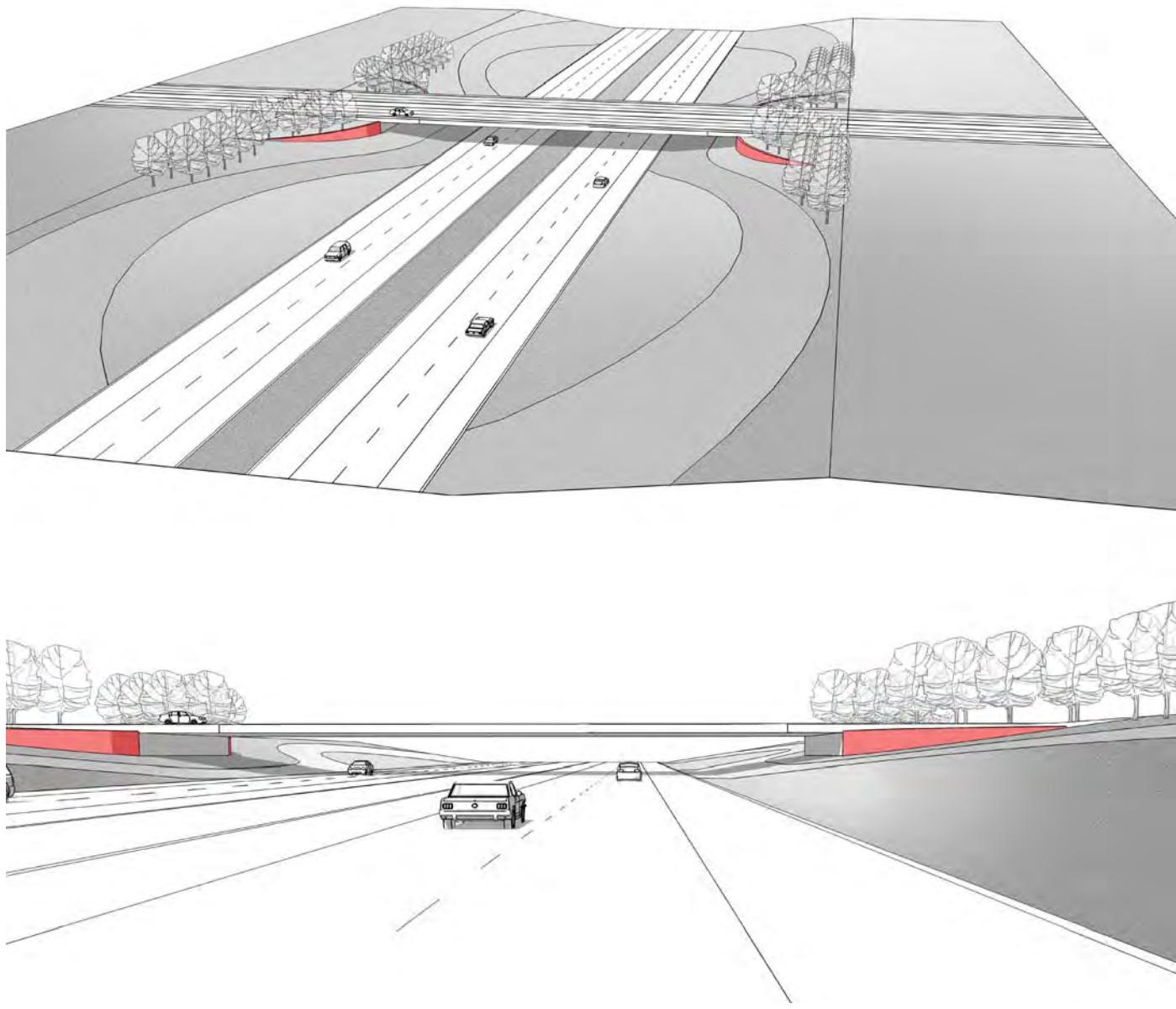


Figure 6.5 – Typical Freeway Gateway Monumentation (City Core)

These 3D graphics depict the typical monumentation design for the Freeway – City Core gateway. The curving walls (highlighted in red) will utilize the existing embankment topography at Belt Line Road and FM-1382 and will be made of smooth-cut limestone.

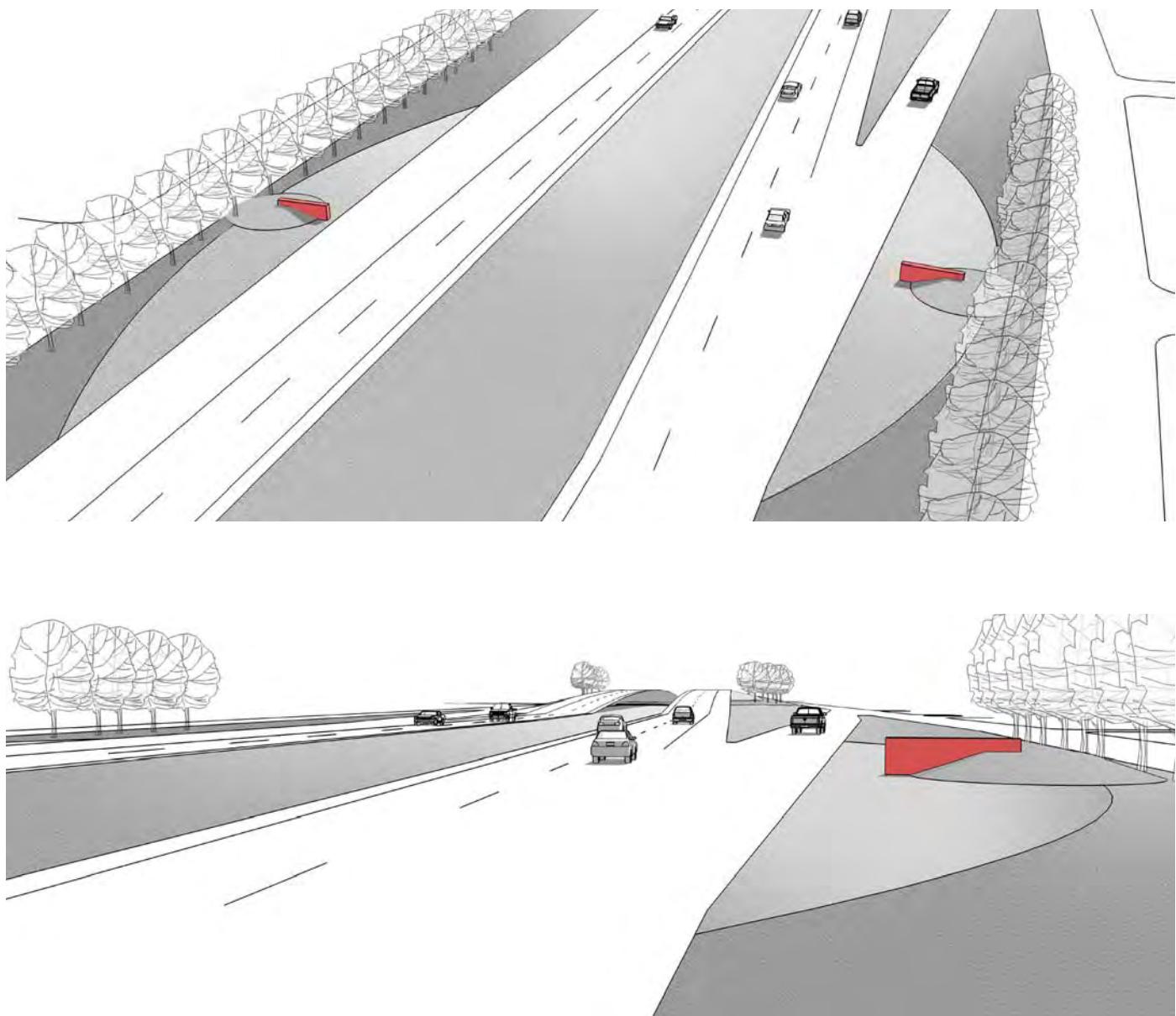


Figure 6.6 – Typical Freeway Gateway Monumentation (City Edge)

These 3D graphics depict the typical monumentation design for the Freeway – City Edge gateway. The straight walls (highlighted in red) will be made of rough limestone and will emerge from new berms, reminiscent of the white rock outcroppings emerging from Cedar Hill's rolling hills. These will be located at the intersections with Joe Wilson Road and Lake Ridge Parkway.

6.5

CORE ARTERIALS

The Core Arterial typology includes streets in and around the Downtown and Uptown core of Cedar Hill. Streets that fall within this category include FM 1382, Belt Line Road, and Uptown Boulevard.

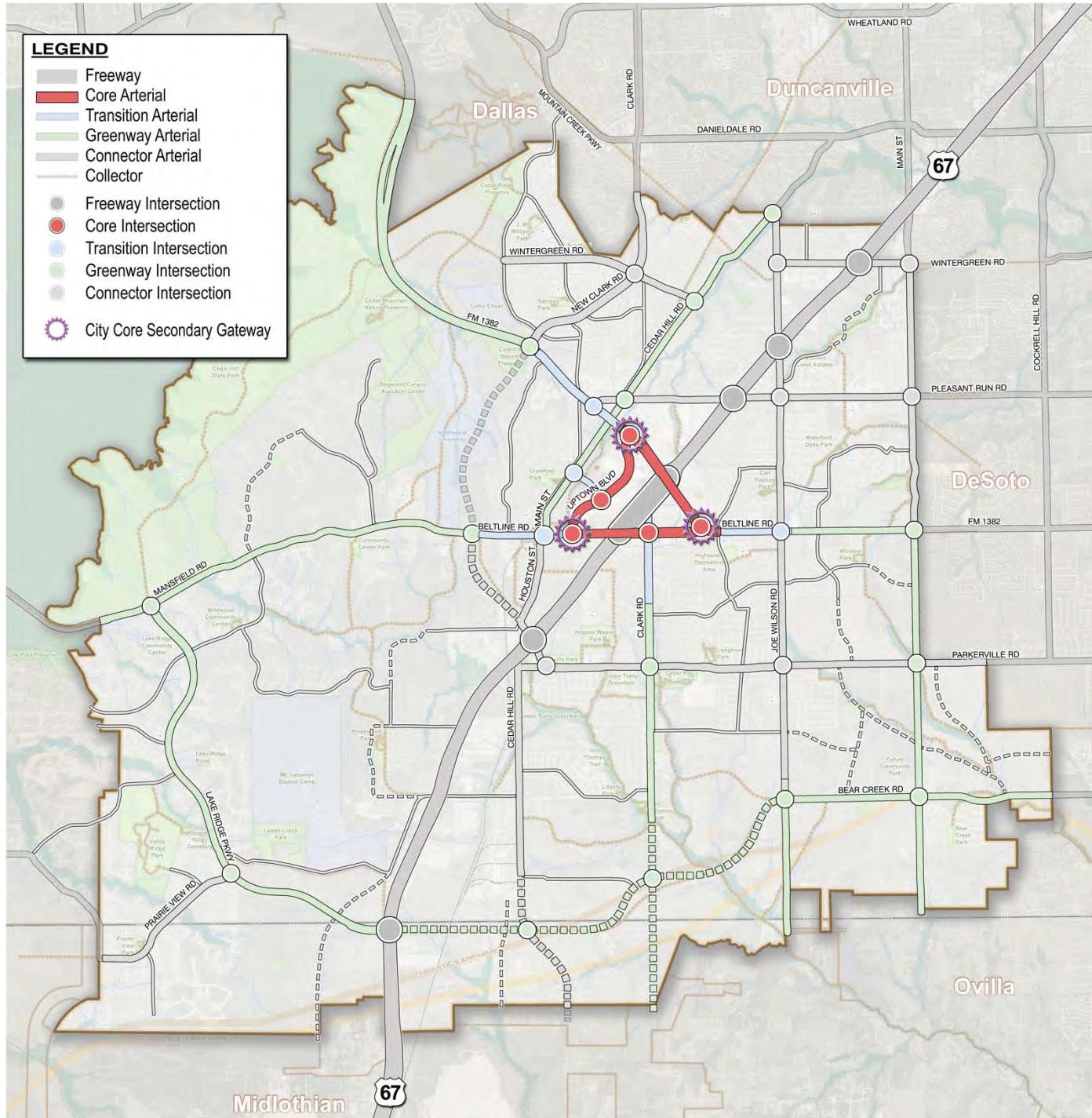


Figure 6.7 – Core Arterial Typology Map

This map shows the location of the Core Arterial streetscape typology and its major gateways.

Design Concepts

The following concepts shape the design of the Core Arterial typology:

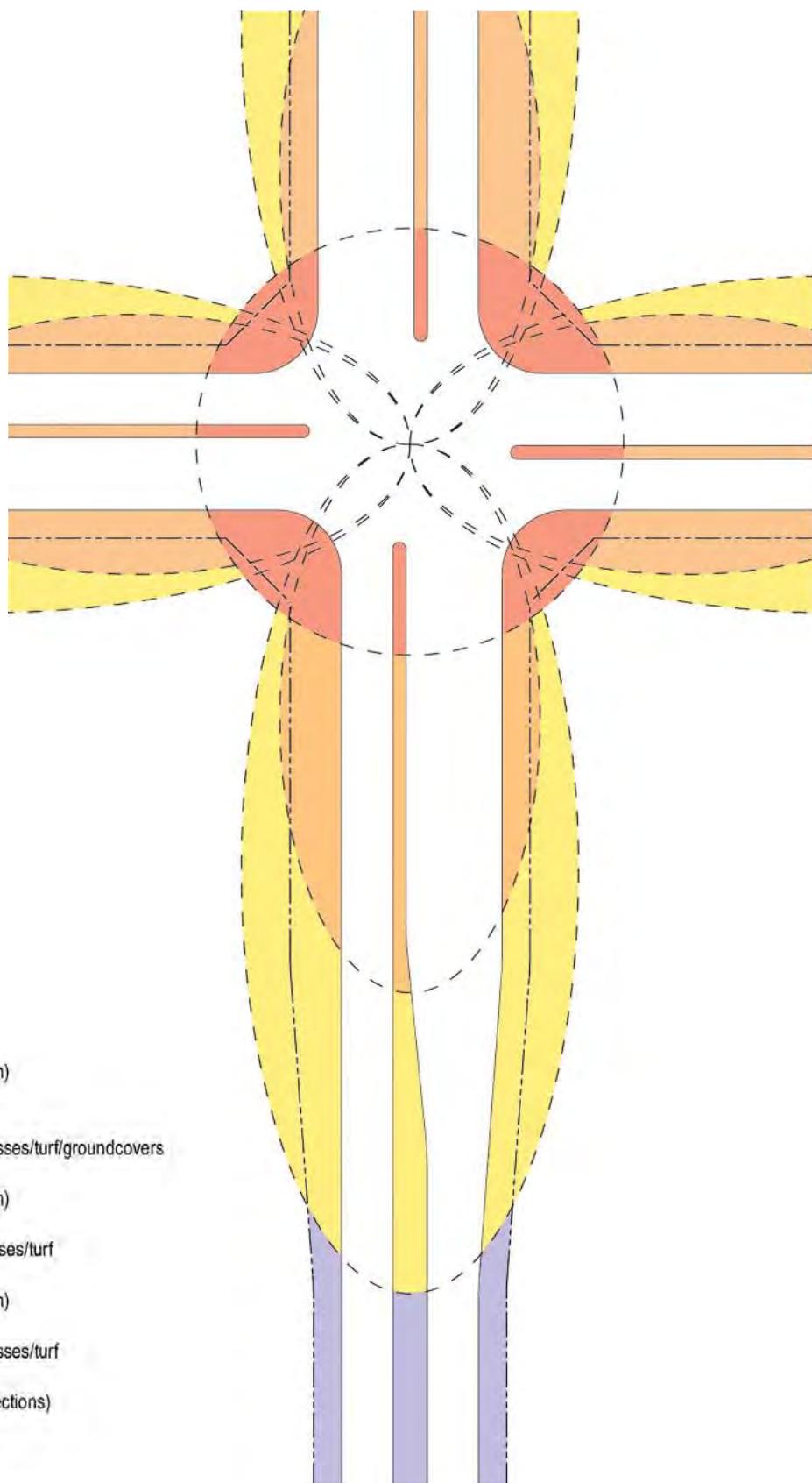
- Core Arterials are the focus or hub of Cedar Hill's thoroughfare system due to their central location. Many of the city's streets radiate from the core. Therefore, these streets are the heart of the streetscape system.
- Secondary gateways are provided at each of the three points of the Core Arterial triangle as bookends of the city center and termini to the transition from natural to urban that occurs in the Transition Arterial typology.
- Core Arterial intersections are designed to emphasize the intersection as a place, further emphasizing the city core as a destination that people want to visit.
- Reflective of the surrounding Downtown and Uptown environment, the selection of plant materials, hardscape elements, and monumentation is intended to accentuate and support adjacent development.
- Materials include finely detailed stone with a smooth texture and formal landscaping to contrast the rougher, organic nature of materials used in the outer areas of the city.
- The urban vibrancy and character of the area can be enhanced by utilizing public art in the shape of landscape forms, sculpture, or other art mediums.



Figure 6.8 – Core Arterial Conceptual Diagram

This diagram shows the various zones along the Core Arterial typology, centered on a typical intersection. This concept is intersection-focused with a high intensity of materials and ornamentation used in Zone 1. Low-growing shrubs, tall grasses, and enhanced paving emphasize the focal nature of the intersection. Streetscape intensity decreases through Zones 2 and 3 until reaching the lower-intensity nature of Zone 4, which extends between intersections.

Note: A series of five zone designations are used in each of the conceptual diagrams in this chapter. Not every zone designation will apply to each conceptual diagram. While there are minor differences within a zone between diagrams, the intent is that a specific zone designation in one diagram will have similar characteristics in terms of intensity and materials as the same designation in another diagram.



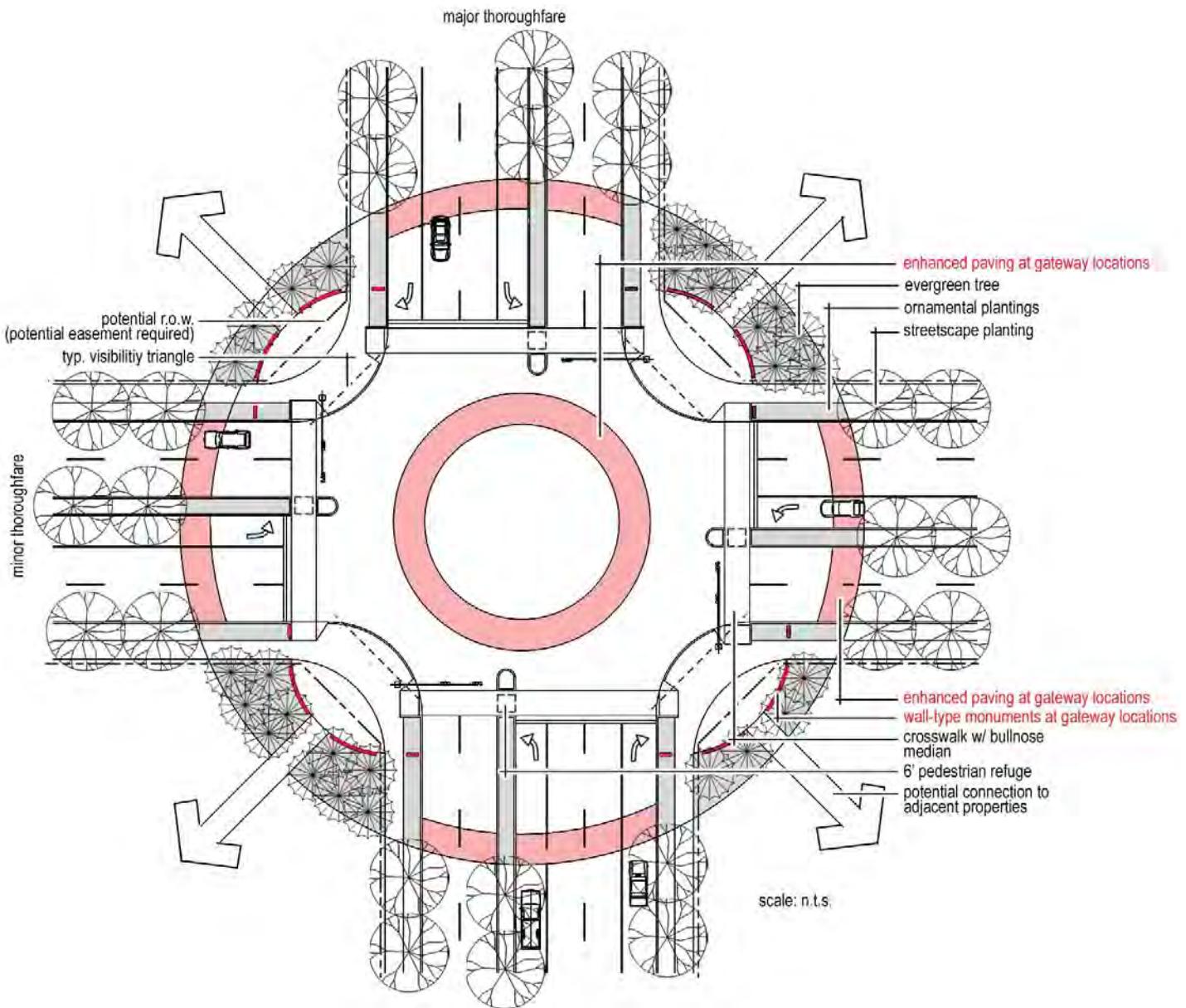


Figure 6.9 – Typical Core Arterial Intersection Treatment

Core Arterial intersections are located in areas with higher development intensities and have the potential for a higher level of pedestrian access to adjacent properties. These conditions lead to placing emphasis on the intersection as a place and incorporate potential connection points to adjacent properties. Enhanced paving and monumentation (highlighted in red) are to be applied at gateway locations. See Figure 6.7 for specific locations.

While the three main Core Arterial intersection locations (Belt Line Road/Uptown Boulevard, Uptown Boulevard/FM-1382, and FM-1382/Belt Line Road) constitute three-way "T" intersections of public streets, the latter two have major private driveways that make the locations function as four-way intersections. However, because of the unique nature of each intersection, this typical intersection concept will need to be manipulated on an individual basis to apply to the site.

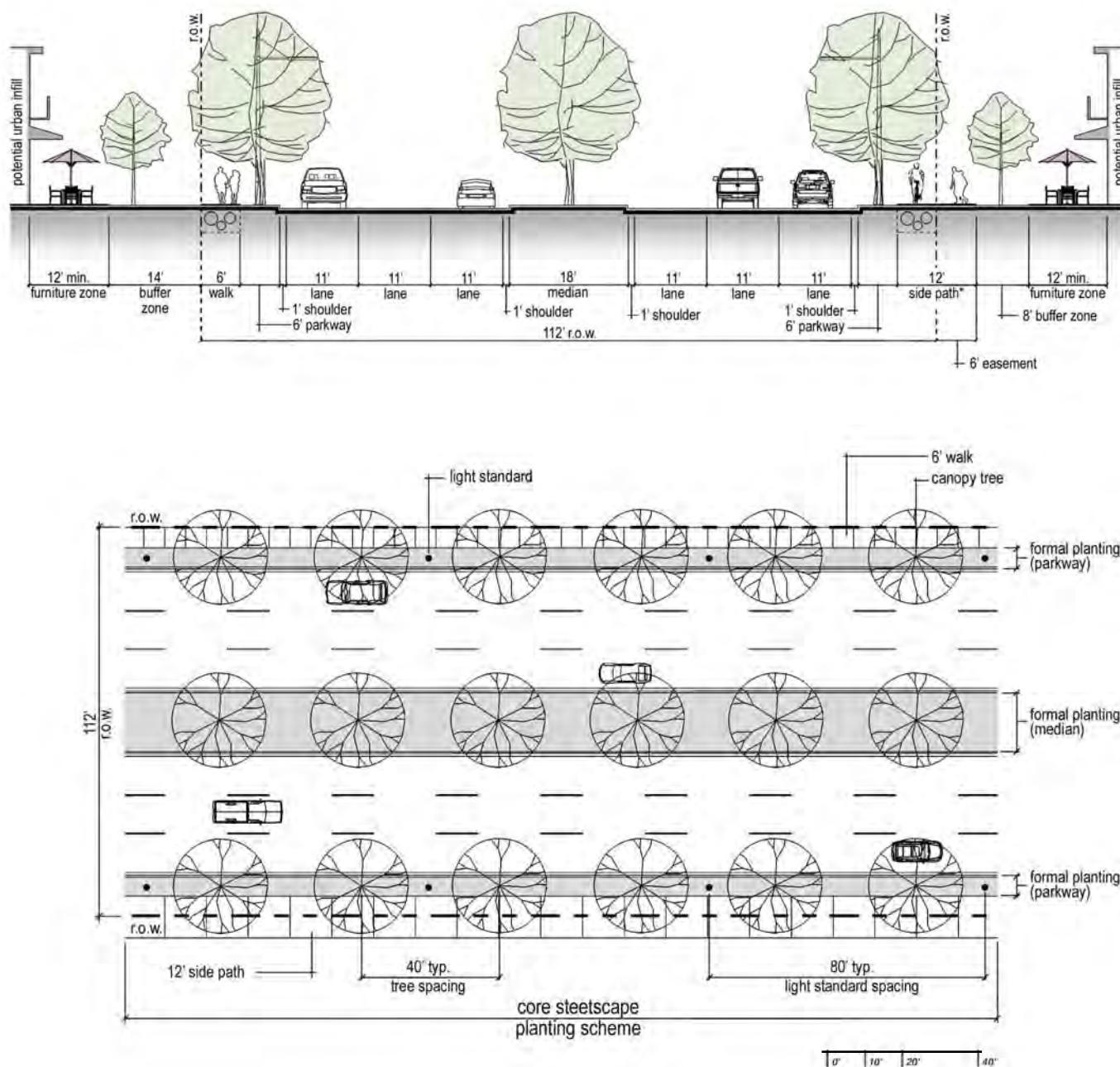


Figure 6.10 – Typical Core Arterial Section & Plan: Principal Arterial

The intent of the principal arterial is to accommodate large vehicular traffic volumes while enhancing the aesthetic quality of the streetscape and accommodating alternative transportation. A wide (12') sidepath is provided on at least one side for bicycles and pedestrians. When space allows, parallel water, sewer, or gas lines should not be placed under sidepaths, sidewalks, or trees. However, placement under sidepaths and sidewalks is preferable to placement under trees. FM-1382 and Belt Line Road east of US-67 are principal arterials. While Uptown Boulevard currently functions as a minor arterial, it may be upgraded to a 4-6 lane principal arterial in the future (see the Thoroughfare Plan map in the 2008 Comprehensive Plan). If it remains 4 lanes, it will include bike lanes as illustrated in Figure 6.11.

The section illustrated varies slightly from the typical section in the 2008 Thoroughfare Plan. Namely, the median is 2' wider to accommodate a 6' pedestrian refuge (recommended by the Federal Highway Administration), an 11' left turn lane, and the necessary curb and gutter. In addition, lane widths are 1' narrower in consideration of the wider median and to separate the curb and gutter from the inside and outside travel lanes while remaining within the same roadway footprint.

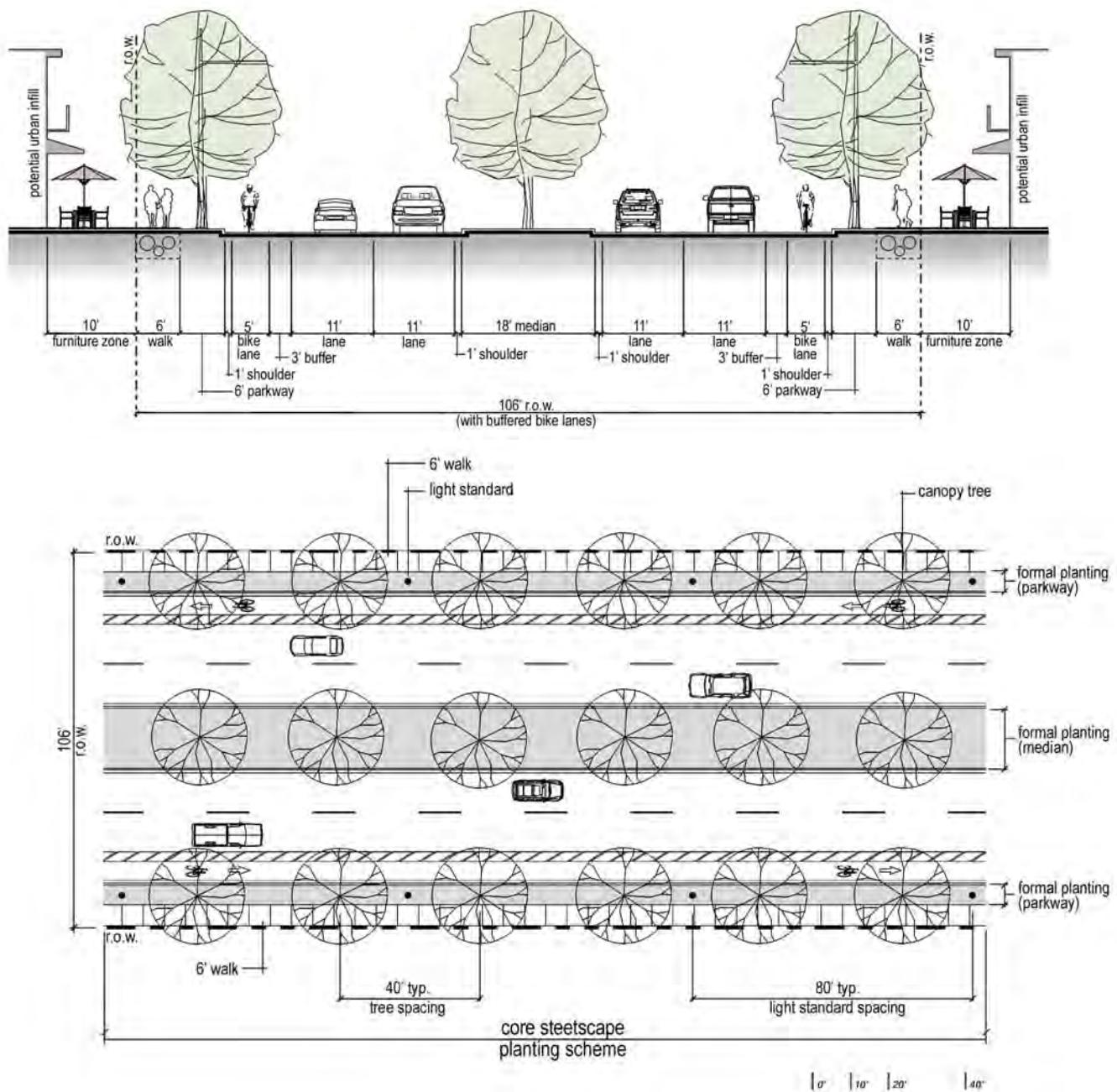


Figure 6.11 – Typical Core Arterial Section & Plan: Minor Arterial

Minor arterials typically have lower traffic volumes than principal arterials. The enhancement of the streetscape's aesthetics is balanced by a higher level of service for pedestrians and bicycles, which are each given their own travelways. Pedestrians have access to 6' sidewalks on both sides of the street while bicycles enjoy dedicated bike lanes separated from cars by a 3' painted buffer. When space allows, parallel water, sewer, or gas lines should not be placed under sidepaths, sidewalks, or trees. However, placement under sidepaths and sidewalks is preferable to placement under trees. Belt Line Road west of US-67 and Uptown Boulevard are minor arterials.

The section illustrated varies slightly from the typical section in the 2008 Thoroughfare Plan. Namely, the median is 2' wider to accommodate a 6' pedestrian refuge (recommended by the Federal Highway Administration), an 11' left turn lane, and the necessary curb and gutter. In addition, lane widths are 1' narrower in consideration of the wider median and to separate the curb and gutter from the inside and outside travel lanes. Finally, an additional 8' of pavement width on each side of the roadway is included in these sections to accommodate buffered bike lanes. These changes necessitate additional right-of-way or placement of sidewalks and utilities in landscape easements.

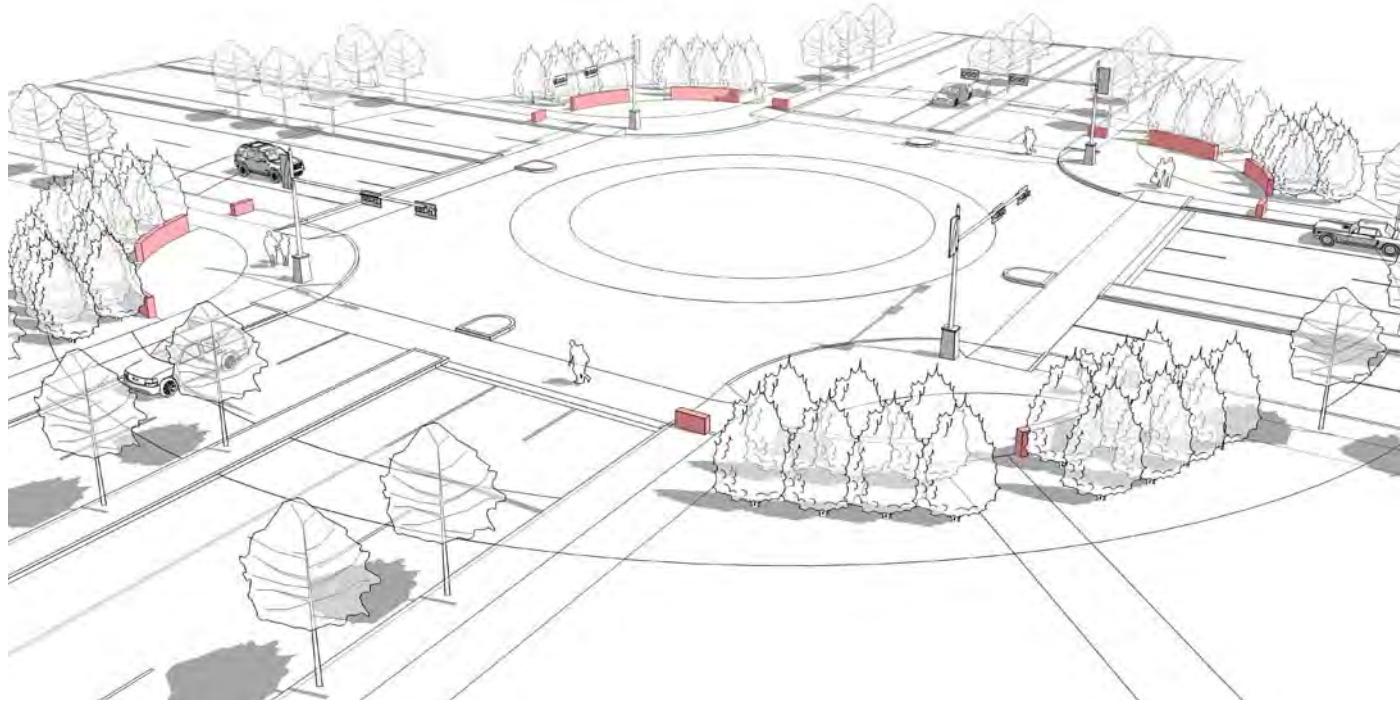


Figure 6.12 – Typical Core Arterial Gateway Monumentation (Bird's Eye View)

This graphic shows the typical layout and monumentation design for the City Core Secondary Gateways (see Figure 6.7). The curving walls (highlighted in red) help emphasize the focal nature of the intersection.

While the three main Core Arterial intersection locations (Belt Line Road/Uptown Boulevard, Uptown Boulevard/FM-1382, and FM-1382/Belt Line Road) constitute three-way “T” intersections of public streets, the latter two have major private driveways that make the locations function as four-way intersections. However, because of the unique nature of each intersection, this typical intersection concept will need to be manipulated on an individual basis to apply to the site.

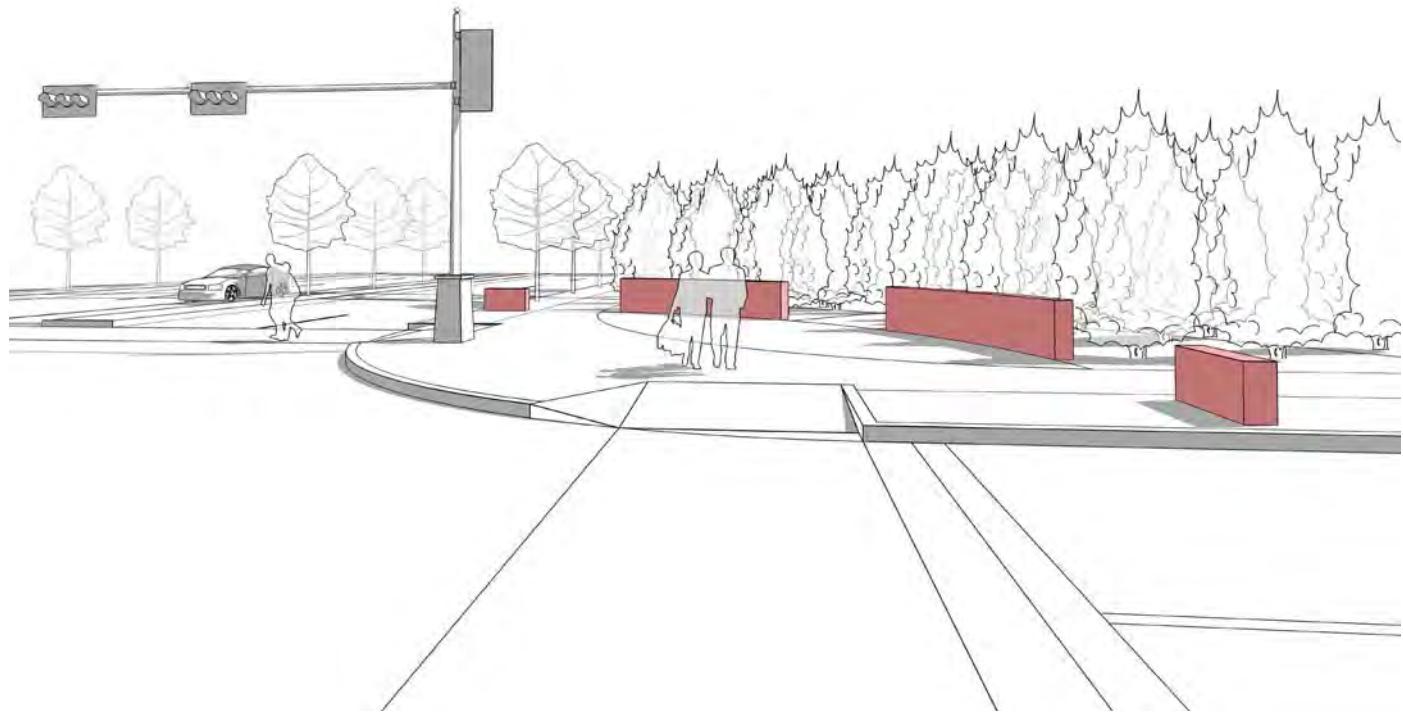


Figure 6.13 – Typical Core Arterial Gateway Monumentation (Ground View)

This graphic details the curved walls to be incorporated in the City Core Secondary Gateways. These walls will be constructed of smooth-cut limestone and other formal materials.

While the three main Core Arterial intersection locations (Belt Line Road/Uptown Boulevard, Uptown Boulevard/FM-1382, and FM-1382/Belt Line Road) constitute three-way “T” intersections of public streets, the latter two have major private driveways that make the locations function as four-way intersections. However, because of the unique nature of each intersection, this typical intersection concept will need to be manipulated on an individual basis to apply to the site.

6.6 TRANSITION ARTERIALS

The Transition Arterial typology includes segments of streets that connect Core Arterials to Greenway Arterials. As its name suggests, the purpose of this streetscape typology is to provide a transition between the formal intensity of the Core Arterials and the organic nature of the Greenway Arterials.

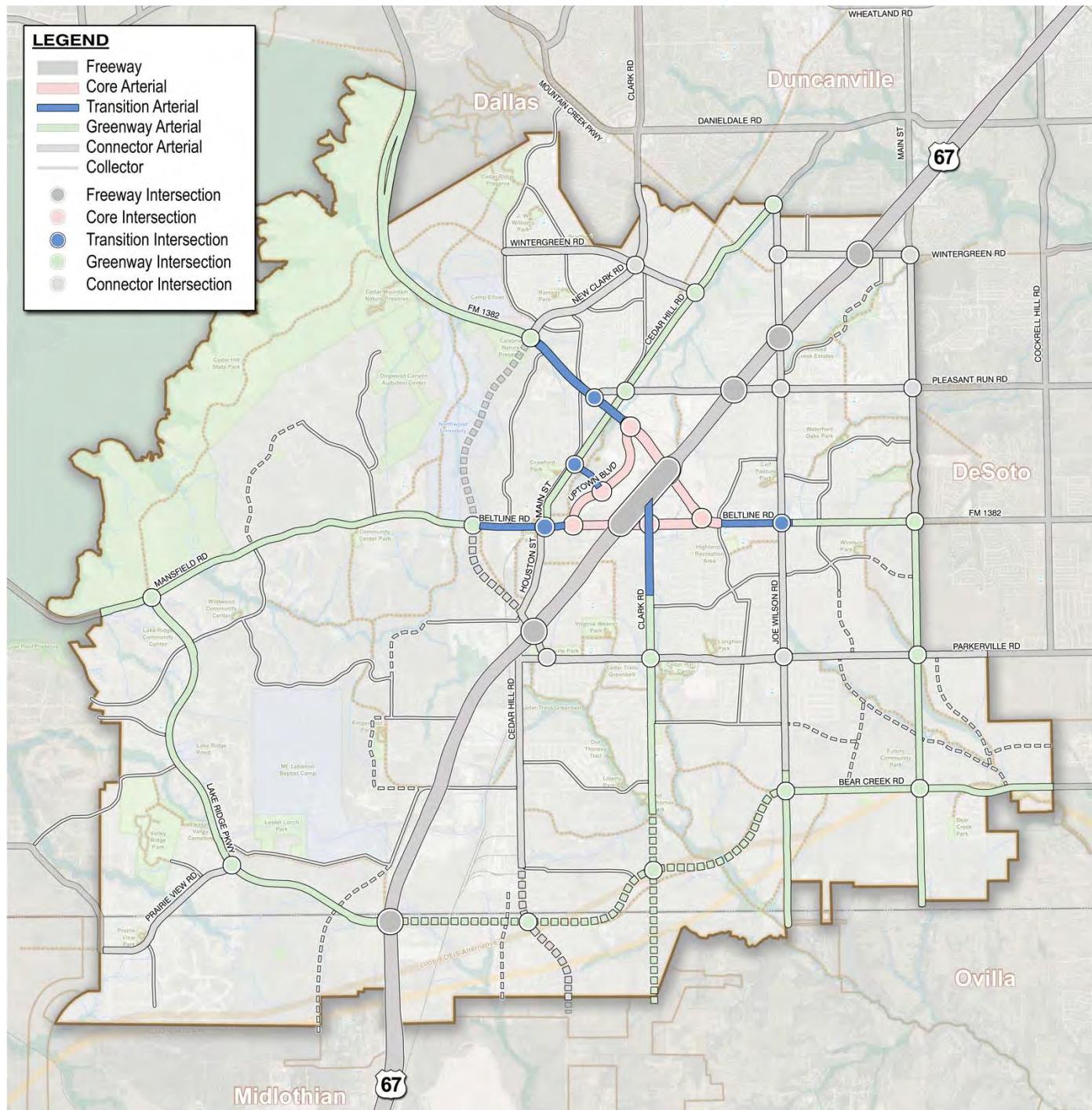


Figure 6.14 – Transition Arterial Typology Map

This map shows the location of the Transition Arterial streetscape typology. This typology does not have accompanying gateways.

Design Concepts

The following concepts shape the design of the Transition Arterial typology:

- These streetscapes transition between the vibrant, formal character of the Core Arterial typology and the organic, natural character of the Greenway Arterial typology.
- Formalized plantings are incorporated along the outside edges of the roadway (similar to Core Arterials) with informal/natural groupings of plantings within the medians (similar to Greenway Arterials).
- A primary function of Transition Arterials is to link the Greenway Arterial system—including its parallel trails—with the city center.
- Subtle monumentation is used at intersections to emphasize continuity within the city.
- Materials used include clean-lined modern finishes combined with contrasting natural, rough edges. This combination is an expression of the interface between the rural and urban context of the city.

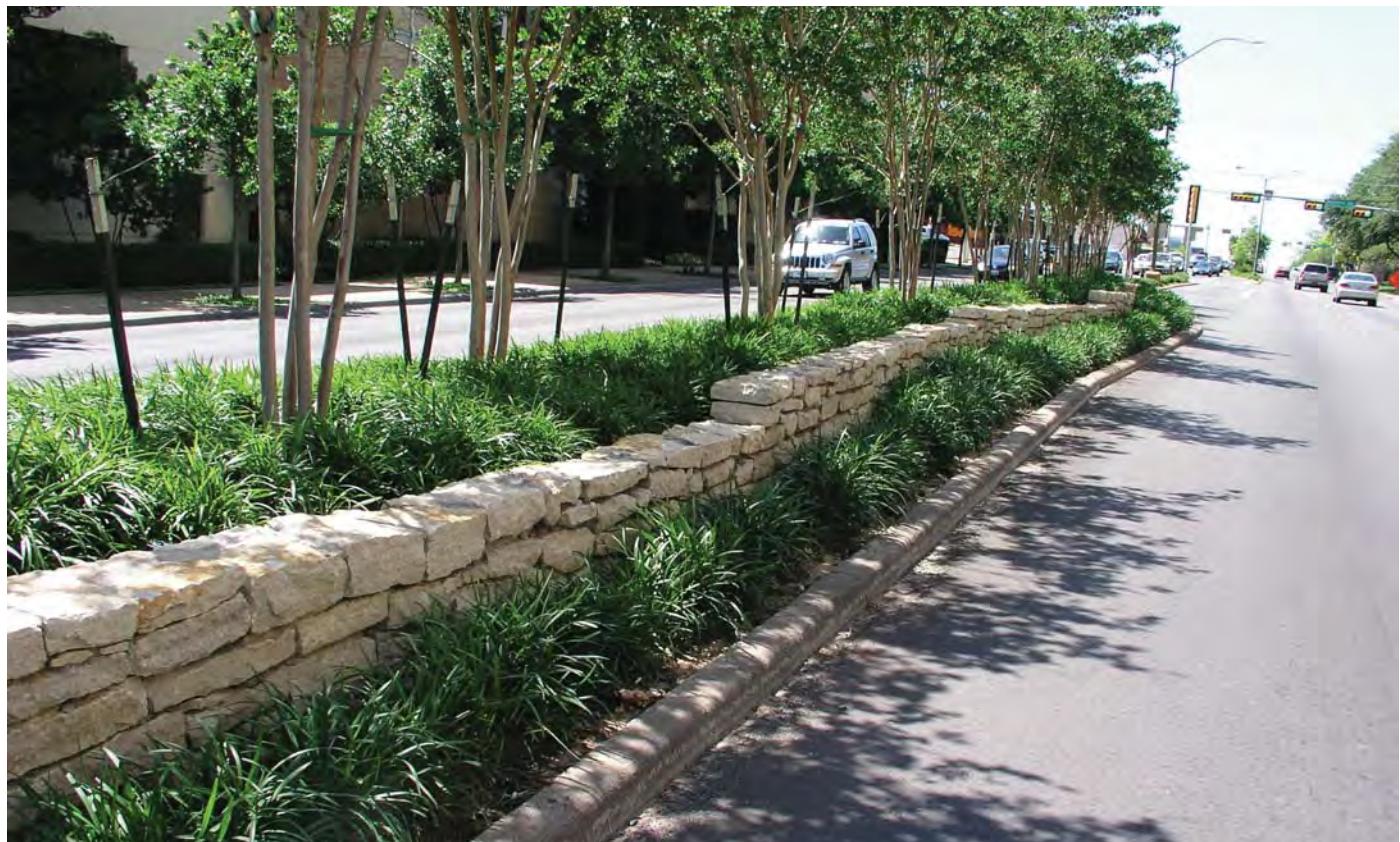
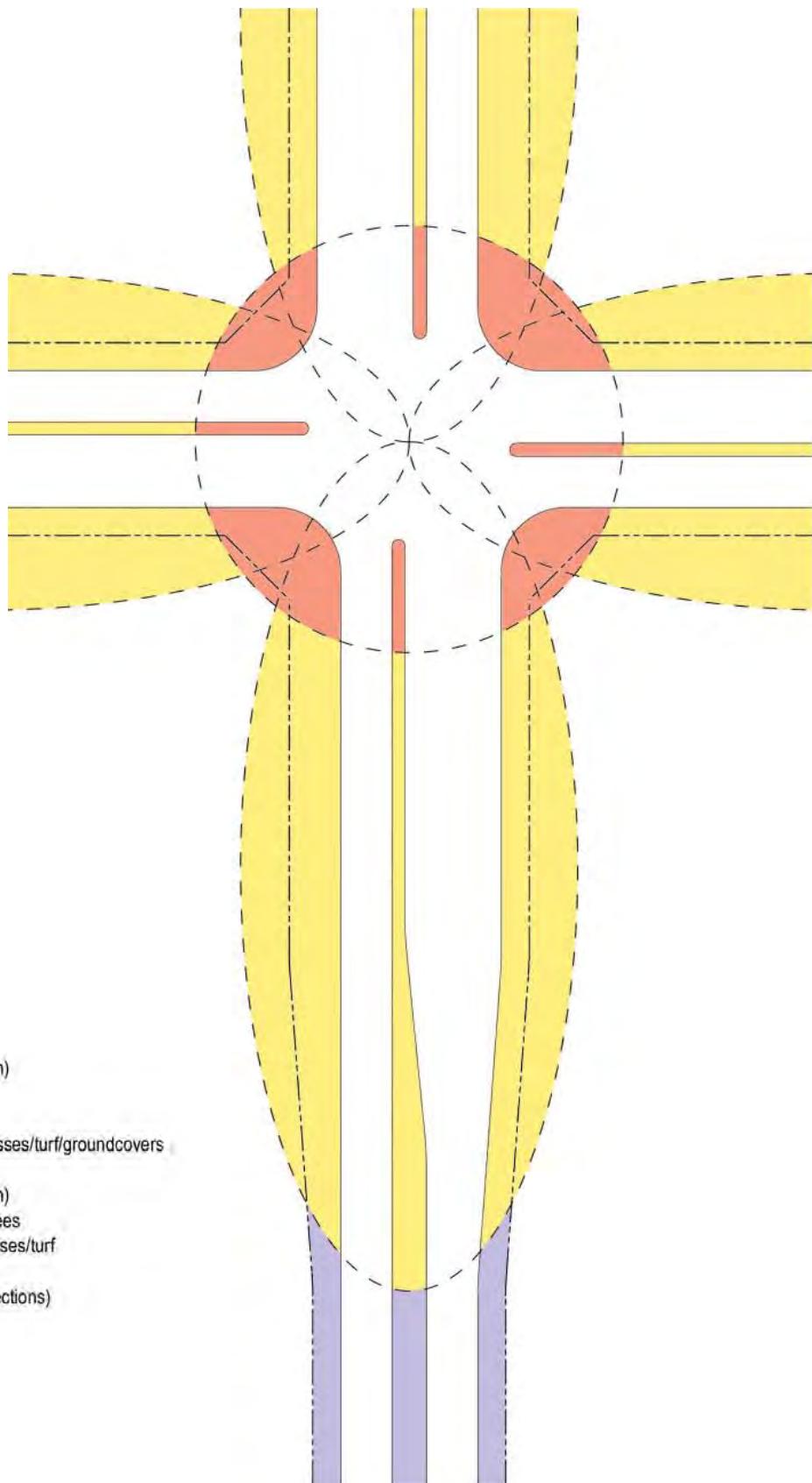


Figure 6.15 – Transition Arterial Conceptual Diagram

This diagram shows the various zones along the Transition Arterial typology, centered on a typical intersection. Like the Core Arterial concept, this design concept is intersection-focused, but with a simplified approach. The incorporation of shrubs and grasses at the intersection with a blend of trees and ground plane elements as the intersection merges with the streetscape help convey the essence of transition.

Note: A series of five zone designations are used in each of the conceptual diagrams in this chapter. Not every zone designation will apply to each conceptual diagram. While there are minor differences within a zone between diagrams, the intent is that a specific zone designation in one diagram will have similar characteristics in terms of intensity and materials as the same designation in another diagram.



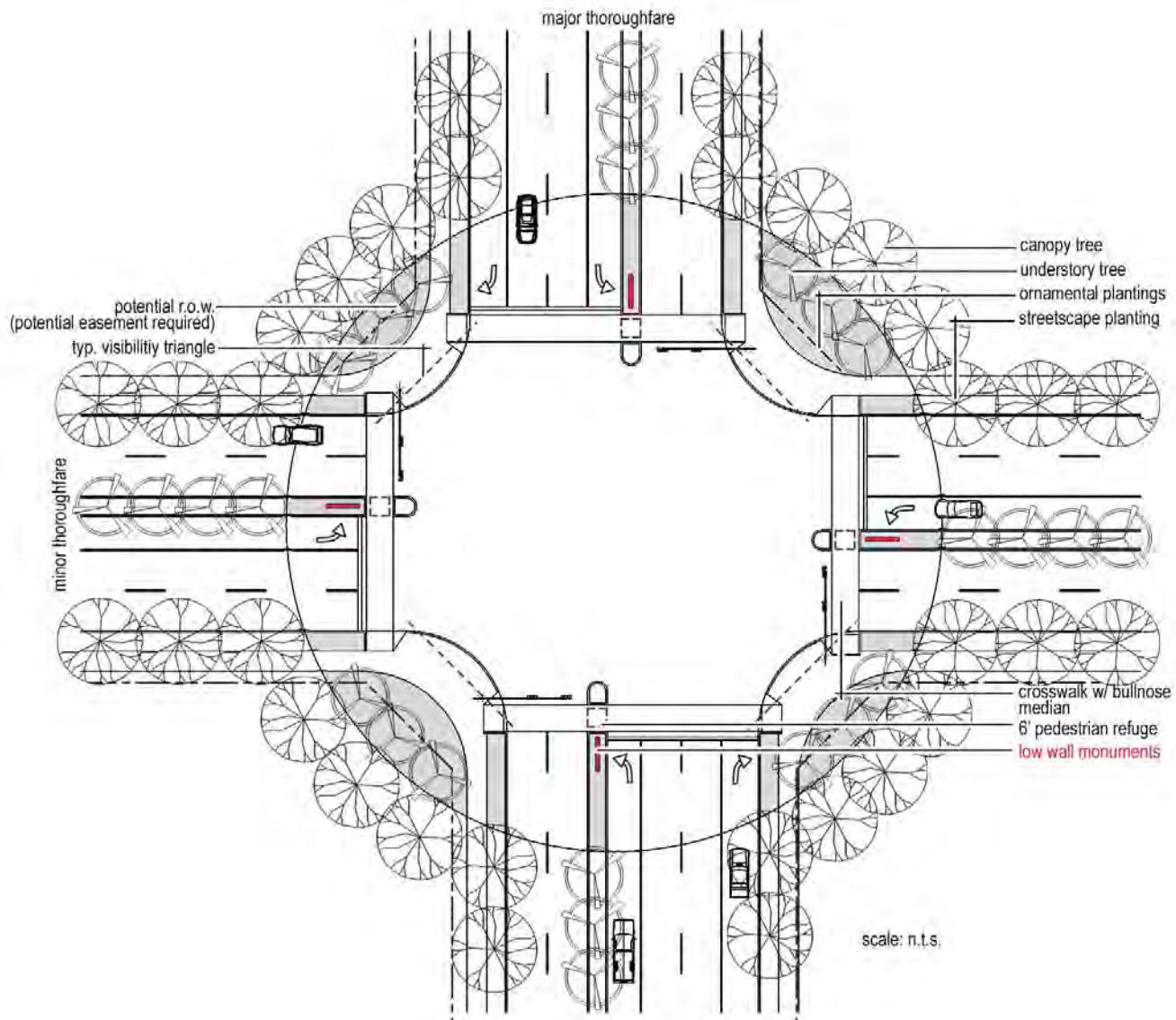


Figure 6.16 – Typical Transition Arterial Intersection Treatment

Transition Arterial intersections are located in areas of transition and are given less emphasis than other intersection types. These intersections incorporate subtle monumentation that provides a unifying element repeated throughout the city. These monuments are highlighted in red. See Figure 6.14 for specific locations.

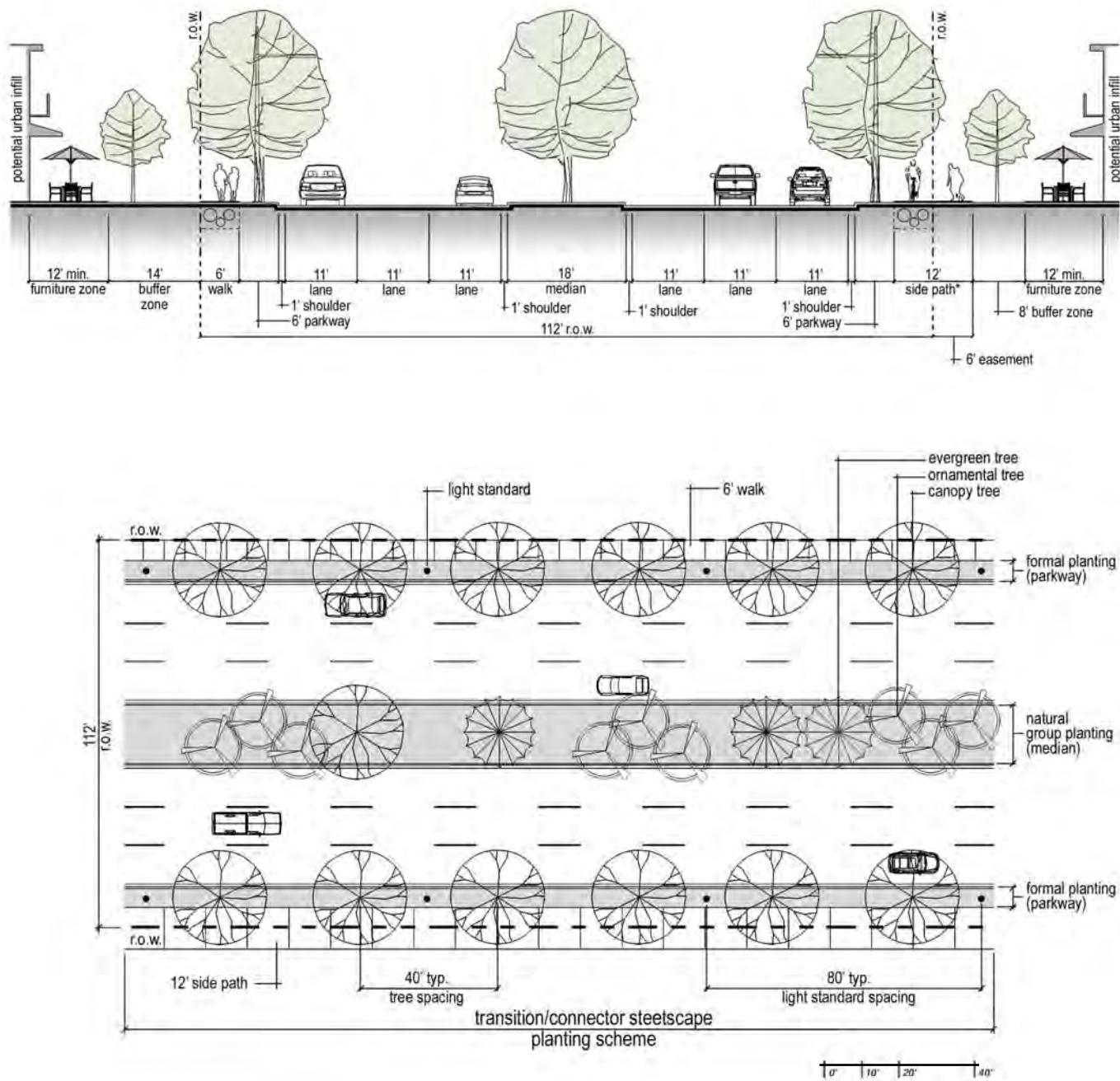


Figure 6.17 – Typical Transition Arterial Section & Plan: Principal Arterial

The intent of the principal arterial as applied to Transition Arterials is the same as that of Core Arterials, including bicycle and pedestrian accommodations. The primary difference lies within the landscaping, which incorporates formalized plantings on the roadway edges and more naturalistic plantings in the medians. When space allows, parallel water, sewer, or gas lines should not be placed under sidepaths, sidewalks, or trees. However, placement under sidepaths and sidewalks is preferable to placement under trees. The portions of FM-1382, Belt Line Road (east of US-67), and Clark Road that fall within the Transition Arterial typology are also principal arterials.

The section illustrated varies slightly from the typical section in the 2008 Thoroughfare Plan. Namely, the median is 2' wider to accommodate a 6' pedestrian refuge (recommended by the Federal Highway Administration), an 11' left turn lane, and the necessary curb and gutter. In addition, lane widths are 1' narrower in consideration of the wider median and to separate the curb and gutter from the inside and outside travel lanes while remaining within the same roadway footprint.

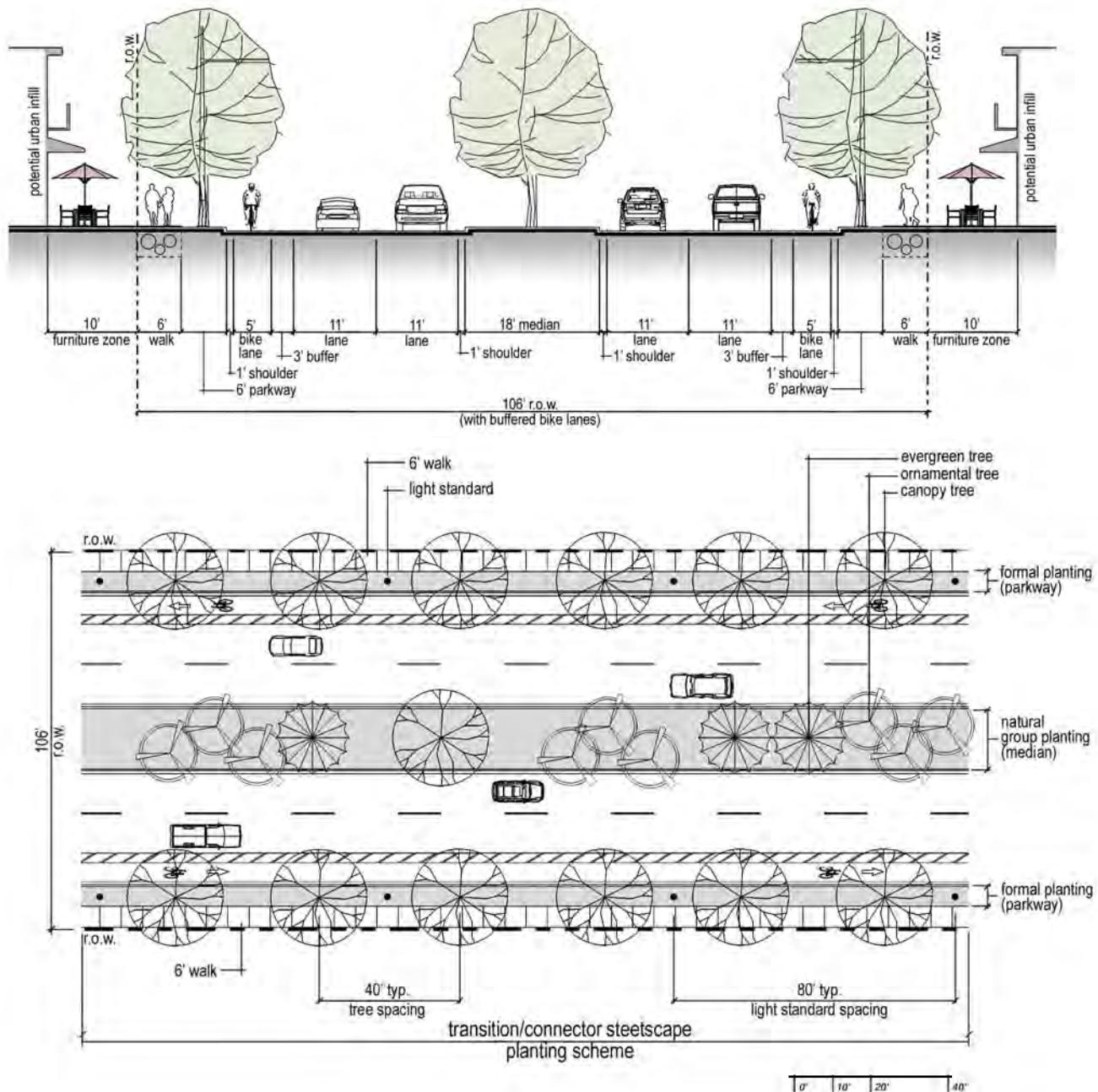


Figure 6.18 – Typical Transition Arterial Section & Plan: Minor Arterial

As with principal arterials, minor arterials with the Transition Arterial typology serve the same function and purpose as minor arterials with the Core Arterial typology, but have differences in landscaping. When space allows, parallel water, sewer, or gas lines should not be placed under sidepaths, sidewalks, or trees. However, placement under sidepaths and sidewalks is preferable to placement under trees. Belt Line Road west of US-67 and Pioneer Parkway are minor arterials.

The section illustrated varies slightly from the typical section in the 2008 Thoroughfare Plan. Namely, the median is 2' wider to accommodate a 6' pedestrian refuge (recommended by the Federal Highway Administration), an 11' left turn lane, and the necessary curb and gutter. In addition, lane widths are 1' narrower in consideration of the wider median and to separate the curb and gutter from the inside and outside travel lanes. Finally, an additional 8' of pavement width on each side of the roadway is included in these sections to accommodate buffered bike lanes. These changes necessitate additional right-of-way or placement of sidewalks and utilities in landscape easements.

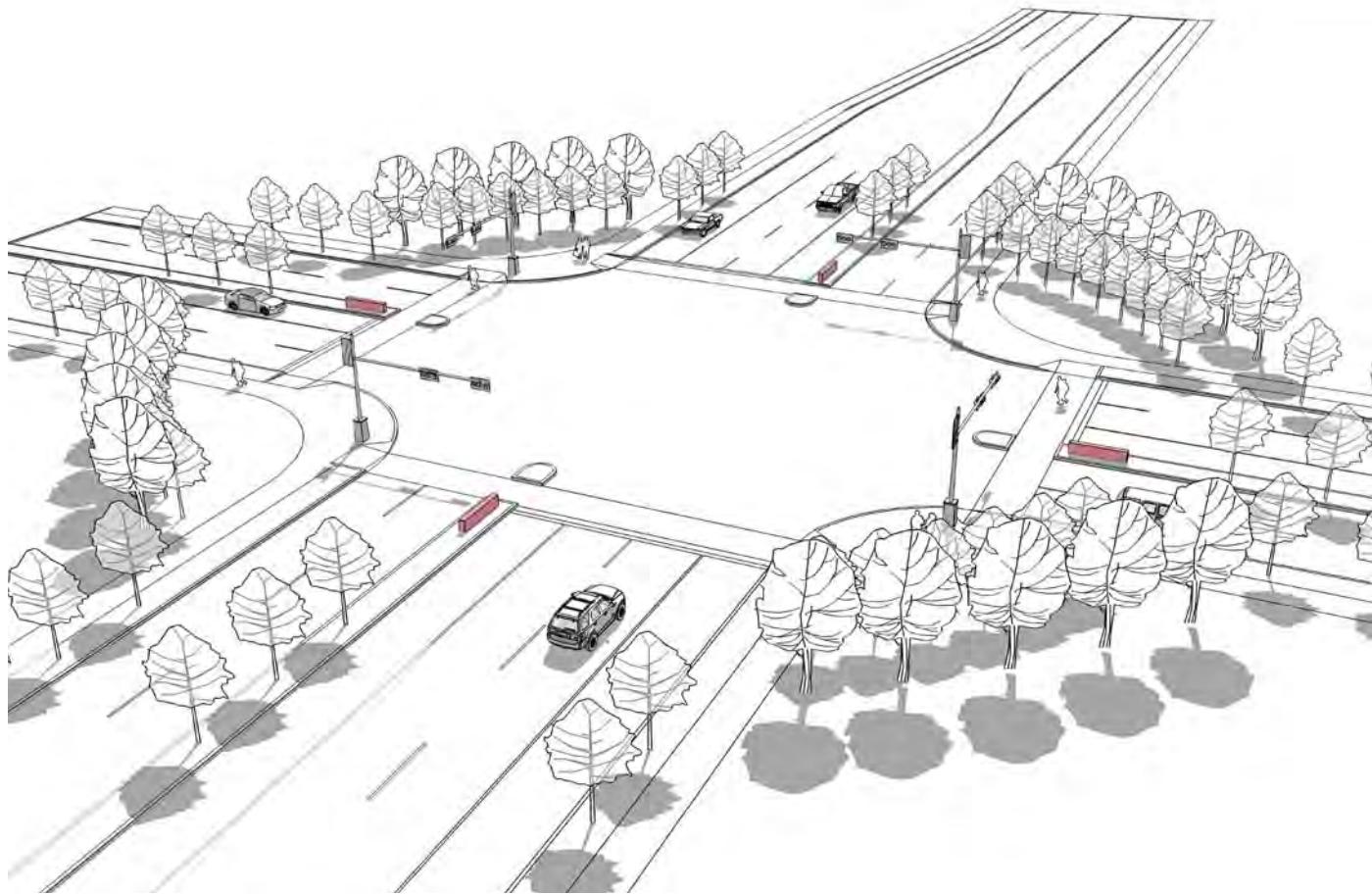


Figure 6.19 – Typical Transition Arterial Gateway Monumentation

This graphic shows the typical layout and monumentation design for the Transition Arterial intersections (see Figure 6.14). The small monumentation walls (highlighted in red) reflect the character of larger monumentation within the city and serve as a unifying element.

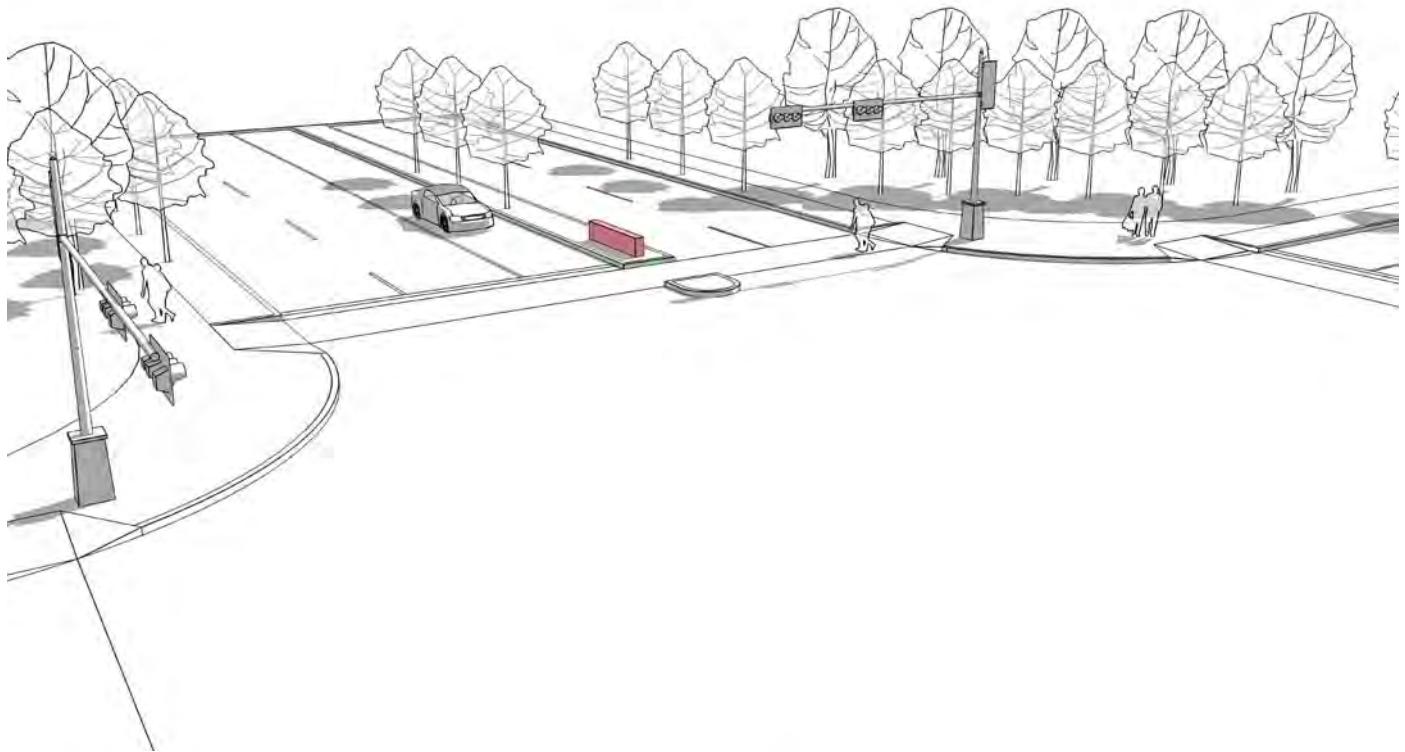


Figure 6.20 – Typical Transition Arterial Gateway Monumentation (Detail)

The small monumentation walls will be located within medians and will be low enough to not impact motorists' visibility.

6.7 GREENWAY ARTERIALS

Greenway Arterials highlight the natural beauty of Cedar Hill and help connect the natural landscapes of the periphery with the Core of the City. These roadways include wide parkways that accommodate multi-use paths for bicycles and pedestrians.

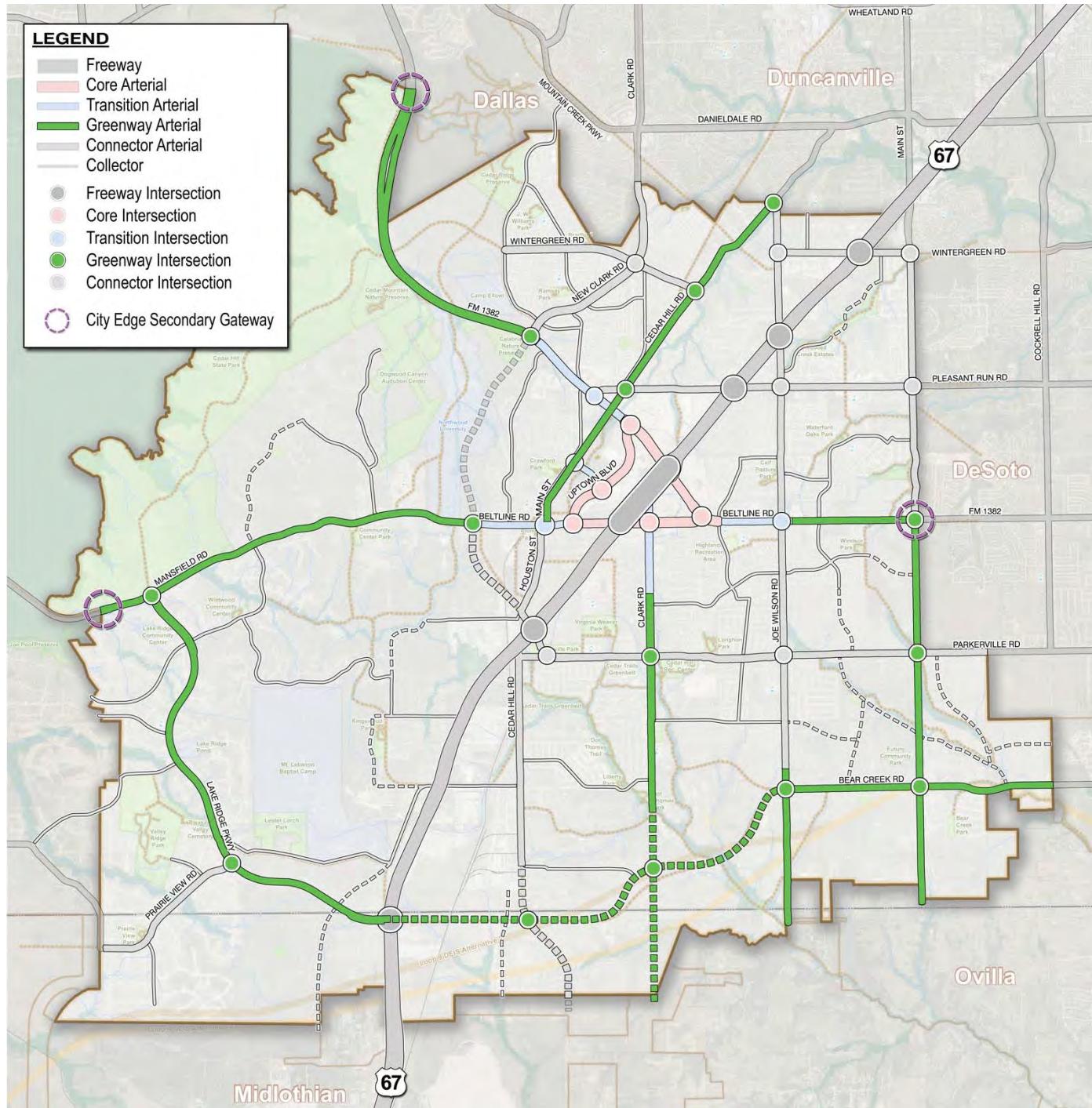


Figure 6.21 – Greenway Arterial Typology Map

This map shows the location of the Greenway Arterial streetscape typology and its accompanying gateways.

Design Concepts

The following concepts shape the design of the Greenway Arterial typology:

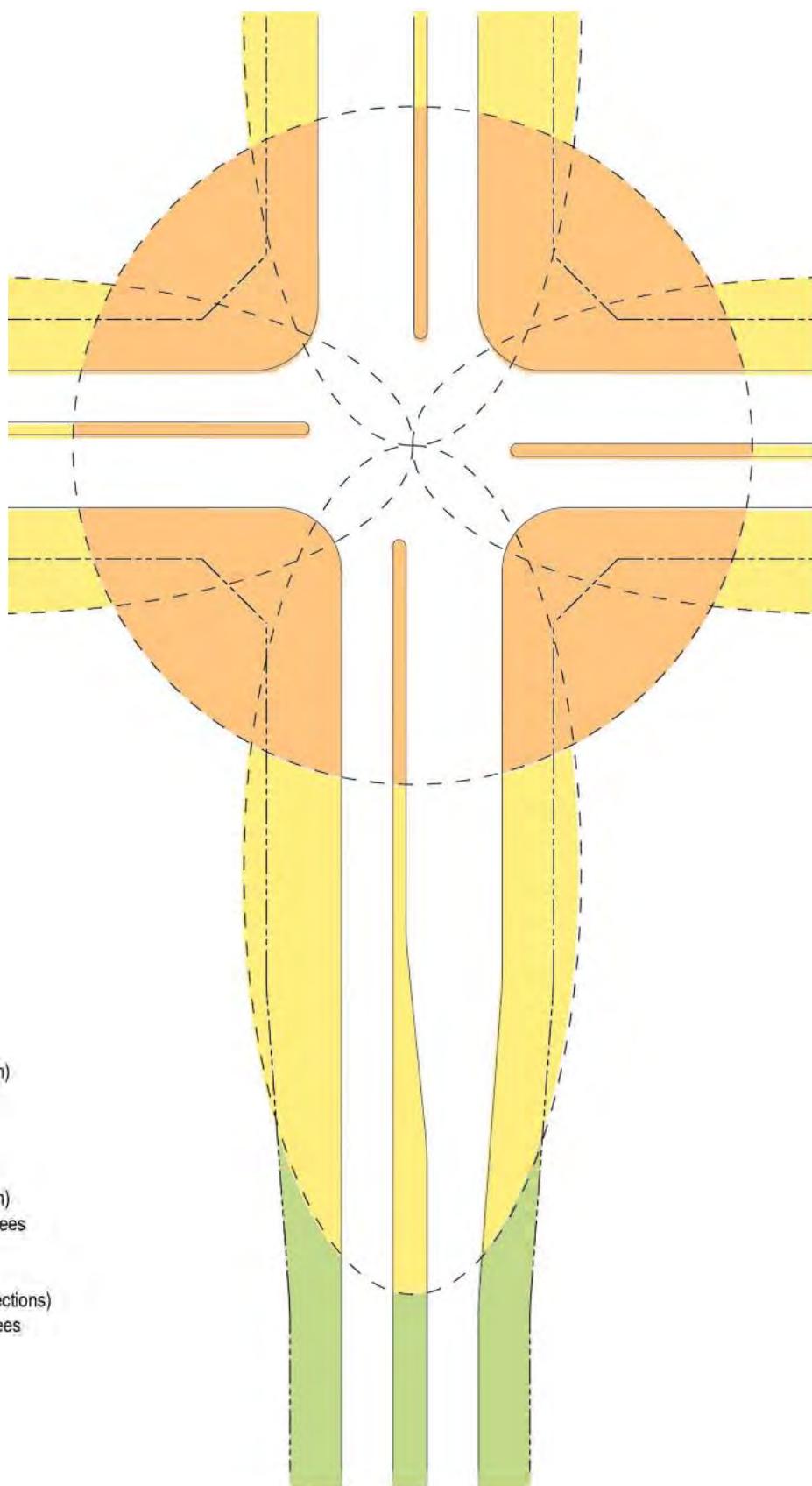
- Key emphasis is placed on the preservation and accentuation of the natural beauty of Cedar Hill. This means plant material selections accent the adjacent vegetation rather than distracting from the surrounding natural beauty. In addition, existing landforms are used (where applicable) to emphasize a gateway and to be an integral part of the monumentation.
- The character of the natural environment drives material selection and form of monumentation. This includes natural, rough stone to accentuate or reference the Balcones Escarpment outcroppings and minimal yet impactful monument forms.
- Landscaping within the corridors and at intersections will be informal, utilizing natural groupings of plantings and focusing on large zones of plant materials rather than detailed landscaping.
- Greenway corridors will provide a high level of service for pedestrians and bicycles, providing safe, comfortable, and enjoyable multi-use pathways parallel to yet buffered from the roadway.
- The Greenway corridors along Mansfield Road, Belt Line Road, FM-1382, and Clark Road serve to extend the natural beauty of Cedar Hill into the city center.



Figure 6.22 – Greenway Arterial Conceptual Diagram

This diagram shows the various zones along the Greenway Arterial typology, centered on a typical intersection. In contrast with other streetscape typologies, this concept foregoes a high-intensity Zone 1 and extends Zone 2 to the intersection to emphasize adjacent natural features. Also in contrast with other streetscape typologies is the use of the Zone 5 designation, which is the lowest intensity and most naturalistic zone in the entire Streetscape Plan.

Note: A series of five zone designations are used in each of the conceptual diagrams in this chapter. Not every zone designation will apply to each conceptual diagram. While there are minor differences within a zone between diagrams, the intent is that a specific zone designation in one diagram will have similar characteristics in terms of intensity and materials as the same designation in another diagram.



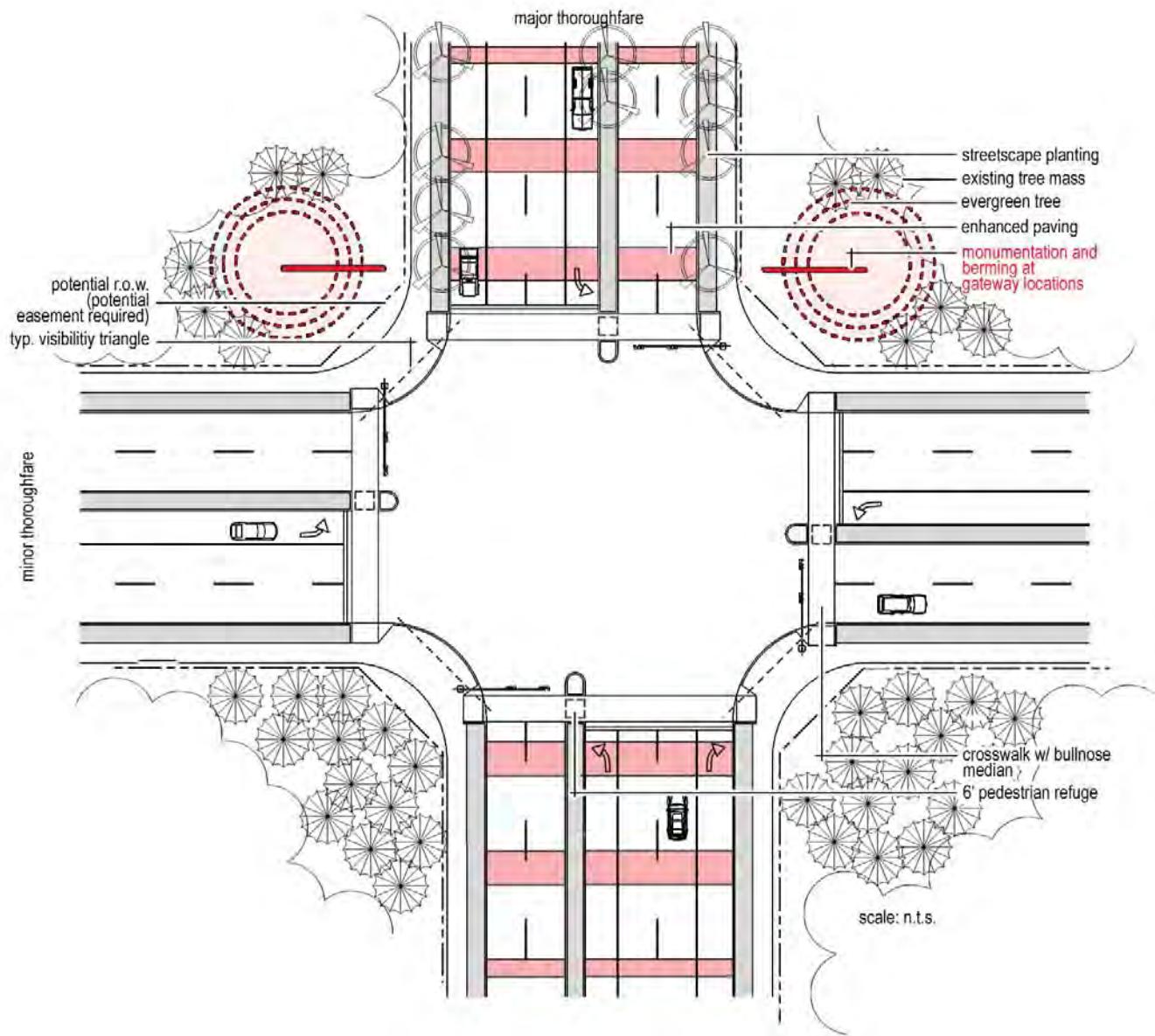


Figure 6.23 – Typical Greenway Arterial Intersection Treatment

Greenway Arterial intersections are intended to be organic in form and large in scale, minimizing manicured and detailed landscaping, such as geometric arrangements. City Edge Secondary Gateways exist along Greenway Arterials. Since they are located at the edges of the city, they are positioned on the Cedar Hill side of the intersection only. The monuments, berms, and paving patterns associated with City Edge Secondary Gateways are highlighted in red. At Greenway intersections that are not gateway locations, man-made elements will be minimized. Instead, existing vegetation will be preserved on each corner and supplemented with naturalistic plantings if needed. See Figure 6.21 for specific locations of the gateways and intersections.

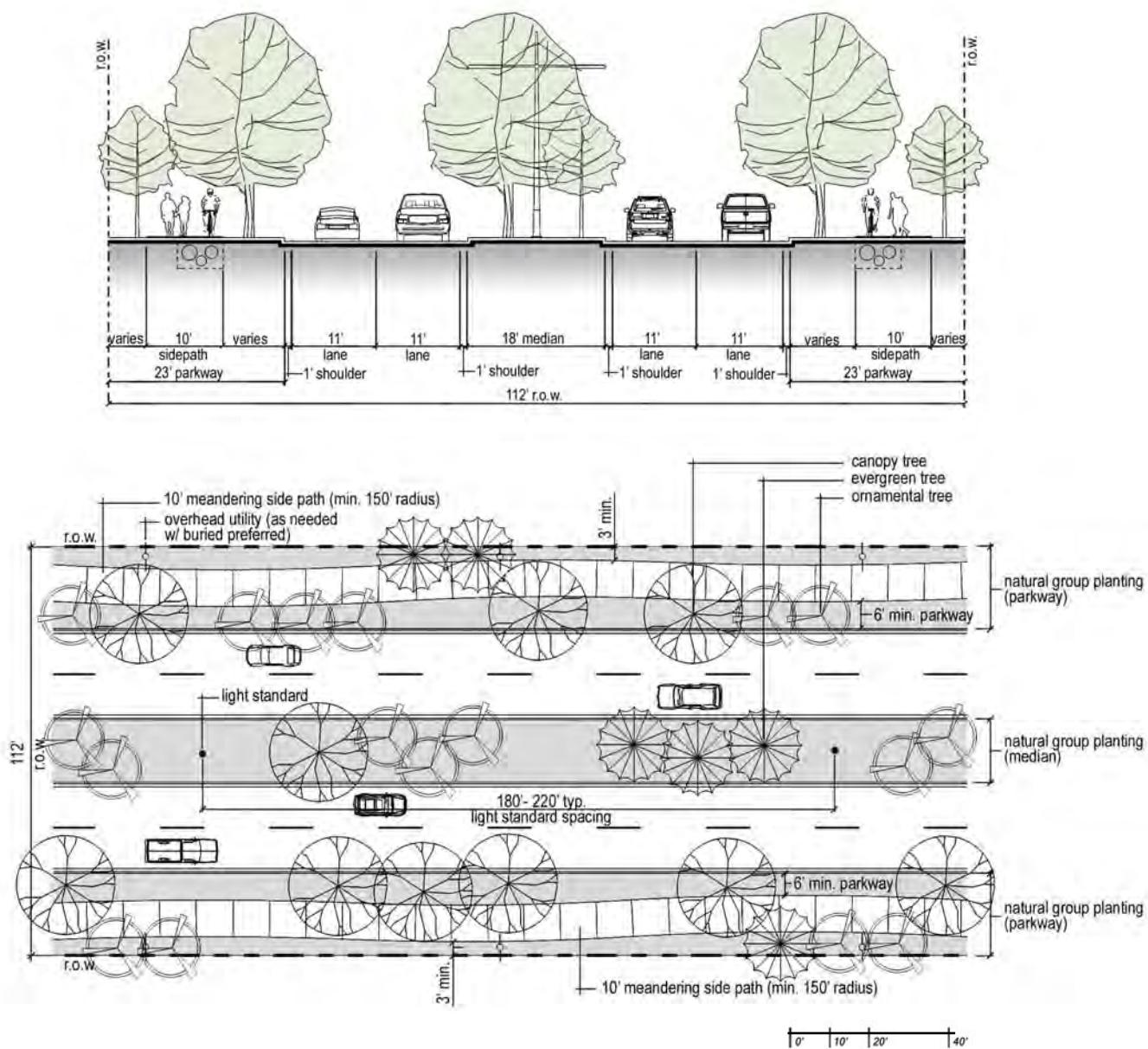


Figure 6.24 – Typical Greenway Arterial Section & Plan: Centered Arterial

Greenway Arterials provide expansive parkways and medians, as well as dual 10' to 12' wide sidepaths for bicycles and pedestrians on each side (on-street bike lanes may still be provided). As opposed to most arterial roadways, approximately half of the right-of-way is unpaved in a Greenway Arterial corridor. In order to minimize future conflicts between overhead utilities and trees, utilities will be placed immediately outside of the right-of-way in a utility easement. Where reasonable, underground utilities will be installed. When space allows, parallel water, sewer, or gas lines should not be placed under sidepaths, sidewalks, or trees. However, placement under sidepaths and sidewalks is preferable to placement under trees. This will be the most common type of Greenway Arterial configuration.

The section illustrated varies slightly from the typical section in the 2008 Thoroughfare Plan. Namely, the median is 2' wider to accommodate a 6' pedestrian refuge (recommended by the Federal Highway Administration), an 11' left turn lane, and the necessary curb and gutter. In addition, parkways are 1' narrower in consideration of the wider median and lane widths are 1' narrower to separate the curb and gutter from the inside and outside travel lanes while remaining within the same roadway footprint.

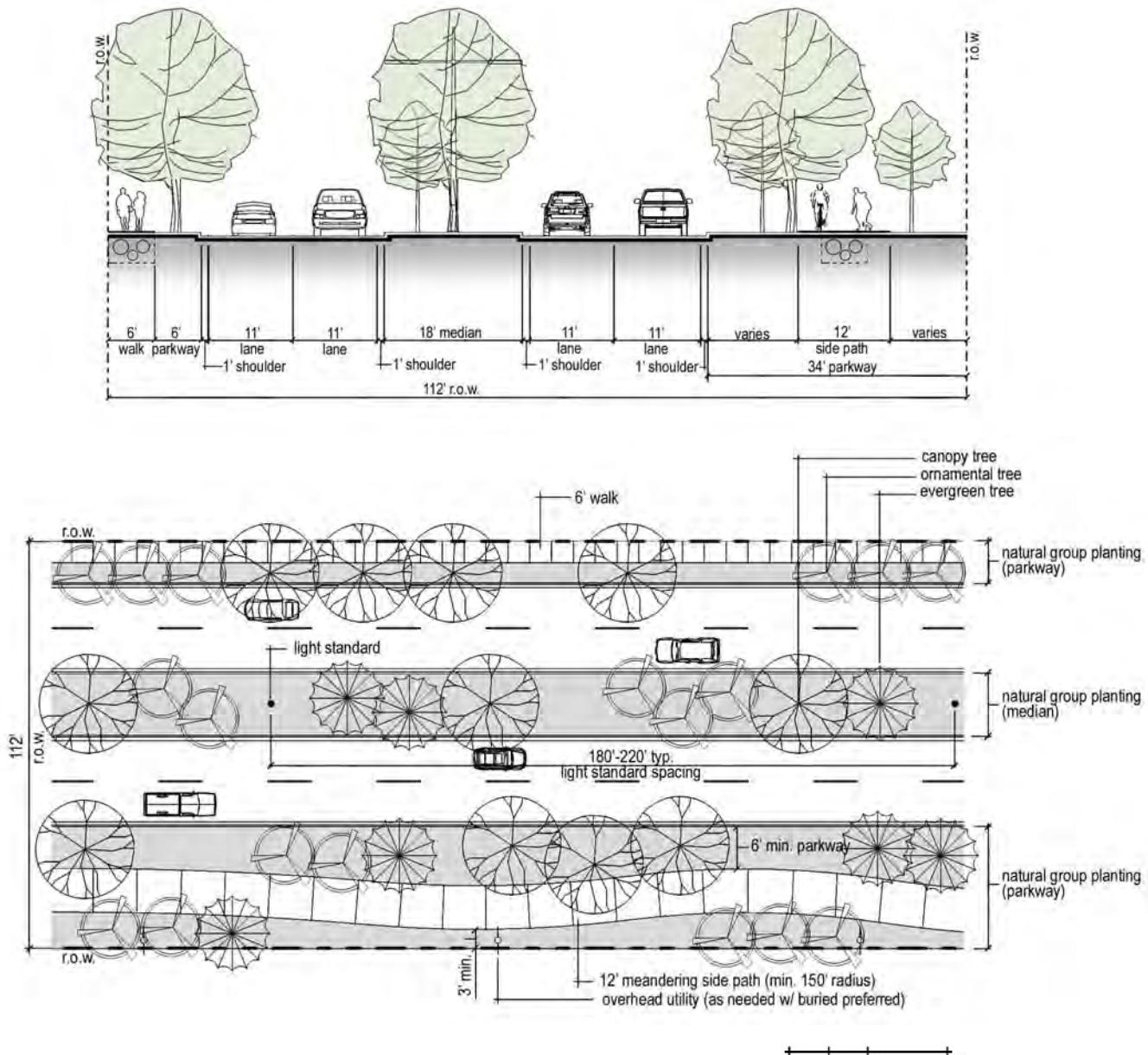


Figure 6.25 – Typical Greenway Arterial Section & Plan: Off-Center Arterial

The Off-Center Greenway Arterial moves the roadway to one side of the right-of-way, thereby providing one extra-wide parkway on a single side. This allows a wider 12' pathway for bicycles and pedestrians and allows wider meanders for the pathway (on-street bike lanes may still be provided). A 6' wide sidewalk is provided on the opposite side of the road. As with the Centered Arterial section (Figure 6.24), approximately half of the right-of-way is unpaved in this roadway type. Overhead utilities will be placed on the expanded parkway side. Where reasonable, underground utilities will be installed. When space allows, parallel water, sewer, or gas lines should not be placed under sidepaths, sidewalks, or trees. However, placement under sidepaths and sidewalks is preferable to placement under trees. This Greenway Arterial configuration will be used where a more continuous park environment is desired along one side of the roadway. As much as is feasible, driveways and intersections on the expanded parkway side of the road will be minimized.

The section illustrated varies slightly from the typical section in the 2008 Thoroughfare Plan. Namely, the median is 2' wider to accommodate a 6' pedestrian refuge (recommended by the Federal Highway Administration), an 11' left turn lane, and the necessary curb and gutter. In addition, lane widths are 1' narrower to separate the curb and gutter from the inside and outside travel lanes while remaining within the same roadway footprint. Finally, the parkways are narrower in consideration of the wider median and the centerline of the roadway has been shifted to accommodate a 6' sidewalk and 6' parkway on the narrow side of the roadway.

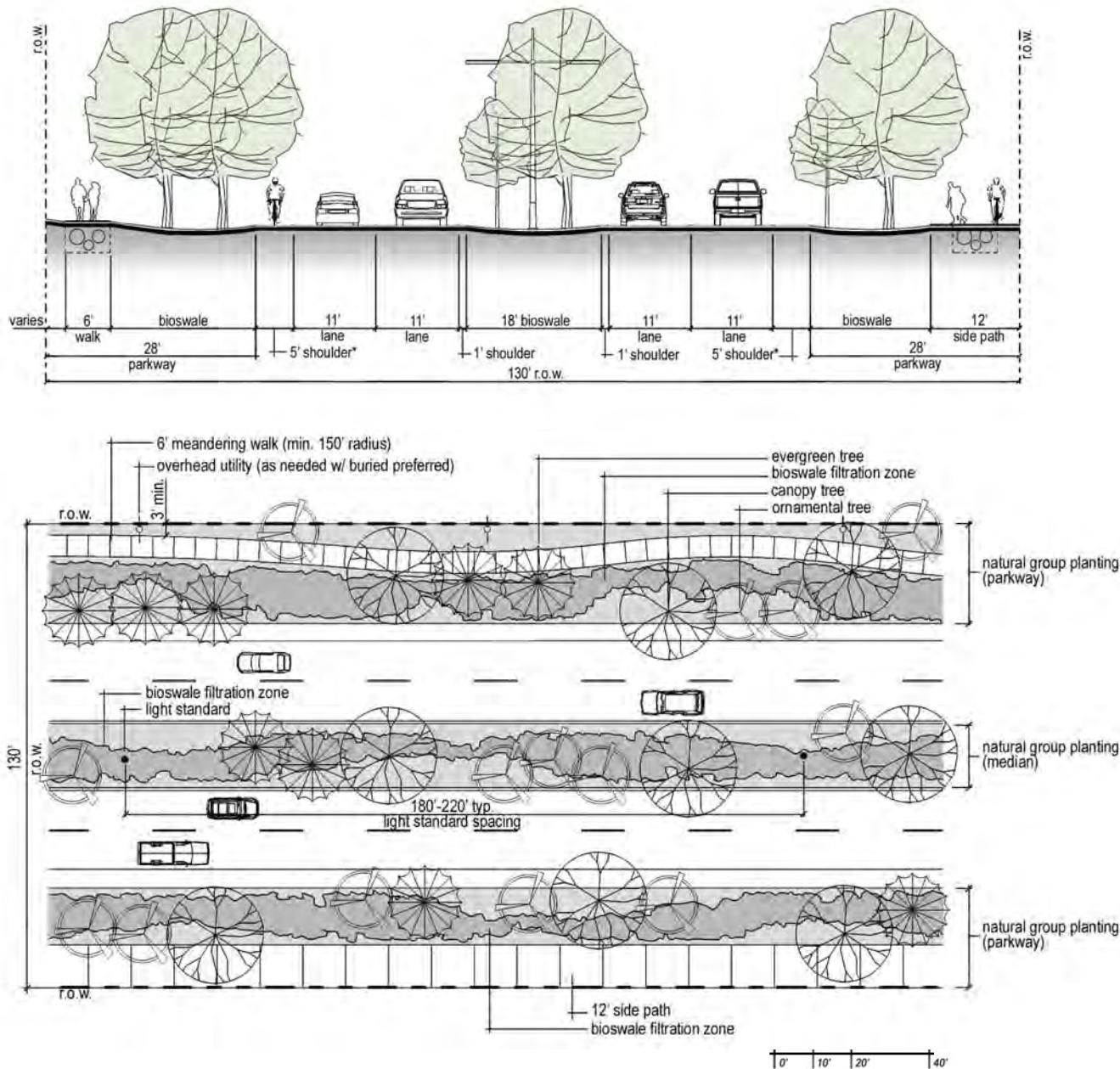


Figure 6.26 – Typical Greenway Arterial Section & Plan: Rural Arterial

The Rural Arterial section is the widest streetscape section at 130' of total width. The unique feature of this roadway is its reverse curb and drainage swales in the medians and parkways. This allows surface water to flow through natural filtration areas before entering the storm sewer system. Plants in the swales filter stormwater runoff to remove pollutants through a variety of physical, chemical, and biological processes. In areas where slopes do not allow swales, these areas will feature native tall grasses. A 12' wide sidepath will accommodate bicycles and pedestrians. In addition, the 5' shoulders can also be used by cyclists. When space allows, parallel water, sewer, or gas lines should not be placed under sidepaths, sidewalks, or trees. However, placement under sidepaths and sidewalks is preferable to placement under trees.

The section illustrated varies slightly from the typical section in the 2008 Thoroughfare Plan. Namely, the median is 2' wider to accommodate a 6' pedestrian refuge (recommended by the Federal Highway Administration), an 11' left turn lane, and the necessary shoulders. In addition, lane widths are 1' narrower to separate the shoulders from the inside and outside travel lanes. Finally, the parkways are narrower in consideration of the wider median.

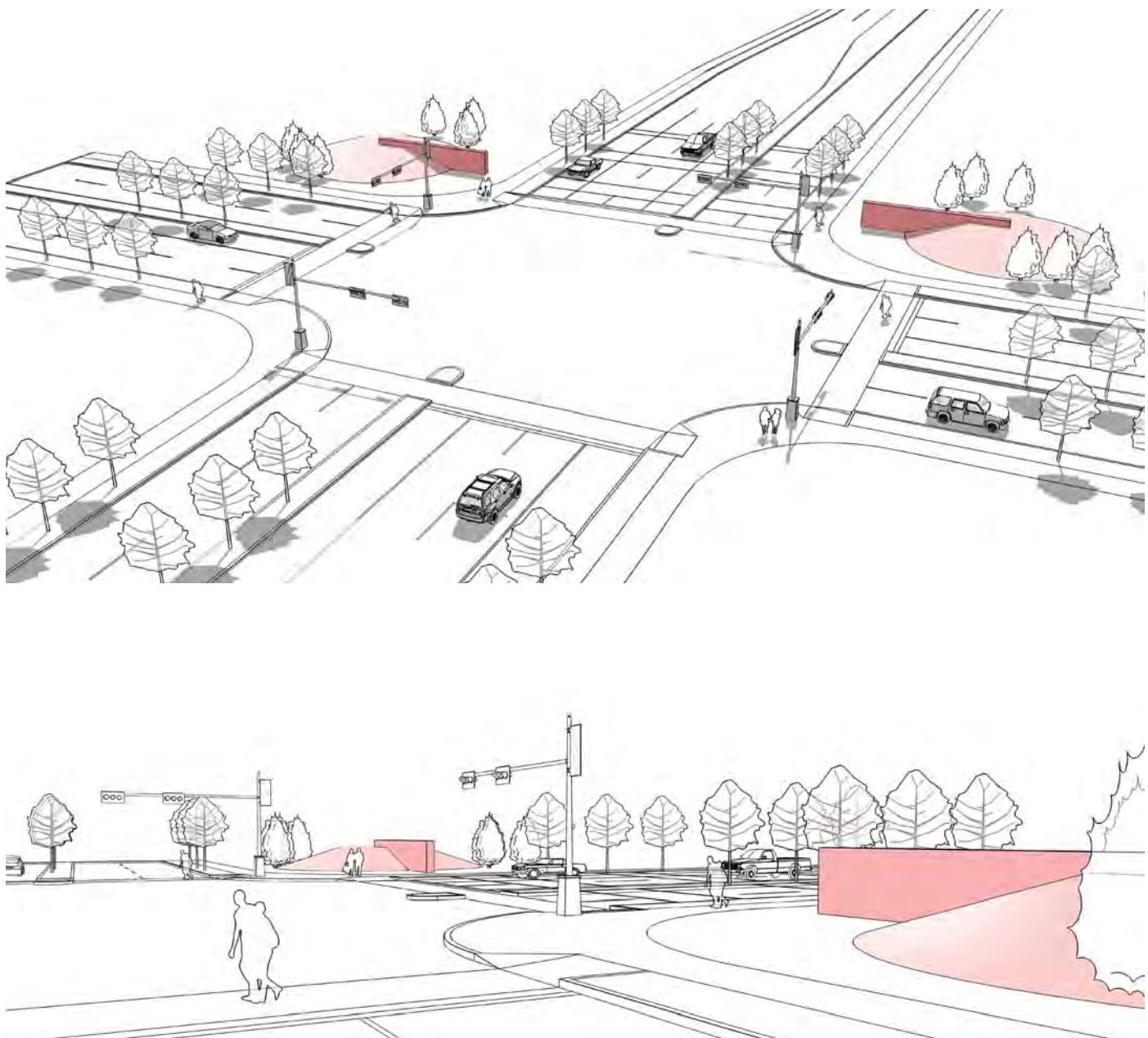


Figure 6.27 – Typical Greenway Arterial Gateway Monumentation

This graphic shows the typical layout and monumentation design for the City Edge Secondary Gateways (see Figure 6.21). Opposing rough limestone walls set into earth-formed berms frame the entrance to Cedar Hill and create an invisible line that people pass through upon entering the city.

6.8

This typology includes other principal and minor arterials in Cedar Hill that are not Core, Transition, or Greenway Arterials.

CONNECTOR ARTERIALS

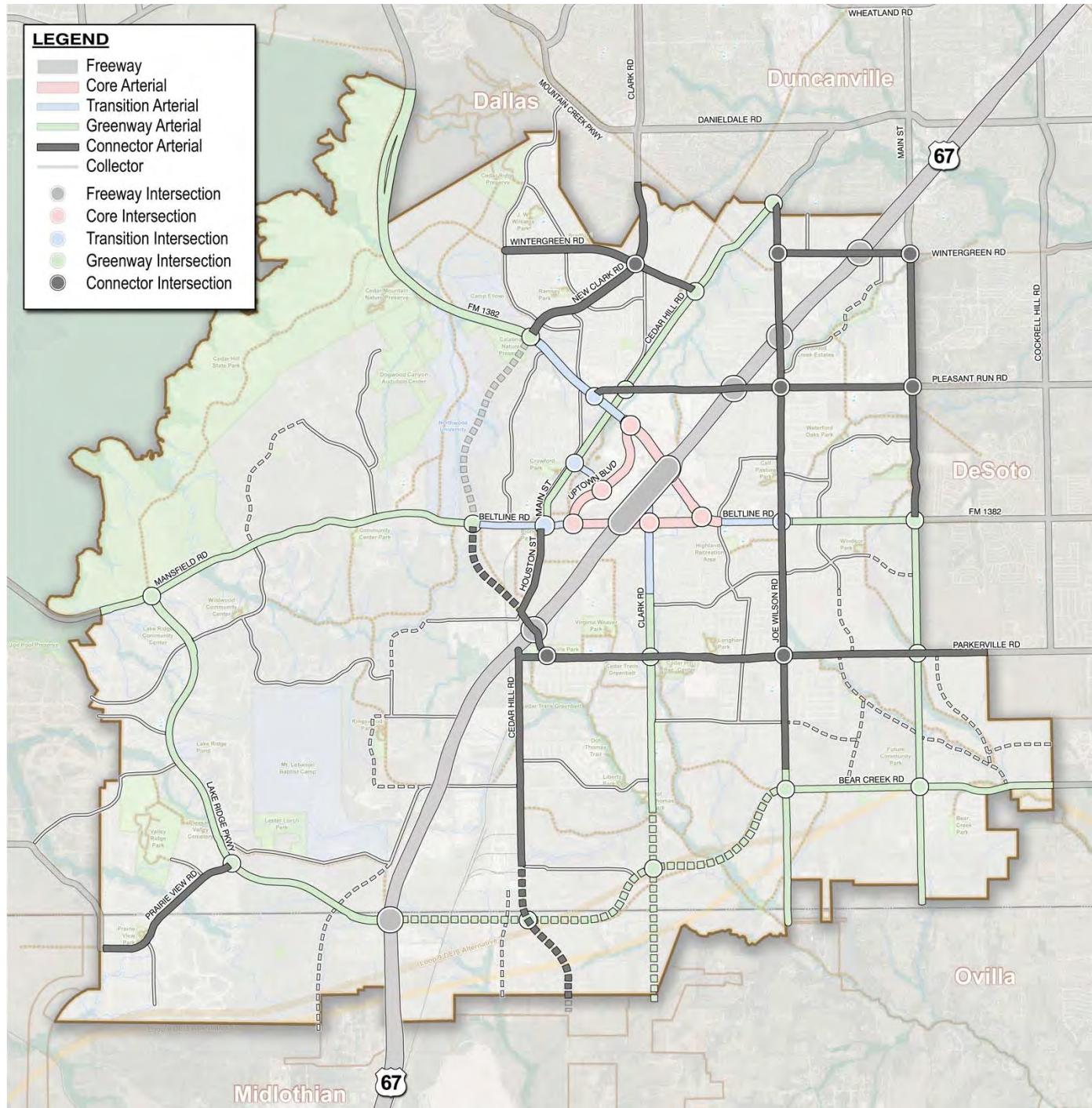


Figure 6.28 – Connector Arterial Typology Map

This map shows the location of the Connector Arterial streetscape typology. This typology does not have accompanying gateways.

Design Concepts

The following concepts shape the design of the Connector Arterial typology:

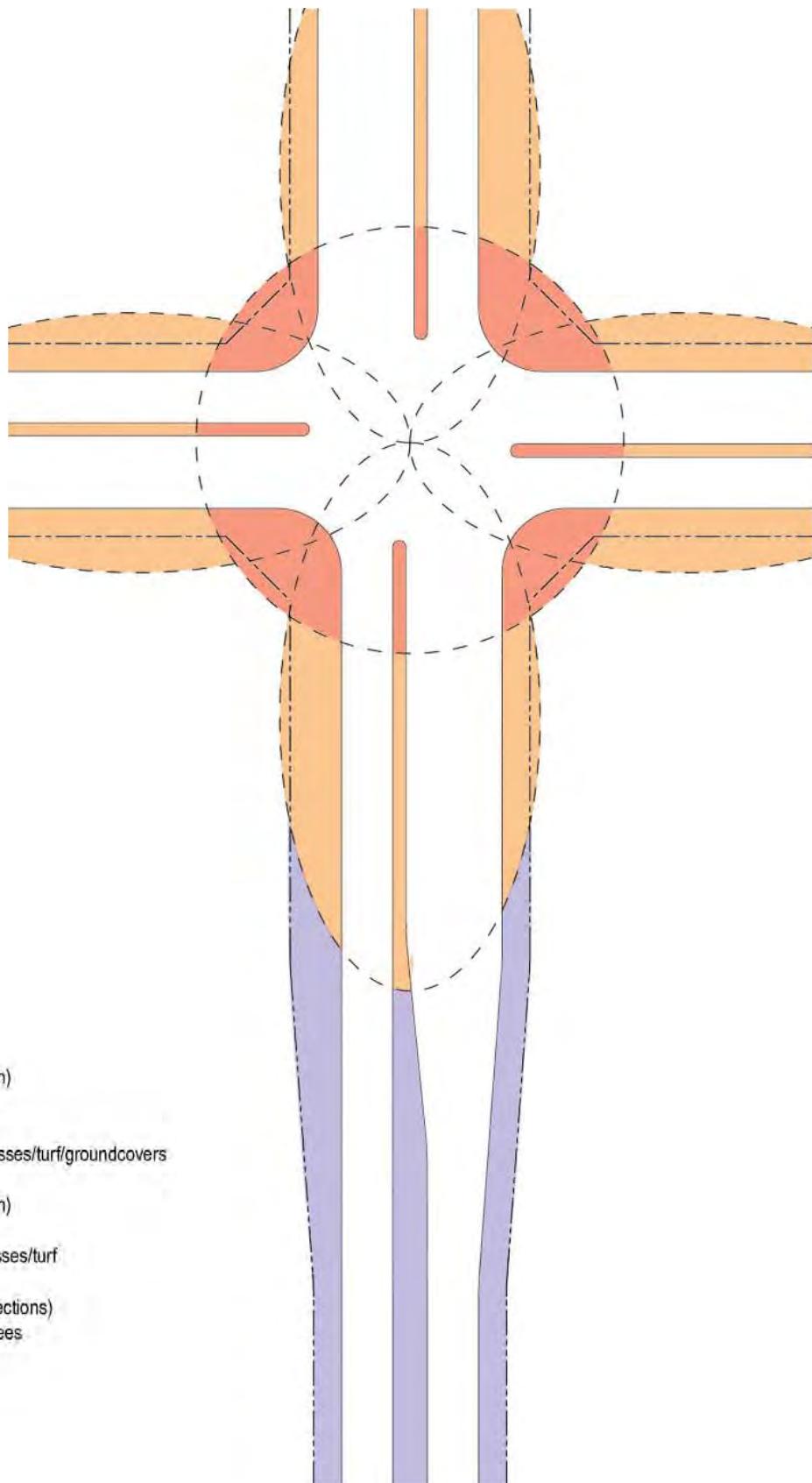
- This streetscape typology is subordinate to other arterial typologies. As such, the design of Collector Arterials should not take away from the natural beauty along Greenway Arterials or the urban vibrancy of the Core. Rather, they should accent and support each other.
- These streetscapes incorporate less intense levels of streetscape enhancements along Connector Arterials, which are less-prominent within the overall network of roadways.
- The overall goal with streetscapes along these roadways is to provide unity and continuity throughout the city.
- Formal and informal plantings are used in balance throughout this typology so as to not overemphasize one over the other.
- Similar to Transition Arterials, Collector Arterials include subtle monumentation at intersections to emphasize continuity within the city.



Figure 6.29 – Connector Arterial Conceptual Diagram

This diagram shows the various zones along the Connector Arterial typology, centered on a typical intersection. This concept focuses on the intersection with a simple treatment along the streetscape corridor. A high-intensity Zone 1 is at the center of the intersection. Then there is a rapid decrease in intensity through Zone 2 until reaching the lower-intensity nature of Zone 4, which extends between intersections.

Note: A series of five zone designations are used in each of the conceptual diagrams in this chapter. Not every zone designation will apply to each conceptual diagram. While there are minor differences within a zone between diagrams, the intent is that a specific zone designation in one diagram will have similar characteristics in terms of intensity and materials as the same designation in another diagram.



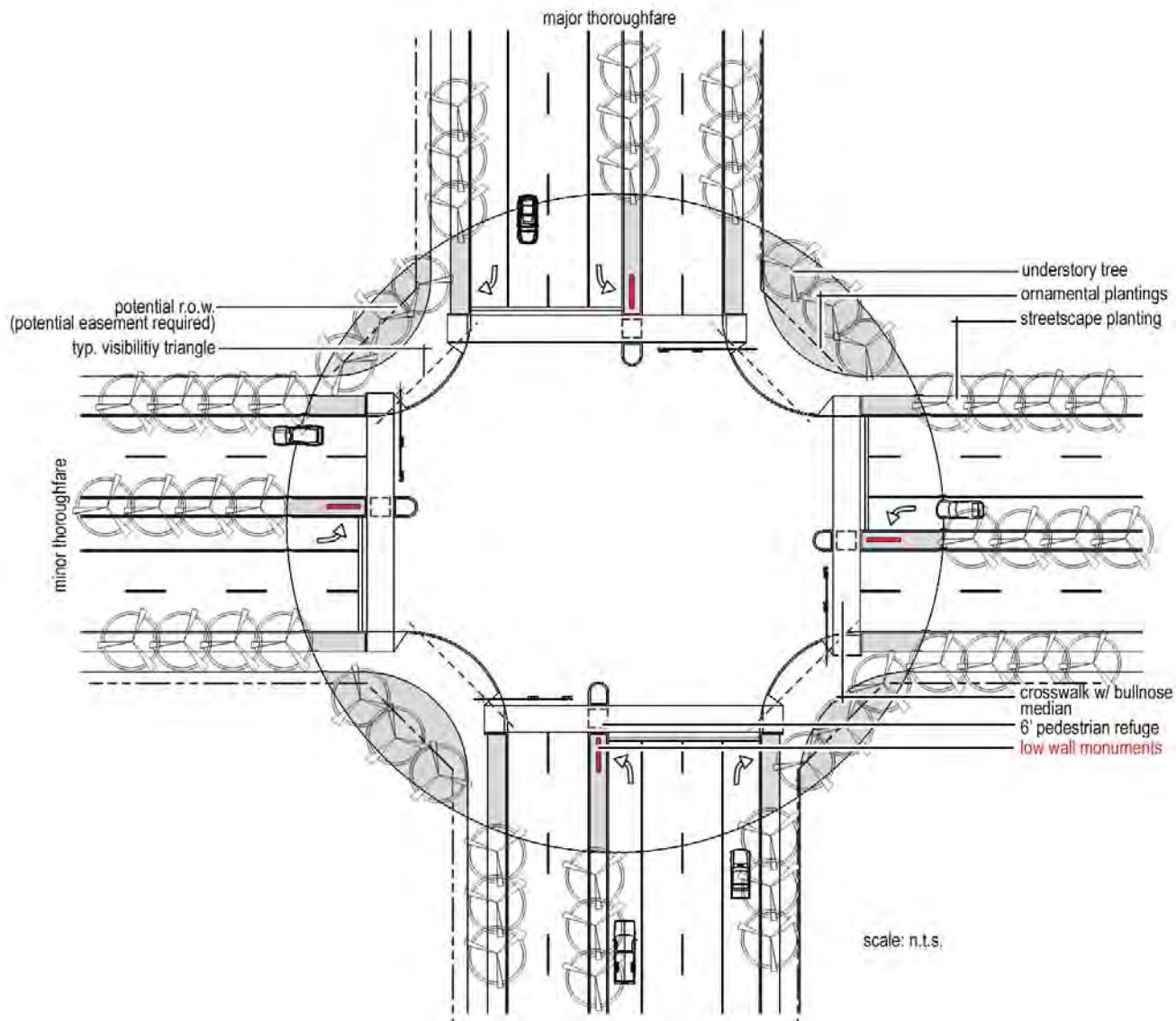


Figure 6.30 – Typical Connector Arterial Intersection Treatment

The typical treatment for Connector Arterial intersections is similar to that of Transition Arterial intersections, in that it incorporates subtle monumentation (highlighted in red) that provides a unifying element repeated throughout the city. The primary difference is that this typology incorporates a smaller amount landscaping and relies more on ornamental trees than shade trees. See Figure 6.28 for specific locations.

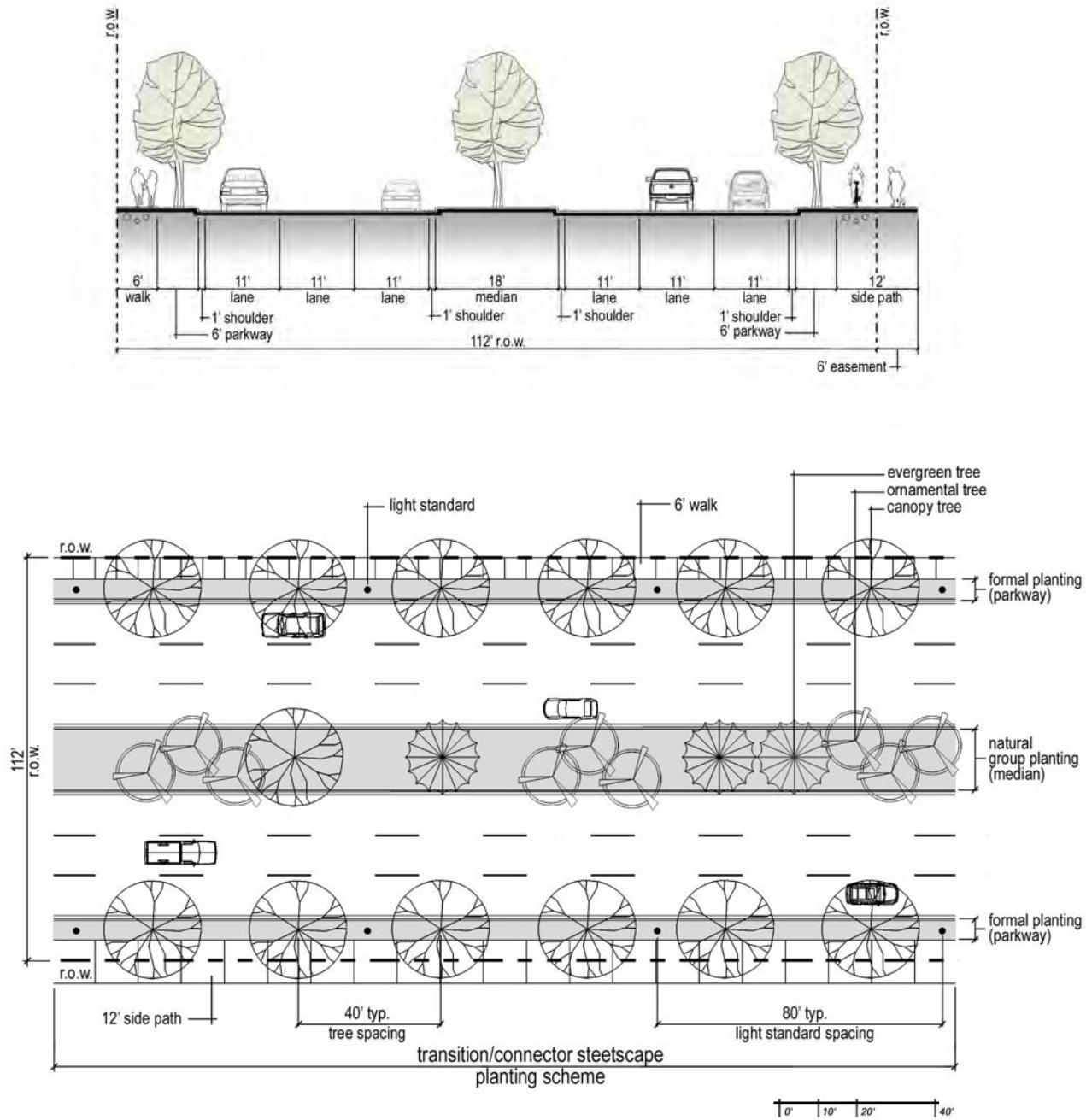


Figure 6.31 – Typical Connector Arterial Section & Plan: Principal Arterial

The Connector Arterial treatment for principal arterials between intersections is the same as Transition Arterials. Bicycles and pedestrians are accommodated by means of a 12' sidepath while landscaping is formal on the roadway edges and more organic in the median.

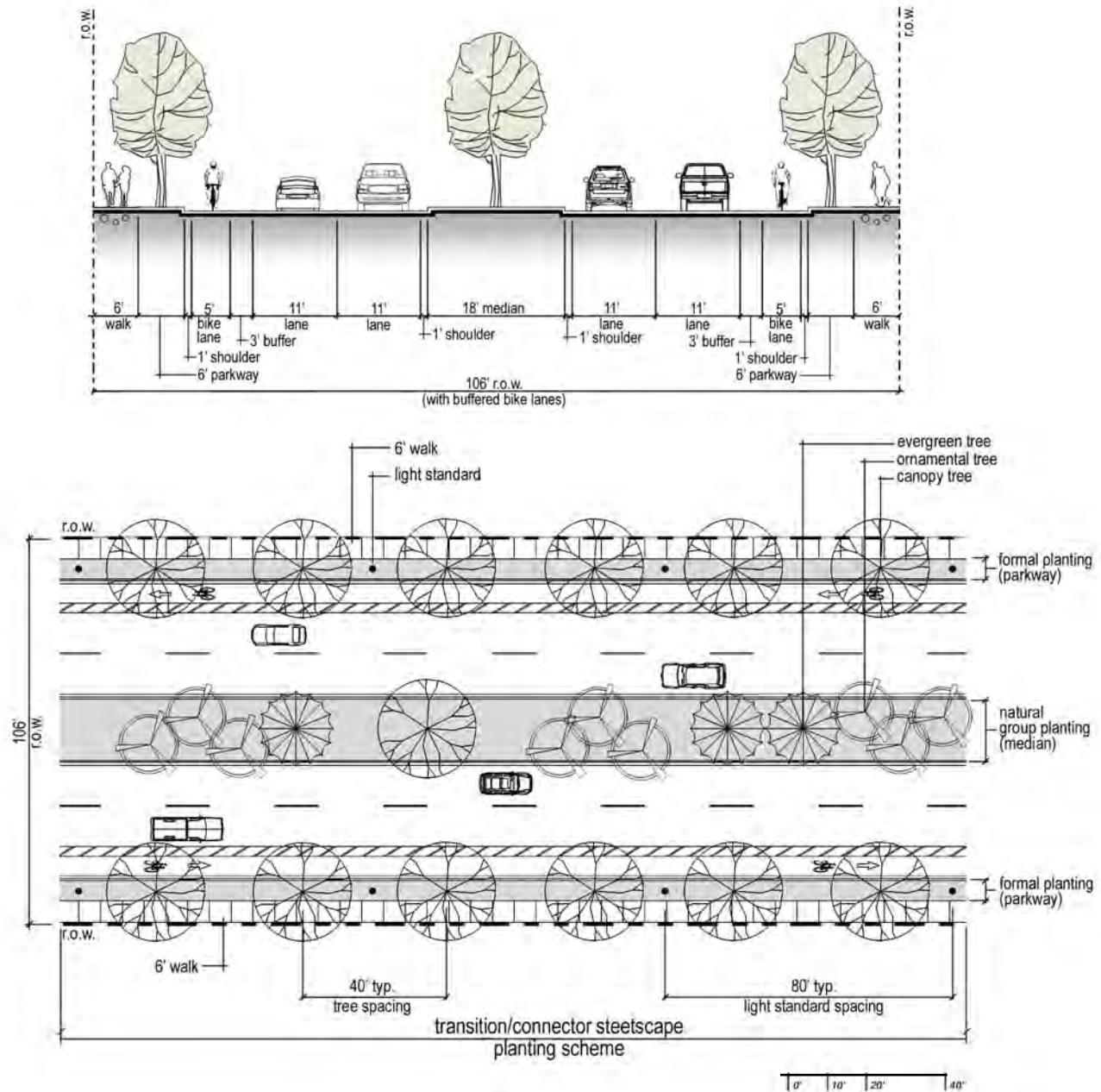


Figure 6.32 – Typical Connector Arterial Section & Plan: Minor Arterial

As with principal arterials, the Connector Arterial treatment for minor arterials is the same as Transition Arterials. Buffered bicycle lanes will be provided along with dual 6' sidewalks.

6.9

Collectors are intermediary roadways that collect traffic from local streets and distribute it to arterial roadways.

COLLECTORS

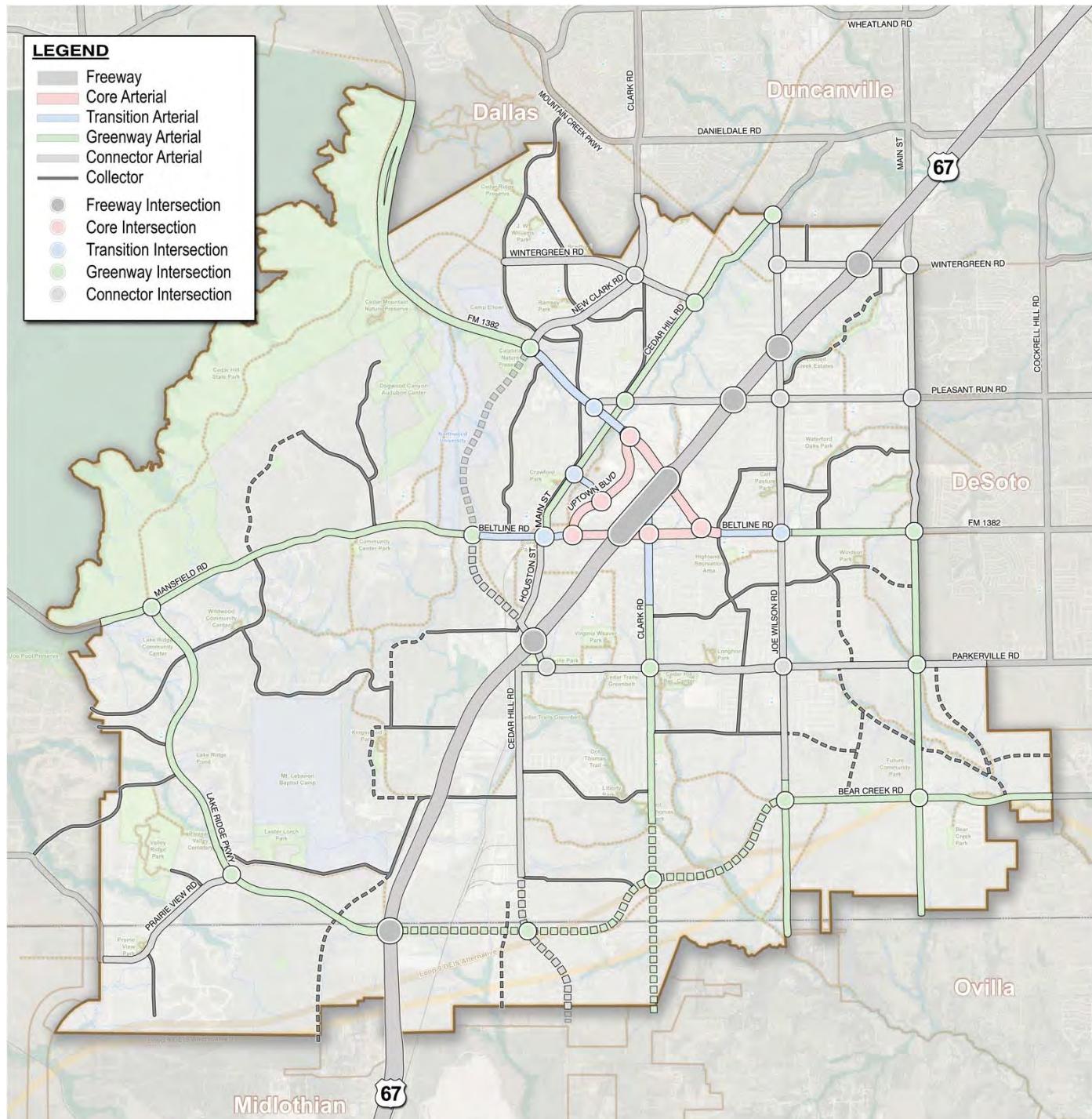


Figure 6.33 – Collector Typology Map

This map shows the location of the Collector streetscape typology. This typology does not have accompanying gateways.

Design Concepts

The following concepts shape the design of the Collector typology:

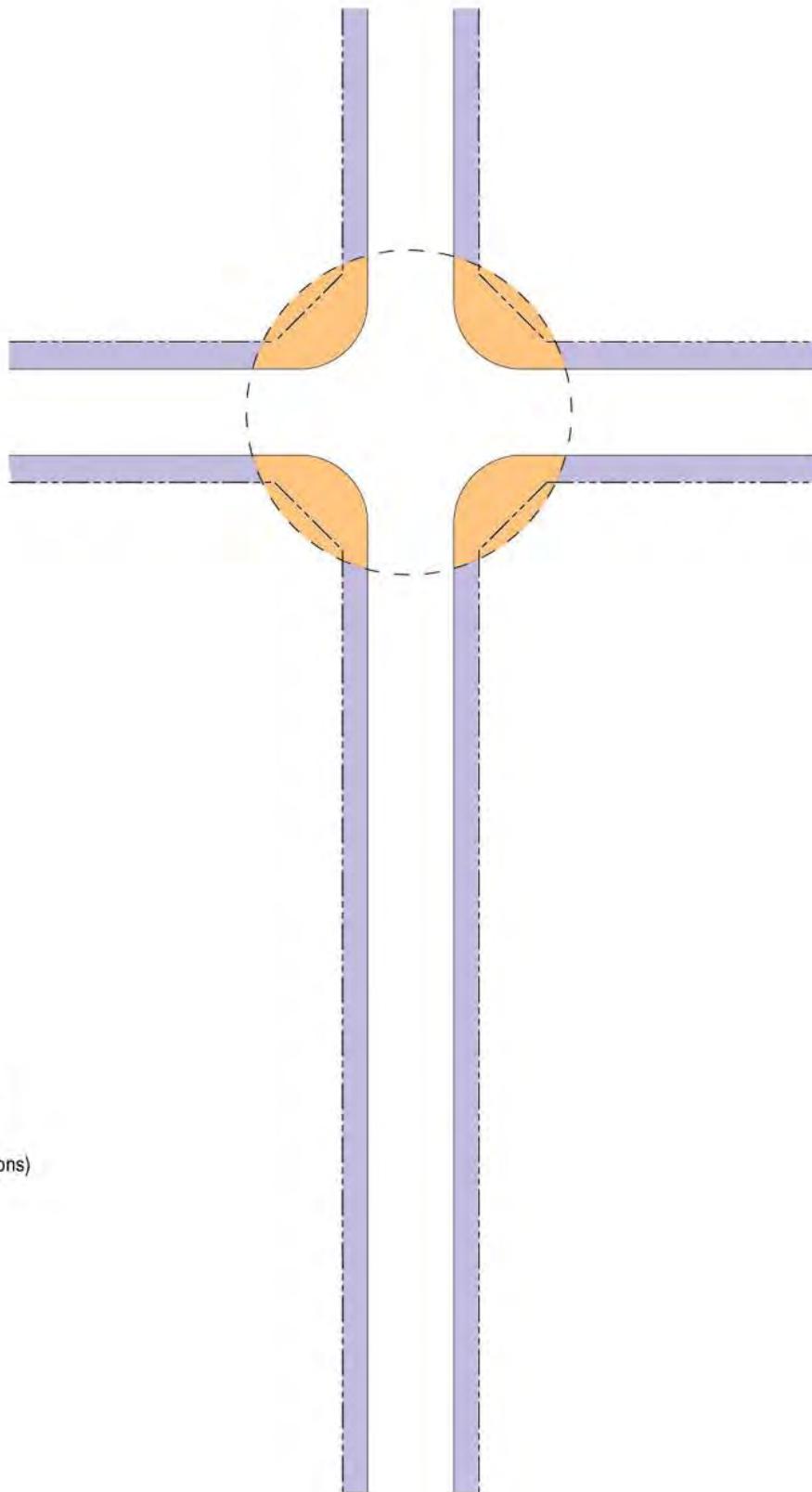
- The design is reflective of the lesser prominence yet intimate character of collector roads within the City's roadway network.
- The limited right-of-way along most collector roads in Cedar Hill limits available space for streetscape enhancements, thereby necessitating design elements that are simplified, yet related to the overall streetscape system.
- The enhancement of collector intersections by means of subtle planting details create quaint/collective environments that provide opportunities for neighborhood focal points.



Figure 6.34 – Collector Conceptual Diagram

This diagram shows the simple design of the Collector typology. A small Zone 2 at the intersection provides a decorative node while the remainder of the streetscape includes simple plantings to fit within the limited right-of-way within neighborhoods

Note: A series of five zone designations are used in each of the conceptual diagrams in this chapter. Not every zone designation will apply to each conceptual diagram. While there are minor differences within a zone between diagrams, the intent is that a specific zone designation in one diagram will have similar characteristics in terms of intensity and materials as the same designation in another diagram.



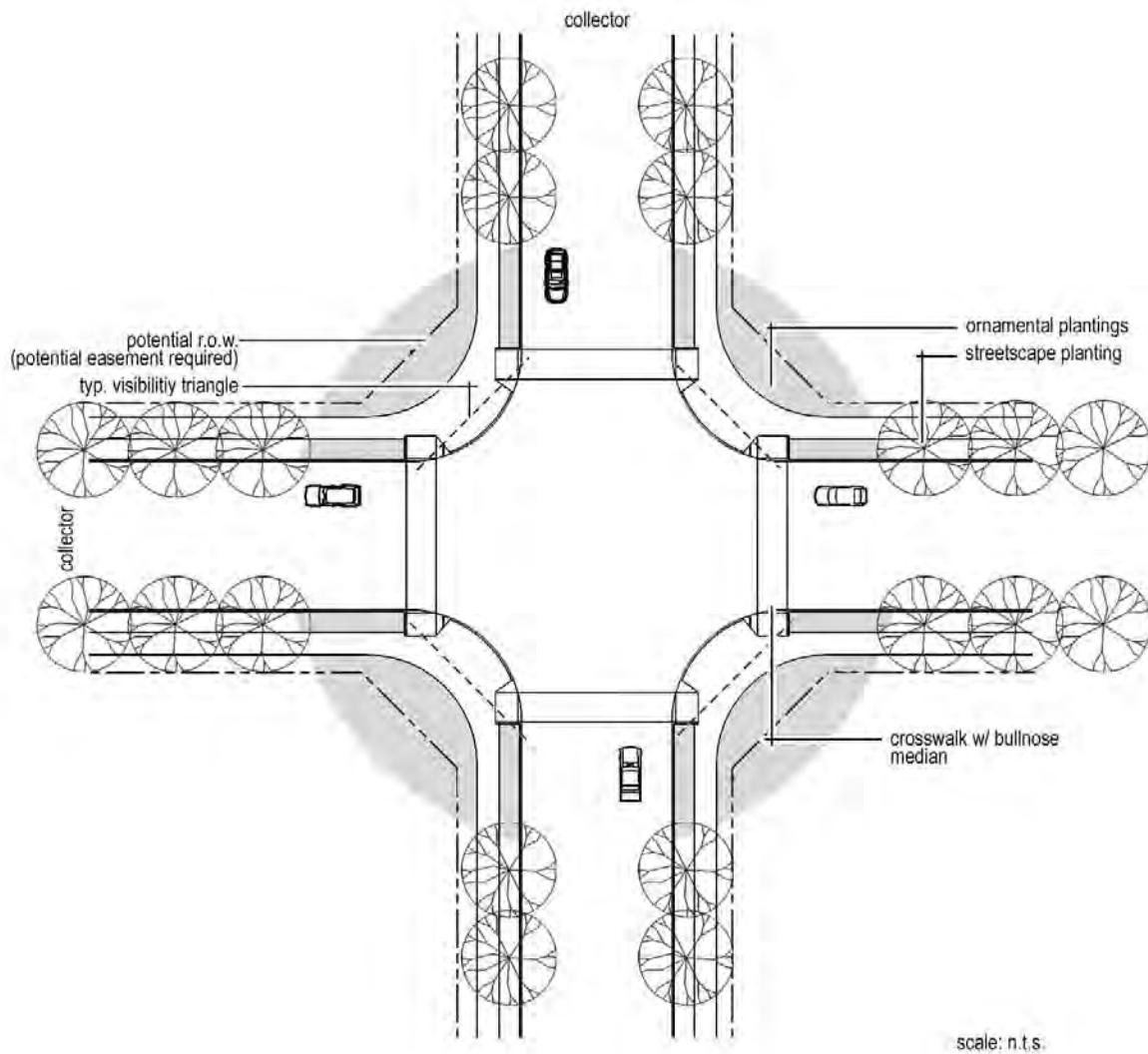


Figure 6.35 – Typical Collector Intersection Treatment

Collector intersections are typically located within neighborhoods and have relatively minimal right-of-way available. As such, the design of the typical intersection treatment is small in scale to reflect the small-scale nature of the roadway itself. Ornamental plantings—such as ground covers and grasses—decorate the corners of the intersections and street trees line the roadway between intersections.

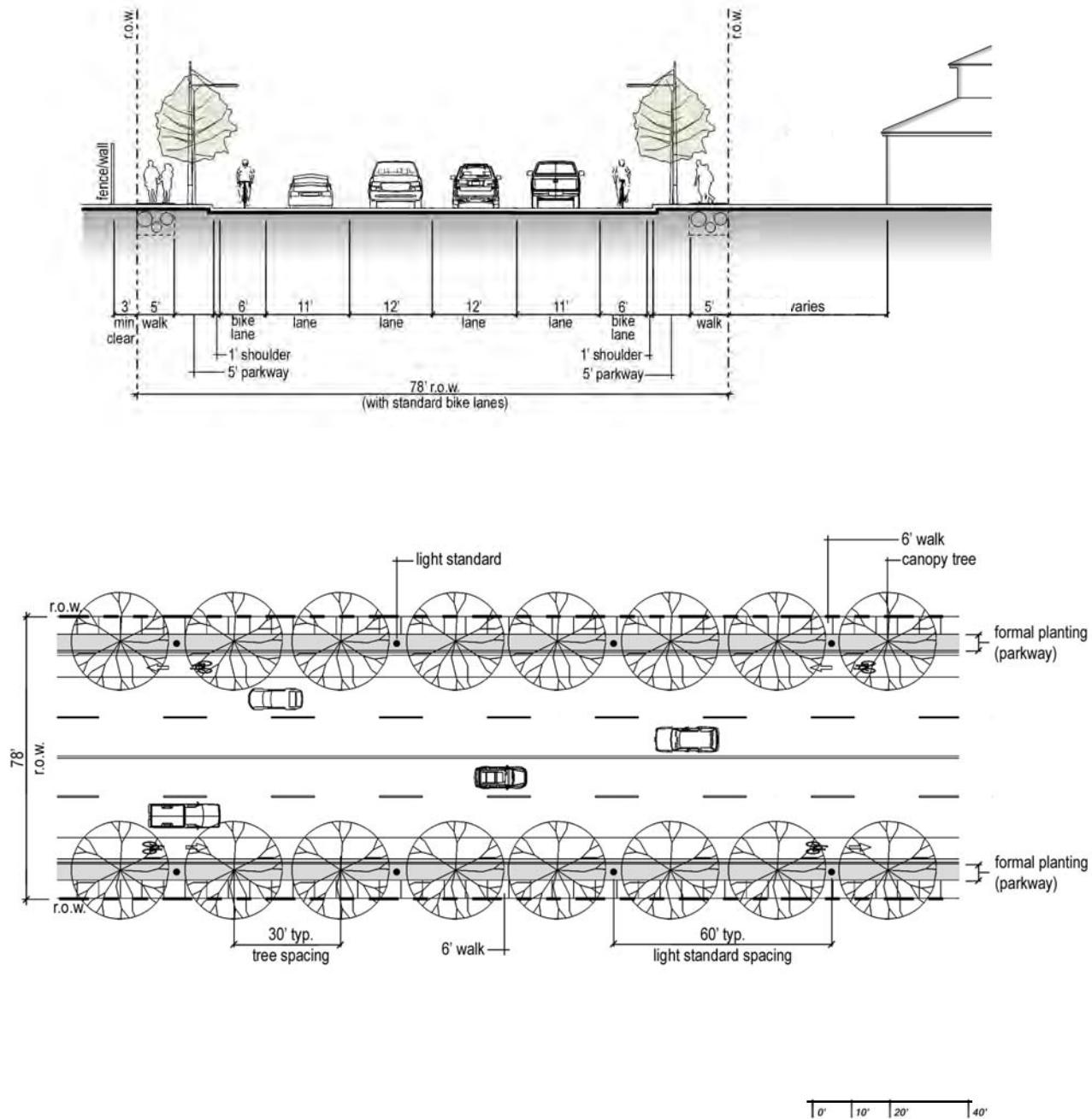


Figure 6.36 – Typical Collector Section & Plan: Major Collector

The typical major collector section includes basic streetscape enhancements in the form of street trees and lighting, as well as dedicated bike lanes and dual 6' sidewalks. While sidewalks are built up to the right-of-way line, it is desirable to have a minimum of 3' of horizontal clearance between sidewalks and any fences or walls.

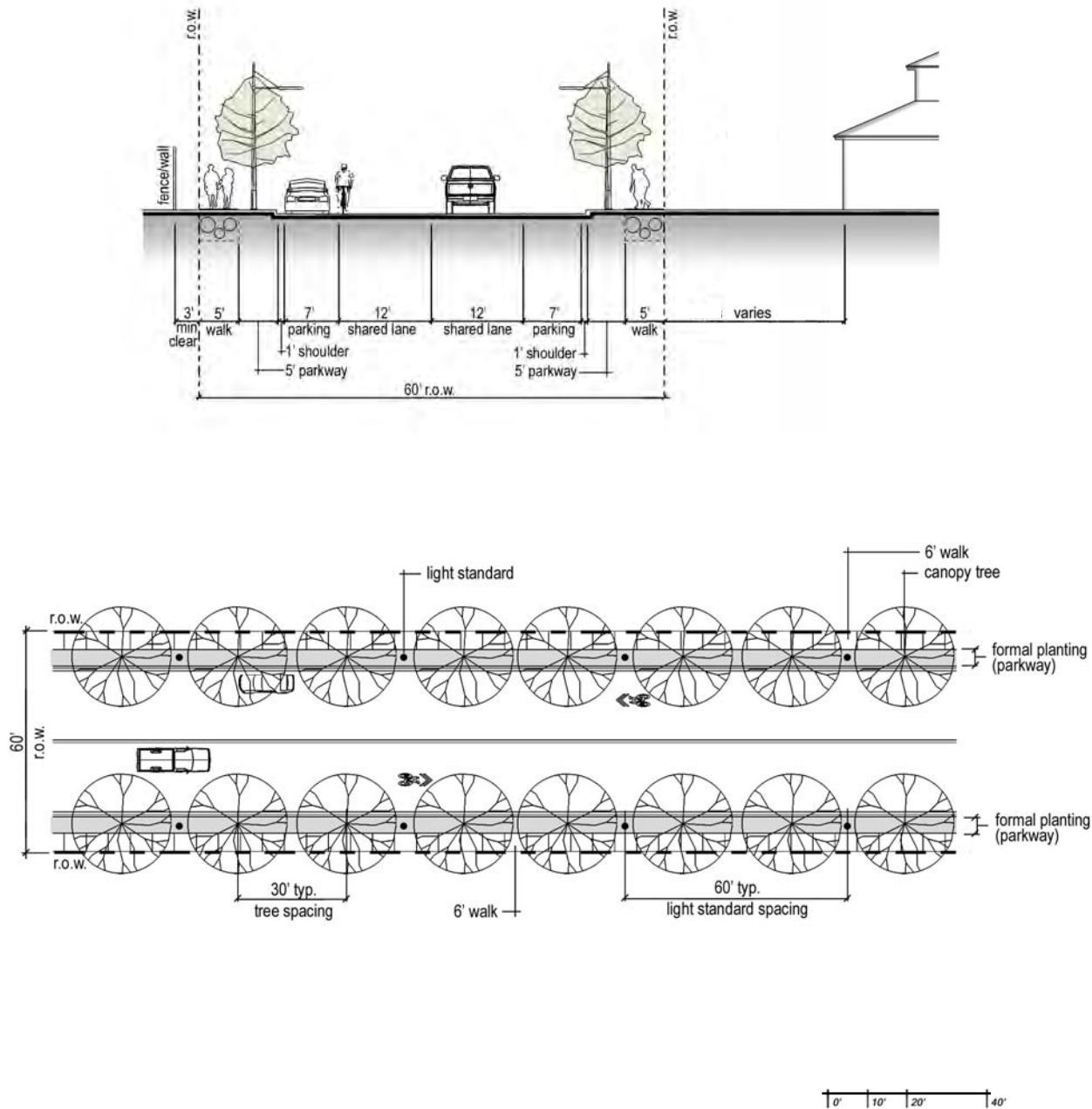


Figure 6.37 – Typical Collector Section & Plan: Minor Collector

The typical minor collector section includes basic streetscape enhancements in the form of street trees and lighting. Bicycles are accommodated by means of shared lanes (wide lanes shared with cars) and pedestrians enjoy dual 5' sidewalks. While sidewalks are built up to the right-of-way line, it is desirable to have a minimum of 3' of horizontal clearance between sidewalks and any fences or walls.

6.10

SITE AMENITIES & FURNISHINGS

Site amenities and furnishings are non-vegetative elements introduced into streetscapes that further create a cohesive appearance throughout Cedar Hill. A combination of natural materials and modern design pieces create a unique contrast between the progressive culture and natural environment of Cedar Hill. This section provides a palette of furnishings that can be used across the city. However, unique design elements—such as those currently in the Downtown area that reflect a historical perspective—may be desirable in certain areas.

Monumentation/Signage

Monumentation and special signage—such as park signs—will be horizontal in form and will be predominantly limestone with metal accents.

Limestone

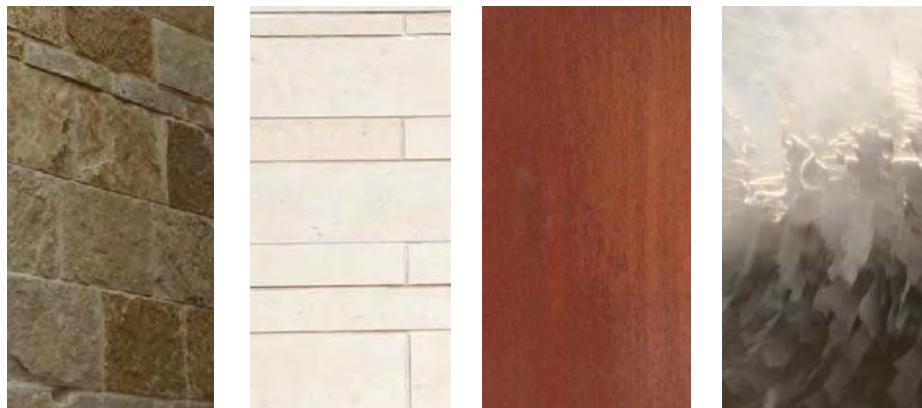
Limestone will be used throughout Cedar Hill for monumentation in order to blend with the city's natural character. Smooth-cut limestone shall be used within formal or urbanized areas, such as the Core Arterial zone. Within the Transition Arterial zone, a blend of smooth-cut and rough will be used. In less urbanized and natural areas, all signage and monumentation will be rough limestone.

Metal

Metal will serve as an accent material on monumentation and signage. Polished stainless steel is appropriate for urbanized settings while weathered steel (Corten) is appropriate for natural areas. Metal can be used as accent bands or can be laser-cut in the form of the City's tree-on-hill logo (see Figure 6.38).

Figure 6.38 – Monumentation Materials

From left to right: rough limestone, smooth-cut limestone, weathered steel (Corten), and ground stainless steel.



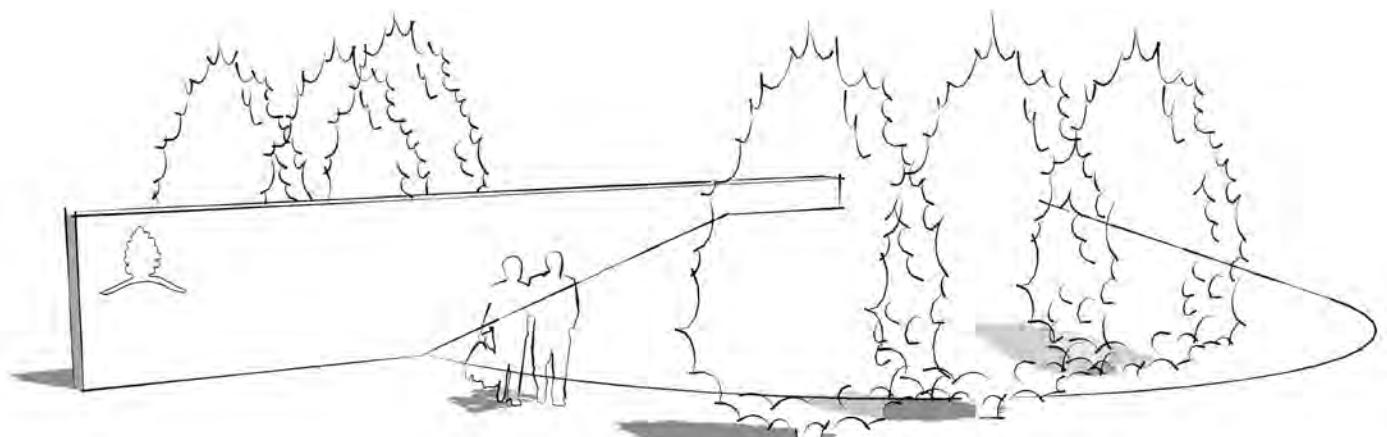


Figure 6.39 – Monumentation Example

The image illustrates a potential design for a monument. A limestone wall with a metal city logo intersects an earthen berm.

Lighting

The palette includes three types of lighting: pedestrian level overhead lighting, vehicular level lighting, and lighted bollards.

Pedestrian Level Overhead Lighting



Source: Landscape Forms



Source: Kim Lighting, Inc.



Source: Forms+Surfaces

Vehicular Level Lighting



Source: NERI



Source: Kim Lighting



Source: NERI

Lighted Bollards



Source: Landscape Forms



Source: Maglin Site Furniture, Inc.



Source: Forms+Surfaces

Benches



Source: *Landscape Forms*



Source: *Maglin Site Furniture, Inc.*



Source: *Forms+Surfaces*

Tables



Source: *Landscape Forms*



Source: *Maglin Site Furniture, Inc.*



Source: *Forms+Surfaces*

Trash Receptacles



Source: *Landscape Forms*



Source: *Maglin Site Furniture, Inc.*



Source: *Forms+Surfaces*

Bike Racks



Source: *Landscape Forms*



Source: *Maglin Site Furniture, Inc.*



Source: *Forms+Surfaces*

Crosswalks, Enhanced Paving Bands, and Median Nosing



Source: *Pavestone*



Source: *Bowmanite*



Source: *Scofield*

Handicap Access Ramps



Source: *Pavestone*



Source: *Neenah Foundry*



Source: *Hanover Architectural Products*

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6.11

IMPLEMENTATION

The most efficient way to implement streetscape improvements is in conjunction with other roadway projects. Simultaneous design and construction reduces the overall costs of the project and ensures consistency between various elements—the roadway itself, landscaping, monuments, and bike/pedestrian facilities. Therefore, the selection of priority streetscape projects is closely tied to upcoming roadway projects. Gateway implementation projects can be exceptions to this approach. While the development of a gateway concurrent with other roadway and streetscape projects will provide the most cohesive design, gateways can be implemented ad hoc so long as future right-of-way limits and roadway configurations are known and provided for.

These projects listed in Table 6.1 and 6.2 represent the top priorities for streetscape implementation based on upcoming roadway projects. The selection of gateway projects was made to prioritize the most visible of the gateway locations identified in Figure 6.1 on page 6-7.

Table 6.1 – Priority Gateway Projects

Project Type	Location	Streetscape Typology	Associated Bike & Pedestrian Facilities
Gateway	Belt Line Road/ FM-1382	City Core Secondary Gateway	Wide Crosswalks; Bike Traffic Signals; Adjust Signal Phasing*
Gateway	US-67 between Joe Wilson Road and Wintergreen Road	Major City Gateway	
Gateway	US-67 from FM- 1382 to Belt Line Road	Major City Gateway	Wide Crosswalks; Bike Traffic Signals; Adjust Signal Phasing*
Gateway	FM-1382 at City Limits	City Edge Secondary Gateway	
Gateway	Mansfield Road at City Limits	City Edge Secondary Gateway	

*Signal phasing adjustments require detailed analysis and unique solutions for each intersection. In some cases, an all-red phase will allow cyclists and pedestrians to proceed through the intersection without any motor vehicle movement. This is especially important to allow cyclists to make left turns without having to mix with motor vehicle traffic. Other innovative solutions such as bike boxes (which provide space for cyclists to wait for a green light) and bike-specific left turn lanes may improve intersection operations for mixed traffic.

Table 6.2 – Priority Streetscape Projects

Project Type	Location	Project Extents	Preferred Roadway Section	Streetscape Typology	Associated Bike & Pedestrian Facilities
Corridor*	South Clark Road	US-67 to Weaver Street	4-Lane Divided	Transition Arterial	Cycle Tracks; Dual 6' Sidewalks
		Weaver Street to Parkerville Road		Greenway Arterial (Off-Center)	Bike Lanes; 12' Sidepath; 6' Sidewalk
Corridor*	Mansfield Road	City Limits to Belt Line Road	4-Lane Divided	Greenway Arterial (Rural)	Bike Lanes; 12' Sidepath; 6' Sidewalk
Corridor*	FM-1382	City Limits to Cedar Hill Road	6-Lane Divided	Greenway Arterial (Rural)	Bike Lanes; 12' Sidepath; 6' Sidewalk
Corridor*	US-67	Northern City Limits to Belt Line Road	--	Freeway	Service Roads; Bike Lanes; Dual 6' Sidewalks**
Individual Intersection	Pleasant Run Road/Duncanville Road [†]	--	--	Connector Intersection	Wide Crosswalks; Bike Traffic Signals; Adjust Signal Phasing [‡]

*Corridor projects include intersection improvements within the corridor.

**Although freeway corridors are typically not a cyclist or pedestrian's first choice for facilities, recent Federal Highway Administration initiatives will require the inclusion of bicycle and pedestrian infrastructure in the future if/when TxDOT reconstructs US-67.

[†]This project is associated with another project currently under design (Pleasant Run Road from Joe Wilson Road to Duncanville Road).

[‡]Signal phasing adjustments require detailed analysis and unique solutions for each intersection. In some cases, an all-red phase will allow cyclists and pedestrians to proceed through the intersection without any motor vehicle movement. This is especially important to allow cyclists to make left turns without having to mix with motor vehicle traffic. Other innovative solutions such as bike boxes (which provide space for cyclists to wait for a green light) and bike-specific left turn lanes may improve intersection operations for mixed traffic.

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“Twenty years from now you will be more disappointed by the things you didn’t do than by the ones you did do. So throw off the bowlines. Sail away from the safe harbor...Explore. Dream. Discover.”

– Mark Twain (1835-1910)



IMPLEMENTATION SUMMARY

2012 PARKS, RECREATION, TRAILS & OPEN SPACE
VISIONING MASTER PLAN

7.1 **INTRODUCTION**

This Master Plan is intended to provide a broad vision and course of implementation for the future of Cedar Hill's parks, recreation, open space, trails, streetscapes, and image. Action plans and cost estimates are provided for recommended future actions for Parks & Open Space, Indoor Facilities & Aquatics, Trails & Bikeways, and Streetscapes. These actions are based on analyses of existing conditions, needs assessments, and community outreach. For a better understanding of the implementation items contained in Section 7.2 of this chapter, refer to the implementation sections of Chapters 3, 4, 5, and 6.

Purpose

This chapter summarizes the recommendations and implementation items contained within the Master Plan. It also provides a summary of funding sources. An emphasis has been placed on utilizing outside sources for funding park acquisition and development as much as possible. Outside sources include grants, partnerships with public agencies, and partnerships with private entities. Partnerships with private entities include working with residential developers as needed to provide neighborhood and community parks for their developments at a level consistent with current values. This plan provides a recommended methodology for revising Cedar Hill's Park Land Dedication Ordinance, engaging participation by residential developers at a level that reflects the true costs of land and park development. Calculations have also been provided allowing for developer participation at a level consistent with the City Water, Wastewater, and Roadway Impact Fees (see Table 7.13). Finally, information regarding compliance with the TPWD requirements for park master plans is included.

Coordinated Implementation

Maintaining the City of Cedar Hill's effective interdepartmental coordination is an important consideration for the successful and efficient implementation of projects identified in this Master Plan. This is especially true for the provision of parks, trails, and bikeways; protection of open space; and streetscape improvements. Coordinating these actions with projects from other departments (such as street construction/reconstruction, major water or wastewater projects, right-of-way acquisition, drainage improvement, and flood management projects) will reduce overall capital costs to the City and speed up the implementation of this Master Plan.

There is a strong, symbiotic relationship between quality parks, accessible trails, protected open space, beautiful streetscapes and healthy economic development. High-quality, well-maintained recreation facilities

that are distributed across the City and are highly visible indicate high quality of life and economic prosperity. This plays a large role in attracting new businesses. On the other hand, funding for parks and recreation is dependent on sales and property tax revenues, which increase with sustainable economic development. In order to further capitalize on this natural symbiosis, it is recommended that the coordination between PARD and the Cedar Hill Community Development Corporation continue and that funding levels for parks, recreation, and streetscapes be maintained or increased in the future.

Business Plan / Capital Improvement Plan

As a method of maintaining the relevance of the Master Plan and implementing the recommendations contained herein, the City of Cedar Hill should prepare and maintain a business plan or capital improvement plan (CIP) specifically for parks, recreation, open space, and trail projects. Bikeway and streetscape projects may be best suited to inclusion in a roadway CIP. The parks, recreation, open space, and trails business plan or CIP should be developed as a refinement of the recommendations and actions contained in this Master Plan and based on available funding. It should identify and prioritize specific projects to be funded each year based on City Council, Park Board, and CHCDC input. Finally, it should be flexible to respond to changing needs and to account for implemented actions.

Plan Updates

It is recommended that City Staff conduct periodic reviews of this Master Plan. Regarding the plan's recreation-oriented components, the Texas Parks and Wildlife Department requires master plans to be updated every five years (see pages 7-16 to 7-18 for additional information).

Updates regarding bikeways and streetscapes should be performed on an as-needed basis when infrastructure is built and/or new development occurs. These updates should be in coordination with the updates of other City documents, including the Comprehensive Plan, the Thoroughfare Plan, and the Public Works CIP.

Plan updates can be published in short report format and attached to this Master Plan for easy use.

7.2

ACTION PLANS & COST ESTIMATES

The four components of this Master Plan—Parks & Open Space, Aquatics & Indoor Recreation, Trails & Bikeways, and Streetscapes—each include lists of actions for implementation. To aid in the implementation and coordination of projects, as well as with near-term and long-term budgeting, this section includes summaries of the Action Plans from each of the four components and provides cost estimates.

Parks & Open Space

Neighborhood Parks

The Action Plan for neighborhood parks primarily includes the development of 14 new neighborhood parks and recommends the acquisition or reallocation of 105 acres of land. Four of the 14 new parks will be located on land already owned by the City.

Table 7.1 – Neighborhood Park Action Items & Cost Estimates

Action	Acres	Estimate of Probable Cost	Main Source of Funding	Additional Funding Sources
Acquire Land for New Neighborhood Parks* – Acquire land for 10 new neighborhood parks (average of 10 acres).	100	\$6,000,000	CIP, Park Land Dedication	
Reallocate Land for a New Neighborhood Park – Reallocate the 5 acres of City-owned land at the former YMCA site for neighborhood park use	5	--		
10 New Neighborhood Parks on Dedicated Land - Develop 10 neighborhood parks at an average of \$1,200,000 per park as development occurs.		\$12,000,000	CIP, Park Improvement Fee	TPWD Outdoor Grant, Private Donations
Develop Neighborhood Park Amenities in Four Undeveloped Parks - Develop neighborhood park amenities on existing park land at an average of \$1,200,000 per park (City-owned land at the former YMCA site, David Rush Park, Bear Creek Park, unnamed park near Plummer Elementary)		\$4,800,000	CIP, Park Improvement Fee	TPWD Outdoor Grant, Private Donations
Neighborhood Park Improvement - See recommendations as per the park reviews on pages 3-14 to 3-22 (one park per year at an average of \$225,000 per park).		\$2,925,000	CIP	TPWD Outdoor Grant, Private Donations
Redevelop & Repurpose Dot Thomas Park - Redevelop Dot Thomas Park as a neighborhood park with a trail head and passive open space.		\$1,000,000	CIP	TPWD Outdoor Grant, Private Donations
	105	\$26,725,000		

*Assumed cost of land = \$60,000 per acre. The cost of land can vary considerably depending on whether it is urban or rural, the size of the parcel, frontage access along a major roadway, and whether it is in the Escarpment or the prairie. \$60,000 is chosen for purposes of budgeting with the intent to secure land at fair market value and to account for instances of high-value land.

Community Parks

The primary action for community parks is land acquisition and development of one or two new community parks. Determining whether to develop one park versus two will depend on the size of land available for acquisition and the need for specific athletic facilities (see page 3-44). In addition, the development of a tennis center is included in this action plan.

Table 7.2 – Community Park Action Items & Cost Estimates

Action	Acres	Estimate of Probable Cost	Main Source of Funding	Additional Funding Sources
Parkerville Park - Resolve contested land ownership issue.	--			
Land for New Community Parks* - Acquire land for two future community parks (one active community park and one passive community).	350	\$21,000,000	CIP, Park Land Dedication	
New Community Park Development - Develop two future community parks (\$8,000,000 for an active park and \$2,000,000 for a passive park) or one combined community park. Include facilities to replace those removed from Dot Thomas Park, Crawford Park, and Community Center Park (see Table 3.3).		\$10,000,000	CIP, Park Land Dedication	TPWD Outdoor Grant, Private Donations
Community Park Improvement – See recommendations as per the park reviews on pages 3-38 to 3-41.		\$5,105,000	CIP	TPWD Outdoor Grant, Private Donations
Tennis Center Development – Develop an eight-court tennis center. (Alternatively, develop four tennis courts for a lower cost).		\$1,200,000	CIP	TPWD Outdoor Grant, Private Donations
	350	\$37,305,000		

*Assumed cost of land = \$60,000 per acre. The cost of land can vary considerably depending on whether it is urban or rural, the size of the parcel, frontage access along a major roadway, and whether it is in the Escarpment or the prairie. \$60,000 is chosen for purposes of budgeting with the intent to secure land at fair market value and to account for instances of high-value land.

Other Parks

The largest expenditures listed in the Other Parks action plan is land acquisition for open space protection and special purpose park needs. In addition to acquiring land, the development of special purpose facilities—water spray parks, a skate park, and a dog park—are included.

Table 7.3- Other Parks Action Items & Cost Estimates

Action	Acres	Estimate of Probable Cost	Main Source of Funding	Additional Funding Sources
Special Purpose Parks* - Acquire land for special purpose parks including trail heads, trail gateways, a dog park, a skate park, and other as yet unforeseen special purpose use.	20	\$1,200,000	CIP, Grant Funding	Park Land Dedication, Private Donations, Land Trusts
Open Space Acquisition and Protection (Floodplain) - Acquisition of land along creek corridors (100' wide corridors along ~15 miles of floodplain or the 100-year floodline at build-out conditions, whichever is greater; assumed \$30,000 per acre).	180	\$5,400,000	CIP, Grant Funding	Park Land Dedication, Private Donations, Land Trusts
Open Space Acquisition and Protection (out of Floodplain)* - Acquisition or non-acquisition protection programs of other important Open Space land not within the floodplain.	230	\$6,900,000**	CIP, Grant Funding	Park Land Dedication, Private Donations, Land Trusts
Support Facility Development - Develop playgrounds, pavilions, loop trails, and open play areas with new park development.	(included in park development)		CIP, Park Improvement Fee	TPWD Outdoor Grant, Private Donations
Water Spray Parks - Develop three water spray parks at a cost of \$100,000 each.		\$300,000	CIP	TPWD Outdoor Grant, Private Donations
Skate Park - Develop a skate park as a joint-venture with surrounding cities.		\$500,000	CIP, Other Cities	TPWD Outdoor Grant, Private Donations
Dog Park - Develop a dog park as a joint-venture with surrounding cities.		\$500,000	CIP, Other Cities	TPWD Outdoor Grant, Private Donations
	430	\$14,800,000		

*Assumed cost of land = \$60,000 per acre. The cost of land can vary considerably depending on whether it is urban or rural, the size of the parcel, frontage access along a major roadway, and whether it is in the Escarpment or the prairie. \$60,000 is chosen for purposes of budgeting with the intent to secure land at fair market value and to account for instances of high-value land.

** Assumes half of the land will be purchased and half will be protected without acquisition. These proportions can vary significantly depending on future opportunities.

Estimate of Probable Cost for Parks & Recreation Facilities Maintenance

Maintenance cost for parks and recreation facilities may vary greatly depending on seasonal conditions, development intensity, quality of materials, level of improvement, etc. As a guide for budgeting purposes, an annual projected maintenance budget for parks and recreation facilities is 2 to 4% of the development cost, rounded to an average of 3% per year. The following table illustrates the probable cost to maintain parks and recreation facilities improvements as listed in Tables 7.1, 7.2, and 7.3. Actual costs for maintenance should be determined during the design phase of each project prior to construction.

Table 7.4 – Parks & Open Space Maintenance Costs*

Priority	Estimated Annual Maintenance Cost
14 New Neighborhood Parks**	\$504,000
2 New Community Parks	\$300,000
Tennis Center	\$36,000
Water Spray Parks	\$9,000
Skate Park	\$15,000
Dog Park	\$15,000
Total Annual Maintenance Cost	\$879,000

*Maintenance costs for improvements to existing parks are not included in this table as the maintenance of improvements will be part of the existing program for these facilities.

**Includes 10 new neighborhood parks on developed land and new neighborhood park development on four existing undeveloped properties.

Aquatics & Indoor Recreation

Expanding the Recreation Center to include indoor aquatics is the single largest expenditure recommended by this Master Plan. Also included in this list is the development of a new Outdoor Aquatic Center to replace the Crawford Park Pool—although at a more centralized location—and the expansion of the Senior Center to reflect recent and future population growth and expectations within the city.

Table 7.5 – Indoor Recreation & Aquatics Action Items & Cost Estimates

Action	Estimate of Probable Cost	Main Source of Funding	Additional and Other Potential Funding Sources
Recreation Center Expansion & Indoor Aquatics	\$13,340,000	CIP	4B Sales Tax, Revenue Bonds, General Obligation Bonds, TPWD Indoor Grant, Private Donations
Outdoor Aquatic Center	\$5,200,000	CIP	4B Sales Tax, Revenue Bonds, General Obligation Bonds, TPWD Outdoor Grant, Private Donations
Senior Center Expansion	\$980,000	CIP	4B Sales Tax, Revenue Bonds, General Obligation Bonds, TPWD Indoor Grant, Private Donations
Convert Crawford Park Pool to a Water Spray Park	\$500,000	CIP	4B Sales Tax, Revenue Bonds, General Obligation Bonds, TPWD Indoor Grant, Private Donations
Total	\$20,020,000		

Estimate of Probable Cost for Aquatics & Indoor Recreation Maintenance

Maintenance cost for aquatic and indoor recreation facilities may vary greatly depending on seasonal conditions, development intensity, quality of materials, level of improvement, etc. As a guide for budgeting purposes, an annual projected maintenance budget for parks and recreation facilities is 2 to 4% of the development cost, rounded to an average of 3% per year. The following table illustrates the probable cost to maintain the improvements listed in Table 7.5. Actual costs for maintenance should be determined during the design phase of each project prior to construction.

Table 7.6 – Aquatics & Indoor Recreation Maintenance Costs

Priority	Estimated Annual Maintenance Cost
Recreation Center Expansion & Indoor Aquatics	\$400,200
Outdoor Aquatic Center	\$156,000
Senior Center Expansion	\$29,400
Convert Crawford Park Pool to a Water Spray Park	--*
Total Annual Maintenance Cost	\$879,000

*Action would result in maintenance cost savings compared to current Crawford Park Pool maintenance costs.

Trails & Bikeways

Trails

The Trails Master Plan includes a total of 120.2 miles of trails, including 23.2 miles of existing and programmed trails (trails that will be completed in the next few years). In addition, it includes 97.0 miles of new trails to be implemented in the long-term future.

Table 7.7 – Trail Master Plan Cost Estimates

Type	Miles/Units	Typical Cost*	Total Cost
Existing & Programmed Trails	23.2	--	--
Planned Trails (all types)	97.0	\$750,000	\$73,725,000
Trailheads	17	\$350,000	\$5,950,000
Overlooks/Viewing Points	4	\$150,000	\$600,000
Total	120.2 Miles		\$80,275,000

*Estimated costs include design, administration, and miscellaneous costs. The cost for the Core & Loop Trail segments, as reflected in Table 5.4 on page 5-23, are included in the totals shown on this table.

Core Trails

Of the 120.2 miles of existing, programmed, and planned trails, 48 miles are considered Core Trails, which will serve as the backbone of Cedar Hill's trail system (see page 5-18). The top priority Core Trail segments are as follows:

- Cedar Hill State Park from FM-1382 to Mansfield Road
- Belt Line Road from Mansfield Road to Cedar Hill Road
- Cedar Hill Road from FM-1382 to Belt Line Road
- Houston/Main/Cooper Streets from Belt Line Road to US-67
- Longhorn Boulevard from US-67 to Virginia Weaver Park and Parkerville Road
- FM-1382 from northern city limits to New Clark Road

These six trail segments are estimated to cost approximately \$7.3 million in total. See Table 5.5 and Figure 5.4 for more information.

Bikeways

A number of facility types constitute the Action Plan for bikeways, which will exist on or adjacent to roadways (depending on type). Due to the highly varied nature of roadways and the many elements that must be considered—overhead and underground utilities, stormwater drainage, driveway curb cuts, right-of-way constraints, traffic operations, etc.—specific estimates of probable costs cannot accurately be developed without in-depth, case-by-case conceptual engineering. Typical costs per mile are shown in Table 7.8. Table 7.9 lists priority bikeway projects.

Table 7.8 – Bikeways Master Plan Cost Estimates*

Type	Miles	Typical Cost per Mile (retrofit)	Typical Cost per Mile (new construction)
Shared Lanes	19.0	\$10,000	\$50,000
Bike Lanes	25.7	\$20,000	\$100,000
Buffered Bike Lanes / Cycle Tracks	9.7	\$30,000	\$150,000 / \$600,000
Side Paths	24.6	\$750,000	\$750,000
Further Study Needed	6.4		
Total	85.4 Miles		

*See Table 5.6 on page 5-36 for additional information. Bikeway projects will most likely be implemented as part of future roadway projects. Therefore, probable costs cannot accurately be estimated without in-depth, case-by-case conceptual engineering.

Table 7.9 – Priority Bikeway Projects*

Upcoming Roadway Projects		
Project	Planned Facility Type	Miles
Mansfield Road from City Limit to Belt Line Road	Bike Lanes & 12' Sidepath	3.9
Lake Ridge Parkway from Mansfield Road to US-67	Bike Lanes & 12' Sidepath	3.6
Pleasant Run Road from Joe Wilson Road to Duncanville Road	Bike Lanes & 12' Sidepath	1.0
FM-1382 from New Clark Road to Strauss Road	Bike Lanes & 12' Sidepath	0.8
South Clark Road from Belt Line Road to Parkerville Road	Buffered Bike Lane or Cycle Track	1.0

*This table only illustrates upcoming roadway projects in which bikeway facilities are to be included. Table 5.7 on page 5-37 includes additional recommended projects.

Estimate of Probable Cost for Trail Maintenance

Maintenance cost for trails is calculated on a per-mile basis. Costs vary based on facility design, location, and frequency of use. The following table illustrates the probable cost to maintain the planned trails identified in this Master Plan.

Bikeway maintenance will be part of the general roadway maintenance program and is estimated to have a relatively minor impact on maintenance costs.

Table 7.10 – Trail Maintenance Costs

Type	Miles	Typical Estimated Maintenance Cost per Mile	Total Estimated Annual Maintenance Cost
Core Trails*	48.0	\$6,000	\$288,000
Secondary Trails*	36.9	\$4,000	\$147,600
Park Loop Trails	12.1	\$1,000	\$12,100
Total Annual Maintenance Cost	97.0 Miles		\$447,700

*Includes existing, programmed, and planned trails.

Streetscapes & Gateways

Streetscape Projects

The selection of priority streetscape projects reflects the City's upcoming roadway projects. Streetscape enhancements should be designed and constructed simultaneously with the design and construction of the roadways themselves. Such an approach can reduce the overall costs of the project and ensure consistency.

Table 7.11 – Priority Streetscape Projects Summary & Cost Estimates*

Location	Estimate of Probable Cost [†]
South Clark Road from US-67 to Parkerville Road	\$1,500,000
Mansfield Road from City Limits to Belt Line Road	\$4,000,000
FM-1382 from City Limits to Cedar Hill Road	\$3,400,000
US-67 from Northern City Limits to Belt Line Road**	\$1,100,000
Pleasant Run Road/Duncanville Road Intersection	\$50,000

*See Table 6.2 on page 6-57 for additional information.

**This project overlaps two of the gateways included in Table 7.12 (US-67 between Joe Wilson and Wintergreen Roads; US-67 from FM-1382 to Belt Line Road). However, the estimate of probable cost for this project does not include the cost for these two gateways.

[†]Cost estimates were prepared utilizing standard cost estimate practices and exclude "soft" costs such as design and administrative costs, financing costs, construction management, surveying, geotechnical investigations, and construction materials testing. Cost estimates exclude engineering associated components (e.g. road paving surfaces, curbs, ramps, typical sidewalks, light poles and fixtures, traffic signage, traffic lights, striping, etc.) and assume water and service taps are available and accessible.

Gateway Projects

The selection of priority gateway projects was made to prioritize the most visible of the gateway locations identified in Figure 6.1 on page 6-7. While gateway projects can be implemented independently, the development of gateways concurrent with other roadway and streetscape projects will provide the most cohesive design and is recommended.

Table 7.12 – Priority Gateway Projects Summary & Cost Estimates*

Location	Estimate of Probable Cost[†]
Belt Line Road/FM-1382	\$155,000
US-67 between Joe Wilson Road and Wintergreen Road	\$210,000
US-67 from FM-1382 to Belt Line Road	\$3,500,000
FM-1382 at City Limits	\$110,000
Mansfield Road at City Limits	\$110,000

*See Table 6.1 on page 6-56 for additional information.

[†]Cost estimates were prepared utilizing standard cost estimate practices and exclude “soft” costs such as design and administrative costs, financing costs, construction management, surveying, geotechnical investigations, and construction materials testing. Cost estimates exclude engineering associated components (e.g. road paving surfaces, curbs, ramps, typical sidewalks, light poles and fixtures, traffic signage, traffic lights, striping, etc.) and assume water and service taps are available and accessible.

7.3

PARK LAND DEDICATION ORDINANCE REVISION

Acquiring land for parks and trails at the same pace as development and growth is one of the most critical tasks for the City. In order to acquire an adequate amount of land, it is important for the City to have a Park Land Dedication Ordinance that requires development to proportionately share the burden of meeting the needs of a growing community.

Recent research published by Dr. John L. Crompton of Texas A&M University¹ examines the constitutionality and viability of park land dedication ordinances across the State. Crompton suggests ordinances be calculated based on the true costs of land and park development. This approach ensures the specific requirements of an ordinance are proportionate to the impact of new development. The recommended method for revising Cedar Hill's ordinance is based on this research and is detailed in Appendix F.

Table 7.13 compares the conveyance requirements and fees of the current Park Land Dedication Ordinance with an example calculation resulting from the proposed methodology (see Appendix F). This table also demonstrates the results if the same example calculation is discounted by 64% (resulting in 36% of the original calculated results). This discounted allowance is comparable to those established for Cedar Hill's Water, Wastewater, and Roadway Impact Fees.

Although variables exist in this method, the calculation will always result in fees that are substantially greater than the current Park Land Dedication Ordinance fees. This is because these calculations result in fees based on the true cost to acquire land and develop new neighborhood and community parks to maintain current levels of service. Additional population growth requires the provision of additional park land. If fees are not increased to reflect the true cost of land and development, existing taxpayers will need to fund the majority of the costs associated with park development that is necessitated by new residents.

Historically, cities have established park dedication fees as an arbitrary value to prevent them from being challenged. This was a common practice when the economy was vibrant and growth was prevalent throughout many geographic areas. The downturn in the economy has allowed cities to realize the need for finding alternate methods of funding growth including revisiting existing park dedication fees. Table 7.14 describes the park dedication requirements of several cities in the Dallas-Fort Worth Metroplex.

1 Crompton, John L. Parkland Dedication Ordinances in Texas: A Missed Opportunity? Rep. no. E-233. Texas A&M University: AgriLife Extension, 2010.

Table 7.13 – Comparison of Park Land Dedication Ordinance Calculations

	Existing	Example Calculation	36% of the Example Calculation
Conveyance of Land	1 acre/133 dwelling units*	1 acre/37.2 dwelling units	1 acre/37.2 dwelling units
Payment in Lieu of Land	\$250/dwelling unit	\$1,613/dwelling unit*	\$581/dwelling unit*
Park Development Fee	\$250/dwelling unit	\$4,468/dwelling unit**	\$1,608/dwelling unit**
Floodplain Dedication Ratio	1:1	1:2 [†]	1:2 [†]
Maximum Floodplain Dedication	Max. 50% of dedication may be in-floodplain; at least 5 acres must be out-of-floodplain	(no change)	(no change)
Minimum Dedication	5 acres	(no change)	(no change)

*Land costs can range from \$20,000 to over \$100,000 per acre. An average cost of \$60,000 per acre is used in these calculations.

**For single-family and multi-family development.

[†]2 in-floodplain acres equal 1 out-of-floodplain acre.

Table 7.14 – Park Land Dedication Ordinance Requirements of Other Metroplex Cities

	Conveyance of Land	Payment in Lieu of Land	Park Development Fee	Non-Residential Park Improvement Fee
Colleyville	1 acre/25 DU	\$1,802/DU	n/a	\$800 / acre
Flower Mound	1 acre/25 DU	Market value	\$790 / DU	\$1,000 / acre
Grapevine	1 acre/145 DU	\$1,416/DU	n/a	n/a
Highland Village	TBD	\$2,160/DU	\$1,025-\$1,447 / DU*	n/a
Lancaster	1 acre/50 DU	\$1,400/DU	n/a	n/a
Mansfield	1 acre/100 DU	\$500/DU	\$750 / DU	n/a
Rockwall	1 acre/72 DU	\$325/DU	\$202-831 / DU	
Southlake	1 acre/40 DU	Market value	n/a	n/a

*Based on level of service

7.4 **TPWD MASTER PLAN COMPLIANCE**

One of the primary purposes of this Master Plan is to serve as a parks, recreation, and open space master plan as defined by the Texas Parks and Wildlife Department (TPWD). Visioning, bikeways, and streetscapes are considered additional elements not required by TPWD, but in fact contribute tremendously to the comprehensiveness of this Master Plan.

TPWD Requirements

As of January 2008, TPWD stipulates that park master plans must cover at least a ten-year period. Plans must be updated every five years to remain eligible for grant funding (a completely new plan is required every ten years). At a minimum, updates should include a summary of accomplishments, new public input, most recent inventory data, updated needs assessment, priorities, new implementation plan, demographics, population projections, goals and objectives, standards, and maps. Priorities should be updated as implementation items are accomplished. A new resolution is not required when updating priorities; however if the City changes or revises its priorities, it must submit a new resolution adopting the new priorities.

High Priority Needs

Consistent with TPWD requirements, Table 7.15 lists the top priorities for parks, recreation, open space, and trails in Cedar Hill. These priorities have been determined based on community outreach, needs assessments, and City staff and City official input in order to provide an effective set of actions to enhance quality of life in the community for purposes of grant applications. The priorities are broken into two lists: one for outdoor facilities and one for indoor facilities.

Priorities for streetscape enhancements and on-street bikeways are excluded from this list since these types of projects are not eligible for TPWD recreational or other grants.

Table 7.15 – High Priority Parks & Recreation Needs

Outdoor Facilities	Indoor & Aquatic Facilities
1 Develop a City-wide network of multi-use trails.	1 Upgrade the Recreation Center and construct indoor aquatic expansion.
2 Acquire and preserve open space and nature areas and make them publicly accessible.	2 Completely remodel and expand the Senior Center.
3 Develop currently undeveloped neighborhood parks with playgrounds, pavilions, loop trails, and open play areas.	3 Construct a new outdoor aquatic center in a central location.
4 Acquire land for new community parks in the southeastern portion of the City.	4 Replace Crawford Park Pool with a water spray park.
5 Acquire land for new neighborhood parks in under-served areas and areas of future development.	
6 Develop additional baseball and softball game fields.	

Plan Updates

This Master Plan is a guide to be used by the City to develop and expand the existing parks, recreation, trails, and open space system for future needs over the next five to ten years. Since recreation trends and needs change over time, it is necessary to consider this Master Plan as a living document that should be updated regularly. Potential factors that might bring about the need to revise this Master Plan include:

- The population may increase more or less rapidly than projected;
- The recreation needs, wants, and priorities of the community may change; and

The implementation of certain action items may stimulate and inspire other needs. Four key areas for focus of these periodic reviews are as follows:

- **Facility Inventory** - An inventory of new facilities should be recorded as well as any significant improvements of facilities provided by the Cedar Hill ISD whenever such facilities may become available for public use.
- **Facility Use** - Facility use is a key factor in determining the need for renovation or additional facilities. Updates on league participation of sports facilities should be prepared each season with data from each association. Changes in participation of those outside the City limits as well as the citizens of Cedar Hill should be recorded.

- **Public Involvement** - As mentioned previously, this Master Plan reflects the current population and attitudes as expressed by the citizens. However, those attitudes and interests may change over time as the City changes. Periodic surveys are recommended to provide a current account of the attitudes of the citizens and additional direction from the public on issues that may arise.

Maintaining a regularly-updated Master Plan will ensure that the needs of Cedar Hill's citizens continue to be met and that the vision and goals set forth in Chapter 1 can be achieved.



APPENDICES

2012 PARKS, RECREATION, TRAILS & OPEN SPACE
VISIONING MASTER PLAN

APPENDIX A

SUMMARIZED

Focus GROUP

MEETING NOTES

Three focus group meetings were held, each catering to different user groups as follows:

- **Meeting 1: March 29, 2011** – Representatives from various government and public agencies (Best Southwest Cities, Cedar Hill State Park, Dallas County, CHISD, and the Dogwood Canyon Audubon Center).
- **Meeting 2: March 29, 2011** – Representatives from various non-profit organizations and local businesses (Northwood University, Friends of the Library, Rotary Club, Boy Scouts of America, Tourism Committee, Main Street Board, and Uptown Village)
- **Meeting 3: March 31, 2011** – Representatives from special interest groups (Senior Center, Homeowners Associations, and Sports Associations).

The results of the discussions are as follows.

Meeting 1 Results (Government / Public Agencies)

What issues and goals are shared between your organization and the City?

- Coordinated event planning and programming between the Best Southwest Cities.
- Have the facility capacity to attract tournaments that will drive tourism.
- Provide trail connectivity between cities and with the State Park.
- Have local indoor aquatics.
- To protect natural and cultural resources.
- To get kids and families outdoors and to have family programming.

How can we improve upon existing partnerships between your organization and the City?

- Joint efforts to construct and maintain multi-use trails.
- Coordinate efforts to manage and preserve open space and wildlife habitat.
- Expand environmental education programs and make them more accessible.
- Work together to attract more environmental tourism to the area.

What strategies or partnerships can we adopt to address our common issues and achieve our common goals?

- Work together with the State Park, USACE, and other cities to develop a multi-use trail around Joe Pool Lake.
- Tie together the streetscape systems of each city through tree planting programs, the use of native and drought-tolerant plants, etc.
- Construct a dog park as a joint venture between the Best Southwest cities.
- Consider joint funding and project coordination for gateways and landmarks at the City limits and major destinations (such as the State Park and the Audobon Center).
- Find ways to ensure that new schools are true “neighborhood schools” by integrating them into residential areas.

Meeting 2 Results (Non-Profit and Local Businesses)

What partnerships exist between the business and nonprofit community and the City?

- The Cedar Hill Bike Rally.
- Friends of the Library.
- Country Day on the Hill.
- Historic preservation.
- Walkability/bikeability (Downtown and Uptown Village).
- Attracting tourism.
- Build the City’s image and atmosphere.

Which existing partnerships can we improve upon and how?

- Improve connectivity and accessibility for bicycles and pedestrians.
- Develop additional gateway signage to signify entry into Cedar Hill to enhance tourism efforts.
- Become a more prominent outdoor destination for activities such as cycling.
- Improve people’s access to transportation, cultural activities, sports, performing arts, etc.
- Share information regarding Cedar Hill’s demographics and life-style characteristics.
- Encourage additional displays of public art throughout the City.

What are opportunities for future partnerships to enhance quality of life and make Cedar Hill a better place to live, work and play?

- Develop trails of city-wide importance through Northwood University and a trailhead at their entrance on FM 1382.
- Connect historic properties/areas by trails.
- Provide small venues (for visual or performing arts) that will help establish an arts and entertainment culture in Cedar Hill.
- Attract a sports event facility (i.e., minor league baseball) to attract tourism and promote Northwood University's athletics program.

Meeting 3 Results (Special Interest Groups)

What outcomes do you aspire for the group that you represent?

- The trails along Lakeridge Parkway completed, connected, and family-friendly.
- Enhance beautification and develop a sense of community togetherness.
- Maximize the use of the City's land and resources, partially by clustering compatible recreation facilities and increasing the variety of amenities offered.
- Neighborhoods should be linked via trails.
- Parks on the east side should have the same level of quality as those on the west side.
- Trails that are safe, connected, and have wayfinding aids.

How can the City and/or this Master Plan help you achieve your goals?

- Build a new, larger senior center to allow more senior activities.
- Provide an aquatic center that allows water aerobics (located with the Senior Center or elsewhere in the City).
- Improve the appearance of US-67 by screening unsightly buildings.
- Develop great facilities and use them to show that Cedar Hill is a great place.
- Have enough sport fields to host additional tournaments (soccer specifically).
- Develop neighborhood parks along the Cedar Trails Greenbelt
- Require non-residents to pay higher user fees for facility use.

- Four to eight lighted tennis courts (eight courts desirable to allow league play).
- Provide more multi-use nature trails that accommodate hiking and equestrian use.

What future partnerships or opportunities exist to improve the experience of the end user?

- Create a large community park on the east side of town.
- Enhance Virginia Weaver Park with adequate restrooms that are large enough to change in.
- Create a fishing area with deep water and charge user fees.
- Make the State Park accessible to Cedar Hill citizens by charging lower fees and improving the number and location of entrances.
- Provide a place for gymnastics.
- Explore the use of the ISD sport fields if Parkerville Park goes away.

APPENDIX B

TELEPHONE SURVEY

CUMULATIVE RESULTS

Raymond Turco & Associates conducted the City's 2011 Parks and Recreation Needs Assessment Survey, which is a key component of the development of this Master Plan. This public opinion poll captured attitudes on parks, recreation, open space, trails, and streetscapes in the community from respondents randomly selected from phone-matched households. The full sample of 328 respondents was interviewed with a comprehensive questionnaire that collected attitudinal data on a variety of recreational issues including frequency of participating in various activities as well as whether or not certain ones should be provided or expanded, the need for constructing various amenities and satisfaction with recreational characteristics. Questions also sought to gauge support for a potential indoor aquatic expansion to the Recreation Center, as well as features to include if a facility was constructed. A portion of the survey addressed ideas about potential City actions and gathered general opinions in terms of agreement or disagreement. Several questions were duplicated from previous surveys implemented by Raymond Turco & Associates for prior master plan updates (1998 and 2005) in order to compare findings over a prolonged period of time.

The information gathered in this survey will allow City Council members, City staff, and concerned individuals to better understand how Cedar Hill residents view the issues surrounding these subjects. It will also provide citizen input into the on-going planning process for parks, recreation, open space, trails, and streetscapes.

It is important to understand that a survey is an attitudinal "snap-shot" of the community during the time of the survey and has not been influenced by either positive or negative publicity. The telephone survey included the responses of 328 individuals, which equates to an overall error rate of +/- 5.6%, at a 95% confidence level.

The following pages include the cumulative results of the telephone survey. These pages illustrate each question and how it was asked, as well as the overall response to each question. In addition to the cumulative results, a detailed report that includes analyses of each question was prepared and provided to the City.

2011 CEDAR HILL PARKS AND RECREATION NEEDS ASSESSMENT SURVEY CUMULATIVE RESULTS

PROJECT 02102011

RAYMOND TURCO & ASSOCIATES

MAY 2011

MY NAME IS _____ AND I'M WITH RAYMAR RESEARCH. WE ARE NOT A DIRECT MARKETING FIRM AND THIS IS NOT A SALES CALL. OUR FIRM IS CONDUCTING A SURVEY ON PARKS AND RECREATION IN YOUR COMMUNITY. MY QUESTIONS SHOULD ONLY TAKE ABOUT 10 MINUTES, AND YOUR RESPONSES WILL BE CONFIDENTIAL. WOULD YOU CARE TO PARTICIPATE?

AREA	(HWY 67 E; BELTLINE RD S) (NORTH OF 1382) (HWY 67 W; S ON 1382)	AREA I	39%
DATE	SHEET NO.	AREA II	38%
SEX		AREA III	23%
		MALE	48%
		FEMALE	52%

1. HOW SATISFIED OR DISSATISFIED ARE YOU WITH THE QUALITY OF PARKS AND RECREATION HERE?

VERY SATISFIED	24%
SATISFIED	60%
DISSATISFIED	9%
VERY DISSATISFIED	1%
NO OPINION	6%

2. AND HOW LONG HAVE YOU LIVED AT YOUR PRESENT LOCATION?

UNDER 1 YEAR	3%
1 - 4 YEARS	20%
5 - 7 YEARS	16%
8 - 10 YEARS	17%
OVER 10 YEARS	44%

3. HOW FREQUENTLY DO YOU OR ANY MEMBER OF YOUR HOUSEHOLD PARTICIPATE IN THE FOLLOWING ACTIVITIES

	A	O	S	N	NO
A) INDOOR FITNESS/EXERCISE LIKE RUNNING, WALKING, ZUMBA, YOGA ETC.	21%	36%	23%	20%	0%
B) TEAM SPORTS, LIKE BASEBALL, SOCCER ETC.	10%	13%	14%	63%	0%
C) INDIVIDUAL SPORTS LIKE TENNIS, BOXING, ETC	3%	11%	11%	75%	0%
D) FINE ARTS OR CRAFTS LIKE PAINTING, DRAWING, POTTERY, WEAVING, ETC	5%	17%	19%	59%	0%
E) PERFORMING ARTS LIKE MUSIC, DRAMA ETC.	9%	22%	20%	48%	1%
F) EXCURSIONS, LIKE TOURS, TRIPS THAT INCLUDE OVERNIGHT STAY	9%	34%	25%	31%	1%
G) OUTDOOR RECREATION LIKE CAMPING, FISHING, BOATING ETC.	8%	23%	33%	35%	1%
H) SOCIAL ACTIVITIES LIKE DANCES, COOKING, CARD PLAYING ETC.	10%	32%	27%	31%	0%
I) OUTDOOR AQUATICS LIKE SWIMMING OR SPRAY PARKS	7%	27%	26%	40%	0%
J) INDOOR AQUATICS LIKE WATER AEROBICS OR LAP SWIMMING	3%	11%	19%	67%	1%

	A	O	S	N	NO
K) EXTREME SPORTS LIKE BMX, SKATEBOARDING, RAPELLING, ETC.	0%	4%	6%	89%	1%
L) TRAIL AND CYCLING ACTIVITIES LIKE WALKING, BICYCLING, JOGGING, ETC.	13%	48%	19%	20%	0%
M) FAMILY EVENTS LIKE PICNICS, GET-TOGETHERS	14%	45%	27%	13%	0%
N) NATURE EXPERIENCES/OBSERVATION/BIRD AND WILDLIFE WATCHING	6%	20%	27%	46%	1%
O) INDOOR ROCK OR WALL CLIMBING	1%	3%	14%	81%	1%

4. WHAT ONE RECREATIONAL FACILITY WOULD YOU SAY CEDAR HILL IS LACKING?
 Indoor pool/natatorium/indoor aquatic center (36%), Outdoor pool/pool/outdoor aquatic center/water park (20%), Trails/bike lanes on roads (11%) . . .

	YES	NO	DON'T REM
A) VISITED OR USED A CITY PARK OR PARK FACILITY	85%	15%	0%
B) VISITED OR PARTICIPATED IN SENIOR ACTIVITIES AT THE COMMUNITY SENIOR CENTER	10%	90%	0%
C) PARTICIPATED IN A YOUTH ATHLETIC LEAGUE ON A CEDAR HILL FIELD	24%	76%	0%
D) PARTICIPATED IN AN ADULT ATHLETIC LEAGUE ON A CEDAR HILL FIELD	6%	94%	0%
E) PARTICIPATED IN ANY OTHER CLASS OR PROGRAM OFFERED BY CEDAR HILL PARKS & RECREATION DEPT.	22%	78%	0%
F) VISITED OR USED THE DISC GOLF COURSE	13%	87%	0%
G) VISITED OR USED THE CITY'S CRAWFORD PARK POOL	29%	71%	0%
H) VISITED OR USED THE CEDAR HILL RECREATION CENTER	66%	34%	0%
J) VISITED THE STATE PARK AT JOE POOL LAKE	69%	31%	0%
K) VISITED ANY OF THE NATURE PRESERVES IN CEDAR HILL	37%	62%	1%
L) WATCHED A CONCERT OR EVENT AT THE CITY'S AMPHITHEATER/PAVILION	29%	71%	0%

6. THE UPDATED MASTER PLAN WOULD MAKE RECOMMENDATIONS FOR ATHLETIC FACILITIES AS WELL AS ITEMS THAT ALLOW ONE TO ENJOY PARKS WITHOUT BEING ATHLETIC. LET'S FIRST TALK ABOUT OUTDOOR COMPETITIVE SPORTS FACILITIES. PLEASE TELL ME HOW IMPORTANT OR UNIMPORTANT YOU THINK IT WOULD BE TO EITHER BUILD OR CONSTRUCT ADDITIONAL FACILITIES OF THE FOLLOWING TYPES IN CEDAR HILL?

	VI	I	U	VIU	NO
A-01) ADULT SOFTBALL FIELDS	6%	36%	41%	12%	4%
B-02) YOUTH BASEBALL FIELDS	16%	46%	27%	7%	3%
C-03) YOUTH SOFTBALL FIELDS	16%	47%	27%	6%	4%
D-04) YOUTH SOCCER FIELDS	19%	45%	26%	6%	3%
E-05) ADULT SOCCER FIELDS	7%	34%	46%	9%	5%
F-06) TENNIS COURTS	14%	49%	30%	4%	3%
G-07) YOUTH FOOTBALL FIELDS	16%	45%	27%	7%	5%
H-08) ADULT FLAG FOOTBALL FIELDS	6%	26%	54%	10%	5%
I-09) ADULT KICKBALL FIELDS	3%	22%	59%	10%	6%
J-10) OUTDOOR BASKETBALL COURTS	21%	47%	23%	5%	4%
K-11) IN-LINE SKATING RINK	12%	39%	36%	7%	6%
L-12) SKATE PARK	11%	46%	34%	5%	5%
M-13) BMX PARK	10%	32%	43%	8%	7%
N-14) CRICKET FIELD	1%	13%	62%	17%	6%
O-15) SQUASH FIELD	1%	12%	61%	17%	9%
P-16) LACROSSE FIELD	2%	19%	57%	15%	7%
Q-17) RACQUETBALL OR HANDBALL COURTS	10%	46%	31%	8%	4%
R-18) SAND VOLLEYBALL COURTS	11%	52%	26%	6%	5%

7. THESE NEXT ITEMS FOCUS ON FACILITIES THAT ADDRESS NON-COMPETITIVE RECREATION ACTIVITIES THAT ARE TYPICALLY ENJOYED OUTDOORS. AGAIN, PLEASE TELL ME HOW IMPORTANT OR UNIMPORTANT YOU THINK IT WOULD BE TO EITHER BUILD OR CONSTRUCT ADDITIONAL IN CEDAR HILL?

	VI	I	U	VU	NO
A-19) HORSESHOE PITS	5%	31%	47%	14%	2%
B-20) DISC GOLF COURSE	5%	30%	48%	13%	5%
C-21) MULTI-USE TRAILS FOR WALKING/JOGGING	40%	47%	9%	3%	2%
D-22) MOUNTAIN BIKING TRAILS	21%	48%	23%	5%	3%
E-23) EVENT PICNIC/REUNION PAVILIONS	28%	56%	11%	3%	2%
F-24) PLAYGROUNDS	32%	49%	15%	3%	2%
G-25) FAMILY PICNIC AREAS	33%	51%	12%	3%	2%
H-26) LAKE ACCESS	30%	51%	13%	3%	2%
I-27) NATURAL HABITAT/NATURE AREAS	27%	47%	19%	4%	3%
J-28) BIRD WATCHING FACILITY	11%	39%	38%	9%	3%
K-29) EQUESTRIAN TRAILS	8%	35%	46%	7%	4%
L-30) EXERCISE STATIONS ALONG TRAILS	19%	48%	24%	5%	4%
M-31) OUTDOOR FESTIVAL AREA	20%	54%	19%	4%	3%
N-32) A DOG PARK	20%	44%	27%	5%	3%
O-33) INDOOR POOL	35%	44%	16%	3%	2%
P-34) OUTDOOR POOL	17%	47%	29%	5%	2%
Q-35) A CHILDREN'S WATER SPRAY PARK	23%	48%	21%	4%	3%
R-36) SCENIC OVERLOOK	16%	50%	26%	5%	4%

8. NOW I WOULD LIKE TO READ YOU THE ENTIRE LIST OF INDOOR AND OUTDOOR RECREATION ITEMS. THIS TIME, PLEASE TELL ME (01-36) WHAT YOU WOULD YOU CONSIDER TO BE THE MOST IMPORTANT RECREATIONAL FACILITY TO CONSTRUCT?
Indoor pool (30%), Multi-use trails for walking/jogging (13%), A children's water spray park (10%), . . .

9. PLEASE TELL ME HOW STRONGLY YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS . . .

	SA	A	D	SD	NO
A) THE ESCARPMENT (THE HILLY AREA ON THE WEST SIDE OF THE CITY) IS VERY VALUABLE FEATURE OF CEDAR HILL AND NEEDS TO BE PROTECTED	53%	34%	4%	1%	7%
B) I WOULD SUPPORT EVENTS AND ACTIVITIES THAT WOULD ENCOURAGE ADDITIONAL TOURISM TO THE AREA	32%	56%	9%	1%	2%
C) ANY INCREASE IN PROGRAMMING SHOULD BE FUNDED THROUGH CITY TAXES	10%	54%	24%	7%	5%
D) PROGRAMS THAT SERVE A GREATER PUBLIC GOOD (LEARN TO SWIM, ETC) SHOULD BE OFFERED TO ALL RESIDENTS AT NO CHARGE	23%	40%	33%	3%	1%
E) THE MONEY I PAY (AS TAXES OR FEES) COMPARED TO THE PARKS AND RECREATION PROGRAMS THAT THE CITY PROVIDES IS A GOOD VALUE	16%	62%	13%	2%	7%
F) I RECEIVED A PARKS AND RECREATION ACTIVITIES PUBLICATION THIS SPRING CONTAINING A LISTING OF ALL THE CITY'S SUMMER PROGRAM OPPORTUNITIES	16%	57%	16%	4%	7%
G) I AM SATISFIED WITH HOW STREETS AND INTERSECTIONS ARE LANDSCAPED IN CEDAR HILL	10%	64%	18%	8%	0%
H) I BELIEVE THE CITY SHOULD PLANT MORE TREES AND LANDSCAPING ALONG STREETS AND INTERSECTIONS	17%	45%	33%	3%	2%

	SA	A	D	SD	NO
I) I WOULD SUPPORT THE CITY DEVELOPING LOCATIONS WHERE RESIDENTS COULD ACCESS CREEK AREAS	14%	55%	24%	2%	5%
J) I SUPPORT THE CITY ENHANCING ITS "GATEWAYS TO THE CITY" SO THAT PEOPLE KNOW THEY ARE COMING INTO CEDAR HILL	21%	64%	13%	2%	1%
K) THE CITY SHOULD CREATE A PROGRAM THAT ENCOURAGES ENVIRONMENTAL TOURISM	15%	64%	15%	2%	5%
L) I AM SATISFIED WITH THE RECREATIONAL FACILITIES IN CEDAR HILL	7%	69%	20%	2%	3%
M) I HAVE ADEQUATE AVENUES TO VOICE MY OPINIONS AND CONCERNs ABOUT PARKS & RECREATION	12%	69%	13%	2%	4%
N) NATURAL AREAS ARE IMPORTANT AND SHOULD BE PRESERVED WHERE IT IS AVAILABLE	28%	69%	2%	0%	1%

10. THE CITY IS ESTABLISHING A SERIES OF PRIORITIES TO DIRECT FUTURE PARK DEPARTMENT ACTIONS. PLEASE TELL ME HOW STRONGLY YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS: I THINK CEDAR HILL SHOULD . . .

	VI	I	U	VU	NO
A) ACQUIRE LAND FOR FUTURE PARK AND OPEN SPACE DEVELOPMENT	27%	51%	12%	3%	7%
B) EXPAND THE CITY'S TRAIL SYSTEM	26%	52%	14%	2%	6%
C) ACQUIRE LAND TO PRESERVE THE HILLS ALSO CALLED THE ESCARPMENT IN CEDAR HILL	25%	52%	13%	2%	8%
D) ACQUIRE LAND TO PRESERVE ENVIRONMENTALLY SENSITIVE AREAS SUCH AS NATURAL CREEK CORRIDORS	21%	59%	13%	1%	5%
E) PURCHASE LAND FOR A LARGE PARK SIMILAR SIMILAR TO VALLEY RIDGE PARK	16%	42%	24%	4%	14%
F) CONSTRUCT AN INDOOR AQUATIC CENTER	25%	49%	18%	5%	3%
G) INCREASE THE AMOUNT OF PUBLIC OPEN SPACE	12%	58%	21%	2%	7%
H) RENOVATE AND EXPAND ITS EXISTING PARKS	15%	67%	13%	2%	4%
I) MEET THE NEEDS OF NEW RESIDENTS IN TERMS OF PARK AND RECREATION LANDS, FACILITIES, PROGRAMS, AND SERVICES	16%	65%	12%	2%	4%

11. THE CITY IS STUDYING THE NEED FOR CONSTRUCTING ADDITIONAL PARK FACILITIES. HOW STRONGLY WOULD YOU SUPPORT OR OPPOSE THE FOLLOWING BEING CONSTRUCTED OR FINANCED . . .

	SS	S	O	SO	NO
A) A CITY-WIDE HIKE AND BIKE TRAIL SYSTEM	29%	48%	16%	4%	2%
B) AN INDOOR WATER FACILITY, WITH POOLS AND WATER SLIDES	33%	46%	13%	6%	1%
C) SMALL NEIGHBORHOOD PARKS	19%	62%	16%	2%	1%
D) THE PURCHASE OF LAND TO PRESERVE NATURAL HABITAT ESPECIALLY ALONG THE ESCARPMENT	25%	53%	13%	3%	6%
E) "LINEAR PARKS" THAT RUN ALONG CREEKS OR STREAMS, HELP PRESERVE FLOOD PLAINS OR OTHER NATURAL AREAS, AND PROVIDE ROOM FOR TRAILS	22%	60%	11%	3%	4%
F) A SCENIC OVERLOOK ALONG THE ESCARPMENT	19%	52%	20%	4%	5%
G) THE PURCHASE OF ADDITIONAL LAND FOR FUTURE PARKS OR OPEN SPACE	15%	57%	20%	3%	5%

12. NOW LET'S TALK ABOUT AQUATICS. ONE AREA THE CITY IS STUDYING IS HOW TO ADDRESS THE OUTDOOR POOL AT CRAWFORD PARK. LET ME READ YOU THREE OPTIONS. PLEASE TELL ME HOW STRONGLY YOU WOULD SUPPORT OR OPPOSE THE CITY DOING THE FOLLOWING . . .

	SS	S	O	SO	NO
A) KEEP THE POOL AS IT IS	7%	37%	24%	13%	20%
B) REVAMP AND MODERNIZE THE POOL TO BETTER MEET THE NEEDS OF RESIDENTS	34%	35%	10%	2%	18%
C) DO AWAY WITH THE POOL	3%	3%	49%	27%	18%

13. NOW PLEASE TELL ME HOW STRONGLY YOU WOULD SUPPORT OR OPPOSE THE CITY CONSTRUCTING AN INDOOR AQUATIC CENTER THAT WOULD CONTAIN BOTH ADULT AND YOUTH AQUATIC FEATURES, AS AN ADD-ON TO CEDAR HILL'S EXISTING RECREATION CENTER?

STRONGLY SUPPORT . . .	55%
SUPPORT	26%
OPPOSE	10%
STRONGLY OPPOSE . . .	7%
NO OPINION	2%

14. HOW STRONGLY WOULD YOU SUPPORT OR OPPOSE THE FOLLOWING INDOOR AQUATIC FEATURES BEING INCLUDED IN AN AQUATIC CENTER . . .

	SS	S	O	SO	NO
A) WATER EXERCISE AREA	44%	40%	9%	5%	2%
B) DIVING AREA	24%	47%	20%	5%	4%
C) ZERO-DEPTH ENTRY POOL (SLOPES LIKE A BEACH)	29%	45%	16%	4%	7%
D) FAMILY CHANGING ROOMS	33%	48%	11%	4%	4%
E) WATER SLIDES	27%	48%	14%	6%	4%
F) SAUNA	22%	44%	24%	5%	5%
G) FITNESS/LAP LANE POOL	29%	53%	10%	4%	3%
H) SMALL LAZY RIVER OR CURRENT CHANNEL	21%	39%	27%	5%	7%
I) CHILDREN'S PLAY FEATURES/WATER PLAY AREAS	31%	52%	9%	4%	3%
J) WHIRLPOOL	23%	39%	26%	5%	6%

15. LET'S TALK ABOUT TRAILS. HOW STRONGLY DO YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS: "TRAILS SHOULD BE DEVELOPED . . ." (ALL BUT #M AND #N)

	SA	A	D	SD	NO
A) ALONG GREENBELTS, CREEKS AND DRAINAGE WAYS	22%	46%	20%	6%	6%
B) ALONG UTILITY RIGHT OF WAY CORRIDORS	11%	39%	34%	5%	12%
C) NEAR NEIGHBORHOODS	17%	59%	16%	4%	4%
D) ALONG RAILROAD CORRIDORS	5%	24%	56%	11%	5%
E) ALONG MAJOR ROADS	4%	29%	53%	12%	2%
F) CLOSE TO WHERE I LIVE	16%	53%	23%	5%	4%
G) IN OR NEAR SCENIC AREAS	23%	65%	9%	2%	1%
H) SO AS TO CONNECT TO SCHOOLS	12%	49%	33%	4%	3%
I) SO AS TO CONNECT TO HISTORIC DOWNTOWN	16%	61%	20%	2%	2%
J) SO AS TO CONNECT TO UPTOWN VILLAGE	13%	55%	27%	2%	2%
K) SO AS TO CONNECT TO OTHER RETAIL CENTERS SCENIC AREAS	9%	55%	33%	2%	2%
L) SO AS TO CONNECT TO NEIGHBORING CITIES	7%	45%	41%	2%	4%
M) THE CITY SHOULD HAVE ON-STREET BIKE ROUTES ON SOME ROADWAYS	16%	57%	22%	3%	2%
N) IF CEDAR HILL HAD TRAILS AND BIKE ROUTES CONNECTING THROUGHOUT THE CITY, I WOULD CONSIDER USING THEM INSTEAD OF DRIVING	16%	44%	31%	5%	4%

16. PLEASE TELL ME HOW STRONGLY YOU AGREE OR DISAGREE WITH THE FOLLOWING STATEMENTS . . .

	SA	A	D	SD	NO
A) PROGRAMS THAT OFFER EXCLUSIVE USE OF FACILITIES SHOULD CHARGE FEES TO BE SELF-SUFFICIENT	20%	57%	15%	4%	4%
B) THE DECISION TO USE TAX FUNDING OR USER FEES FOR OPERATING FACILITIES, PROGRAMS AND SERVICES SHOULD DEPEND ON THE PUBLIC BENEFIT DERIVED	14%	70%	7%	2%	7%
C) I AM WILLING TO PAY ADDITIONAL CITY TAXES TO SEE THE QUALITY OF PARKS UPGRADED	10%	50%	29%	7%	5%
D) THE EXISTING PARK SYSTEM IS ADEQUATE	4%	54%	37%	2%	2%
E) THE CITY SHOULD IMPROVE THE EXISTING PARKS AND NOT DEVELOP OR ADD ANY NEW ONES	5%	40%	47%	2%	6%
E) THE CITY SHOULD PURCHASE LAND NOW WHILE LAND COSTS ARE LOWER	13%	59%	14%	2%	11%

17. WHAT DO YOU GENERALLY DO WHEN YOU GO TO A CITY PARK? IF YOU DON'T GENERALLY GO TO PARKS, PLEASE TELL ME THAT ALSO. (CIRCLE ALL THAT APPLY)

TAKE KIDS TO PLAY . . .	61%	PARTICIPATE IN ORGANIZED SPORTS . . .	32%
PICNIC . . .	60%	PARTICIPATE IN NONORGANIZED SPORTS . . .	39%
WALK, HIKE OR JOG . . .	80%	APPRECIATE THE VIEW . . .	81%
BIKE . . .	39%	ATTEND SPECIAL EVENT/PROGRAM . . .	56%
WALK PETS . . .	44%	DON'T GO TO PARKS . . .	6%
FISHING . . .	32%	BOATING . . .	22%
OTHER			5%

18. THESE LAST FEW QUESTIONS ARE JUST FOR CLASSIFICATION PURPOSES. HOW FREQUENTLY DO YOU VOTE IN CITY-RELATED ELECTIONS, LIKE CITY COUNCIL OR CITY BOND ELECTIONS?

ALWAYS	45%
OFTEN	31%
SELDOM	14%
NEVER	9%
NO OPINION	1%

19. WHICH OF THE FOLLOWING AGE GROUPS DO YOU FALL UNDER?

25 YEARS OR UNDER	2%
26 - 35 YEARS	9%
36 - 45 YEARS	20%
46 - 55 YEARS	32%
56 - 65 YEARS	20%
OVER 65 YEARS	15%
REFUSED TO ANSWER	1%

20. DO YOU BELONG TO AN ATHLETIC ASSOCIATION IN THE CITY OF CEDAR HILL?

YES	13%
NO	87%

21. AND FINALLY, PLEASE TELL ME IF YOU HAVE CHILDREN AGE 18 OR UNDER AT HOME? (IF YES: IN WHICH OF THE FOLLOWING GROUPS DO THEY COME UNDER?)

NO CHILDREN	48%
UNDER 6	12%
6 - 12	20%
13 - 18	19%
REFUSE TO ANSWER	1%

(CIRCLE ALL THAT APPLY)

THAT'S THE END OF OUR SURVEY BUT COULD I CHECK TO SEE IF I DIALED THE
CORRECT NUMBER. I DIALED . AND COULD I HAVE YOUR FIRST NAME,
ONLY IN CASE MY SUPERVISOR HAS TO VERIFY THIS
INTERVIEW? . THANK YOU AND HAVE A NICE EVENING.

CALLER INT.

SURVEY LENGTH

APPENDIX C

LEAGUE RFI

RESPONSES

Table A.1 – Summarized Sports Organization RFI Responses

Name	Cedar Hill Tennis Association	Cedar Hill Baseball Association
Contact Info	David Boatwright 972-291-5550; 972-979-4178; chten-nisa@hotmail.com	John Hurst 214-789-4639 john.hurst67@sbcglobal.net
Current Number of Members/ Participants	Current Membership: 55 Annual Participation in Leagues: 95; Tournaments: 75; Open Tennis: 175	Recreation: 452 players Select: 208 players Total: 660
Current Number of Groups/ Teams		Recreation: 35 teams Select: 16 teams Total: 51 teams
How many participants are from Cedar Hill? Other?	Cedar Hill: 47 Other Cities: 8	Recreation Cedar Hill: 263 Other Cities: 189 Select Cedar Hill: 125-135 Other: 45-55
5-10 Year Growth Projection	5% per year	3 to 5% per year
What is your need to meet future requirements?	An 8+ court lighted facility	Keep all current facilities Additional fields in the future to match growth projections (currently at 60% capacity for practice and game fields)
What city and non-city facilities do you currently use?	Crawford Park (2 lighted courts) Bessie Coleman Middle School (4 lighted courts) 9th Grade Center (6 unlighted courts)	<u>Practice</u> Spring: Dot Thomas Park, Community Center Park, Parkerville Park. Fall: Valley Ridge Park Baseball Fields and sometimes Softball Fields <u>Games</u> Valley Ridge Park Baseball Fields and sometimes Softball Fields
Are the current facilities you use adequate? If not, why and what should be done to correct it?	No - current facilities do not provide lighting and capacity to hold full membership activities and limit growth.	Yes, but practice fields need renovation and there is a lack of shade at Valley Ridge Park. The association has \$60,000 saved to put toward shade structures over bleachers.
When does each season begin and end?	Spring season: April to May Summer season: June to July Fall season: September to November Open Tennis: year round	Recreation: Mid to late February to June Select: January to July
How does your organization fit into a regional context in terms of facilities used within Cedar Hill?	CHTA has not held any regional functions due to limited court capacity.	Numerous state/national level tournaments. Third year hosting the USSSA "A" World Series. Tournaments bring visitors from across the state/nation that stay in Cedar Hill hotels and dine and shop in the city.

Cedar Hill Youth Football and Cheerleading Association	Cedar Hill Girls Softball Association	Cedar Hill Soccer Association
James Charles 972-670-3468	Dean Jarvis 972-880-0088	Larry Kennard (972) 804-2647; (972) 291-5633 cedarhillsoccer.org
575	unknown (registration still open at the time the RFI was submitted)	Spring: 620 Fall: 670
	unknown (registration still open at the time the RFI was submitted)	Spring: 51 Fall: 54 (3 select teams)
Cedar Hill: 546 Glenn Heights and Ovilla: 29	unknown (registration still open at the time the RFI was submitted)	Cedar Hill: 558 Duncanville, DeSoto, Midlothian, Red Oak, Grand Prairie, Dallas: 62
Continued use of the Recreation Center Lobby for registration on Saturdays.	100% increase	Grow to 1,500+ players as the City grows
Recreation Center, Valley Ridge Park Football Fields, Parkerville Park Baseball Fields	Two additional softball fields	18 additional full-sized lighted fields. Valley Ridge Park: 4 additional lighted fields with piggy-back lighting for one field. Premier full-sized field with fencing, bleachers, and custom goals for championship games.
Yes	Yes	Yes
Late April to late November	Spring: March to May Fall: September to October	Spring: Late February to May Fall: Mid August to November
For tournaments, the facilities would be the same.	We consider our facilities to be the best in our area. Tournaments have been and will be held at Valley Ridge Park.	Host five state tournaments currently and hope to add two more in the near future. Hope to bring a big club to Cedar Hill soon.

APPENDIX D

TRAIL & BIKEWAY DESIGN AND MAINTENANCE STANDARDS

Design Standards

The following set of design standards has been developed in order to ensure that Cedar Hill's trail and bikeway systems are developed with a high level of safety, quality, and comfort for trail and bikeway users. These standards are in addition to mandated national and state standards (AASHTO, ADAAG/TAS, and MUTCD). In some cases, such as when a certain component of the trail system cannot be standardized (cross-walks, for example), the following recommendations are provided as guidelines rather than standards.

Trails – Hard Surface

Design Objectives

- The alignment should follow the contours of the land and its natural drainage patterns. The trail should not appear to be carved out of the terrain.
- Trails should be gentle, curvilinear, and may include a combination of curving and straight segments. Excessively serpentine or unnecessarily winding trail alignments are not desirable and should be limited to instances where tree preservation necessitates such alignments.
- Meanders in trails should appear to have a purpose and should not be haphazard or irregular.
- Create functional and efficient trail alignments that present and preserve the natural terrain and vegetation to the greatest extent possible.
- Locate intersections at natural focal points such as scenic vistas and convenient access points.
- Where conditions apply, trails shall align with existing or future crosswalks at streets. These intersections shall incorporate handicap accessible ramps that meet the design criteria of ADAAG/TAS.

Design Standards

- a. Width & Clearance: The core trails within the City's system, which will include a mix of bicycle, pedestrian, other non-motorized transportation, and maintenance vehicles, shall be 12' in width. The minimum width of a multi-use linear trail shall be 10' to accommodate maintenance access and passing room for cyclists (if the maintenance vehicles will navigate steep grades, the minimum width shall be 12'). See Figure A.1 – Standard Hike & Bike Trail Section.

The optimum vertical clearance of obstructions over a trail is 10' or higher, which accommodates maintenance, patrol, and emergency vehicle access. All underpasses and tunnels should be a minimum of 10' in height. If vertical clearances under bridges and other structures are less than 10', the clearance shall be clearly posted with warning signage to alert approaching trail users.

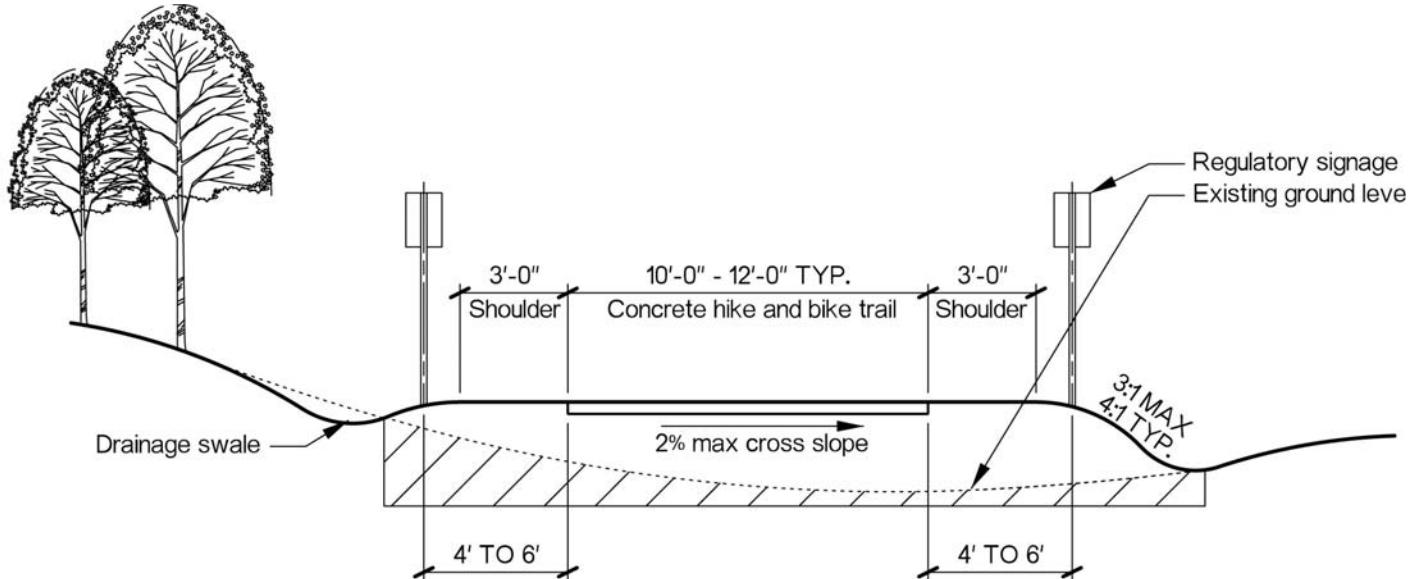


Figure A.1 – Standard Hike & Bike Trail Section

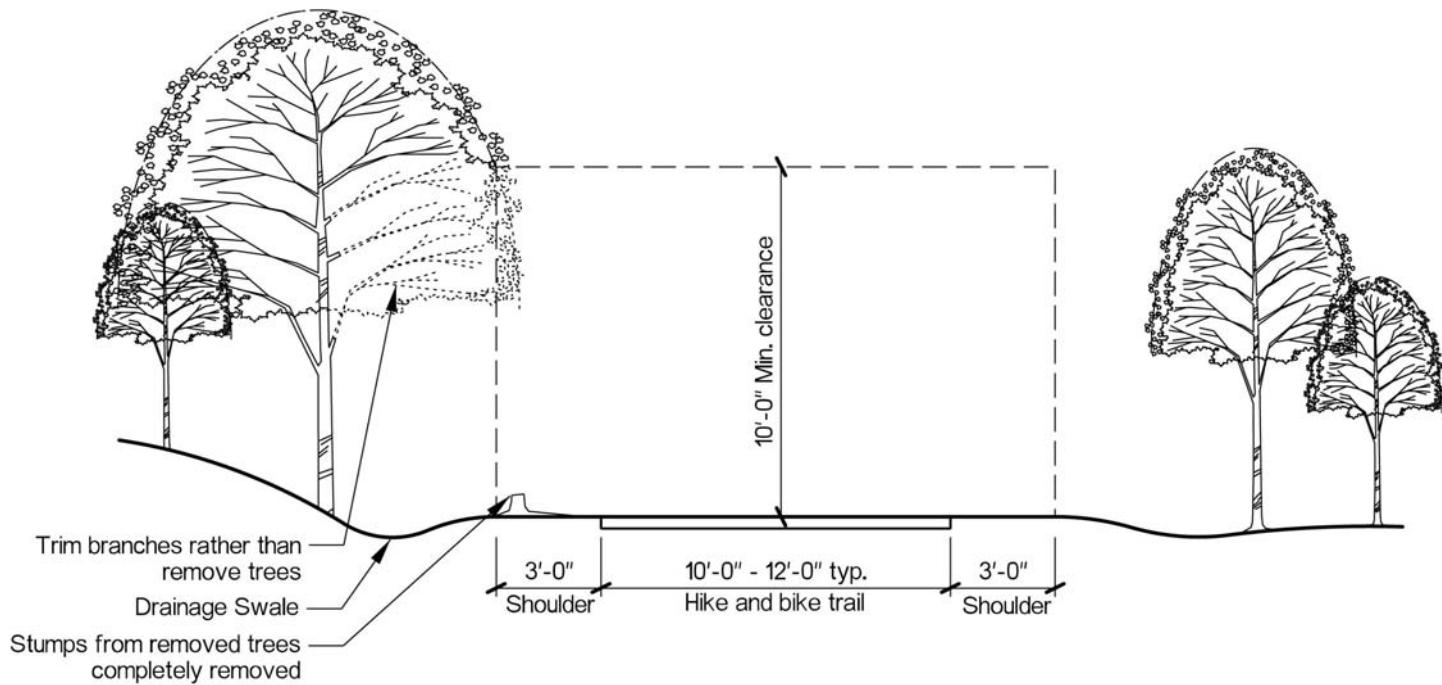


Figure A.2 – General Construction Limits

A minimum 3' wide graded soft shoulder should be constructed and maintained on both sides of the trail (in addition to any adjacent graded areas for steep inclines). Shoulders must be constructed with a constant grade (4:1 typical, 3:1 maximum). Shoulders should be clear of trees, stumps, drainage, poles, walls, fences, guardrails, and other vertical or lateral obstructions whenever possible. In instances where trees or other obstacles may encroach within this space, warning signage should be provided. A 5' lateral separation is necessary from any vertical embankment or drop-off. If this is not possible, safety railing, walls, or fencing shall be provided. All barrier material shall conform to City of Cedar Hill standards. See Figure A.2 – General Construction Limits.

- b. Design Speed: In general, a minimum design speed of 20 mph should be used when trail grades do not exceed 5%. In those instances where strong prevailing tail winds exist or trail grades may exceed 5%, a design speed of 30 mph is advisable. Speed bumps or similar surface obstructions intended to slow down cyclists would pose a trip hazard for other trail users and should never be used. In instances where it is desirable to slow the speed of cyclists, chicanes or short curves should be used (see Figure A-12 on page A-31).
- c. Alternate Routes: It is the intent of the plan to provide accessible routes linking all destinations and nodes within the city. It is at the discretion of the City to allow for the creation of alternate routes to destinations which do not meet standards established by ADAAG/TAS.
- d. Grade: Longitudinal grades on trails shall not exceed 5% except in unusual circumstances. In cases where the minimum grade must be exceeded, an alternate route must be constructed to meet ADAAG/TAS standards. The absolute maximum grade for a trail intended for bike usage is 8%.

Grades between 2% and 5% are acceptable for trails where a leveling off at the base of the incline permits adequate recovery before an intersection or other conflict point. Bridges constructed with a wood surface shall not exceed a 2% slope with the exception of the camber on pre-fabricated bridges. Concrete surfaces on bridges can exceed 2% to a maximum of 5% if the exit off of the bridge has an adequate deceleration area prior to encountering an intersection of any kind or a curve in the alignment of the trail.

- e. Horizontal Alignment & Super-Elevation: The use of super-elevated trails shall be limited to instances where they are needed in order to help alleviate drainage issues or in other special circumstances such as challenging topography. Trails shall not exceed a 2% cross-slope. The City may allow for the construction of additional and alternate routes that do not meet the standards established within ADAAG/TAS so long as the super-elevation does not exceed a 5% slope. Minimum radius varies depending on cross-slope.

When curves of lesser radii than those recommended must be used on multi-use trails because of limited right-of-way, topography, or other considerations, standard curve warning signs and supplemental pavement markings should be installed in accordance with the TMUTCD. It is advisable to widen the trail in order to increase the lateral space available to cyclists as they lean to the inside of the turn. The amount of widening should be limited to a maximum of 4'.

Cyclists frequently ride two abreast on trails. On narrow trails, cyclists have a tendency to ride near the middle of the path. For these reasons and because of the serious consequences of a head-on bicycle collisions, lateral clearances on horizontal curves should be widened through the curve, a non-skid yellow center stripe should be installed, and a “curve ahead” warning sign should be installed in accordance with the TMUTCD.

- f. Drainage: The cross-slope of areas adjacent to trails should be a minimum of 1% to provide for drainage. Trail pavement surfaces shall not exceed a cross slope of 2% in order to maintain compliance with ADAAG/TAS standards. See Figure A.1 – Standard Hike & Bike Trail Section.

Sloping in one direction instead of crowning is preferred because it simplifies drainage, surface construction, and maintenance. An even surface is essential to prevent water ponding and ice formation. Culverts and other drainage and piping should be extended laterally at least 10' from the downhill side of a trail or path.

In floodplains, trail rights-of-way or easements shall be located on the highest elevation within the designated floodplain while maintaining a 3' soft shoulder on both sides.

Where a trail is constructed on the side of a hill, a ditch or sizable swale of dimensions suitable for the safety of cyclists and for the volume of water expected shall be constructed on the uphill side to intercept the hillside drainage. Where necessary, catch

basins with cross culverts (pipe structures built underneath the trail) shall be provided to convey the intercepted water under the trail. The length of cross culverts should be extended to include the clear zone as well as the trail width and should be backfilled to provide an uninterrupted clear zone. Drainage grates and man-hole covers should be located outside of the travel path of bicyclists and wheelchair users. To assist in draining the area adjacent to the trail, the design should include considerations for preserving the natural ground cover. Seeding, mulching, and sodding of adjacent slopes, swales, and other erosion-prone areas shall accompany trail construction and shall be implemented by the trail builder. Where trails pass underneath highway bridges, existing deck drain discharges must be routed or reconstructed so that deck runoff will not discharge upon or flow across the trail (such drainage can create ice and algae on the pavement as well as erode the pavement surface).

- g. Intersection Treatment: Intersections are important locations from a traffic flow and aesthetic point of view. The corner radius for 90 degree intersections should typically be 15' though larger or smaller radii (10' minimum) may be appropriate in special circumstances such as at non-right-angle intersections and when trails intersect at planting beds, signage or other focal points. "Stop" or "yield" signs should be utilized on trails with high

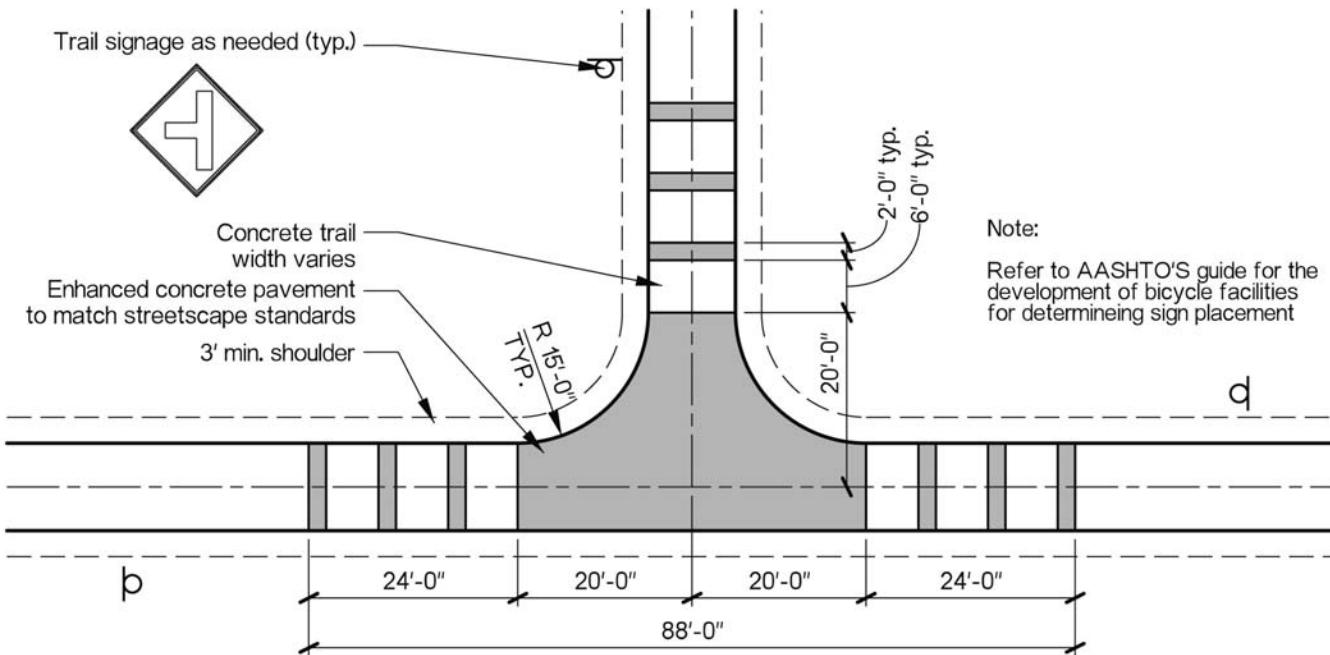


Figure A.3 – Typical Intersection Treatment

traffic volumes and at intersections with limited sight lines to denote right-of-way. At a minimum, intersection warning signs shall be placed on each intersection approach per AASHTO and TMUTCD guidelines. Major intersections shall have patterned concrete as indicated in Figure A.3 – Typical Intersection Treatment.

Trails – Soft Surface

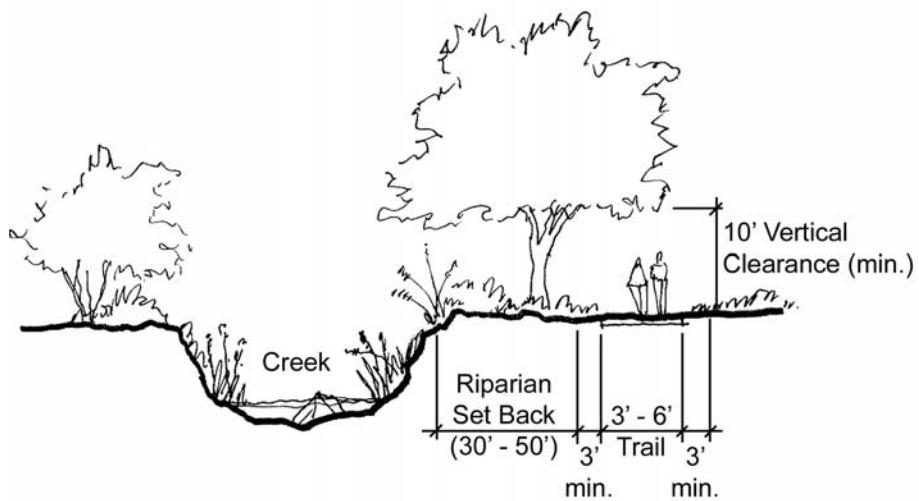
Design Objectives

- Materials should provide a stable surface and be permeable.
- Color should be earth tone to blend with the natural environment and to minimize visual impact.
- Design for wheelchair accessibility wherever practical, with trail widths no less than 48". In cases where a 48" wide trail is designed, ensure that adequate wheelchair passing areas are provided per ADAAG/TAS requirements.
- Minimize erosion of surface material at side drainage locations to limit washing, i.e., provide concrete pans or other erosion mitigating devices as approved by the city.

Design Standards

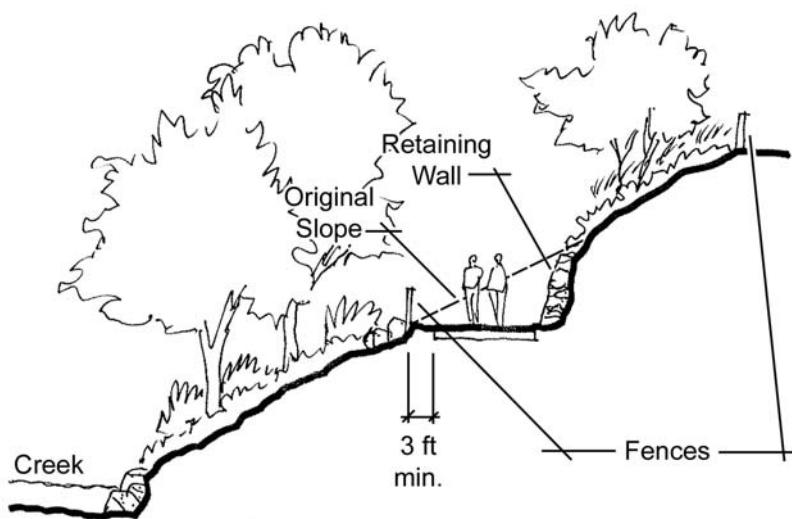
- a. Prepared Sub-grade: Compact on-site material where approved by the City Engineer. Over-excavate if unstable sub-soils are encountered and replace with City-approved fill material. Compact all fill areas to 95% standard proctor at 0% to +6% optimum moisture content. Remove all topsoil prior to subgrade preparation. The use of a geotextile fabric under the aggregate fines where installed in wet or unstable areas is recommended.
- b. Trail Surface: 3/8" diameter compacted aggregate fines, such as decomposed granite with adequate binder, minimum 4" depth.
- c. Width & Clearance: Standard width for two-way trails is 6' with a minimum width of 3'.
- d. Grade, Sight Distance, Drainage: Refer to hard-surface trail design guidelines.

Figure A.4 – Trails Near Creeks



- e. Sensitive Areas: For natural surface 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 (see Figure A.4 – Trails Near Creeks):
 1. The riparian setback should be as wide as possible. A minimum of 30' to 50' is recommended.
 2. Slope the trail away from the waterway or pre-treat trail runoff with a trail-side swale.
 3. Limit vegetation removal but remove invasive plant species.
 4. Use the trail as an opportunity to restore and enhance the waterway or environmentally sensitive area.
- f. Other Considerations: Trails can vary in width and type depending on the existing topographic and environmental constraints. Soft surface trail design should take into account issues like drainage, erosion, slope/grade, presence of waterways, vegetation, riparian and habitat areas, and environmental requirements and regulations. In some cases the proposed trails will have to address slope concerns during design and construction (see Figure A.5 – Trails Along Steep Slopes).
- g. Accessibility: Areas with earthen walking trails (i.e., parks and natural areas) should also provide an alternate route that meets or exceeds ADAAG/TAS standards.

Figure A.5 – Trails Along Steep Slopes



h. Steep Slopes: In areas of steep slopes, it is often not possible for trails to meet ADAAG/TAS requirements. Figure A.5 illustrates a typical earthen trail design that is appropriate for steep and inclined areas. This type of trail is typically 3' to 6' wide and is designed to accommodate walkers, hikers, runners, and mountain bikers, depending on available space. Skilled volunteer-built earthen trails, reinforced with locally-sourced stone, are often the least impactful. In addition to the earthen surface of these trails, the steep slopes that they pass through negate the ability to meet ADAAG/TAS requirements. The trails should be designed with adequate drainage to prevent channeling and erosion.

Bikeway Facilities

Design Objectives

- Provide safe, quick, and direct travel along corridors with high bicycle demand.
- Provide a common route for cyclists through a high demand corridor.
- Connect discontinuous segments of shared-use trails.
- Provide extensions along local neighborhood streets and collectors that lead to commercial areas, places of employment, educational facilities, parks and other community facilities.
- Provide striped bike lanes or cycle tracks where possible. Provide shared lanes where these other facility types are not possible due to limited right-of-way.

Figure A.6- Shared Bike Lane

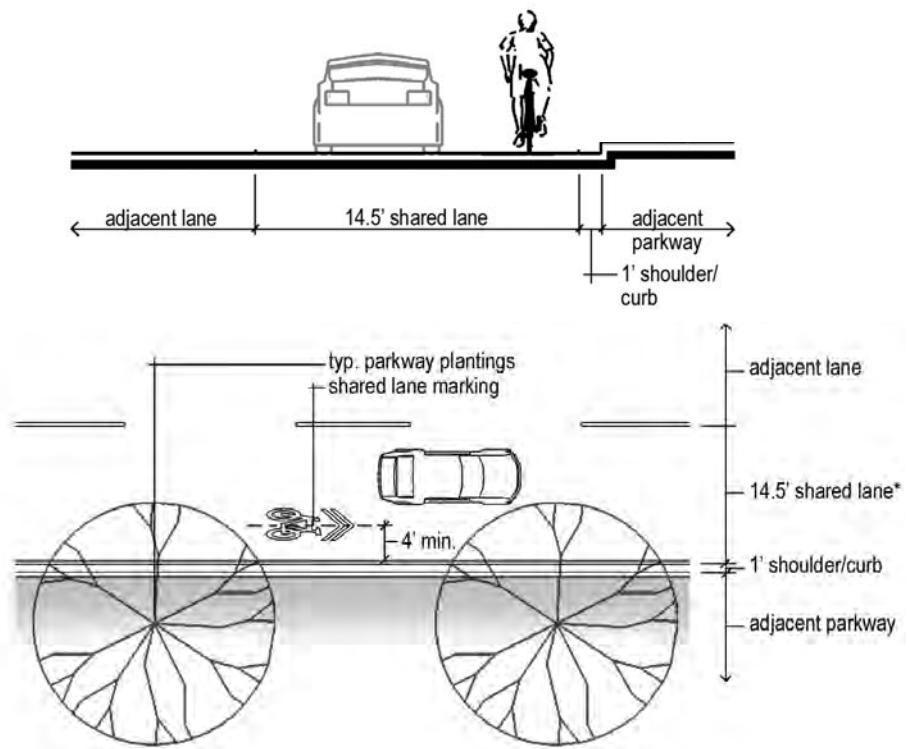
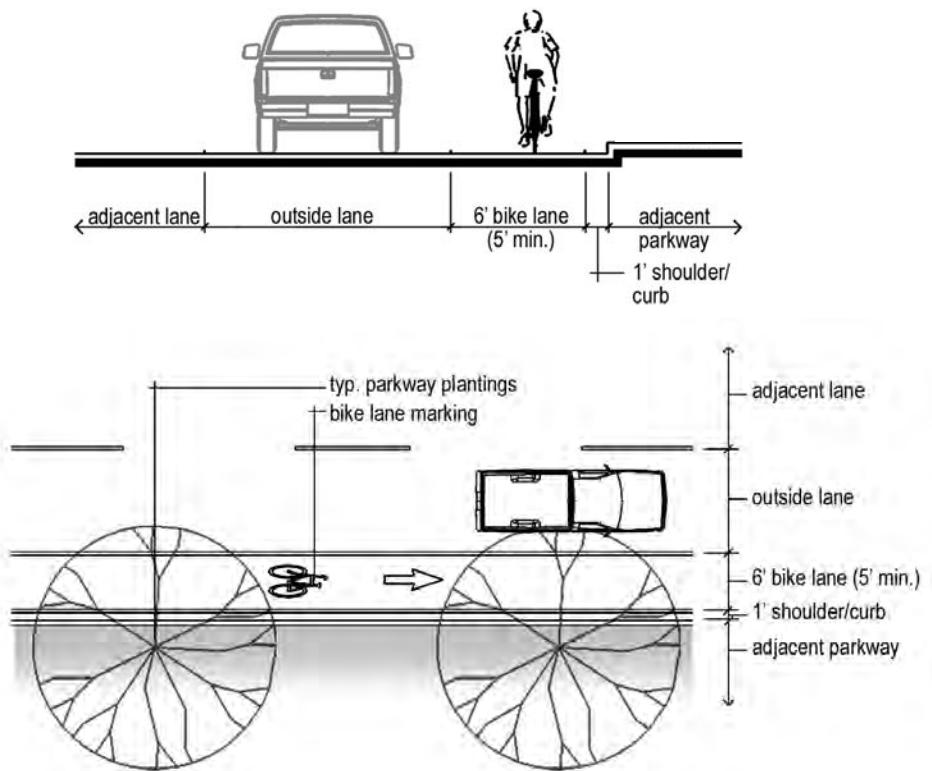


Figure A.7 – Standard Bike Lane

Refer to part 9 of the Texas Manual on Uniform Traffic Control Devices for more guidance.



Design Standards

- a. **Signage:** Bike route signs shall be used on streets with bike routes, shared lanes, bike lanes, and cycle tracks as well as on shared-use trails where applicable. Route signs should include route number and destination information, yet be legible to moving cyclists. Route signs shall be located at all intersections where the bike route changes direction. Additional route signs should be located in accordance with AASHTO and TMUTCD standards.
- b. **Pavement Surface:** The pavement surface shall match the roadway surface; pavement seams should be minimized and placed outside of the bicycle facility where possible. Adjust utility covers to grade, install bicycle safe drainage grates, and fill potholes to provide a smooth surface.
- c. **Shared Bike Lanes:** Outside lanes for shared lane facilities shall meet or exceed a width of 14.5' (not including curb and gutter) for streets without on-street parking and 12' for streets with on-street parking. Shared lane markings shall be used on all shared lanes and shall be of reflective, non-skid material. They shall be placed a minimum of 5' from the face of curb on roads without on-street parking and a minimum of 5' from the outside edge of the parking lane on roads with on-street parking. In both cases, placement at the lane centerline is optional in order to extend the life of the marking. A minimum of two shared lane markings per block face shall be used and shall be located 50' toward midblock from the intersection at both ends of the block. If the block face is over 300' in length, an additional shared lane marking should be placed at midblock. See Figure A.6 – Shared Bike Lane. (Note: The traffic control devices shown on this detail are not currently approved by the Texas Manual on Uniform Traffic Control Devices (TMUTCD). However, they are being considered for inclusion in the next revision of the MUTCD and have been successfully implemented in Austin, Texas.)
- d. **Standard Bike Lanes:** Standard bike lanes shall be at minimum 5' wide (6' is recommended) not including curb and gutter. Bike lanes are one-way and should be indicated as such through pavement markings per TMUTCD. Bike lane markings should be placed at the bike lane centerline and should be of reflective, non-skid material. A minimum of two sets of bike lane markings (which consists of a bicycle outline and directional arrow) per block face shall be used and shall be located 50' toward midblock from the intersection at both ends of the block. If the block face is over 300' in length, an additional set of bike lane markings should be placed at midblock. See Figure A.7 - Standard Bike Lane.

Figure A.8 – Buffered Bike Lane

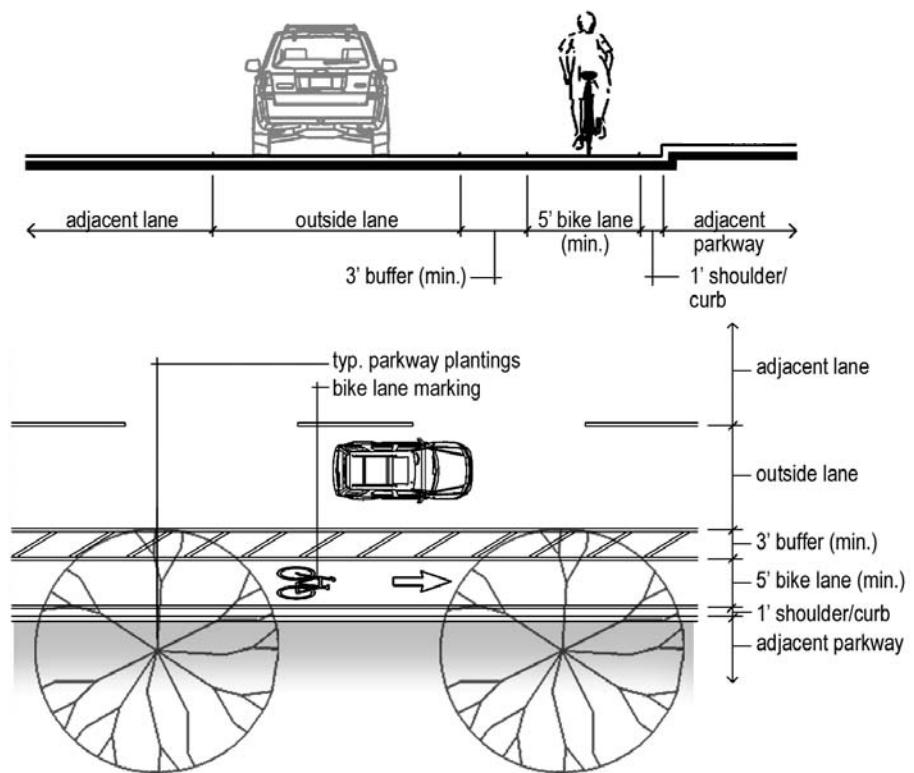
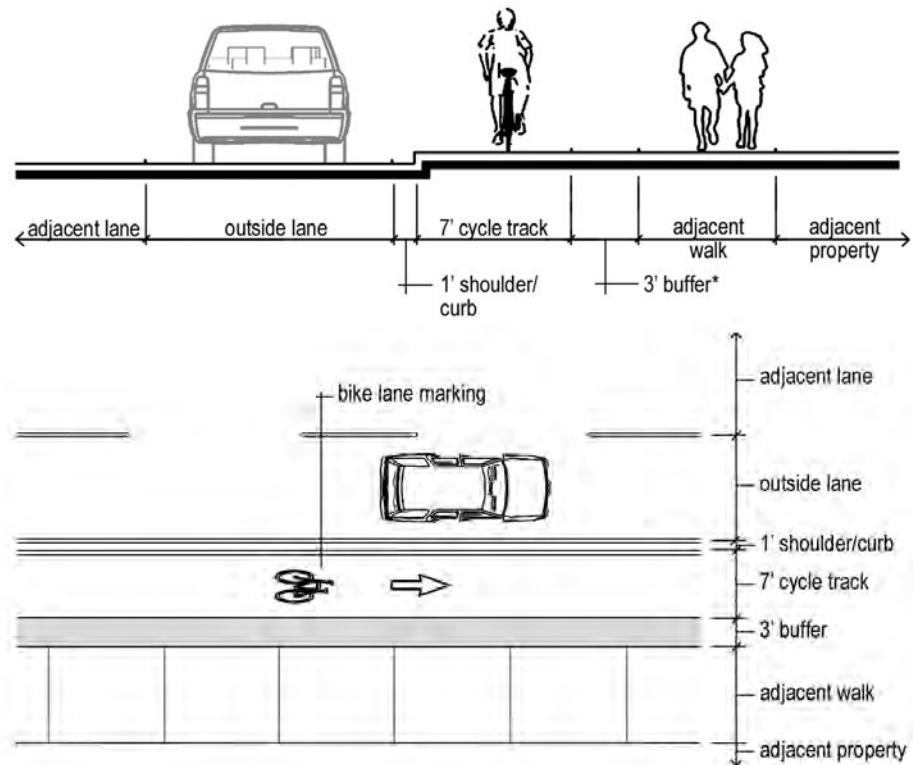


Figure A.9 – Cycle Track



- e. **Buffered Bike Lanes:** Buffered bike lanes shall be a minimum 5' wide with a minimum 3' buffer zone. Buffer zones shall be striped per TMUTCD. Bike lane marking shall be consistent with standard bike lane markings. See Figure A.8 - Buffered Bike Lane.
- f. **Cycle Tracks:** Cycle tracks shall be at minimum 7' with a minimum 3' buffer between it and any adjacent pedestrian facility. Cycle tracks shall be elevated above the vehicular travel surface, as shown, for additional delineation. Cycle track lanes are one-way and should be indicated as such through pavement markings per TMUTCD. Cycle track marking shall be consistent with standard bike lane markings. See Figure A.9 - Cycle Track
- g. **Side Paths:** Side path widths shall correspond with the Trails Master Plan. Two options exist for side paths. Option 1 (Figure A.10) allows for two-way multipurpose traffic and requires a side path on only one side of the roadway. This option should be utilized where the right-of-way is limited. Option 2 (Figure A.11) allows for two-way pedestrian traffic and one-way bicycle traffic. This option requires a side path on both sides of the roadway to account for bicycle traffic in each direction.
- h. Bikeways should be continuous along a corridor and should not terminate at major intersections. On major roads, bikeways should terminate into off-street trails or bikeways on intersecting streets. On minor roads, bikeways may terminate with the addition of a "Share the Road" warning sign.

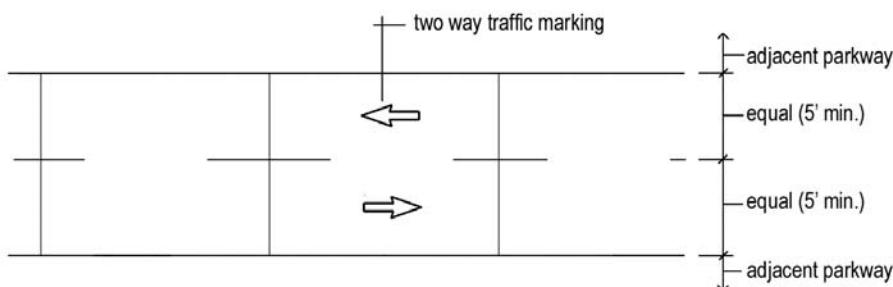


Figure A.10 – Two-Way Multipurpose Traffic

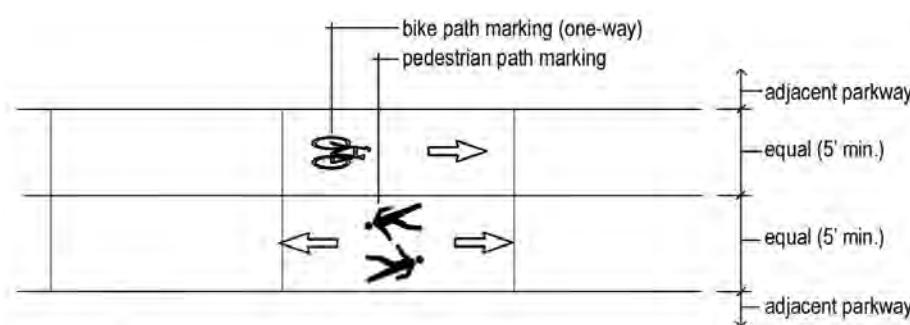


Figure A.11 – Two-Way Pedestrian, One-Way Bicycle Traffic

Trail/Roadway Crossings

Trail/roadway crossings may be at-, below-, or above-grade. Designing safe crossings is crucial to the safety of a trail design. Trail/roadway crossings should comply with AASHTO, TxDOT, and TMUTCD standards. Evaluation of trail crossings involves analysis of vehicular and trail user traffic patterns, travel speeds, street width, traffic volumes (average daily traffic, peak hour traffic), and line of sight. The most appropriate trail/roadway crossing option should be based on the best available information and must be verified and/or refined through the actual engineering and construction document stages. Engineering studies should be done to determine the appropriate level of traffic control and design. There are four primary types of trail/roadway crossings:

- Type 1 – Unprotected/Marked: Unprotected/marked crossings include trail crossings of residential, collector, and sometimes major arterial streets or railroad tracks.
- Type 2 – Existing Intersections: Trails that emerge near existing intersections may be routed to these locations, provided that sufficient protection is provided at the existing intersection.
- Type 3 – Signalized/Controlled: These trail crossings include signals or other traffic control measures due to traffic volumes, speeds and trail usage.
- Type 4 – Grade-separated: Bridges or under-crossings provide the maximum level of safety but also generally are the most expensive and have rights-of-way, maintenance and other security considerations.

Table A.2 – Recommendations for Installing Marked Crosswalks and Other Needed Pedestrian Improvements at Uncontrolled Locations*

Roadway Type (Number of Travel Lanes and Median Type)	Vehicle ADT** <9,000			Vehicle ADT 9,000 to 12,000			Vehicle ADT 12,000 to 15,000			Vehicle ADT >15,000		
	Posted Speed Limit [†]			Posted Speed Limit			Posted Speed Limit			Posted Speed Limit		
	< 30 mph	35 mph	40 mph	< 30 mph	35 mph	40 mph	< 30 mph	35 mph	40 mph	< 30 mph	35 mph	40 mph
Two Lanes	C	C	P	C	C	P	C	C	N	C	P	N
Three Lanes	C	C	P	C	P	P	P	P	N	P	N	N
Multilane (four or more lanes) with raised median [‡]	C	C	P	C	P	N	P	P	N	N	N	N
Multilane (four or more lanes) without raised median	C	P	N	P	P	N	N	N	N	N	N	N

Source: modified from: Federal Highway Administration. Safety Effects of Marked Versus Unmarked Crosswalks at Uncontrolled Locations. FHWA Publication Number: HRT-04-100. September 2005.

* These guidelines include intersection and midblock locations with no traffic signals or stop signs on the approach to the crossing. They do not apply to school crossings. A two-way center turn lane is not considered a median.

** ADT = Average daily trips

† Where the speed limit exceeds 40 mph, marked crosswalks alone should not be used at un-signalized locations.

‡ The raised median or crossing island must be at least 1.2 m (4 ft) wide and 1.8 m (6 ft) long to serve adequately as a refuge area for pedestrians in accordance with TMUTCD and AASHTO guidelines.

C = Candidate sites for marked crosswalks. Marked crosswalks must be installed carefully and selectively. Before installing new marked crosswalks, an engineering study is needed to determine whether the location is suitable for a marked crosswalk.

P = Possible increase in pedestrian crash risk may occur if crosswalks are added without other pedestrian facility enhancements. These locations should be closely monitored and enhanced with other pedestrian crossing improvements, if necessary, before adding a marked crosswalk.

N = Marked crosswalks alone are insufficient, since pedestrian crash risk may be increased by providing marked crosswalks alone. Consider using other treatments, such as traffic-calming treatments, traffic signals with pedestrian signals where warranted, or other substantial crossing improvement to improve crossing safety for pedestrians.

Design Guidelines – Unprotected/Marked Crossings (Type 1)

An unprotected crossing is a midblock crossing or a crossing at an intersection without traffic signals or stop signs that consists only of a crosswalk and signing. The approach to designing crossings at mid-block locations depends on an evaluation of vehicular traffic, line of sight, trail traffic, use patterns, vehicle speed, road type and width, and other safety issues such as the proximity of schools. Table A.2 indicates where unprotected crossings (crossings without traffic signals or stop signs) may be acceptable. Figure A.12 – Typical Unprotected/Marked Crossing illustrates the typical layout and signage scheme for this crossing type.

In addition to considering traffic volume and speed, it is important to consider line of sight. Per the Texas Department of Transportation Roadway Design Manual (March 2009), the minimum line of sight for unprotected crossings (on level grade) should be based on the speed at which vehicles travel as follows:

- 25 mph zone: 155 feet
- 35 mph zone: 250 feet
- 45 mph zone: 360 feet

Wherever unprotected crossings are necessary, crosswalks and warning signs (“Bike Xing”) should be provided to warn motorists. Stop signs and slowing techniques (bollards/geometry) should be used on the trail as it approaches the crossing. Care should be taken to keep vegetation and other obstacles out of the sight line for motorists and trail users. Engineering studies should be performed to determine the appropriate level of traffic control and design for each individual crossing.

The top of the crosswalk should be flat and typically made of asphalt, patterned concrete, or brick pavers. Brick or unit pavers should be discouraged because of potential problems related to pedestrians, bicycles and ADAAG/TAS requirements for a continuous, smooth, vibration-free surface. Tactile treatments are needed at the sidewalk/street boundary so that visually impaired pedestrians can identify the edge of the street. Costs can range from \$5,000 to \$20,000 per crosswalk, depending on the width of the street, the drainage improvements required, and the materials used for construction.

A flashing yellow beacon costing between \$15,000 and \$30,000 (preferably one that is activated by the trail user rather than operating continuously) may be used. Some cities have successfully used a flashing beacon activated by motion detectors on the trail, triggering the beacon as trail users approach the intersection. This equipment, while slightly more expensive, helps alert motorists to trail traffic (see Design Guidelines – Signalized/Controlled Crossings).

Crossings of higher volume arterials over 15,000 average daily vehicle trips (ADT) may be unprotected in some circumstances. For example, if they have 85th percentile speeds of 30 mph or less and have only two lanes of traffic. Such crossings would not be appropriate if a significant number of school children used the trail.

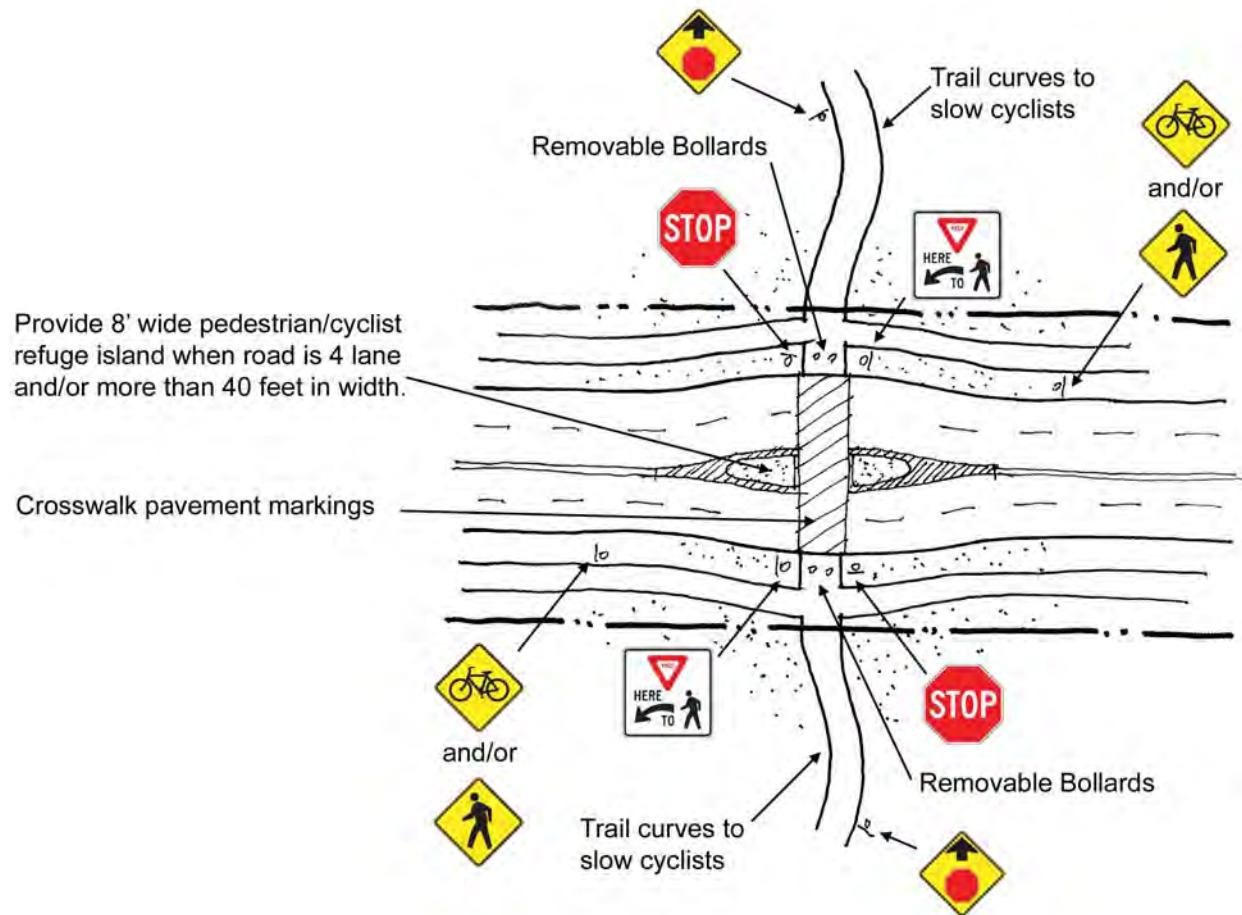


Figure A.12 – Typical Unprotected/Marked Crossing

Design Guidelines – Existing Intersections (Type 2)

When a trail approaches a street within 500' of an existing signalized intersection with pedestrian crosswalks, users are typically diverted to the signalized intersection for safety and traffic control purposes. For this option to be effective, barriers and signage are needed to direct trail users to the signalized crossings. In most cases, signal modifications would be made to add pedestrian detection and to comply with ADAAG/TAS. In many cases, pedestrian crossings are simply part of the existing intersection and are adequate for most trail users. However, it may be necessary to provide wider curb ramps and crosswalk striping depending on existing conditions and the volume of trail users anticipated. See Figure A.13 – Typical Existing Intersection Treatment.

Design Guidelines – Signalized/Controlled Crossings (Type 3)

New signalized crossings are recommended for crossings more than 500' from an existing signalized intersection, where speed limits are 40 mph and above, and/or ADT exceeds 15,000 vehicles (see Table A.2 for information regarding situations in which an unprotected crossing might be insufficient). Each crossing, regardless of traffic speed or volume, requires additional review by a registered Texas professional engineer to identify sight lines, potential impacts on traffic flow, timing with adjacent signals, capacity, and safety.

There are generally two types of signalized/controlled crossings: partially signalized (which include flashing yellow warning beacons for motorists and stop signs for trail users) and fully signalized (which include red/yellow/green signals for motorists and walk/don't walk signals for trail users). These two types are illustrated in Figure A.14 and A.15, respectively.

Trail signals are normally activated by push buttons, but may also be triggered by motion detectors. The maximum delay for activation of the signal should be one minute, with minimum crossing times determined by the width of the street. The signals may rest on flashing yellow or green for motorists when not activated and should be supplemented by standard advanced warning signs. Typical costs for a signalized crossing range from \$150,000 to \$250,000.

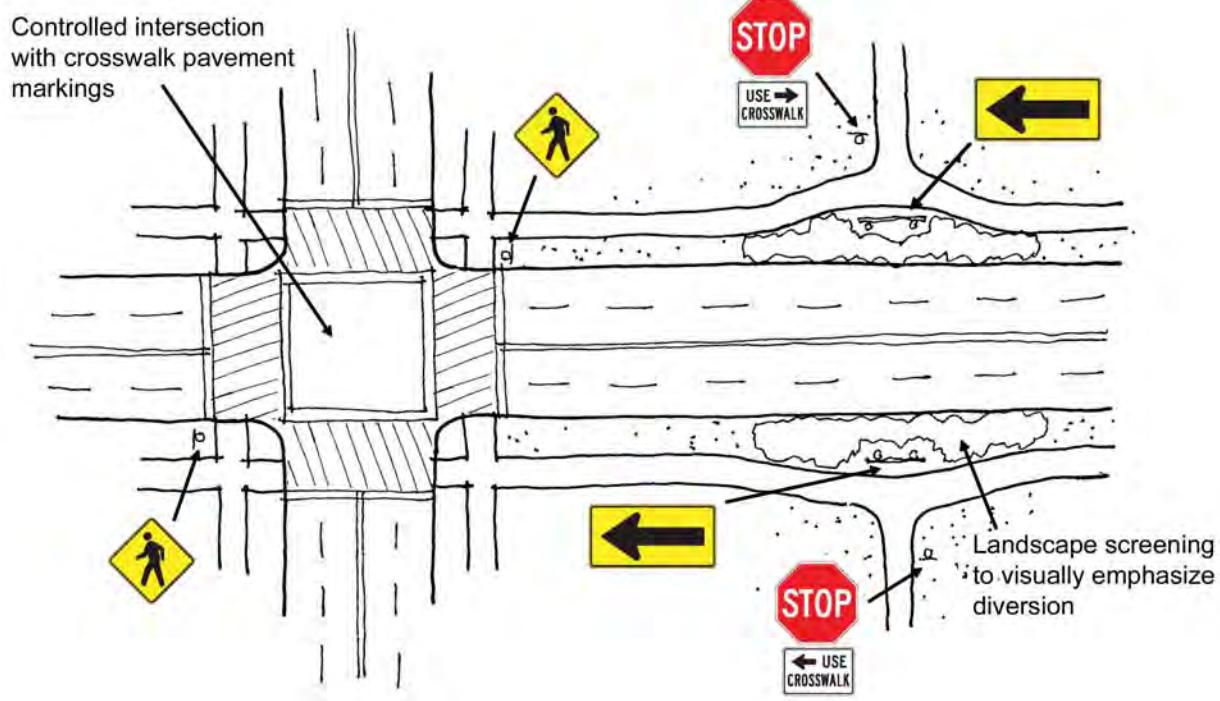


Figure A.13 – Typical Existing Intersection Treatment

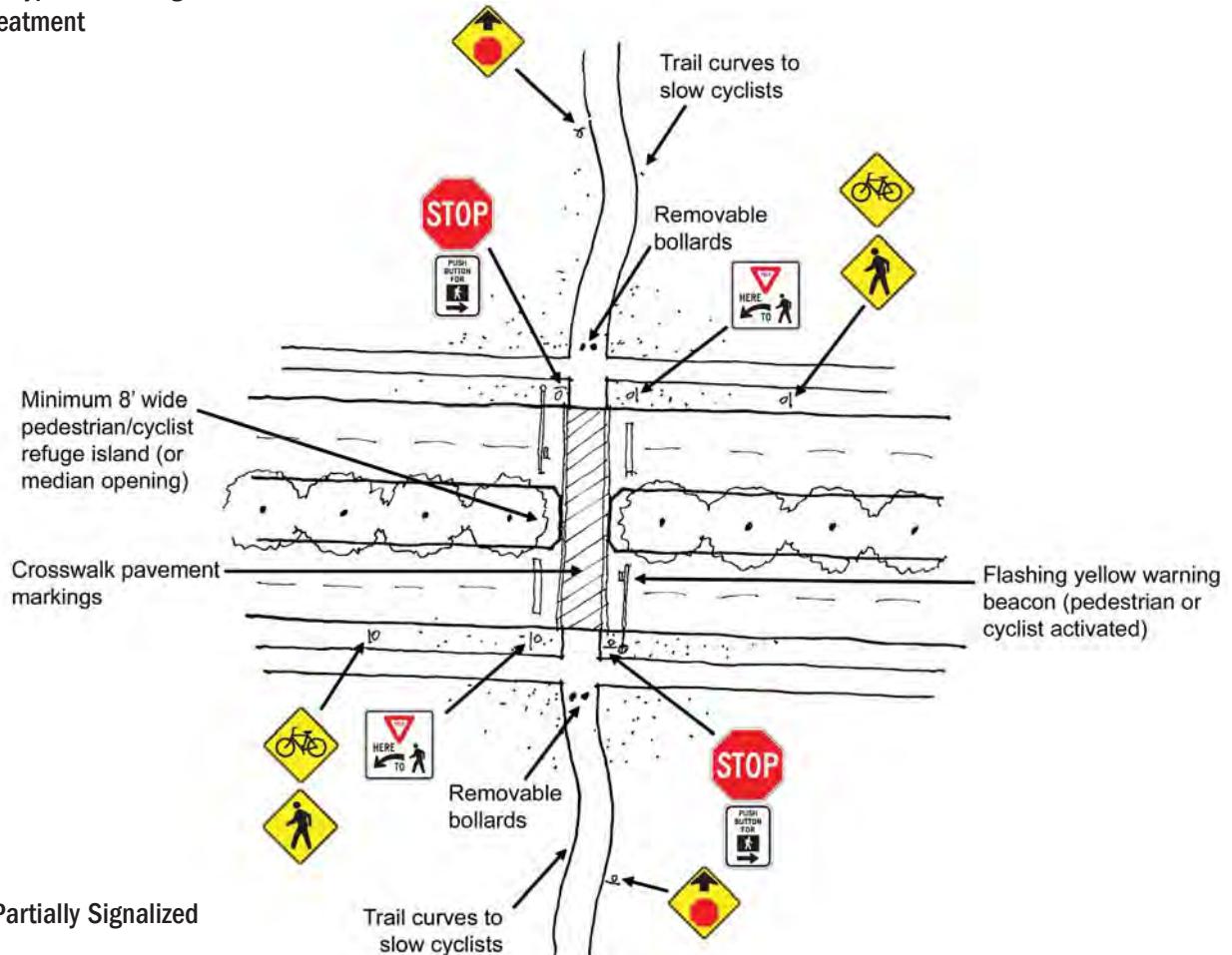
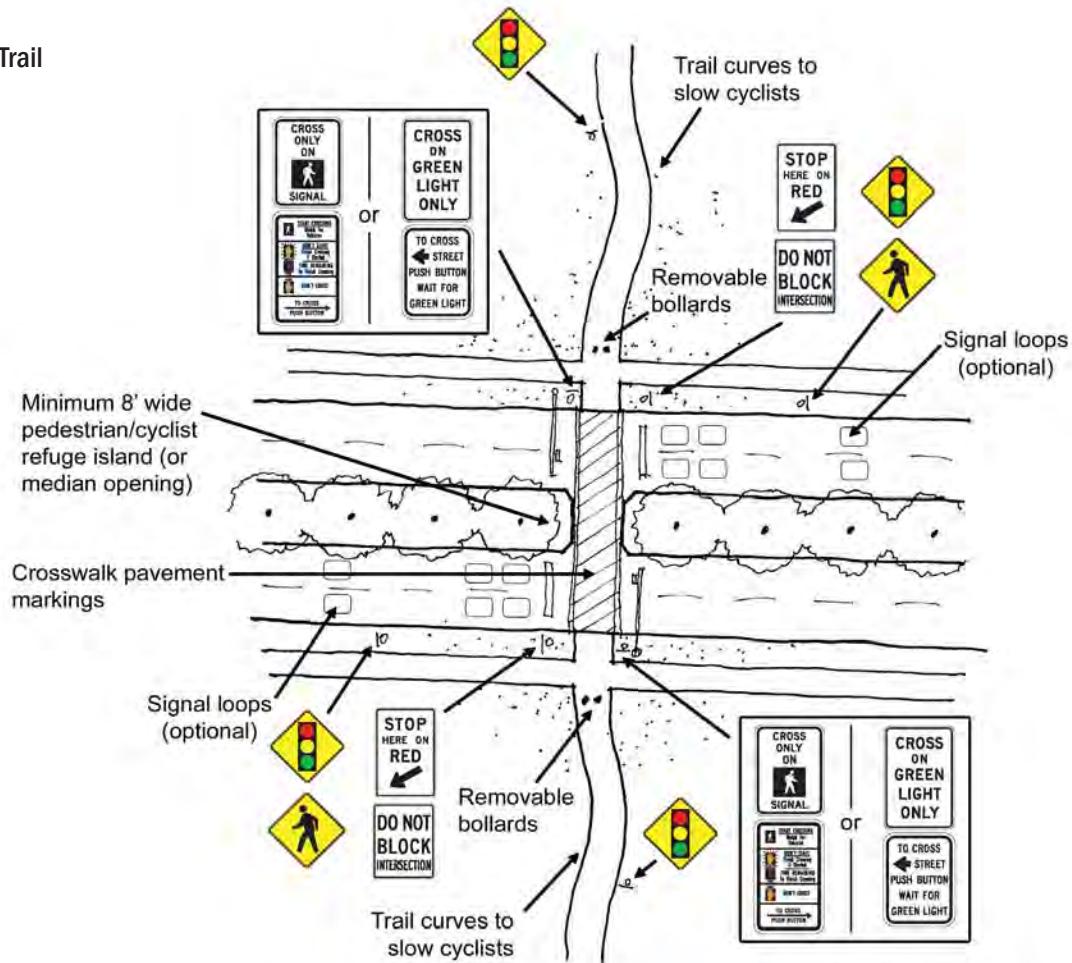


Figure A.14 - Partially Signalized Trail Crossing

Figure A.15 - Fully Signalized Trail Crossing



Design Guidelines – Grade-separated Crossings (Type 4)

Grade-separated crossings may be needed where ADT exceeds 25,000 vehicles and 85th percentile speeds exceed 45 mph. Security is a major concern with both over-crossings and under-crossings. In both cases, trail users may be temporarily out of sight from public view and may themselves have poor visibility. Under-crossings, like parking garages, have the reputation of being places where crimes occur. Most crime on trails, however, appears to have more in common with the general crime rate of the community and the overall usage of the trail than any specific design feature.

Design and operation measures are available which can address trail user concerns. For example, an under-crossing should be designed to be spacious, well lit, and completely visible for its entire length prior to entering. Emergency phones or call boxes located near grade-separated crossings are encouraged. Other potential problems with under-crossings include conflicts with utilities, drainage, flood control, and maintenance requirements. Over-crossings pose potential concerns about visual impact, functional appeal, and cost. Even so, the visual nature of pedestrian/bicycle crossings allow for the creation of iconic features.

Underpass Structures

Design Objectives

- Underpasses provide safety and continuity by eliminating the need for users to interact with and/or cross busy streets.
- Design underpasses with security and comfort in mind by increasing site distances, providing lighting, and providing increased vertical clearance.

Design Guidelines

- a. Underpasses shall be constructed according to minimum vertical and horizontal clearances per AASHTO and ADAAG/TAS standards. All modified underpasses should meet these requirements. In situations where the underpass is straight (allowing clear visibility) two-way traffic can be accommodated.

Trail Signing and Traffic Control

Design Objectives

Crossing features for all roadways include warning signs both for vehicles and trail users. Type, location, and other criteria are identified in the TMUTCD. Adequate warning distance is based on vehicle speeds and line of sight. Signage should be highly visible; catching the attention of motorists accustomed to roadway signs may require additional alerting devices such as flashing warning beacons, roadway striping, or changes in pavement texture. Signing for trail users must include a standard stop sign and pavement marking; these traffic control devices are sometimes combined with other features such as bollards or chicanes in the trail to slow cyclists. Care must be taken not to place too many signs and other traffic control devices at crossings as they tend to overwhelm the user and lose their impact.

Directional signing may be useful for trail users and motorists alike. For motorists, a sign reading “Bicycle Trail Xing” along with a Cedar Hill trail emblem or logo helps both warn motorists and promote use of the trail. For trail users, directional signs and street names at crossings help direct people to their destinations.

A number of striping patterns have emerged over the years to delineate trail crossings. A median stripe on the trail approach will help to organize and warn trail users. The actual crosswalk striping is a matter of local and State preference, and may be accompanied by pavement treatments to help warn and slow motorists. The effectiveness of crosswalk striping is highly related to local customs and regulations. In communities where motorists do not typically yield to pedestrians in crosswalks, additional measures may be required. Table A.3 notes some of the most common signs that may be required on the Cedar Hill Trails system.

Design Standards

- a. Trail Regulatory Signs: All regulatory signs shall be mounted on a black powdercoat-finished 2-3/8" outside diameter round steel post mounted in a concrete footing placed between 4' and 6' on-center from the trail's edge of pavement. Signs shall be mounted such that the bottom edge of the sign is between 4' and 5' from finished trail grade. See Figure A.16 – Typical Regulatory Signage and Figure A.1 – Standard Hike & Bike Trail Section.

Figure A.16 – Typical Regulatory Signage

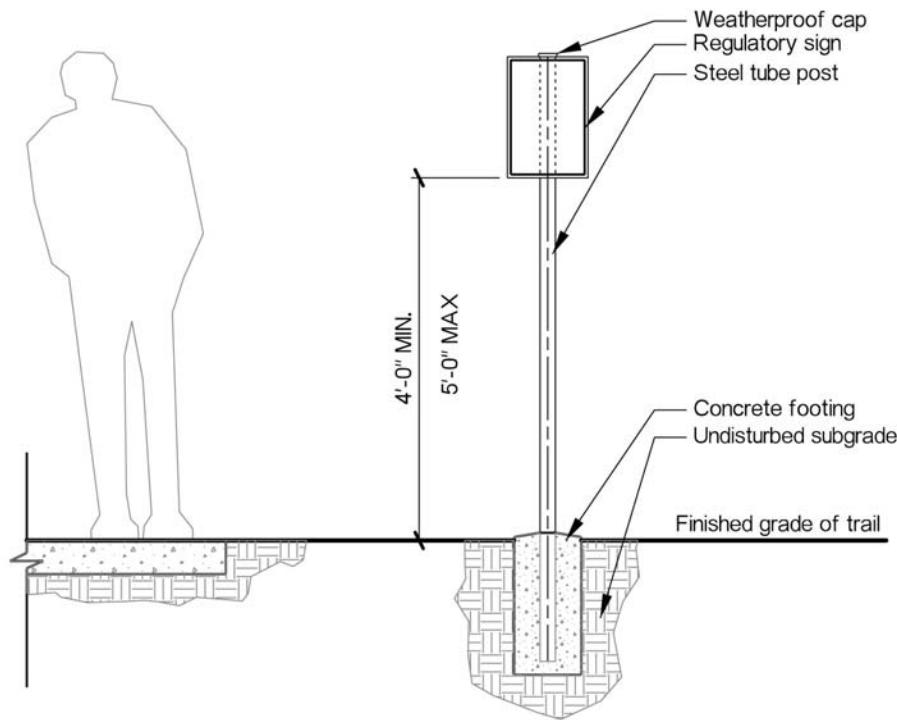


Table A.3 – Typical Trail Signage

Sign	Location	Color*	TMUTCD** Designation	Minimum Dimensions (for trails)
No Motor Vehicles	Entrances to trail	B on W	R5-3	24"x24"
Use Pedestrian Signal	At crosswalks	B on W	R9-5	12"x18"
Bicycle Yield to Pedestrians	At crosswalks	B on W	R9-6	12"x18"
Bike Route	At the beginning of each route and at intersections	W on G	D11-1	24"x18"
Bike Route Supplemental Plaques	Where bike lanes begin, end, or change direction	W on G	M4-11,12, 13 M7-1,2,3,4,5,6,7	12"x4" 12"x9"
Stop Yield	At trail intersections and crossings	W on R	R1-1 R1-2	18"x18" 18"x18"x18"
Bicycle Warning Pedestrian Warning	Oriented toward motorists at trail crossings	B on Y	W11-1 W11-2	18"x18"
Turn and Curve Warning	At turns and curves which exceed design speed criteria	B on Y	W1-1,2,3,4,5	18"x18"
Trail Intersection Warning	At trail intersections where no stop or yield sign is required; locations with limited sight lines	B on Y	W2-1,2,3,4,5	18"x18"
Stop Ahead Yield Ahead Signal Ahead	Where stop/yield sign or traffic signal visibility is obscured	B,R on Y B,R on Y B,R,G on Y	W3-1 W3-2 W3-3	18"x18"
Directional Signs	At intersections where access to destinations is available	W on G	D1-1b, D3-1	24"x6"
Trail Regulations/ Rules of the Trail	Entrances to trail	varies	n/a	18"x18"
Multi-purpose Trail: Bikes Yield to Pedestrians	Entrances to trail	varies	n/a	18"x18"
Please Stay On Trail	In environmentally-sensitive areas or where the trail travels near private property	varies	n/a	12"x18"
Trail Closed: No Entry Until Made Accessible & Safe for Public Use	Where trail or access points closed due to hazardous conditions	varies	n/a	18"x18"

*B=black, W=white, G=green, R=red, Y=yellow

**Texas Manual of Uniform Traffic Control Devices

Bridges & Low Water Crossings

Design Objectives

- Trail crossings over creeks and drainage ways generally shall be by bridge.
- Bridges shall be designed to be sturdy, safe, vandal-resistant, and easily maintained.
- Deck surface shall have good skid resistance.
- Deck shall be stabilized to minimize vibrations.
- Wooden railing should be free of splinters and provide a smooth, clean surface to the touch.
- Railing design should allow views to creeks for persons of all heights, yet ensure user safety.
- Scale of bridge should be in keeping with its context.
- Bridge color should blend with the natural environment or tie into the color scheme of adjacent development.
- Design should be integrated with other elements throughout the corridor.
- Low water crossings may be used at small stream crossings with the approval of the City Engineer.

Design Standards

- a. General: All bridge designs to be sealed by a registered Texas professional engineer and approved by the City. Low water crossings shall not exceed 4' from path to low flow water elevation of the waterway or ravine unless approved by the City Engineer. Low water crossings shall have a widened shoulder to 5' on both sides of the trail. The headwall structure under the trail shall have gently sloping wingwalls constructed with the headwall no steeper than 8:1. The pipe ends shall be finished at the same repose of slope as the wingwalls. Any crossing exceeding this 4' separation to permit the construction of ADAAG/TAS-compliant trail approaches to the crossing shall require a bridge.
- b. Bridge Type: Prefabricated bridges require approval by the City. Bridges shall be of an arched truss design and in compliance with ADAAG/TAS longitudinal slope criteria. The minimum width of clear deck shall equal the width of the widest approaching trail (all bridges should be at minimum 10' wide). All bridge foundation and abutment designs shall be sealed by a registered Texas professional engineer and approved by the City. Prefabricated

arched truss bridges should generally be used unless the bridge's location requires a unique design because of physical constraints or aesthetic opportunity.

- c. **Bridge Approaches:** Bridge approaches shall be designed in accordance with Figure A.17 – Typical Trail Bridge Approach Section and Figure A.18 – Typical Trail Bridge Approach Plan.

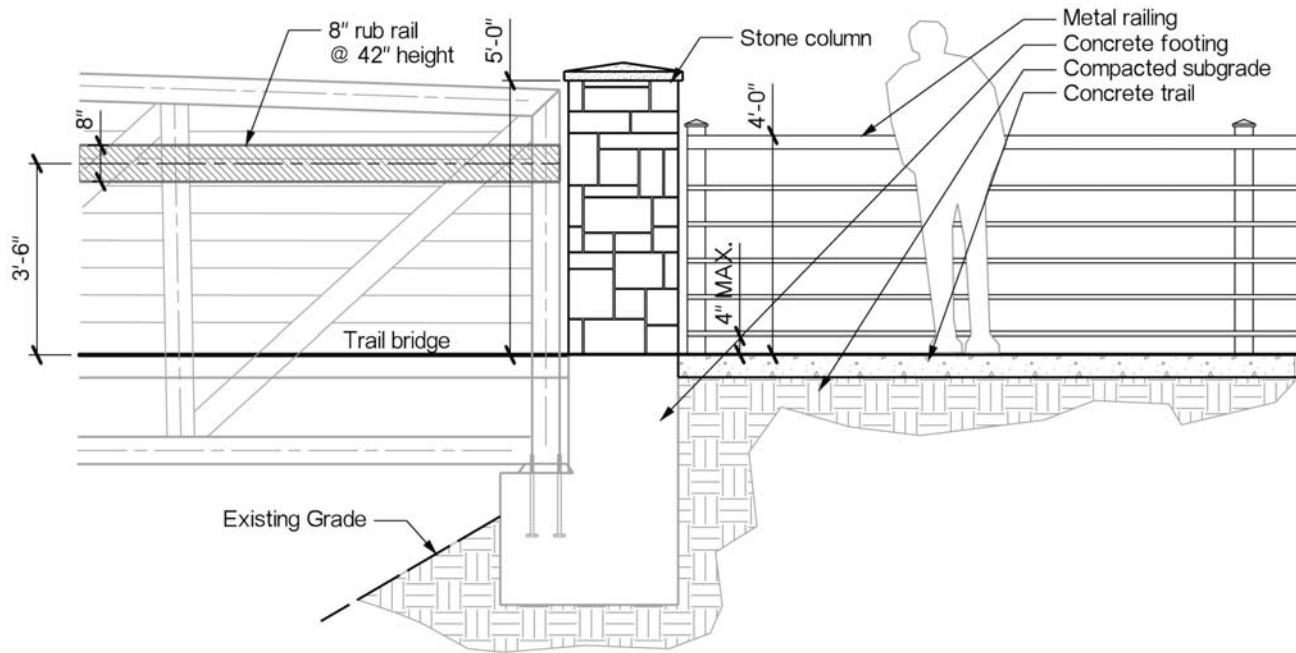


Figure A.17 – Typical Trail Bridge Approach Section

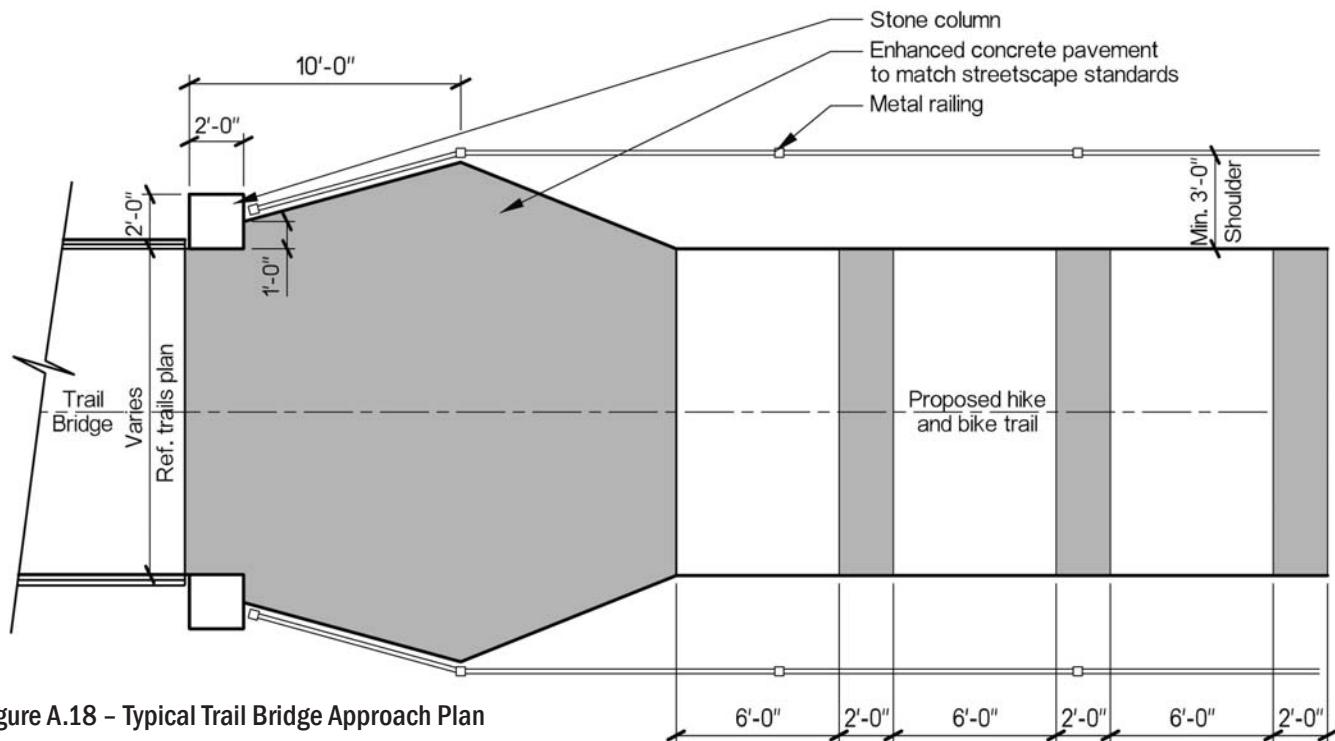


Figure A.18 – Typical Trail Bridge Approach Plan

Culvert Outfall Structures

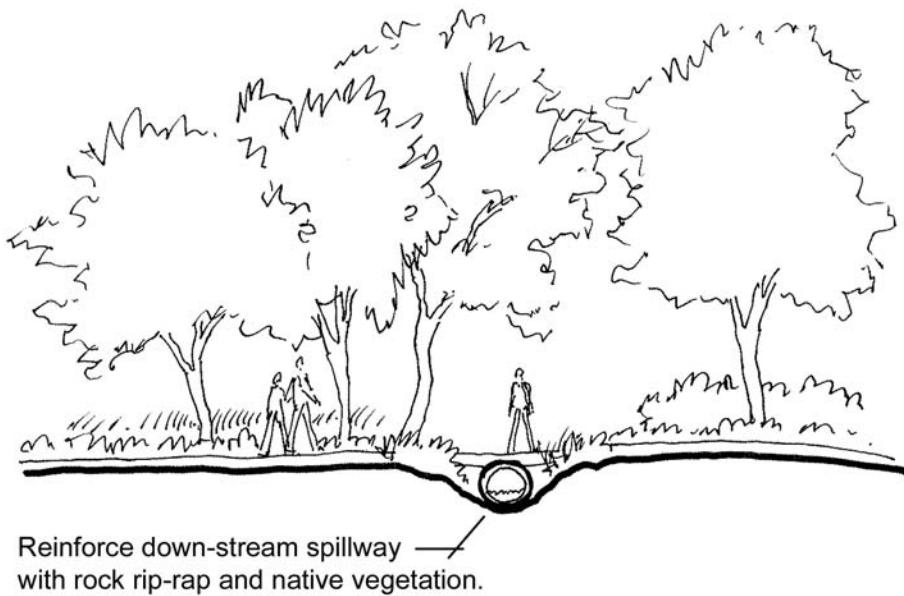
Design Objectives

- Existing culvert pipe structures may need modification to meet trail safety and aesthetic standards. Culvert outfalls shall occur on the downhill side of trails.
- Outfall structures shall feature stone veneer or concrete form liners to provide a more aesthetically pleasing appearance.

Design Guidelines

- a. Design: A registered Texas professional engineer shall design and size all outfall pipes.

Figure A.19 – Typical Culvert Outfall



Trail Safety Railing

Design Objectives

- Railings should provide a safety barrier without being visually imposing or limiting visibility.
- Railings should be higher than the average cyclist's center of gravity but low enough to not feel imposing to pedestrians.

Design Guidelines

- a. **Railing Placement:** Railings should be placed between the trail and embankments or other vertical displacements when such topographical features are within 5' of the trail shoulder.
- b. **Railing Design:** The top of railings, fences, or barriers on either side of a trail structure shall be 4' higher than the trail surface. Railing ends shall be angled downward and flared away from the trail at both ends to prevent cyclist and pedestrian injury. Railing rungs should be horizontal in orientation so as not to catch bicycle handlebars. The bottom rung of a railing shall be 4" from the finished trail grade. See Figure A.17 – Typical Trail Bridge Approach Section and Figure A.18 – Typical Trail Bridge Approach Plan.
- c. **Rub Rails:** On bridges, railing shall have 8" wide rub rails attached on-center at handlebar height (3'-6") made of smooth metal or similar material. See Figure A.17 – Typical Trail Bridge Approach Section.

Trail Features & Amenities

Design Objectives

- Create and maintain a unique aesthetic and quality for Cedar Hill's trail system.
- Use aesthetic treatments and visual cues to provide an identity to the trail system and create familiarity for trail users.

Mile Marker Design Guidelines

- a. Placement: Mile markers should be placed every 1/8 mile. Ideally, locate mile markers where they do not conflict with intersections or other trail features.
- b. Design: Mile markers shall be designed in accordance with Figure A.20 - Typical Trail Mile Marker. Design shall include an 18" wide enhanced paving band than spans the entire width of the trail. Inset letters shall be placed flush within the band and be oriented for traffic coming in either direction.

Rest Area Design Guidelines

- a. Placement: Rest areas should be placed every half to one mile and at major trail intersections. Ideally, locate rest areas overlooking attractive vistas or in other physically attractive locations.
- b. Design: Rest areas shall be designed in accordance with Figure A.21 – Typical Rest Area. Ideally, the bench and ADA space should not be located within 5' of a significant downward grade change; however, if such a location is chosen, railing must be provided at the grade change.

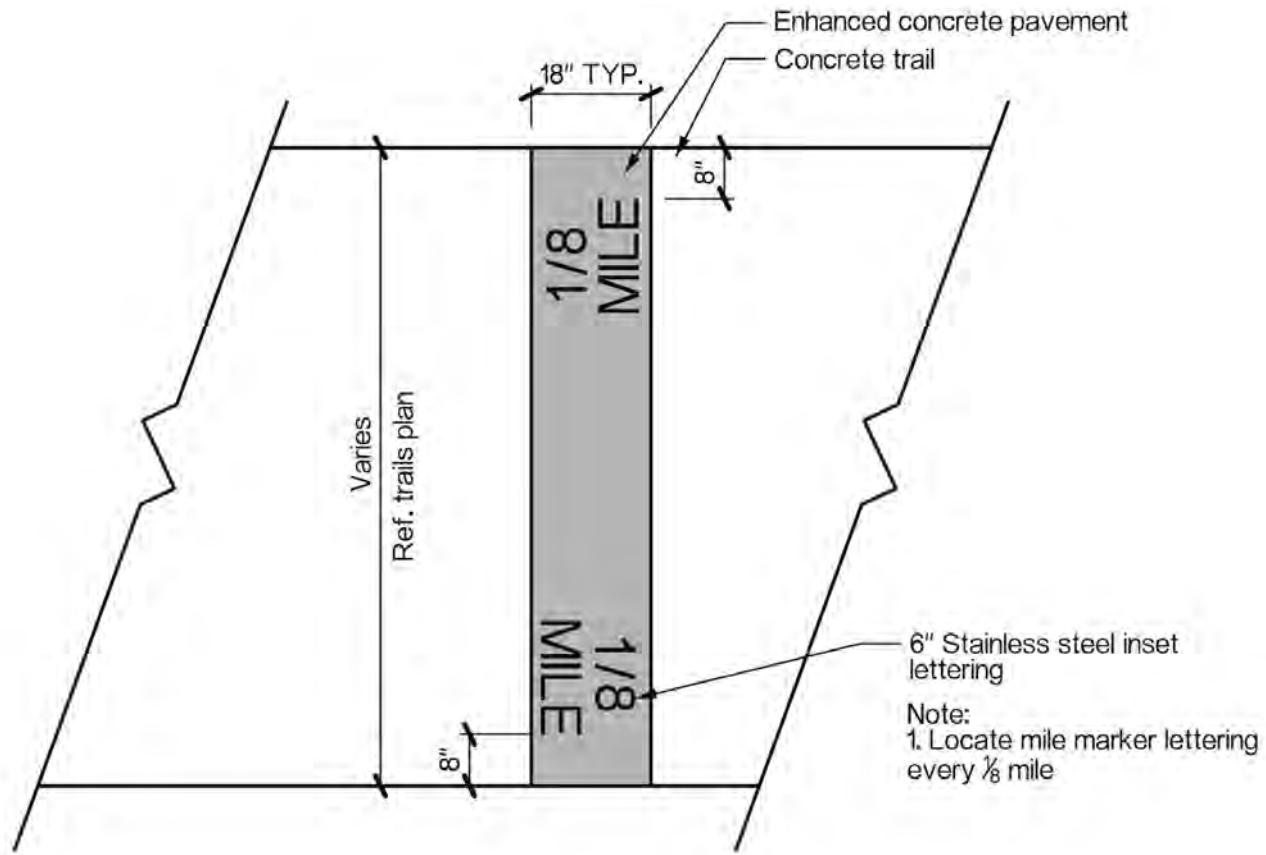


Figure A.20 – Typical Trail Mile Marker

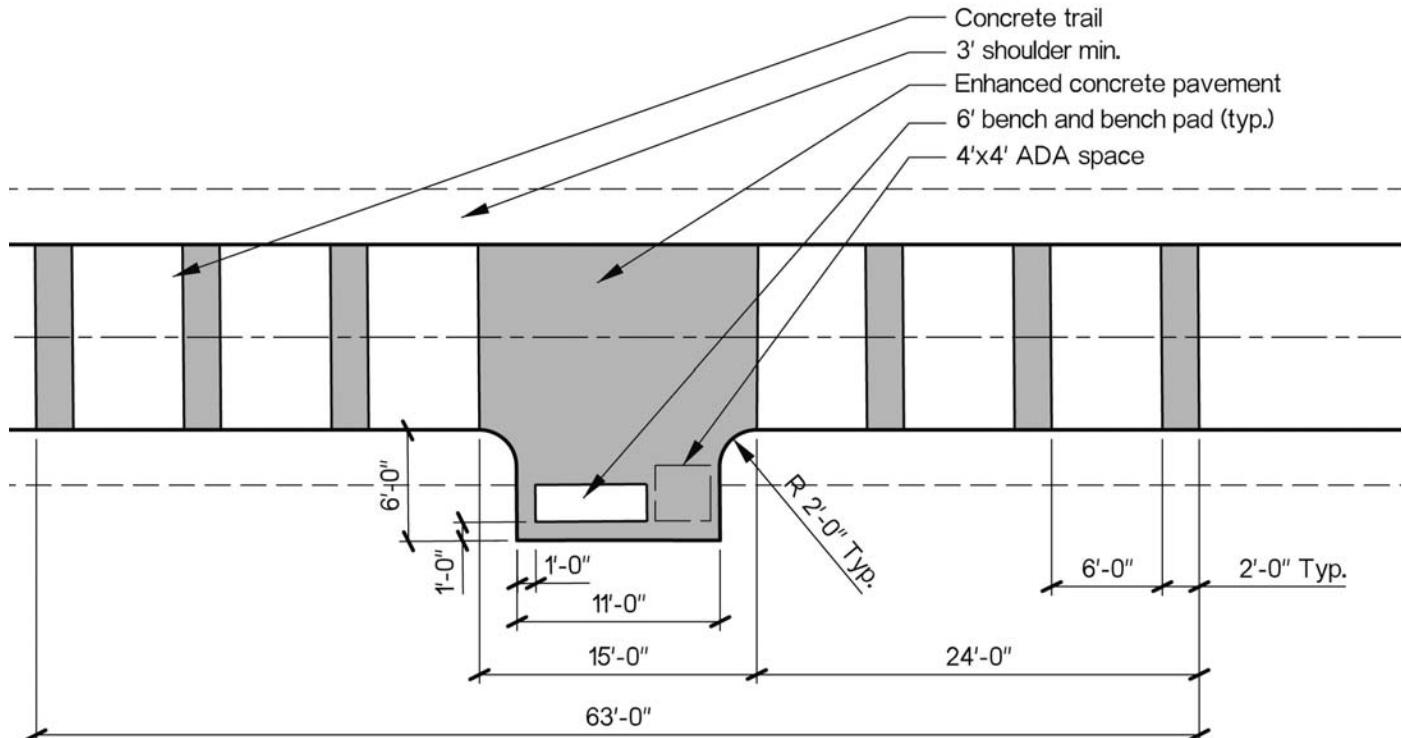


Figure A.21 – Typical Rest Area

Trailheads & Access Points

Design Objectives

- Provide transition between motorized and non-motorized transportation and recreational systems.
- Create a unique entry to the trail system through hardscape and landscape features that support aesthetic guidelines established in these standards.
- Encourage use of trail and bicycle routes as alternative transportation paths within the city.
- Provide access to a variety of destinations, streets, and trails.
- Utilize existing facilities such as schools, civic facilities (library, city hall, etc.) and parks as trailheads.
- Establish a hierarchy of major trailheads, minor trailheads, and access points.
- Encourage shared use of parking when appropriate and when such shared use would not have a negative impact on the parking availability of the primary parking lot user.

Trailhead Design Standards

- a. **Trail Markers**: A minimum of one (1) trail marker shall be provided at each major and minor trailhead located such that it indicates the primary trail access point.
- b. **Parking**: A minimum of ten (10) parking spaces and one (1) handicap space shall be provided at major trailheads. A minimum five (5) spaces and one (1) handicap space shall be provided at minor trailheads. In both instances, the handicap parking space must be van accessible. Sidewalks shall connect handicap spaces to the trails and the parking lot shall be signed for trailhead usage.
- c. **Bike Racks**: Bike racks approved by the City shall be provided at a ratio of one (1) bike space for every two (2) car parking spaces. No less than five (5) bike spaces shall be provided in a rack at any trailhead.
- d. **Drinking Fountains**: One (1) drinking fountain approved by the City shall be provided within 30' of benches and bike racks. Drinking fountains shall be per the City of Cedar Hill's standard, or approved equal. Drinking fountains shall comply with City standard specifications.

- e. Benches: One (1) bench approved by the City for every three (3) parking spaces shall be provided, with minimum four (4) benches provided at major trailheads and two (2) benches provided at minor trailheads.
- f. Lighting: Parking lots and trail intersections shall be lighted to a minimum of $\frac{1}{2}$ footcandle with appropriate commercial light fixtures and no spillover to adjacent property.
- g. Trail Termination: Trails that terminate at trailheads shall receive landscape traffic control measures for buffering and guiding the direction of pedestrian and bicycle traffic.
- h. Trees: Trailheads shall provide one (1) canopy tree per two (2) parking spaces with a minimum of five (5) trees required. Three (3) ornamental trees shall equal one (1) canopy tree. (See Landscape Ordinance for minimum sizes and specifications for shade and ornamental trees).
- i. Identification: Trailheads shall be identified by trail markers.
- j. Signage: Directional and wayfinding signage shall be provided at each major and minor trailhead and shall at a minimum include a map of the City's trail system.

Trail Access Point Design Standards

- a. Trail Markers: One (1) trail marker shall be provided at each access point.
- b. Parking: Off-street parking is not required at trail access points.
- c. Bike Racks: One (1) bike rack (holding capacity of five bikes) shall be provided at any trail access points.
- d. Drinking Fountains: No drinking fountains are required at access points.
- e. Benches: One (1) bench approved by the City shall be provided.
- f. Trail Termination: Trails that terminate at trail access points shall receive landscape traffic control measures for buffering and direction of pedestrian and bicycle traffic.

Maintenance Standards

In order to ensure the long-term sustainability and continued enjoyment of Cedar Hill's trail system, it is imperative that the City's maintenance program be effective and thorough. In general, trail maintenance activities most often include pavement stabilization, landscape maintenance, facility upkeep, sign replacement, mowing, litter removal, and painting. A successful maintenance program requires vigilance, continuity, and the involvement of citizens in maintaining and informally policing the trails (such as a neighborhood watch program applied to a trail corridor). Routine maintenance on a year-round basis will not only improve trail safety, but will also prolong the life of the trail. Apart from its capacity to continually attract users, a good trail maintenance program has the following benefits:

- A high standard of maintenance is an effective advertisement to promote the trail as a city, regional, and state recreational resource
- Good maintenance deters vandalism, litter, and encroachments
- Good maintenance promotes positive public relations between the adjacent land owners and managing agency
- Good maintenance makes enforcement of regulations on the trail more efficient. Local clubs and interest groups will take pride and ownership of "their" trail and will be more apt to assist in its protection
- A proactive maintenance policy improves safety along the trail
- Good maintenance protects the tax payers' investments

The following section illustrates the framework of an effective maintenance program that the City of Cedar Hill should use as a model for its maintenance practices. The first section (General Considerations) describes common trail maintenance issues and strategies. After that, a typical trail maintenance schedule is provided.

These maintenance standards do not apply to bikeways and sidepaths along roadways. Those facilities should be maintained as per the City's current roadway maintenance practices.

General Considerations

The following describes common trail maintenance issues and strategies to consider in order to address these issues.

Quality Control

Establishing a quality control program for the trail maintenance is an important responsibility of the City. The City must provide appropriate equipment, material, and labor to achieve good maintenance on an ongoing basis.

Trail and Soil Stabilization

It is crucial to protect trail stability by maintaining proper levels of backfill, profile, and contours of the subgrade. Continually maintain soil surfaces suitable for turf establishment and repair and re-establish grades in settled, eroded, and damaged areas as necessary. The grade of the soil adjacent to the edge of the trail should be maintained no higher than flush to the surface of the trail and no lower than a half-inch from the surface of the trail. Soil levels and grades adjacent to trail surfaces shall comply with ADAAG standards. Maintenance should be performed periodically and often enough to assure safety of the trail user and to maximize the life of the trail (see Table A.4).

Vegetation

Off-street trails require an unobstructed soft shoulder along both sides of the trail primarily to preclude any obstructions or hazards to cyclists (see Trail Design Standards). These soft shoulders also provide space for people to step off the trail if necessary. In order to maintain their effectiveness, shoulders must be unobstructed to maintain good visibility and to reduce hazards along the edges of trails. Vegetation is encouraged beyond the shoulder in order to provide visual interest and shade. Under-story vegetation within the shoulders of a trail should not be allowed to grow higher than 6". Vegetation along sidewalks can be allowed to grow up to 24" in height since these facilities are intended for pedestrians only.

Basic measures should be taken to protect the trail investment. This includes mowing along both sides of the trail to prevent invasion of plants into the pavement area. The standards for mowing shall be the same for like areas of similar public spaces. Tree species selection and placement should minimize vegetative litter on the trail and root uplifting of pavement. Vertical clearance along the trail should be checked on a reoccurring schedule, and any overhanging branches must be pruned

to a minimum vertical clearance of 10'. Vegetation control should be accomplished by mechanical means or hand labor. Some species may require spot application of State-approved herbicide.

Surfacing

Concrete is the recommended surface material for paved off-street trails. Cracks, ruts, and water damage to the concrete surface shall be repaired periodically and often enough to maintain barrier-free access required by ADAAG. Where drainage problems exist along the trail, ditches and drainage structures shall be kept clear of debris to prevent washouts along the trail and maintain positive drainage flow. Inspections for erosion along the trail shall be made on a reoccurring schedule and immediately after any storm that brings flooding to the local area. Natural and soft surface trails, such as those constructed with decomposed granite or earth, should closed to users during wet conditions.

The trail surface shall be kept free of debris, broken glass and other sharp objects, loose gravel, leaves, and stray branches. Trail surfaces shall be swept on a routine basis and as soon as practical after a storm event. Soft shoulders should be well maintained to assure safety and maximize their usability.

Litter and Illegal Dumping

Staff or volunteers should remove litter along the trail. Litter receptacles and dog waste stations should be placed at access points such as trail heads, rest areas and picnic areas. Illegal dumping should be controlled by vehicle barriers, regulatory signage, and fines where applicable. When illegal dumping does occur, it shall be removed as soon as possible in order to prevent further dumping. Neighborhood volunteers, friends groups (i.e. “Friends of ____ Trail”), “Adopt a Trail” groups, alternative community service crews, and inmate labor should be considered in addition to paid maintenance staff.

Signage

Directional, informational, and safety signage shall be replaced along the trail as signs become damaged or missing. Missing, damaged, or vandalized signs serve as clear, obvious indicators of ineffective maintenance practices. Considering James Q. Wilson and George L. Kelling’s “Broken Windows Theory,” which basically states that a broken window left unrepaired encourages vandalism, creates a sense of abandonment, and gives an impression of apathy, it is important to replace these signs before they become symbolic “broken windows.” As a related issue, it is important to immediately remove graffiti as it is discovered.

Recommended Maintenance Schedule

The following table summarizes a recommended maintenance schedule for the proposed trails in Cedar Hill. These guidelines address maintenance for off-street trails. On-street facilities, such as sidewalks and bike lanes, should be maintained per the City of Cedar Hill's current practices.

Table A.4 – Recommended Maintenance Schedule

Action	Frequency
Inspections	Scheduled on a routine basis
Sign replacement	Immediately upon damage, deterioration, or are missing
Pavement marking replacement	Immediately upon damage, deterioration, or are missing
Major damage response (fallen trees, washouts, or flooding)	Schedule as soon as practical
Pavement sealing and pothole repair	As needed to maintain ADA accessibility standards and a smooth surface
Introduce new tree / shrub plantings, tree trimming	Scheduled on a routine basis
Culvert inspection	Scheduled on a routine basis and after major storms
Cleaning ditches	As needed
Trash/litter pick-up	Weekly during high use; twice monthly during low use
Lighting luminary repair	Immediately upon damage, deterioration or are missing
Pavement sweeping/blowing	Scheduled on a routine basis and after major storms
Maintaining culvert inlets	Scheduled on a routine basis and after major storms
Shoulder plant trimming (weeds, trees, or brambles)	Scheduled on a routine basis
Water barrier maintenance (earthen trails)	Annually
Site furnishings, replace damaged components	Immediately upon damage, deterioration or are missing
Graffiti removal	Immediately upon notification
Fencing repair	Immediately upon damage, deterioration or are missing
Shrub/tree irrigation for introduced planting areas	Weekly during summer months until plants are established
Trail and soil stabilization	Scheduled on a routine basis.

APPENDIX E

RECOMMENDED

PLANT PALETTE

The following plant list is recommended for the planting plans as required by the City landscape ordinance, as well as City plantings in parkways and medians. The plants were chosen because they are native or are adapted to this region. The appropriate plant for the specific location shall be selected by a registered landscape architect based on its mature size, growth habit, and soil, light, and water requirements.

The use of native plant material ensures the following:

- Creates and maintains the unique character of Cedar Hill
- Ensures a native plant legacy
- Limits water use
- Reduces maintenance requirements
- Promotes civic responsibility to support indigenous materials of the local ecology

Of special note is to consider why the use of certain exotic plants (even though climatically adapted) may not be encouraged in Cedar Hill. As an illustration, reference is made to a specific small tree used extensively in the DFW metroplex.

One of the most successfully used ornamental trees used in the landscape industry today is the small crape myrtle tree (*Lagerstroemia indica*), which is an exotic plant, native to India. The very fact of this being a practical, drought tolerant small tree with many blossoms and colorful bark has caused this tree to be overused extensively as the ornamental tree of choice from the eastern states of Florida and the Carolinas, across the country to California, making the planted landscapes of this immense area uniform and somewhat boring. In fact, it may be argued that this is one of many contributing factors that have affected and essentially diluted the uniqueness of communities. After all, it is the natural surroundings, including native plants that determine the unique and special quality of a place. Small ornamental trees, also referred to as "Understory Trees" are a necessary component of the landscape. Table A.7 lists a number of small trees native to Texas including Eve's necklace, Indigo Bush, Mexican Buckeye, Mexican Plum trees, Possumhaw Holly, Texas Red Bud, and Rusty Black Haw Viburnum.

Table A.5 – Canopy Trees

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Shumard Red Oak	<i>Quercus shumardii</i>	30' O.C.	60'-80'/40'-50'
	Live Oak	<i>Quercus virginiana</i>	40' O.C.	60'-80'/60'-120'
	Cedar Elm	<i>Ulmus crassifolia</i>	30' O.C.	50'-70'/40'60'
	Big Tooth Maple	<i>Acer grandidentatum</i>	20' O.C.	20'-30' High & Wide
	Bald Cypress	<i>Taxodium distichum</i>	20' O.C.	60'-80'/25'-30'
	Bur Oak	<i>Quercus macrocarpa</i>	30' O.C.	40'-60/30'-40'

Table A.6 – Canopy Trees

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Red Maple 'October Glory"	<i>Acer rubrum</i> 'October Glory'	20' O.C.	30'-35'/25'-30'
	Chinquapin Oak	<i>Quercus muhlenbergii</i>	30' O.C.	40'-60/30'-40'
	Lacebark Elm	<i>Ulmus parvifolia</i>	20' O.C.	30'-50/25'-35'
	Texas Ash	<i>Fraxinus texensis</i>	20' O.C.	35'-45'/25'-35'
	Red Maple 'October Glory"	<i>Acer rubrum</i> 'October Glory'	20' O.C.	30'-35'/25'-30'

Table A.7 – Understory Trees

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Possumhaw Holly	<i>Ilex decidua</i>	10' O.C.	15'-20'/10'-15'
	Texas Redbud	<i>Cercis canadensis</i> var. <i>texensis</i>	15' O.C.	20'-30'/15'-30'
	Flameleaf Sumac	<i>Rhus lanceolata</i>	10' O.C.	12'-15'/10'-12'
	Vitex	<i>Vitex angus-castus</i>	10' O.C.	15'-20'/10'-15'
	Shantung Maple	<i>Acer truncatum</i>	15' O.C.	20'-25'/15'-20'
	Desert Willow	<i>Chilopsis linearis</i>	15' O.C.	12'-15'/15'-20'

Table A.8 – Understory Trees

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Chitalpa/Chitalpa tashkentensis	<i>Chitalpa tashkentensis</i>	20' O.C.	15'-20'/20'-30'
	Mexican Buckeye	<i>Ungnadia speciosa</i>	10' O.C.	12'-15'/12'-15'
	Yaupon holly	<i>Ilex vomitoria</i>	10' O.C.	12'-15'/10'-12'
	Wax Myrtle	<i>Myrica cerifera</i>	8' O.C.	12'-15'/8'-10'
	Eve's Necklace	<i>Sophora affinis</i>	15' O.C.	15'-35'/10'-20'
	Indigo Bush	<i>Amorpha fruticosa</i>	10' O.C.	10'-12'/10'-12'

Table A.9 – Understory Trees

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Mexican Plum	<i>Prunus mexicana</i>	15' O.C.	15'-35'/10'-20'
	Rusty Blackhaw	<i>Viburnum rufidulum</i>	15' O.C.	15'-20'/10'-20'
	Western Soapberry	<i>Sapindus saponaria</i> var. <i>drummondii</i>	15' O.C.	10'-50'/10'-30'

Table A.10 – Evergreen Trees

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Cherry Laurel	<i>Prunus caroliniana</i>	10' O.C.	20'-25'/12'-18'
	Savannah Holly	<i>Ilex opaca X attenuata 'Savannah'</i>	8' O.C.	30'-40'/10'-15'
	Nellie R. Stevens Holly	<i>Ilex X 'Nellie R. Stevens'</i>	4' O.C.	20'-30'/15'
	Eastern Red Cedar	<i>Juniperus virginiana</i>	10' O.C.	40'-50'/10'20'

Table A.11 – Large to Medium Shrubs

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Abelia 'Edward Goucher'	<i>Abelia x grandiflora</i> 'Edward Goucher'	36" O.C.	4'-6'/4'-5'
	Common Buttonbush	<i>Cephalanthus occidentalis</i>	6' O.C.	6'-12' High & Wide
	Soft Leaf Yucca	<i>Yucca recurvifolia</i>	48" O.C.	6' Tall & Wide
	Texas Sage	<i>Leucophyllum frutescens</i> 'Compacta'	36" O.C.	5' High & Wide
	Dwarf Wax Myrtle	<i>Myrica cerifera</i> var. <i>pumila</i>	36" O.C.	3'-6' High & Wide
	American Beautyberry	<i>Callicarpa americana</i>	48" O.C.	3'-5' High & Wide

Table A.12 – Large to Medium Shrubs

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Common Elderberry	<i>Sambucus nigra</i> ssp. <i>Canadensis</i>	12' O.C.	12'/10'-12'
	Smooth Sumac	<i>Rhus glabra</i>	12' O.C.	10-20'/10'-15'
	Green Cloud Texas Sage	<i>Leucophyllum frutescens</i> 'Green Cloud'	6'	6' High & Wide
	Swamp Rose	<i>Rosa palustris</i>	6'	6'-8' High and Wide
	Yellow Bells	<i>Tecoma stans</i>	6'	3'-6' High and Wide
	Texas Lantana	<i>Lantana urticoides</i>	6'	3'-6' High and Wide

Table A.13 – Medium to Small Shrubs

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/ Width
	Autumn Sage	<i>Salvia greggii</i>	24" O.C.	3' High & Wide
	Red Yucca	<i>Hesperaloe parviflora</i>	36" O.C.	3' High & Wide

Table A.14 – Tall to Medium Ornamental Grass

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Miscanthus 'Adagio'	<i>Miscanthus sinensis</i> 'Adagio'	36" O.C.	3'-6'/3'-4'
	Indian Grass	<i>Sorghastrum nutans</i>	5' O.C.	5'-6'/2'-3'
	Lindheimer's Muhly	<i>Muhlenbergia</i> <i>lindheimeri</i>	36" O.C.	3'-5' High & Wide
	Gulf Muhly	<i>Muhlenbergia</i> <i>capillaris</i>	2' O.C.	3' High & wide

Table A.15 – Medium to Low Ornamental Grasses

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Bushy Bluestem	<i>Andropogon glomeratus</i>	36" O.C.	2'-5'/ mostly vertical growth
	Mexican Feather Grass	<i>Stipa tenuissima</i>	36" O.C.	24"-30"/24"-30"
	Weeping Love Grass	<i>Eragrostis curvula</i>	12" O.C. for 1 gallon	24"-30"/18-24"
	Inland Sea Oats	<i>Chasmanthium latifolium</i>	N/A	24"-48"/18-24"
	Little Bluestem	<i>Schizachyrium</i>	N/A	18"-24"/18-24"
	Sideoats Grama	<i>Bouteloua curtipendula</i>	N/A	24"-36"/18-24"

Table A.16 – Turf Grasses

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Buffalo Grass	<i>Buchloe dactyloides</i>	n/a	n/a
	Common Bermuda Grass	<i>Cynodon dactylon</i>	n/a	n/a

Table A.17 – Groundcovers and Vines

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Coral Honeysuckle	<i>Lonicera sempervirens</i>	24" O.C.	n/a
	Virginia Creeper	<i>Parthenocissus quinquefolia</i>	36" O.C.	n/a
	Purple Wintercreeper	<i>Euonymus fortunei</i> 'Coloratus'	18" O.C.	n/a
	Crossvine	<i>Bignonia capreolata</i>	24" O.C.	n/a
	Texas Wisteria	<i>Wisteria frutescens</i>	24" O.C.	n/a

Table A.18 – Perennials

Plant Image	Common Name	Scientific Name	Minimum Spacing	Typ. Mature Height/Width
	Fall Aster	<i>Aster oblongifolium</i>	36" O.C.	2'-3'/3'
	Maximilian Sunflower	<i>Helianthus maximiliani</i>	6"-12" O.C.	3'-10' High
	Mealy Blue Sage	<i>Salvia farinacea</i>	6"-12" O.C.	2'-3' High

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APPENDIX F

PARK LAND

DEDICATION

ORDINANCE

METHODOLOGY

The Master Plan recommends revising the Park Land Dedication Ordinance so that the fees and land conveyance required are proportionate to the impact of new development (see Chapter 7, Section 7.3). This appendix summarizes the current ordinance and describes a recommended method for calculating conveyance of land, fees in lieu of land, and park development fees.

Current Ordinance

The current ordinance contains the following requirements:

1. ***Conveyance of land requirements:***
 - a. 1 acres/133 dwelling units for residential development.
 - b. At least 5 acres must be above the 100-year floodplain. If the dedication is greater than 10 acres, less than 50% should be included in the 100-year floodplain. In terms of acreage requirements, there is no differentiation between floodplain and out-of-floodplain land (i.e., floodplain is accepted at a 1:1 ratio).
 - c. No dedication of less than 5 acres accepted
2. ***Payment in lieu of land:*** \$250 per dwelling unit
3. ***Park Development fee:*** \$250 per dwelling unit

Recommended Calculation Methodology (Example)

The following methodology illustrates a defensible manner in which to calculate land conveyance requirements, fees in lieu of land, and park development fees:

1. ***Conveyance of land requirements:***
 - a. Current level of service can be maintained by increasing the conveyance of land requirement to 1 acre per 37.2 dwelling units
 - i. Current population is 45,260
 - ii. Current household size is 3.24 people/household
 - iii. Current number of households is 13,976
 - iv. Current park level of service is 8.3 acres per 1,000 population (1 acre per 120.5 population)¹
 - v. 8.3 acres per 1,000 population = 1 acre per 37.2 dwelling units.
 - b. Requiring that no more than 50% of the required land dedicated be within the 100-year floodplain (with at least

¹ Includes neighborhood and community parks only.

5 acres out of floodplain) ensures adequate dry land for a neighborhood park. Accept floodplain land at a 1:2 ratio (floodplain to non-floodplain) increases public access to undevelopable land for recreational purposes.

- i. If a developer is required to dedicate 7 acres, he may either:

- 1. dedicate 7 acres out-of-floodplain, or
- 2. dedicate at least 5 acres out-of-floodplain and 4 acres in-floodplain.

- ii. If a developer is required to dedicate 12 acres, he may either:

- 1. dedicate 12 acres out-of-floodplain, or
- 2. dedicate at least 6 acres (50% of the total) out-of floodplain and 12 acres in-floodplain.

- c. Continuing to require a minimum dedication size of 5 acres for neighborhood/suburban areas² maintains the City's standards for neighborhood park size.

- 2. **Payment in lieu of land:** Basing this figure on the true cost of land ensures the payment in lieu is relative to the actual cost to purchase property. Assuming land value at \$60,000 per acre results in a figure of \$1,613 per dwelling unit:

- a. Cost of land³ = \$60,000/acre; conveyance = 1 acre/37.2 dwelling units; then \$60,000/37.2 = \$1,613 per dwelling unit.

- b. Alternatively, the developer may, at his/her own expense, obtain an appraisal by a State of Texas certified real estate appraiser, mutually agreed upon by the City and the developer.

- 3. **Park Development Fee:** Increasing the fee to \$4,468 per dwelling unit (single and multi-family) reflects the actual cost to develop the new neighborhood and community parks that will be necessitated by future development.

- a. Neighborhood Park Development Fee: \$1,461/dwelling unit

- i. Cost to develop an average neighborhood park in the Metroplex = \$1.2 million;
- ii. Current neighborhood parks serve 2,662 people on average (current population of 45,260 divided by 17 existing neighborhood parks).

² More densely urbanized areas (such as Downtown) may warrant parks and plazas as small as 1 acre.

³ Land costs can range from \$20,000 to over \$100,000 per acre. An average cost of \$60,000 per acre is used in these calculations

- iii. Cost per person served to develop an average neighborhood park: $\$1.2 \text{ million}/2,662 = \$451/\text{person}$.
 - iv. The average household in Cedar Hill contains 3.24 persons;
 - v. Neighborhood park development fee is calculated as: $\$451 \times 3.24 = \$1,461/\text{dwelling unit}$
- b. Community Park Development Fee: $\$3,007/\text{dwelling unit}$
- i. Cost to develop an average community park in the Metroplex = \$7 million;
 - ii. One community park generally serves 7,543 people (current population of 45,260 divided by 6 existing community parks).
 - iii. Cost per person served to develop an average community park: $\$7 \text{ million}/7,543 = \$928/\text{person}$.
 - iv. The average household in Cedar Hill contains 3.24 persons;
 - v. Community park development fee is calculated as: $\$928 \times 3.24 = \$3,007/\text{dwelling unit}$

