Houston-Galveston Area Council Livable Centers Study:

DESIGNWORKSHOP

# Cypress Creek Parkway

Harris County, TX

*November 2014*

H-GAC

HNW Houston Northwest CHAMBER OF COMMERCE

**Ponderosa Forest Utility District**

**Cypress Creek Property Owners' Association**

DESIGNWORKSHOP
Landscape Architecture, Planning and Urban Design

steer davies gleave
Transportation Engineering

CobbFendley
Civil Engineering

CDS Market Research
Community Development Strategies
Economic Analysis

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# Executive Summary

The Cypress Creek Parkway Livable Center Study describes a vision for the Study Area that addresses the community's desire for an increased quality of life in the form of a context-sensitive, multi-modal and economically vibrant environment. The Study should address the needs of current residents and business owners, but set the tone for future redevelopment.

The Cypress Creek Parkway Study Area is approximately 20 miles northwest of downtown Houston just outside of the city limits in Harris County. The Study Area is composed of 1,600 acres with a population of approximately 6,100. Commercial, office and residential land uses lie in the Study Area.

The Study's Stakeholder Advisory Committee (SAC) and client group provided guidance and input throughout the project. The Study began with a Values Workshop in May 2014. The Values Workshop solicited attendees' visions for Cypress Creek Parkway and prioritized strategies to achieve these visions. Case studies were researched to understand what communities with similar challenges did to overcome vacancies, high speed pass-through traffic and auto-oriented development patterns.

The team performed a needs assessment analysis to understand the Study Area's strengths, weaknesses, opportunities and threats. Prior studies were reviewed to gain an understanding of past recommendations so the Study could build from the body of work that has already been done. The goals developed with the client group and stakeholders were made measurable by researching benchmarks and setting targets based on that research. The metrics are what will help the plan move forward in the future and provide a guide for implementers to see if the recommendations in place are performing as they should.

Using the preferred strategies voiced by the community and client group, and redevelopment best practices, the team formulated several catalyst projects to reinvigorate the area. The projects were deliberately designed on a wide spectrum of implementation timeframes – instant impact to long-term vision. An "Alternatives Webinar", accompanied by an online survey, was performed in July 2014 to give people an opportunity to voice their opinion on the preferred alternative. The Recommendations Workshop in September gave attendees a preview of the final study recommendations and a chance for them to provide final input.

Implementation is the key factor in moving a plan into action. The Implementation chapter outlines strategies, order of magnitude costs and potential partners for each of the recommendations. The strategies are broken out into short-, medium- and long-term time frames. The short-term strategies are intended to be action items that can be quickly achievable (within months) and provide the community with a sense that positive change is happening.

There exists a high level of excitement over this plan and its potential for positive change in the Cypress Creek region. With the right partners and a focus on the implementation of quantifiable results, Cypress Creek Parkway can become a truly livable center.

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# Introduction

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# Project Background

## Purpose

The Cypress Creek Parkway Livable Centers Study is the result of collaborative planning efforts between the Houston-Galveston Area Council (H-GAC), Houston Northwest Chamber of Commerce, Ponderosa Forest Utility District and the Cypress Creek Parkway Property Owners' Association.

The overall goal of the study is to create a Livable Centers plan for the Cypress Creek Parkway Study Area that will lead to a context-sensitive, multi-modal, economically-vibrant environment that addresses the needs of residents and visitors. This study intends to establish practical short and long-term implementation strategies that will improve the quality of the living, working and civic environments in the Study Area. It seeks to enhance Cypress Creek as a destination characterized by diverse housing and employment choices, thriving businesses and vibrant street life.

## Study Area Overview

Located approximately 20 miles northwest of downtown Houston, the Study Area lies just outside of City of Houston limits, in unincorporated Harris County.

The Study Area comprises just over 1,600 acres, or two and a half square miles. Current population of the Study Area is estimated to be 6,100 people. The Cypress Creek Parkway Study Area includes properties on either side of Cypress Creek Parkway (formerly FM 1960), roughly between Gladebrook Drive (Oak Creek Village) and Interstate 45. This area encompasses several activity nodes, including Houston Northwest Medical Centers, TOPS Surgical Hospital and the Cypress Creek Parkway/Kuykendahl Road intersection.

### *Existing Conditions and Land Use*

The Study Area is centered on Cypress Creek Parkway, a major east-west thoroughfare with high traffic volumes (60,000-70,000+ average daily traffic (ADT) according to H-GAC), a majority of which passes through the area to destinations beyond. The roadway is also served by the Metropolitan Transit Authority of Harris County (METRO) bus route 86, providing service every 20-30 minutes. Bus stops are located throughout Cypress Creek Parkway, but they rarely have sidewalk access.

The current land use within the Study Area can be characterized as a residential neighborhood surrounded by commercial strips bordering both Kuykendahl and Cypress Creek Parkway.

Vacancies are a problem throughout the Study Area, particularly within these commercial strips, as many of the larger parcels are currently underutilized or vacant.

Amenities within the area (Figure 1) include a private Christian charter school and Ponderosa and Helen Major Elementary Schools. A junior high and high school are located just outside the site boundaries to the southeast. Until recently, a YMCA was located just west of Ella Boulevard and north of Cypress Creek Parkway. Ponderosa Forest Park to the north of the site serves as a local recreational amenity. In addition, planning and construction is currently underway on the Cypress Creek Greenway, a 40 mile trail following Cypress Creek as it flows through the region.

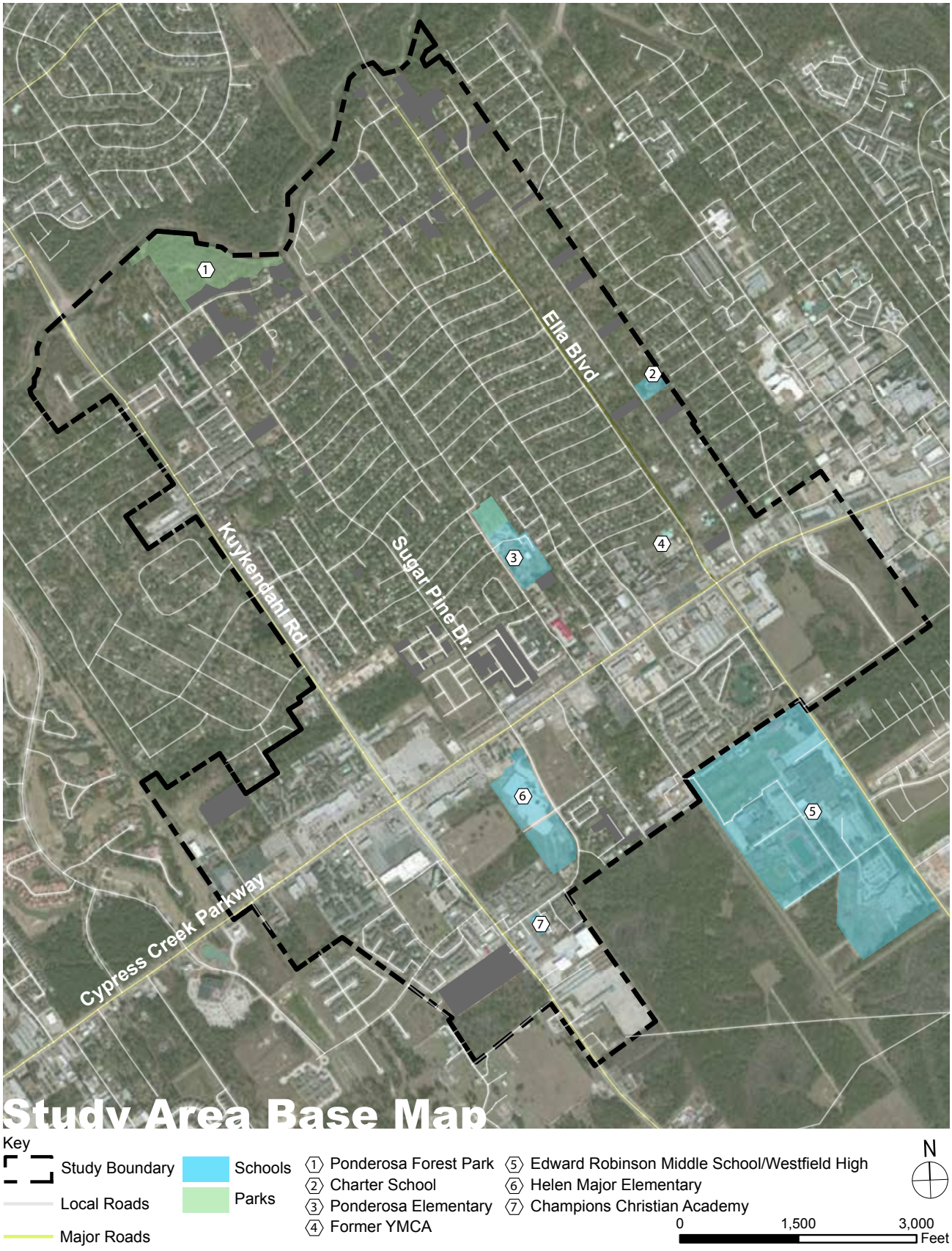



**Figure 1:** *Base Map*

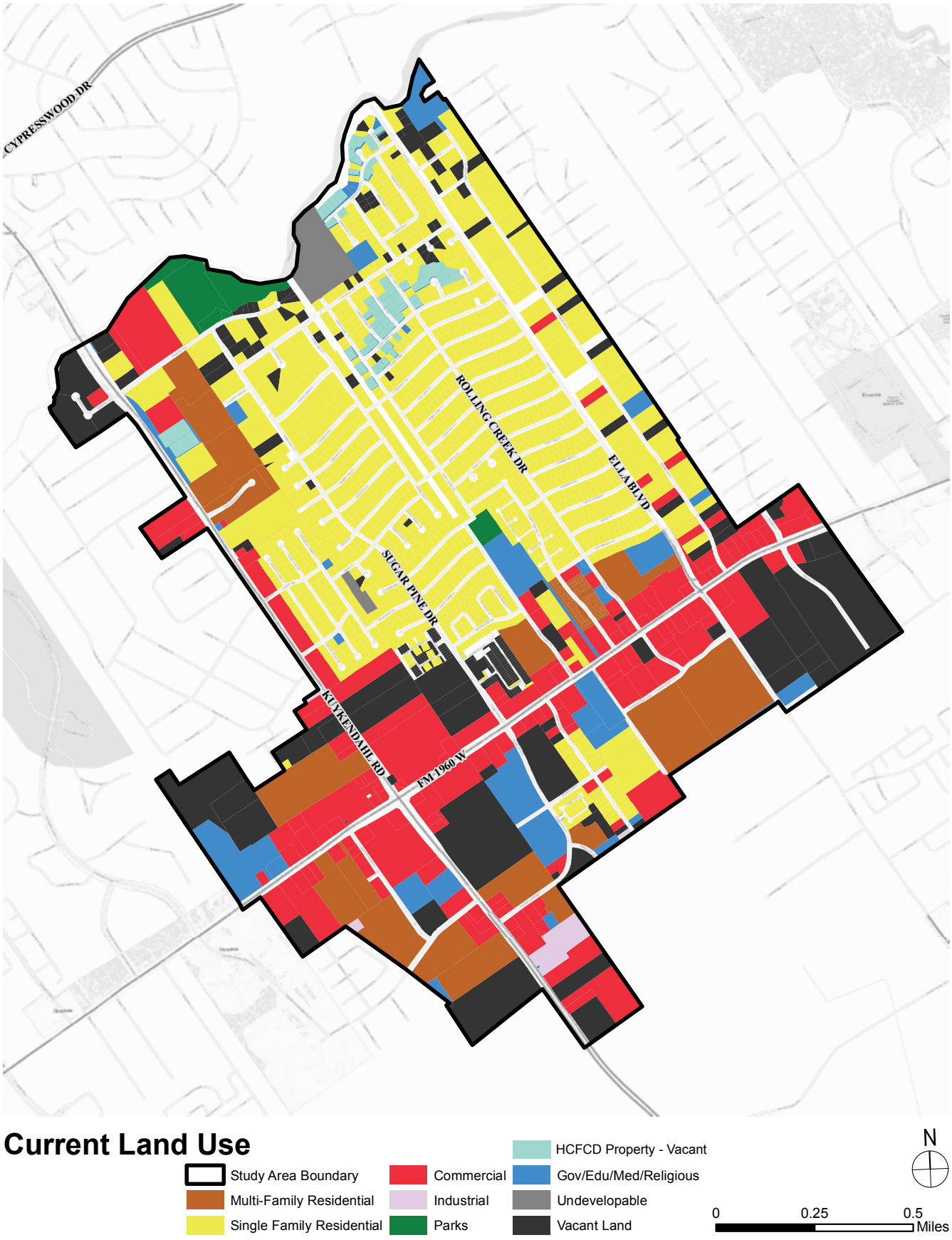



**Figure 2:** *Current Land Use*

# Livable Centers Studies

The Livable Centers Studies are a series of planning and design efforts which provide visions and strategies to increase the quality of life of those within the H-GAC region.

These studies are developed as community driven processes. All Livable Centers Studies share the goals of creating walkable communities, compact and mixed-use development, multi-modal transportation, improved environmental quality and economic development. For this and other Livable Centers studies, the focus and emphasis is shaped by the community's participation in the planning process.

## Vision

The purpose of the Cypress Creek Parkway Livable Centers Study is for Cypress Creek Parkway to become a catalyst for the redevelopment and enhancement of the corridor, creating an economically vibrant Cypress Creek Community. The vision includes:

- Fully tenanted retail and office space;
- Aesthetically pleasing hardscape and softscape;
- Areas where automobile traffic works in concert with pedestrian and bicycle traffic; and
- The creation of a community nexus that communicates a positive and unified community brand.

## Project Challenge

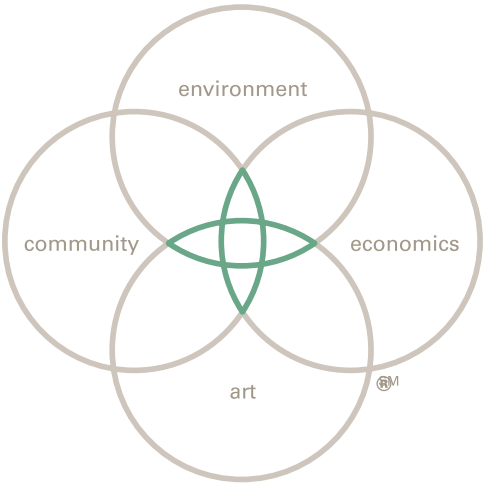
Empty retail space, unkempt properties, unsightly signage and an increasing perception of crime all contribute to an unpleasant environment through major portions of the community. Concerns exist that this blight will march westward to impact a larger stretch of the community's "Main Street" - Cypress Creek Parkway.

In recent years, residential property values have not seen the same gains in land value as elsewhere in the Houston Region. Properties built after 1995 have experienced a 12 percent decrease in value since the early 2000s. Older homes have experienced a slim 1 percent gain from 2000 to 2013 in the area as a result of many businesses and homeowners relocating to other, newer locations to the north and west such as The Woodlands.

## Project Approach

By providing a framework that will allow H-GAC, the Houston Northwest Chamber of Commerce, MUDs, citizens and activists to successfully generate public and private investment, this study acts as a road map towards the revitalization and rejuvenation of an aging suburban pattern.

In order to achieve this goal, the team identified and confirmed the client's critical success factors, principles that must be incorporated into the project in order to measure its success.




*DW Legacy Design® utilizes categories of art, environment, economics and community to ensure that a comprehensive set of goals, metrics and strategies are developed to provide useful tools to the leaders and community of Cypress Creek Parkway.*

*This study began with a public outreach process that gathered stakeholder thoughts, concerns and visions for the community.*


*Public comments provided on a map gave the team an improved understanding of local resident perceptions.*

*Critical Success Factor #1:*
Introduce increased bicycle and pedestrian access, improved connectivity from residential areas to transit, lifestyle and employment centers, and the Cypress Creek Greenway, while increasing the safety of all travelers in the Study Area.

*Critical Success Factor #2:*
Analyze the need for improved residential housing and commercial property. Review the treatment of public right of way in collaboration with TxDOT, METRO, Harris County, and the City of Houston. Identify other place-based amenities and ensure connectivity between them.

*Critical Success Factor #3:*
Reduce dependence on automobile travel within the corridor and explore the development of parks, trails and greenspace.

*Critical Success Factor #4:*
Create vibrant, mixed-use commercial centers that are connected to housing, employment and transit.

*Critical Success Factor #5:*
Increase the commercial property value by at least 5 percent within two years of implementation.

*Critical Success Factor #6:*
Create an aesthetically pleasing entrance/ processional into a well-branded community.

*Critical Success Factor #7:*
Improve the current stock of single family housing's competitiveness with newer development outside the Study Area.

# Public Process: Values Workshop

On May 8, 2014, the Cypress Creek Parkway Livable Center Study began by holding a public workshop in order to gather community feedback to prioritize goals for the project.

Thirty residents, business owners and stakeholders attended the first meeting and provided the input which began to guide the direction of the Cypress Creek Livable Centers Study.

## Stakeholder Advisory Committee

In order to guide the Cypress Creek Parkway Livable Centers Study, a 16 person stakeholder advisory committee (SAC) composed of representatives from TxDOT, METRO, Ponderosa Forest Utility District, the City of Houston, local property owners, places of worship, major employers and community advocates was formed. This group provided direction and input throughout the course of the Cypress Creek Parkway Livable Centers Study.

A SAC meeting was held alongside each public meeting to provide a forum for focused feedback and discussion.

## Community Vision and Results

During the values workshop, attendees provided feedback via keypad polling software regarding the perceived importance of the Livable Centers principles and goals. The prioritization exercise resulted in economic development and the creation of compact and mixed-use developments being the most highly valued principles.

Details of this community feedback are illustrated in Figure 3.

In addition to survey responses, meeting attendees participated in a mapping

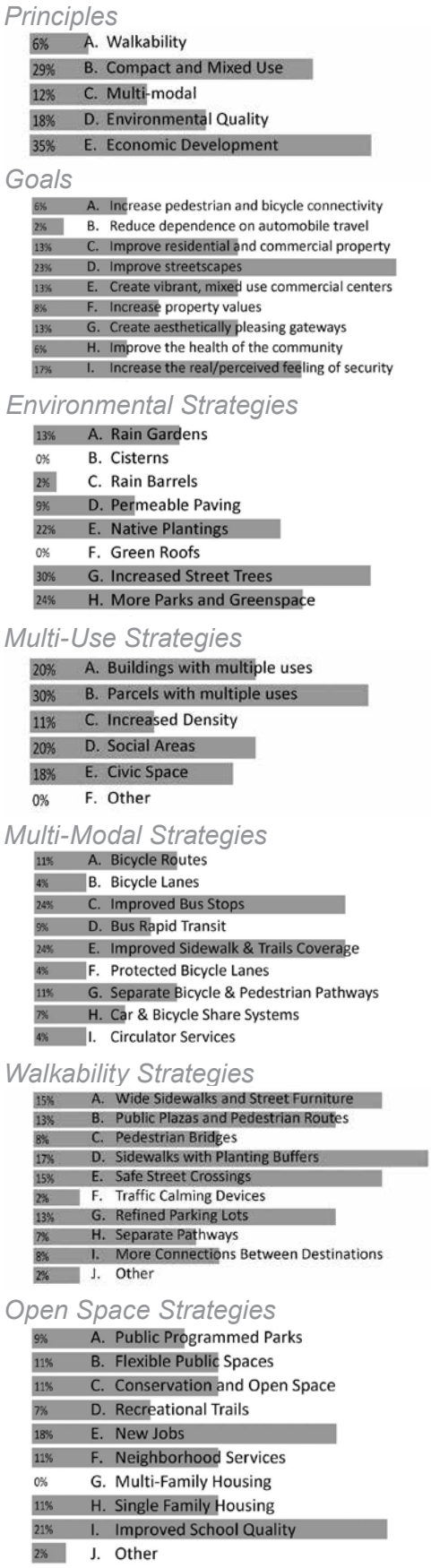



**Figure 3:** *Visioning Workshop Public Priorities*

*Looking down 28th Street Roadway before reconstruction.*

*The same 28th Street Roadway view after reconstruction.*

exercise in which they placed markers and notes on maps of the Study Area to indicate opportunities and constraints resulting from existing conditions.

Opportunities that were identified included the following:

- Green space and beautification along roadways;
- A boat launch and further recreational development along Cypress Creek; and
- Additional roadway connections that could relieve congestion.

Constraints identified included:

- Residents leaving area to shop north;
- Lack of gateway signage;
- Nighttime shopping safety;
- Development of storage facilities;
- Pedestrian crossings; and
- Potential thoroughfare with future bridge implementation.

## Precedent Case Studies

As part of the study process, a number of benchmark examples were selected in order to provide an understanding of precedent projects and to create baselines by which to measure the success of Cypress Creek Parkway planning and implementation efforts. The precedents are divided into two categories: site redevelopment and corridor revitalization projects.

Each example was selected for similarities to Cypress Creek Parkway, from roadway configuration and traffic volumes to land use patterns and history echoing that of the Cypress Creek Parkway community.

### *Corridor Redevelopment Projects*

*28th Street Roadway, Boulder Colorado*

Boulder, Colorado is known as a pedestrian and bicycle friendly city. Yet 28th Street remained an important corridor with high speeds and heavy traffic. With up to seven travel lanes, the road was traveled everyday by 30-50,000 vehicles. The street lacked infrastructure for pedestrians, bicyclists and transit riders. It was difficult to cross the street or cycle along 28th Street. Retrofitting 28th Street into a “Complete Street” became very important to the community to provide improved access for all transportation users. A design advisory committee was created including community members, representatives from adjacent businesses, college students, transit riders, motorists and bicycle commuter groups.

Plans and improvements included:

- New bike lanes and transit stops;
- Improved roadway lighting;
- Construction of new sidewalks, multi-use pathways, a bike/pedestrian bridge;
- Shared right-turn lanes;
- New mid-block pedestrian crossings; and
- Additional left-turn lanes.

This redesign resulted in many successes, including increased pedestrian activity and bicyclist use of the on-street sidewalks and bicycle lanes connecting the University of Colorado with the regional shopping district. Additionally, five new multi-family housing developments were built adjacent to the project, providing housing for seniors and students.

The 28th Street redesign illustrates how high volume roadway transportation projects can focus on multi-modal transportation solutions. These multi-modal redesigns benefit not just alternative transit users, but the local economy as well.

*Lancaster Boulevard, Lancaster, California*

Lancaster Boulevard in downtown Lancaster, California is the Main Street of the city and had been in decline for the past 20 years. Lancaster is a sprawling suburb. Lancaster Boulevard was very wide with two driving lanes in each direction, a center turn lane and parking on either side. High-speed traffic, poor pedestrian facilities, excessive parking and limited retail activity were prevalent along the boulevard. Lancaster City planners sought local business owner opinions and visions for the future of the boulevard. In 2010, it underwent a complete streetscape redesign and was re-branded 'The Boulevard'.

Specific improvements and changes added during the reconstruction process included:

- New pedestrian streetscape;
- Lane narrowing;
- Center area for parking, street fairs and other activities;
- Improved public facilities;
- Improved pedestrian connections;
- Creation of affordable homes; and
- New business development.

The project resulted in 50 new businesses relocating to the area after the redesign was complete and the downtown district seeing a 96 percent increase in revenue since 2007. Lancaster Boulevard is an excellent example of a public-private partnership that resulted in 800 jobs created, approximately $130 million of private investment contributed to redevelopment and more than 800 housing units built or rehabilitated.

*Aerial view of Lancaster Boulevard before reconstruction.*

*Aerial view of Lancaster Boulevard after reconstruction.*

Lancaster Boulevard was more than an economic improvement. Traffic safety upgrades and improved pedestrian facilities resulted in reduction of traffic collisions by half and an 85 percent decrease in accident related injury.

Lancaster Boulevard is an excellent case study for future redevelopment along Cypress Creek Parkway, as it illustrates the economic and safety benefits wrought by improving the human scale of a transportation corridor and the creation of mixed-use centers.

*The entrance to La Grande Orange, Phoenix, AZ.*


*A central street in City Center, Houston. (photo credit Google Earth)*

*Navigation Boulevard's new streetscape hosts a street festival.*

*Navigation Boulevard, Houston TX*

Navigation Boulevard in Houston, Texas, is part of the Greater East End District and has become the East End's new Main Street. Originally filled with industrial land uses, Navigation Boulevard itself had become a through street with high speed traffic. The Boulevard is being converted to a destination that is transit friendly, pedestrian-oriented and lively, complementing the existing neighborhood culture. The plan for Navigation Boulevard is to become a dynamic, mixed-use neighborhood with urban housing developments.

The reconstruction of Navigation Boulevard has begun to create a destination through the addition of:

- Traffic calming;
- Transit shelter improvements;
- Mid-block pedestrian crossings; and
- Economic incentives for development.

The work has resulted in an increase of pedestrian activity and events throughout the year and multiple new businesses opening along the corridor. This project is an example of how physical improvements on Houston street corridors can positively affect the local economy and public life.

## *Property Redevelopment Projects*

*La Grande Orange, Phoenix AZ*

La Grande Orange, an upscale grocery store, wine bar and cafe in Phoenix, Arizona, is a well-executed redevelopment vision that required relatively minimal investment. The conversion of a former post office and laundromat in a bland strip mall into several hip eateries has managed to upgrade the social life of the entire neighborhood. Bright paint, conversion of parking lots to dining areas and a unique business model made this project stand out in a sea of suburban sameness.

The site functions as an important third place, a social gathering area beyond the two places (work and home) where

people spend the majority of their time. Demonstrative of the development's success, many local real estate listings promote their adjacency to the site.

La Grande Orange illustrates how a smart redevelopment project can bring life to a once depressed commercial area such as Cypress Creek Parkway.

*Washington Avenue, Houston, Texas*
The site of a previous H-GAC Livable Centers study, Washington Avenue, west of downtown Houston, has been subject to significant public and private reinvestment in recent years. Study efforts identified key nodes that would serve as catalyst redevelopments for the area.

Multiple new developments are in place along the corridor - new condos arriving at Studemont and Washington Avenue, mixed-use developments planned for Henderson and Westcott intersections and an upscale smoothie bar coming to empty retail spaces along Shepherd and Washington.

The reinvestment and design principles found in the Livable Centers document are providing a framework for development to contribute to high-quality streetscapes supporting multi-modal transportation and the city environment at large.

*Addison Circle, Addison , Texas*
Located on the fringe of the Dallas metropolitan area, Addison Circle represents a style of exurb development where a unique set of codes and regulations came together to build a transit-oriented development around a Dallas Area Regional Transportation rail line.

The development combined narrow streets, multi-use building patterns, low street speeds and public parks to create housing and office options unique to the area. This effort resulted in significant return on investment for both developers and the city of Addison. The Cypress Creek Parkway Study area has enough vacant commercial land that a redevelopment on this scale is not out of the question.

*New Development at 4500 Washington Ave. (photo credit Google Earth)*

*Addison Circle's easily identified iconic roundabout sculpture.*

*City Centre, Houston TX*
Located at the corner of I-10 and the Sam Houston Parkway west of Houston, City Centre provides commercial services, residences and offices to the surrounding community. Formerly the Town and Country Mall, the site was designed with multiple interior streets that create a community center and walkable street environment.

Executed as high end retail, office and residential land uses, the site illustrates how a well developed plan that internalizes the development's roadways can maintain high end rents even when located adjacent to a busy road thoroughfare, such as Cypress Creek Parkway.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# Needs Assessment

Needs Assessment

Methodology

- **Prior Studies Reviewed**
- **Cypress Creek SWOT Analysis**
- **Metrics**
- **Economics**
- **Environment**
- **Community**
- **Art**

Existing Conditions and Economic Analysis Summary

# Needs Assessment

This chapter serves as documentation of on the ground conditions within the Study Area. Through identification of trackable metrics and relevant baselines, future efforts to improve Cypress Creek Parkway can be tracked and monitored for progress.

# Methodology

## Prior Studies Reviewed

The Cypress Creek Parkway Corridor has been under scrutiny for some time as a target area for future redevelopment and a locale in need of economic development and improved aesthetics. The following documents were reviewed in order to provide background and guidance to this study:

- FM 1960 Access Management Study (2004);
- Renaissance 1960 Working Plan (2008);
- Community Assessment of Northwest Harris County (2009);
- Houston NW Chamber Economic Strategic Development Plan (2012);
- City of Houston Major Thoroughfare and Freeway Plan (2013);
- Feasibility Study Findings Report for Houston NW Chamber (2014); and
- Ponderosa Forest Park Expansion Plan (2014).

These studies illuminated many trends and factors that influenced the team's approach to creating a Livable Centers plan for Cypress Creek Parkway. Key findings included:

- Cypress Creek Parkway continues to serve as a major transportation arterial that limits the creation of a quality pedestrian environment adjacent to the roadway;
- The lack of a single regulatory body governing the area creates significant challenges in funding and maintaining new infrastructure or enforcing development regulations;
- There is a need for improved pedestrian circulation and infrastructure throughout the area; and
- New business development and retention is key to improving the state of Cypress Creek Parkway and surrounding neighborhoods;

## Cypress Creek SWOT Analysis

The findings developed through the needs assessment process can be summarized as a Strengths/Weaknesses/Opportunities/Threats analysis, categorizing the major environmental and physical influences on the Cypress Creek Parkway Study Area into one of four categories.

*Strengths*

- Strong and dedicated group of residents and advocates who see potential to improve the corridor.
- Cypress Creek Parkway is a regional corridor with tremendous visibility.
- The Study Area is flanked by high quality green space and parks that are local and regional assets.
- A large number of undeveloped or underutilized parcels provide excellent redevelopment opportunities.
- Strategic proximity to Houston Intercontinental Airport, The Woodlands and ExxonMobil campus provides real estate advantage.
- A wide range of income levels and housing types allow for a variety of development price points.

*Weaknesses*

- Utility poles and wires result in visual clutter throughout the commercial corridor.
- Unregulated signage adds to visual clutter and poor appearance.
- Oversized parking lots and vacant stores face the public roadway.
- High traffic volume is a constant feature, a large percentage of which is pass-through traffic.
- Low interaction or connectivity exists between neighborhoods.

- Almost no sidewalks exist, ADA access is non-existent.
- Cypress Creek Greenway lacks access points.
- Pedestrian movement across major roadways is hazardous and threatening.

*Threats*

- Consensus among diverse populations of residents may be difficult.
- High traffic volumes are not going anywhere. There is little opportunity to move person-trips to other modes.
- High traffic volumes limit complete street or road diet solutions.
- Vacant and under utilized properties makes implementation of redevelopment plans difficult.

*Opportunities*

- Interest shown by residents creates opportunity to develop a broad approach by including stakeholders normally absent from public participation.
- Future development has opportunity to capture a large number of motorists.
- Northern green space creates potential for development of bicycle and pedestrian facilities.
- Reasonable purchase and lease prices are found in the Study Area.
- Land banking and Safe Routes to School could provide funding mechanisms in the future.
- Green medians present beautification opportunities and parking lots could be re-imagined into a main street structure.
- Art and signage could create an identity for the area.


*Existing conditions photographs showing park space, strip mall development, vacant retail space and roadway signage.*

*Metrics help us understand the value, need and relative supply of amenities to the Study Area.*

## Metrics

DW Legacy Design® Metrics is a discovery-oriented tool to shape a collective point of view about a project's aspirations. It helps develop more thorough design solutions by setting goals, integrating strategies based on project vision, goals and measuring outcomes. Metrics help clients and advocates understand how DW Legacy Design® will positively impact their project.

Metrics lead to a distilled set of goals that are applied to design solutions and that results in physical outcomes that evidence the comprehensive direction set by the team. The use of benchmarks and baselines represents research that allows the client to be realistic about aspirations and specific goals for Cypress Creek Parkway.

The following two pages outline goals, trackable metrics, existing conditions and baselines compared with benchmarks in other communities, coupled with goals that are to be sought as a result of this study.

## CREATE MULTI-MODAL TRANSPORTATION OPTIONS

| STRATEGY | METRIC | MEASUREMENTS | BENEFITS | CHALLENGES |
|---|---|---|---|---|
| Develop walkable block lengths | Average redeveloped lot dimensions | Existing conditions: 1400 feet x 1000 feet<br><br>*Benchmarks:*<br>*300 x 200 feet - Washington Avenue, Houston Texas*<br>*1200 x 1200 feet - City Centre, Houston Texas*<br>**Target: 300 feet x 300 feet** | Provides infrastructure for walkable environments, grid road system eases traffic congestion | Creating new connections requires property ownership easements and agreements |
| Develop humanscale street sections | Roadway (pavement) widths | Existing conditions:<br>Cypress Creek Parkway - approximately 90 feet<br><br>*Benchmarks:*<br>*Approx. 60 feet - City Centre, Houston Texas*<br>*Approx. 50 feet- La Grande Orange, Phoenix Arizona*<br>**Target: <60 foot Pavement width** | Provides human interest and comfortable scale, encouraging pedestrian access to and from destinations | Likely unable to change pavement width of TxDOT roadway. New roadway developments should meet target. |
| Increase sidewalk connectivity | Percent of roads with sidewalks | Existing conditions: 5% of roadways have sidewalks<br><br>*Benchmarks:*<br>*100% - City Centre, Houston Texas*<br>*100% - Addison Circle, Dallas Texas*<br>**Target: 100% sidewalk coverage on all new development** | Promotes safety and health of the entire community - provides equitable access to goods and services for those unable or unwilling to drive | Cost and land ownership challenges |
| Improve public transit access and connectivity | Sidewalk access to bus stops | Existing conditions: 17% (3/17) have any sidewalk connections<br><br>*Benchmarks:*<br>*85% (6/7) - Addison Circle, Dallas Texas*<br>*100% (6/6) - City Centre, Houston Texas*<br><br>**Target: Provide Sidewalk access to and from 100% of Bus Stops** | Increases safety and encourages multi-modal transit | Coordination with METRO is critical |

## IMPROVE AND ENHANCE PUBLIC SPACE

| STRATEGY | METRIC | MEASUREMENTS | BENEFITS | CHALLENGES |
|---|---|---|---|---|
| Increase Trail Coverage and Connectivity | Distance of trails/linear feet of trail per resident | Existing Conditions: .47 feet of trail per resident<br><br>*Benchmarks:*<br>*0 feet of trail per resident - City Centre, Houston Texas*<br>*.87 feet of trail per resident - Addison Circle, Dallas Texas*<br><br>**Target: ≥.6 feet of trail per resident** | Increases quality of life for residents, can positively affect property values | Funding sources are competitive |
| Increase Access to Public Open Space | Percent site area as park and open space | Existing Conditions: 2.7% ( 56.35 ac) of area is designated open space<br><br>*Benchmarks:*<br>*1% - City Centre, Houston Texas*<br>*11% - Addison Circle, Dallas Texas*<br><br>**Target: >6% parkland** | Increases quality of life for residents, can positively affect property values | Funding of operations and management is greatest challenge - plenty of land exists in area for parkland conversion |

## IMPROVE ENVIRONMENTAL SUSTAINABILITY

| STRATEGY | METRIC | MEASUREMENTS | BENEFITS | CHALLENGES |
|---|---|---|---|---|
| Improve tree canopy cover | Percent of tree canopy coverage over non-residential locations | Existing conditions: <1% Tree canopy coverage<br><br>*Benchmarks: 3% - City Centre, Houston Texas*<br>*28% - Addison Circle, Dallas Texas*<br>**Target: >10% Tree canopy cover on new commercial projects** | Lowers heat island effect and cleans air | Requires regular maintenance and appropriate installation |
| Reduce flood damage | Percent impervious surfaces on commercial lots | Existing conditions: 62% impervious cover, average, 100% maximum.<br><br>*Benchmarks: 87% - City Centre, Houston Texas*<br>*59% - Addison Circle, Dallas Texas*<br>**Target: <60% Impervious cover** | Pervious surfaces enhance water quality and reduce peak flood damage | Limits development options |
| | Lots within floodplain | Existing Conditions: 23% of Study Area is within 100 year floodplain<br><br>*Benchmarks:*<br>*10% - Addison Circle, Dallas Texas*<br>**Target: 10% of floodplain properties become amenities to manage stormwater** | Reduces water quality degradation and limits loss/ damage to private property | Requires regulation or forward action by governing bodies |
| Improve air quality | EPA air quality standards for ozone | Existing Conditions: .08 ppm ozone readings<br><br>**Target: Utilize street trees and alternate transportation networks to reach <.075 ppm ozone readings** | Improves air quality and visibility | Difficult to affect a regional change at the local level |

## PROMOTE COMMUNITY DEVELOPMENT

| STRATEGY | METRIC | MEASUREMENTS | BENEFITS | CHALLENGES |
|---|---|---|---|---|
| Promote community services | Number of community services within area | Existing conditions: 6 schools and 2 parks in or adjacent to Study Area<br><br>*Benchmarks: 1 School, 1 Park - Addison Circle, Dallas Texas*<br>*6 Schools, 3 parks - The Domain, Austin, Texas*<br>**Target: Add 2 additional parks** | Community amenities have positive impact on property values | Funding for development and maintenance |
| Redevelop vacant lots | Percent land vacant | Existing conditions: 9% of Study Area is vacant<br><br>*Benchmarks: 6.3% vacancy - Independence Heights, Houston, Texas*<br>*2.7% vacancy - Wimberley, Texas*<br>**Target: <5% of Study Area is vacant** | Improves appearance of community | Requires continued revenue stream for operations and maintenance. |
| Reduce parking lot area | Parking lot area as percentage of parcel | Existing conditions: 41% of commercial<br>26% of multi-family residential<br><br>*Benchmarks:16% parking area - City Centre, Houston Texas*<br>*67% parking area - La Grande Orange, Arizona*<br>**Target: <25% parking footprint multi-family** | Allows for use of land beyond parking cars. Can reduce impervious surface and heat island effect. | Costly to remove and soils likely require amendment if planting area is planned on old parking site |
| Encourage housing affordability | Land values | Existing conditions:<br>Average residential price psf: $58.45<br><br>*Benchmark: $85 psf average residential price - Houston, Texas*<br>**Target: ≥5% increase in land values due to redevelopment projects** | Low land prices provide incentive for new development. | May force out current renters |
| | Renter/owner split | Existing Conditions: 60% Owner/40% Renter<br><br>*Benchmarks: 61% Owner/39% Renter - Houston, Texas*<br>*80% Owner/20% Renter - Fort Worth, Texas*<br>**Target: Maintain owner/renter mixture to +/- 5%** | Mixture of income levels and home types brings diversity and opportunities for all stages of life to live within Cypress Creek | Difficult to control behavior of market |

| ENCOURAGE ECONOMIC DEVELOPMENT | | | | |
|---|---|---|---|---|
| **STRATEGY** | **METRICS** | **MEASUREMENTS** | **BENEFITS** | **CHALLENGES** |
| Identify redevelopment opportunities | Percent of commercial lots with high redevelopment potential | Existing conditions:<br>20% of lots have high redevelopment potential<br><br>**Target: 10% of lots have high redevelopment potential** | Provide excellent development opportunities to regional market | High redevelopment value also equates with old and vacant properties |

| ENCOURAGE PLACEMAKING AND BRANDING | | | | |
|---|---|---|---|---|
| **STRATEGY** | **METRICS** | **MEASUREMENTS** | **BENEFITS** | **CHALLENGES** |
| Improve sense of place and branding | Gateways into area | Number of developed gateways: 0<br><br>**Target: All major thoroughfares entering Cypress Creek Parkway are delineated by gateway signage (see Figure 40)** | Can enhance sense of place and community pride | Funding can be an obstacle |


*Only a few bus stops within the area have any sidewalk access (Cypress Creek Parkway at Bammel Village Road).*

## Economics

This section covers historical trends and existing conditions in and around the Cypress Creek Parkway Study Area regarding demographic trends and real estate market performance statistics.

### *Sources of Market Support*

The Study Area itself has a population as of 2010 that can support small-scale neighborhood retail, but not a grocery store.

Adding in adjacent Census tracts to the east, west and south makes up the Demographic Area. The Demographic Area provides a much more robust total population to support a full range of neighborhood-level retail and services. By further increasing demand potential due to traffic from Cypress Creek Parkway and Kuykendahl Road thoroughfares, this larger area can support some community-level retail, including moderate-sized soft goods and general merchandise stores.

### *Demographic Trends*

The Study Area has been an epicenter of demographic change since 2000. Having developed originally in the 1970s as an affluent commuter suburb, it has transitioned to a more varied demographic profile marked by working class incomes and a more varied ethnic makeup.

The following geographies were compared (Figure 4):

- The Census tract that makes up the majority of the Livable Center Study Area; and
- A “Demographic Area” that includes the Study Area plus adjacent Census tracts to the east, west and south, each of which contain portions of the Study Area.

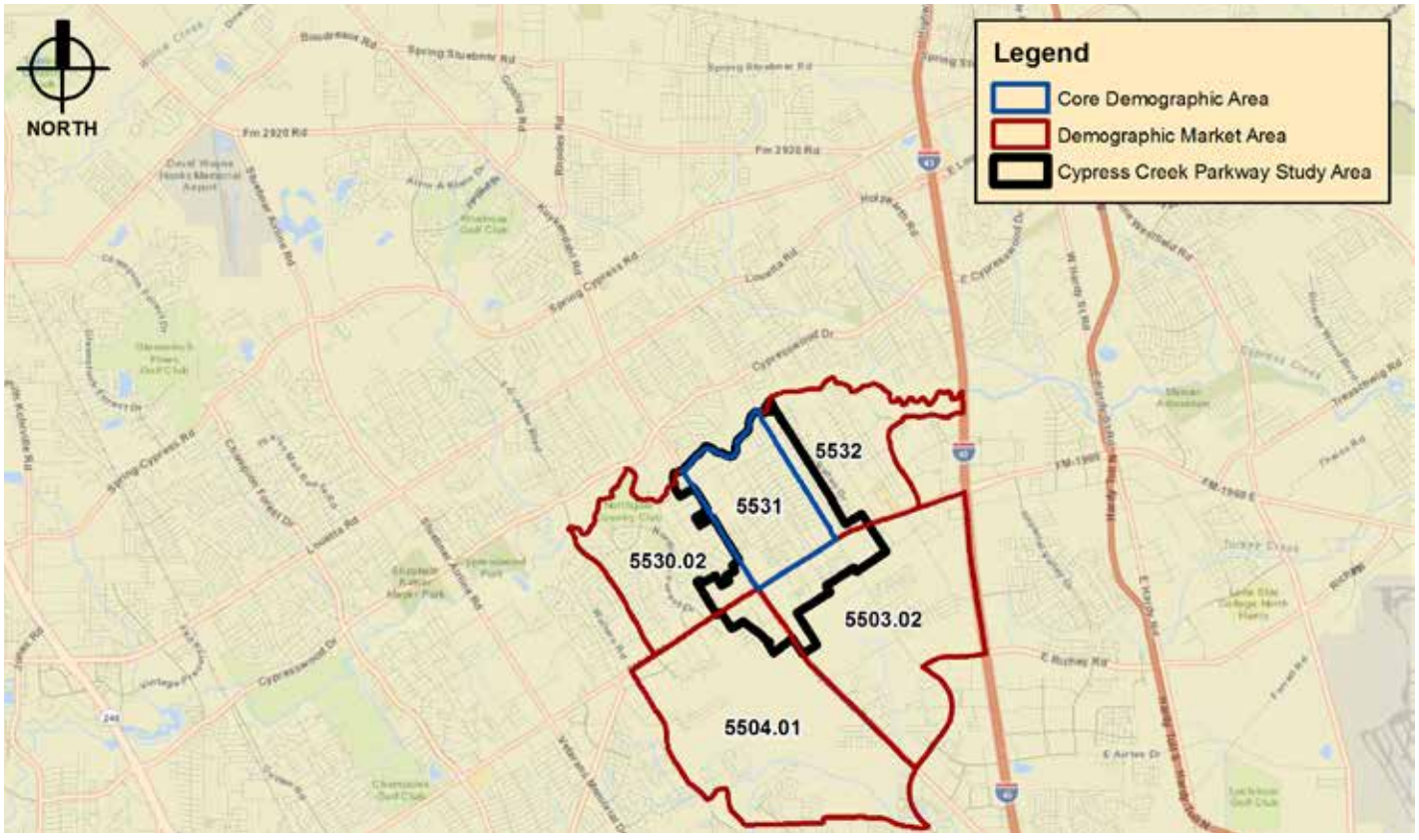



**Figure 4:** *Study Area (Core Demographic Area) and Demographic Area*

| Race and Ethnicity – Change 2000 - 2010 | Study Area | | Demographic Area | | City of Houston | | Harris County | |
|---|---|---|---|---|---|---|---|---|
| | County | % Chg | Diff | % Chg | Diff | % Chg | Diff | % Chg |
| **Total Population** | **-174** | **-2.80%** | **7,980** | **28.00%** | **145,820** | **7.50%** | **691,881** | **20.30%** |
| White / Anglo | -1,511 | -36.50% | -6,329 | -41.70% | -63,950 | -10.60% | -82,618 | -5.80% |
| Black or African American | 810 | 119.50% | 8,305 | 184.80% | -1,895 | -0.40% | 134,564 | 21.70% |
| American Indian and Alaska Native | 1 | 4.80% | -27 | -30.70% | 294 | 9.10% | 1,047 | 14.70% |
| Asian | -67 | -19.90% | 650 | 49.80% | 22,153 | 21.60% | 76,827 | 44.40% |
| Native Hawaiian and Other Pacific Islander | 7 | 350.00% | 21 | 116.70% | 31 | 4.60% | 868 | 62.40% |
| Some Other Race | 13 | 118.20% | 39 | 83.00% | 1,514 | 57.90% | 3,415 | 75.90% |
| Two or More Races | 32 | 33.30% | 116 | 23.20% | -1,130 | -4.70% | 5,989 | 14.00% |
| Hispanic or Latino | 541 | 52.50% | 5,206 | 75.80% | 188,803 | 25.80% | 551,789 | 49.30% |

**Table 1: Population and Ethnicity Trends 2000 - 2010**

### *Population and Ethnicity*

As shown in Table 1, key demographic points that emerged from this analysis are:

- The Study Area stands out for population loss between 2000 and 2010, in contrast with the larger Demographic Area, which gained 28 percent population;
- The Study Area has been diversifying its ethnic makeup at a rate slightly higher than surrounding geographies;
- The Study Area has a higher representation of older age groups (over age 50) relative to larger geographies;
- The Study Area has been losing middle-school and high-school-aged children; and
- The total number of households decreased from 2000 to 2010.

### *Educational Attainment*

As of 2010, the Study Area had a relatively higher share of adults with college degrees when compared to larger geographies (Figure 5).

### *Household Income*

The Study Area skewed higher income than larger geographies in 2010. However, higher income households were leaving the area during 2000 to 2010, in contrast to wider geographies which were adding these households (Figure 6).

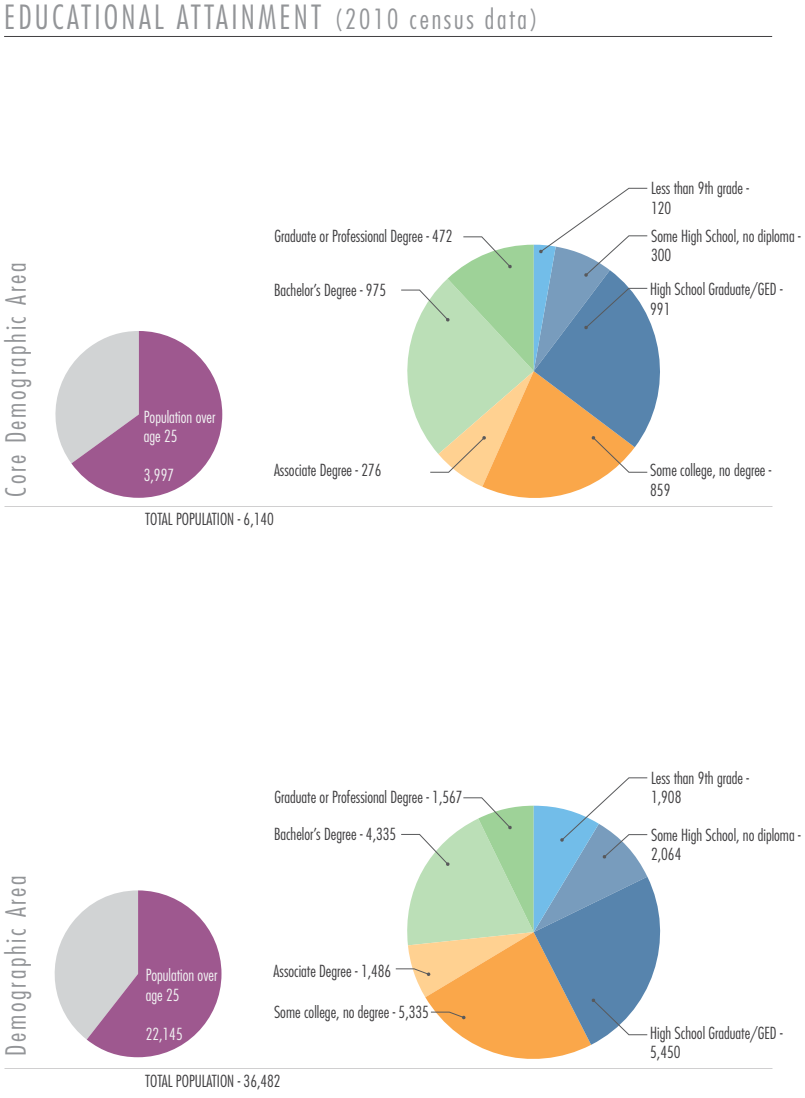



**Figure 5:** *Educational Attainment (2010)*

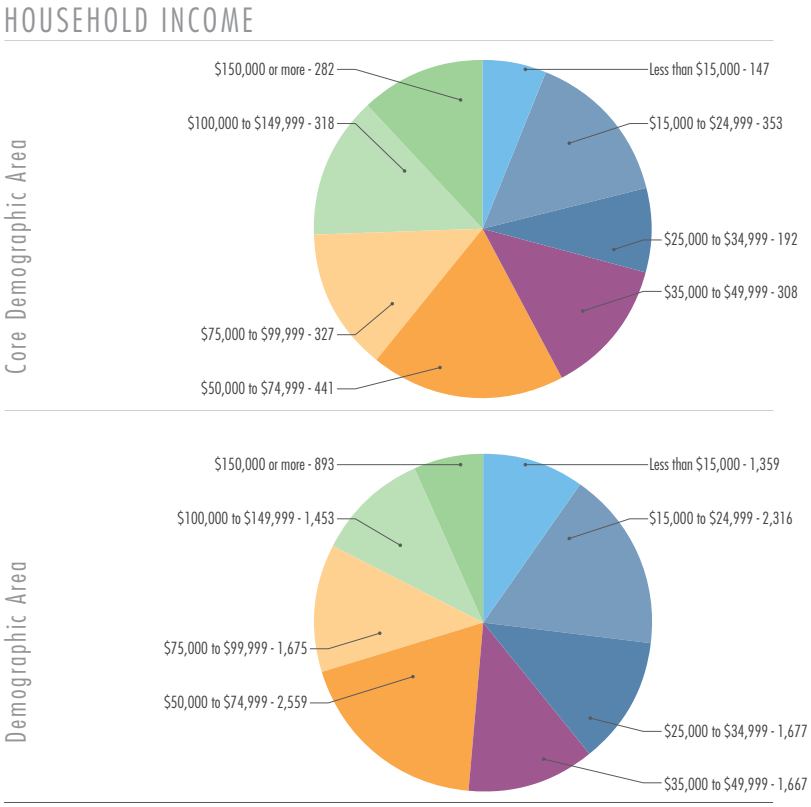



**Figure 6: Household Income (2010)**

### *Land Value*

2014 Assessors values indicate that select office and retail establishments command the highest relative value, due to their earning potential as part of a commercial corridor. Land values adjacent to Cypress Creek are some of the lowest in the Study Area due to vacant properties and flood plain coverage (see Figure 7).

Though land values have not captured the same gains as the general Houston region over the last few years, this may become an advantage. Relatively low rents and purchase prices are exactly what may attract future investment to the area, as the costs of building in central Houston continue to rise.

### *Single Family Market*

The single family market was defined as the three zip codes which contain portions of the Study Area.

Key findings included:

- Homes sold in the Study Area generally average 2,500 to 2,700 square feet;
- Older houses built before 1994 are generally smaller than newer homes;
- Homes in the area are moderately priced by Houston standards, especially on a per-square-foot basis, though median prices have risen in the last two years (see Table 2); and
- Newer homes tend to be lower-priced than older homes.

The single family market seems to be a potential bright spot based on the latest data showing price increases for the older, larger homes. School reputation is a challenge in the Study Area that effectively caps home prices except for select sites at the topmost end of the market (large custom homes on extra-large lots).

The addition of jobs in greater north Houston may be enough to increase interest in the area again; young professional households without children would be the target market. Homes under $160,000 catering to working-class households might do well also, now that the lower end of the market has re-awakened after several years of tight lending.

### *Household Tenure*

The owner occupied share of households was similar to that of overall Harris County in 2010. The number of owner occupied households shrank from 2000 - 2010 while renter households increased slightly.

To estimate home ownership to rental ratios, properties within the Study Area that did not claim property tax exemptions were identified to indicate a likelihood of rental use. Another method to estimate rental properties are those with a different tax mailing address from the property address.

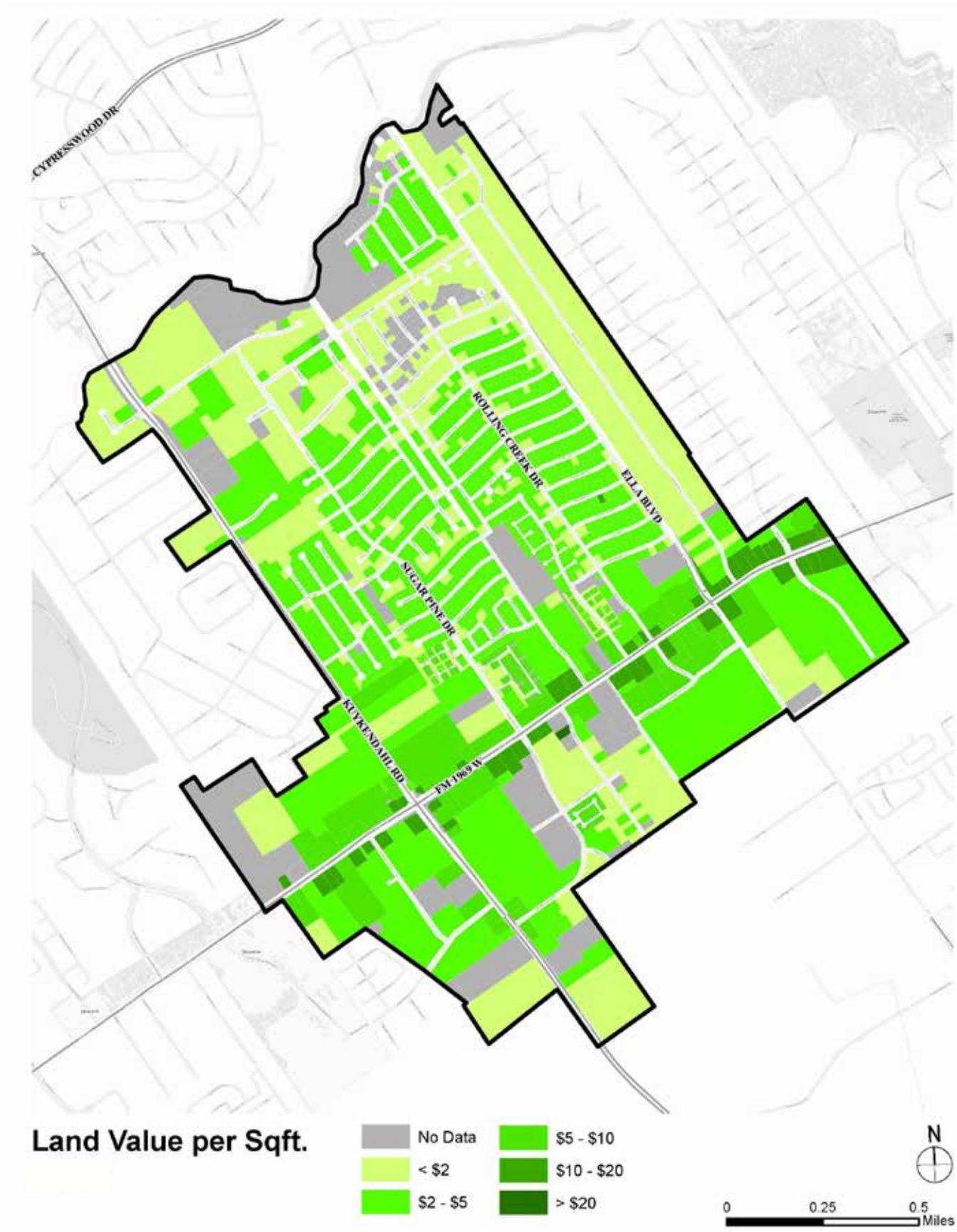



**Figure 7:** *Current Land Value*

Figure 8 shows single family properties that are not claiming property tax exemptions. Figure 9 shows single family parcels with a different tax mailing address from the property address.

Overall estimates place the Study Area at a 60 percent owner, 40 percent renter split.

*Multi-family Market*

The local apartment market is in reasonable health, with adequate quality properties, but is not capturing the increases in rent that are being experienced elsewhere in Houston.

A significant share of what has been built in the last 10 years are subsidized projects rather than market-rate.

It is possible that a new market-rate apartment property could be successfully added in the western end of the Study Area at a slightly higher price point during the next few years, provided that its immediate surrounding environment is high quality and distinctive from the rest of the development along the Study Area stretch of Cypress Creek Parkway.

Two levels of multi-family market areas were analyzed, utilizing ZIP codes for definition: one confined to the Study Area and an expanded one which included ZIP codes north of Cypress Creek. They are depicted in Figure 10.

Key findings included:

- Inexpensive properties had a large positive absorption impact after Hurricane Katrina as they received large numbers of evacuees; absorption was negative when this group subsequently moved on in 2006 to 2008;
- Occupancies in the Market Area have been improving since the recession in 2009;
- Class A property occupancy is now strong, while less quality properties show more moderate performance;

Market Area Existing Single Family Homes Median Sales Prices

| Year | Sales Prices | | | Avg. Price / Sq.Ft. | | |
|---|---|---|---|---|---|---|
| | Built before 1995 | Built 1995 to present | All houses | Built before 1995 | Built 1995 to present | All houses |
| 2014 YTD | $149,000 | $129,995 | $145,000 | $58.32 | $59.06 | $58.45 |
| 2013 | $139,900 | $132,445 | $136,000 | $52.34 | $60.72 | $53.97 |
| 2012 | $122,000 | $114,998 | $119,671 | $46.29 | $52.34 | $47.99 |
| 2011 | $111,777 | $102,850 | $106,000 | $44.16 | $47.88 | $45.71 |
| 2010 | $125,000 | $99,194 | $115,000 | $49.09 | $50.63 | $49.76 |
| 2009 | $132,150 | $117,990 | $127,450 | $51.19 | $54.73 | $52.32 |
| 2008 | $134,250 | $130,666 | $132,347 | $51.46 | $58.19 | $53.05 |
| 2007 | $142,000 | $134,000 | $138,000 | $56.09 | $68.94 | $57.76 |
| 2006 | $145,000 | $139,950 | $144,000 | $57.97 | $71.16 | $59.71 |
| 2005 | $137,900 | $152,900 | $139,256 | $56.07 | $70.58 | $57.52 |
| 2004 | $136,000 | $145,721 | $137,750 | $56.68 | $67.17 | $58.22 |
| 2003 | $136,000 | $138,950 | $136,200 | $54.99 | $68.51 | $55.65 |
| 2002 | $134,250 | $127,525 | $133,000 | $54.42 | $66.46 | $55.75 |
| 2001 | $133,900 | $154,550 | $135,000 | $52.99 | $72.52 | $53.99 |
| 2000 | $124,900 | $167,900 | $126,250 | $51.88 | $66.87 | $52.90 |

**Table 2:** *Market Area Existing Single Family Homes Median Sales Prices*

- The occupancies for Class A properties in the Market Area closely mirror those for the Expanded Market Area and are just over 93 percent per the latest available data;
- Rents are moderate by current Houston standards, including for Class A properties;
- Because data for the Expanded Market Area is nearly congruent with the smaller Market Area, it is evident that generally this region is more moderate than many areas of Houston; and
- The overall average Class A lease rate in the Houston area is $1.27 per square foot according to O'Connor and Associates.

### *Office Market*

The Cypress Creek Livable Centers Study Area should not count on office space as a driver of development. Small amounts of commercial space that can flex between retail, services and office for modest-sized tenants serving the local population could be immediately feasible, but office rents and occupancies are currently too low to incite new all-office development.

However, as the area develops and the Houston Region spreads development further outward, the Study Area's proximity to a hospital, airport and other regional hubs could make a compelling case for future office development.

The office market area was defined with the same boundaries as the Study Area. The Study Area is situated between two major existing office districts (Greenspoint and The Woodlands), with another office center under construction at Springwoods Village. There has been no new traditional office development within or close to the Study Area in recent years.

Key findings included:

- The Study Area has an inventory of approximately 523,000 square feet in 36 buildings (None are identified as Class A);
- Overall average occupancy has steadily decreased since the early 2000s, despite some positive recent absorption; and
- Office space is priced very moderately in the Study Area (The average lease rate is just over $13.00 per square foot; the average lease rate for the Houston region is approximately $25.00 per square foot).

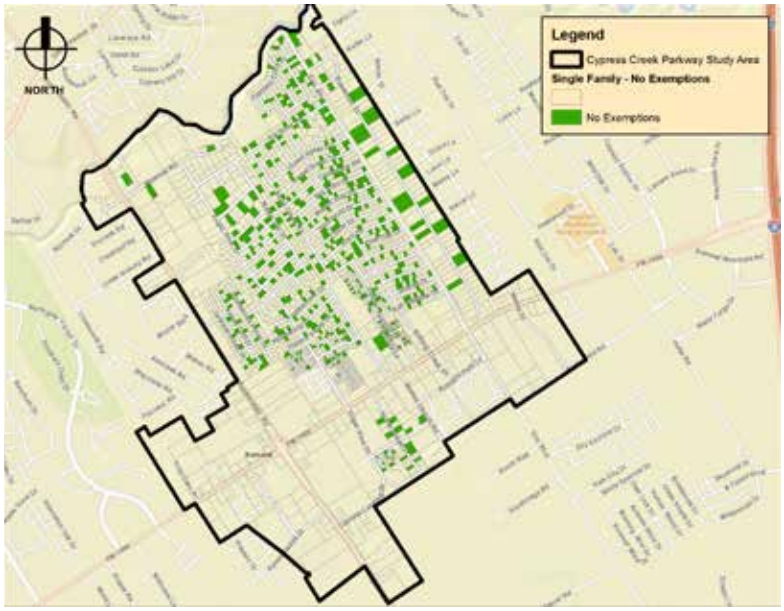



**Figure 8:** *Study Area Rental Properties - Tax Exemptions*

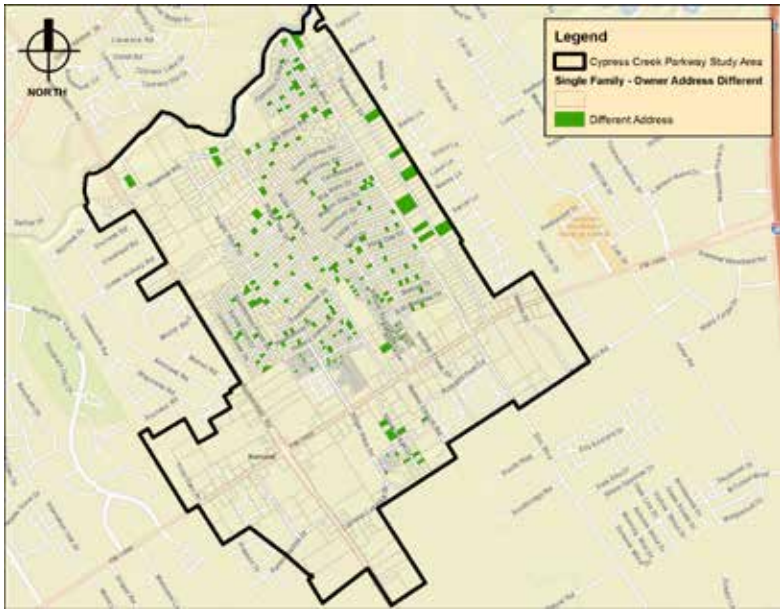



**Figure 9:** *Study Area Rental Properties - Mailing Addresses*

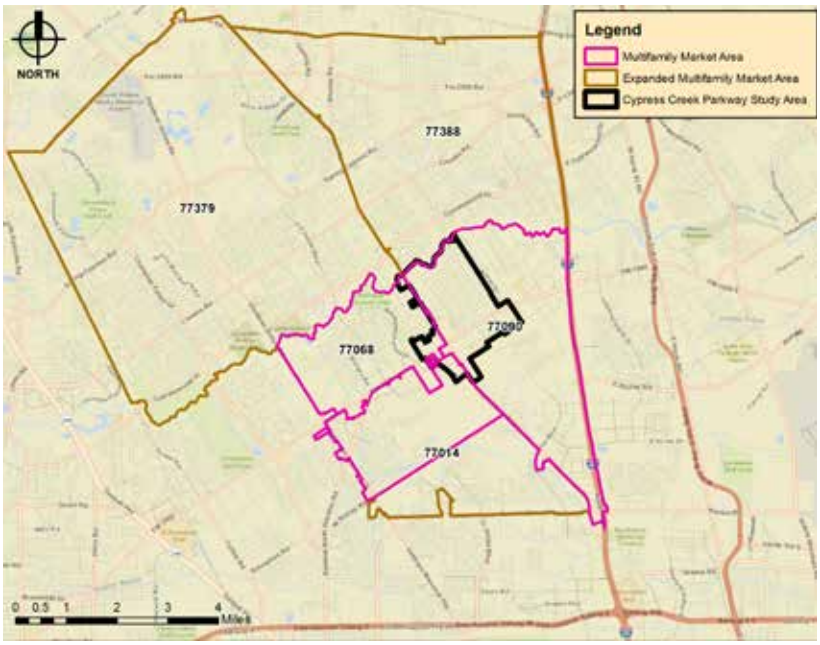



**Figure 10:** *Multi-family Market Areas*

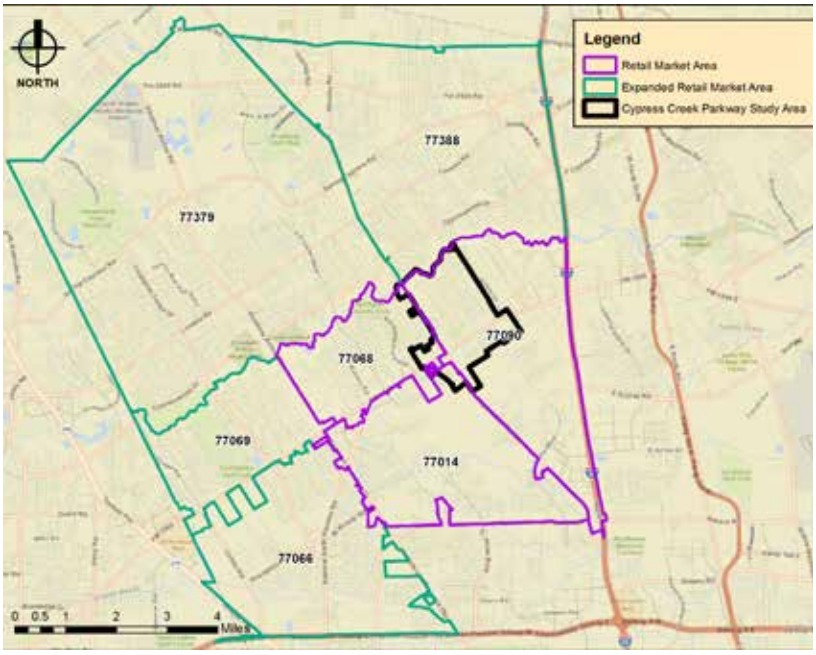



**Figure 11:** *Retail Market Areas*

### *Retail Market*

The retail market is sufficiently supplied with space - if anything it is oversupplied, especially considering competitive development both east and west of the Study Area along Cypress Creek Parkway.

Retail lease rates have been weak. The demographic trends in the Study Area are not compelling for new or higher-end retail right now, though lower-end and middle-market tenants might be interested. Adding new retail space would not be advisable at the time of this writing - but taking existing underutilized space and replacing it with a lesser amount of better quality space and an improved environment might attract the best quality tenants, provided that lease rates are market rate.

The team examined two geographic levels of retail market area (Figure 11): a Retail Market Area consisting of only the ZIP codes that cover the Study Area and an Expanded Retail Market Area which included ZIP codes to the west and north. The Expanded Retail Market Area was in recognition of the reality that area residents are willing to drive at least 10 minutes for many services if they prefer them to the ones within their immediate area, or if services are unavailable in the local area. Key findings included:

- The most recent data for the Retail Market Area indicates 304 retail properties with 6.38 million square feet of space;
- The Retail Market Area suffered negative absorption in 2011 and 2012, but positive absorption last year (However, in comparison to the Expanded Retail Market Area, its absorption trend has diverged since 2009, when the Retail Market Area began performing worse than the Expanded Retail Market Area);
- Occupancy rates improved in the Retail Market Area since 2006 but peaked in 2010 (The Expanded Retail Market Area shows higher occupancies and consistent improvement since 2007, indicating better retail property performance outside of the smaller Retail Market Area); and
- Average lease rates for the Market Area are estimated at $11.41/square foot, a very moderate level by Houston standards (the metropolitan average was nearly $22.00 according to CBRE) (The expanded survey area shows an average of $12.07/square foot, indicating

the added properties have generally higher lease rates).

### *Retail Owner Interview*

In order to understand the issues facing owners of commercial land in the Study Area, an owner of two large retail properties in the Study Area interviewed during a conference call on May 28, 2014.

The following is a summary of those interview findings.

*Property Occupancy*

- Southeast corner of Cypress Creek Parkway and Kuykendahl Road is at 90 percent occupancy, with Dollar Tree committed to former CVS site.
- Northwest corner of Cypress Creek Parkway and Kuykendahl Road is 97 percent occupied.
- Sugar Pine and Cypress Creek Parkway sites are 100 percent occupied (Dollar General anchor, medical / optical / nutrition tenants).
- Office space at the southeast corner of Cypress Creek Parkway and Kuykendahl Road is nearly full. It caters to small tenants.

*Land Values and Rental Rates*

- The Exxon station on the corner would be around $25-$30 per square foot, but that is top price for a “hard corner” pad in the area. More typical pricing would be $15-$20/square foot for smaller parcels, $5-$10/square foot for larger parcels with thoroughfare exposure and as low as $2-$3/square foot for sites without thoroughfare exposure.
- Retail lease rates in the area are roughly $12-$16/square foot for smaller tenant spaces, $8-$10 for larger spaces; at the interviewee’s Sugar Pine property, he charges roughly $12/square foot for non-anchor space.

*Readiness for New Development*

- The Kuykendahl Road intersection, especially the northeast corner, needs a new large anchor, which will make adjacent locations more viable for improved occupancy.
- Right now, many potential tenants are concerned about low occupancy.

*These empty parking lots and vacant buildings located at the northwest corner of Kuykendahl and Cypress Creek Parkway provide the template for future redevelopment.*

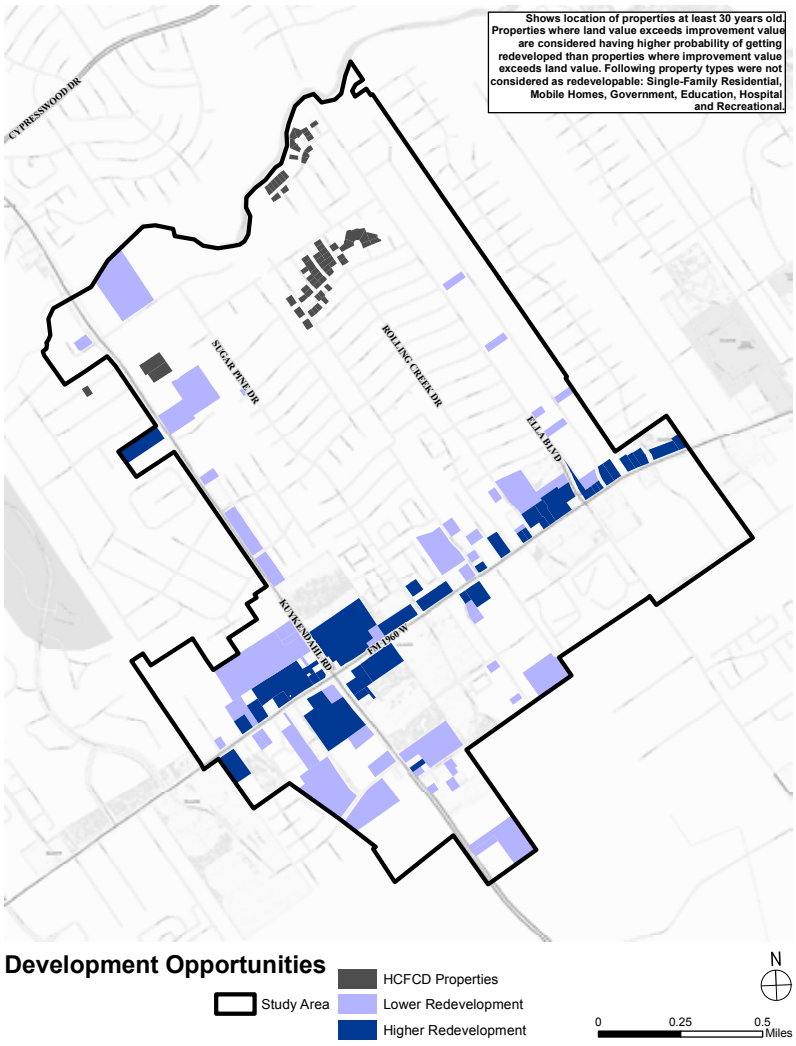



**Figure 12:** *Study Area Development Opportunities*

*Aged commercial lots are prime for potential redevelopment.*

- Potential investors and tenants are not sure how to deal with the demographic changes in the area.
- Property owners need to be more proactive about making improvements.
- There is a need to deal with perception of security issues.

*Key Strengths and Weaknesses of Area*

- Strengths are traffic volumes for retail exposure.
- Weaknesses are deteriorated multi-family, the nature of visible pedestrian traffic and security issues.

*Office Development Potential*

- Office space should target tenants who get few or no public visitors.

*Parking Supply*

- Even if occupancy rose to 100 percent, the Cypress Creek Parkway and Kuykendahl Road properties would still have an oversupply of parking.
- The Sugar Pine property has approximately the parking it needs.

*Willingness to Consider Redevelopment and New Use Mix*

- The interviewee would consider new uses and redevelopment, but the “right” occupants and a good financial case would be required.
- Tenants often have lease constraints prohibiting any structures that might block thoroughfare exposure.

*Area Improvements Needed to Help Attract Investment*

- More trees and landscaping are needed to green the parking lots.
- Wayfinding and identity elements would help improve the corridor.

*Potential for Pedestrian Friendly Urban Design*

- Existing pedestrian traffic is not helpful for businesses and can be a negative for potential customers.
- Interviewee is skeptical that pedestrian-friendly design could work here.

*Upcoming Plans and Projects*

- Planned for the northwest corner of Cypress Creek Parkway/Kuykendahl Road – A Circle K gas station and store is still working on water permits.
- Northeast corner of Cypress Creek Parkway/Kuykendahl Road – A former anchor space may become self-storage.

This summary of a land owner's knowledge and thoughts regarding Cypress Creek Parkway opportunities and constraints provides some insight into the individual perspectives that influence development within the area.

### *Vacant Land*

There are a large number of vacant parcels located within the Study Area. The majority of residential properties that are vacant are located within the floodplain and may not be suitable for intensive future development. Many vacant properties are Harris County Flood Control District (HCFCD) owned, which have been bought out as repetitive loss properties.

Because these lands are prone to flooding and unsuitable for building development, they pose an ideal opportunity for future open space or parkland conversion that doubles as flood control infrastructure. These parcels are indicated in Figure 12.

### *Redevelopment Potential*

By analyzing 2014 assessor data, the team was able to gain an overview of a parcel's redevelopment potential. Limiting the process to commercial properties at least 30 years old, the team created a redevelopment potential map (Figure 12) which provides some indication of a commercial property's likelihood of future redevelopment.

*A number of vacant parcels are located within the residential core of the Study Area, like this one at Cypress Cove and Bambrook.*

## Environment

Environmental needs relate to the health and function of the natural environment surrounding the Study Area. The health of vegetation, water quality and susceptibility to natural disasters are all evaluated as part of this process.

### *Tree Canopy*

The tree canopy coverage for the site area as a whole is very good, but a glance at a map of the coverage illustrates divergence among the land uses of the Study Area. While residential land uses have kept a significant amount of tree cover, commercial and office land uses have removed nearly all trees. (See Figure 13)


**Figure 13:** *Study Area Tree Canopy Coverage*

### *Floodplain Location*

The northern extents of the Study Area are largely encompassed in the Federal Emergency Management Agency (FEMA) defined 100 year flood plain (see Figure 14). This condition limits major redevelopment within this area, as storm events will inevitably cause Cypress Creek to overflow its banks and damage adjacent properties.

### *River Uses and Future Plans*

Currently, there are two parks located within the Study Area. Ponderosa Forest Park, along the southwestern edge of Cypress Creek, provides walking trails and green spaces for passive recreation. Ponderosa Elementary Park, adjacent to the centrally located elementary school, provides picnic tables and a playground.

Plans are underway to build a regionally significant 40 mile trail along Cypress Creek which will connect this neighborhood to a much larger recreational amenity.

### *Impervious Cover*

Like many urbanized areas, the Study Area has a large number of parking lots, roads and buildings. This quantity of impervious surfaces can greatly exacerbate flood impacts and pollution levels in nearby water bodies such as Cypress Creek. Expansive commercial parking lots along Cypress Creek Parkway create large swaths of impervious coverage that do not benefit summer air temperatures or adjacent water quality (Figure 15).

### *Air Quality*

The Study Area is located within Harris County, which the Environmental Protection Agency (EPA) has designated a non-attainment area for air quality. The area is in non-attainment status for excess ozone. Emissions from industrial facilities, motor vehicle exhaust and gasoline vapors are some of the major sources of excess ozone.

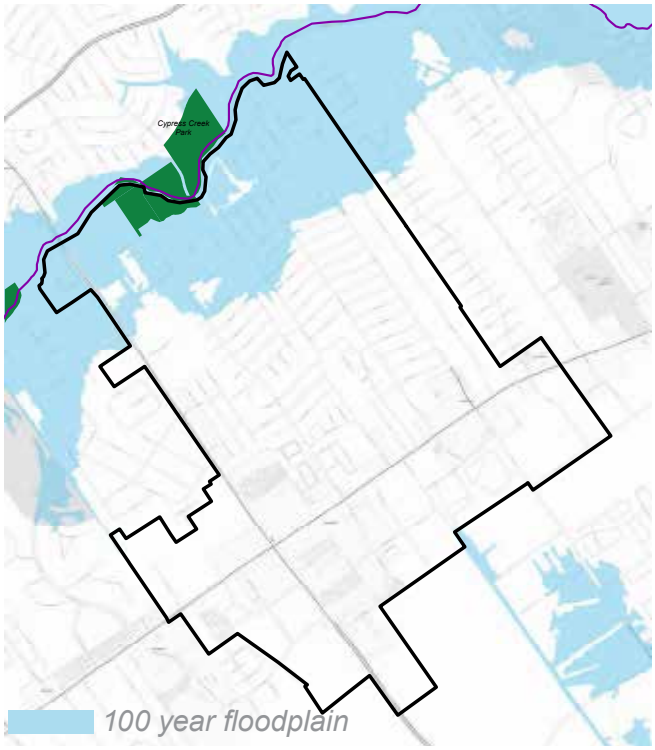



**Figure 14:** *Study Area 100 Year Storm Floodplain*

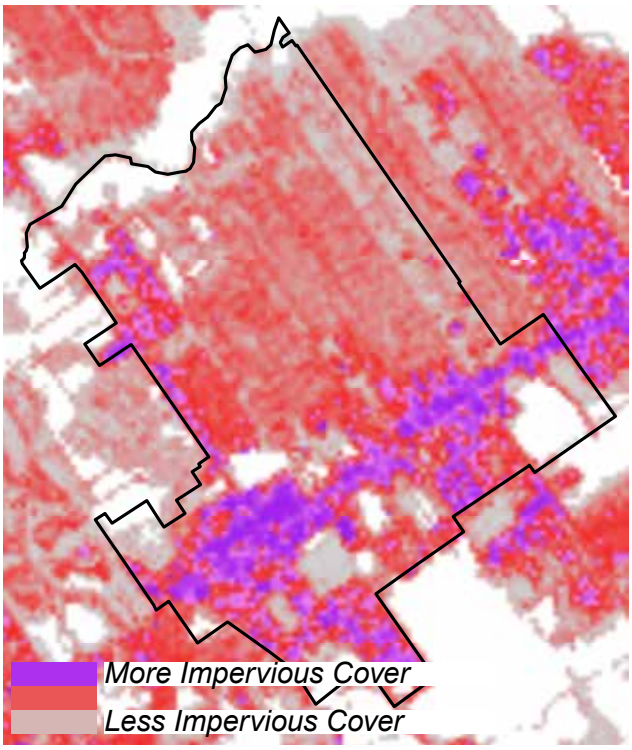



**Figure 15:** *Study Area Impervious Cover*

*Parks can act as both valued community amenities and important flood control infrastructure.*

## Community

Community needs assessments and metrics assess how the Cypress Creek Parkway Study Area provides for the people who visit and inhabit the area. How do children get to school? What is it like to work, shop, live and travel within the community?

### *Public Spaces and Access*

There are two main public spaces within the Study Area: a Ponderosa Elementary Park, adjacent to the elementary school within the central neighborhood and Ponderosa Forest Park located along Cypress Creek. These locations are accessed by public roadways only, as no sidewalk extends beyond park boundaries to provide pedestrian access.

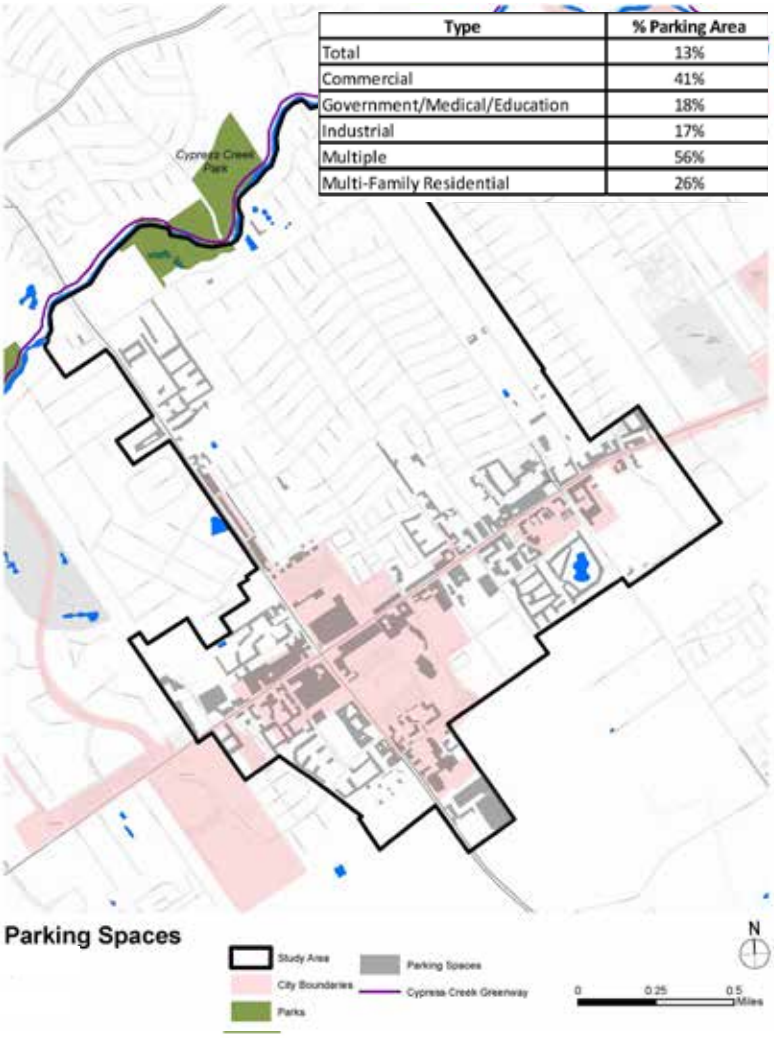



**Figure 16:** *Study Area Parking Lot Cover*

### *Transportation and Circulation*

The Cypress Creek Parkway corridor has very high traffic volumes, more than 70,000 vehicles per day in some locations. Much of the traffic is presumably pass-through traffic given that Cypress Creek Parkway is a major east-west corridor linking activity centers outside the Study Area.

This traffic pattern provides many of the negative impacts of high traffic volumes with few of the benefits. Pass-through traffic generally does not stop in the corridor or provide any economic benefit to the Study Area. The high traffic volumes are likely to get worse with time and provide little opportunity to move travel to other modes such as buses or bicycles.

High traffic volumes also limit the opportunity to implement any true complete streets or road diet solutions, as those would likely require reductions in roadway rights-of-way and auto lanes, which would exacerbate the congestion problem. In addition, the one bus line on the corridor (Route 86) provides 20-30 minute delays during peak periods, generally not conducive to attracting additional ridership.

Pedestrian movement across and along the corridor is hazardous. There are no signalized mid-block crossings, and many choose not to use signalized intersections and instead move dangerously through traffic to cross to the other side of the street.

The Study Area lacks a sidewalk network, evident through the presence of ‘‘social paths’’ through vegetation to reach key destinations such as shopping and bus stops. This also means that ADA access is practically nonexistent.

While the Cypress Creek Greenway will become a major asset, there are no official bicycle paths within the Study Area, or any connections to the future greenway from adjacent neighborhoods. However, a series of drainage channels and their related access roads provide unique

opportunities for future trail development within the large residential core of the Study Area. In addition, a bicycle facility along Ella Boulevard is under consideration by local decision makers which could provide a connection point to the future Cypress Creek Greenway.

Within the main collection of single family residences in the center of the Study Area, most roadways are low-speed residential roads and do not prohibit pedestrian or bicycle use. However, large block lengths and cul-de-sac street layout limits connectivity to schools, parks and other resources within the community.

### *Parking Lots*

The commercial developments along Cypress Creek Parkway have been designed with large parking lots that significantly exceed the need for parking spaces.

Commercial and multiple use areas have the highest percentages of parking area within the Study Area. Commercial areas have 41% and multiple use areas have 56% of their surface area devoted to asphalt parking spaces (see Figure 16).

## Art

Art metrics seek to measure unique and iconic elements of a community which provide lasting character and civic pride.

### *Placemaking, Branding and Gateways*

Though there have been multiple efforts by local merchants and property owners within the area to create a unified brand for the region, a unified plan and approach has yet to be implemented.

Recent community initiatives such as the renaming of FM 1960 to Cypress Creek Parkway, the Green Median and Green Sides programs and the Cypress Creek Greenway provide opportunities to build a sense of place. Attractive design and strategic placement of iconic imagery and public art or signage can make the neighborhood's boundary and character more recognizable and distinct.

The Houston Northwest Chamber of Commerce has begun an intensive branding and gateways campaign. The vision chapter of this document further explores gateway signage location.

### *Signage and Sign Regulations*

Currently, the Cypress Creek neighborhood is not marked by any unique street signs, banners, or other custom elements. The installation of a sign program within the area could add to the character and desirability of the neighborhood.

Due to the adoption of sign regulations for Harris County in the 1980s, many existing merchant signs have been grandfathered into compliance. A lack of enforcement by County officials and a plethora of overhead power lines have created a streetside view of Cypress Creek Parkway that is chaotic and not generally perceived as attractive.


*An example of sign clutter along Cypress Creek Parkway.*

*Events*

Currently, no events are located within the Study Area. However, with large expanses of vacant lots and parking spaces, there exists the potential for pop-up farmers markets, short course bicycle races, fairs and other unique events. Many communities have seen increased interest and investment result of successful and long running events.

## Existing Conditions and Economic Analysis Summary

The analysis from this chapter can be summarized as a series of conclusions relevant to each goal:

*Economic and Urban Development:*

- 9 percent of land in the Study Area is vacant;
- 41 percent of commercial properties is dedicated to parking space;
- There is a need for a distinct and attractive urban form along Cypress Creek Parkway; and
- The high traffic load of Cypress Creek Parkway is likely a permanent feature.

*Public Spaces:*

- 3 percent of land in Study Area is dedicated parkland;
- Vacant properties along Cypress Creek and Ella Boulevard offer unique public space development opportunities;
- Due to existing commercial/office structure along Cypress Creek Parkway, the community lacks common meeting space; and
- Portions of the Study Area are isolated from parks due to heavy traffic on Cypress Creek Parkway and Kuykendahl Road.

*Circulation and Connectivity*

- Future connections to approximately 40 miles of planned Cypress Creek Greenway can offer a unique amenity to the community;
- Internal drainage ROW area within Study Area offers unique trail corridor opportunities; and
- Lack of sidewalks throughout the Study Area creates unsafe environments.

*Environment:*

- 23 percent of Study Area lies within 100 year floodplain; and
- Large expanses of impervious pavement along Cypress Creek Parkway contribute to high runoff volumes and increase the heat island effect.

*Placemaking, Image and Branding:*

- Houston Northwest Chamber of Commerce has initiated branding efforts.

Cypress Creek Parkway, the main arterial of the area brings the blessings of exposure to commercial areas and easy access to the neighborhoods and regional transportation, but as it has developed into more of a highway than a street, it has created problems for all adjacent development.

Future development and investment in the area should look to create spaces that internalize a comfortable, human scale environment and begin to break up the sea of parking lots and unregulated signage that is currently a hallmark of the Cypress Creek Parkway corridor.



*The use of the roadway as a highly trafficked thoroughfare and growth in vacant properties throughout the corridor are evidence that the built environment is not serving the local businesses and residents as well as it perhaps could.*

3

# Cypress Creek Parkway Vision

**Process**

- **Alternatives Webinar and Online Survey**
- **Recommendations Workshop**
- **Economic and Development Vision**
- **Redevelopment Catalyst Overview**
- **Ella Boulevard Catalyst**
- **Kuykendahl Road Catalyst**
- **Public Spaces Vision**
- **Environmental and Sustainability Vision**
- **Design Guidelines Vision**

# Process

The proposals that follow are conceptual projects, policies, and programs that are envisioned as catalysts that can lead to new directions for the Study Area. Their development was shaped by the public engagement process.

## Alternatives Webinar and Online Survey

In an effort to interact with the Cypress Creek community without requiring sitting in hours of Houston traffic to attend an evening meeting, the contents of a public meeting were uploaded in video form to YouTube as the Alternatives Webinar. This video was announced through client websites, the public engagement website, and community newsletters. One hundred and three individual views of the video were documented.

An alternatives survey was launched simultaneously with the Alternatives Webinar and was active from June 30th to July 30th. 26 surveys were completed, providing a small sample of resident opinions regarding the proposed Study recommendations and implications.

## Recommendations Workshop

The contents of this chapter were vetted at both a Stakeholder Advisory Committee (SAC) and a public meeting. The public meeting drew 29 attendees to review and comment on the team's recommendations for the Study Area.

Comments from the public and SAC were incorporated into the final recommendations found in this document. Suggestions such as a need for easily implementable projects, signage standards that require the inclusion of street numbers and the inclusion of bicycle lanes and parking in redevelopment guidelines have all been incorporated from community feedback.

# Economic and Development Vision

A renaissance for this area hinges on the reinvention of the urban fabric of Cypress Creek Parkway. A single development project could act as a catalyst, demonstrating a new development pattern that could be successfully repeated throughout the corridor. The following two redevelopment catalysts are examples of how potential projects could be developed within the Study Area.

## Redevelopment Catalyst Project Overview

The intention of these catalyst projects is to present a vision for redevelopment within the Cypress Creek Parkway Study Area. Two distinct catalyst projects were developed; the Ella Boulevard Catalyst and the Kuykendahl Road Catalyst. The locations of the two catalyst projects were selected due to economic feasibility and redevelopment potential, and their designs were developed specific to their site and surrounding context.

Though specific to their sites, these projects are not intended to be prescriptive to a particular location. Rather, they serve as typologies representative of redevelopment that could occur within the Study Area. The eventual execution and success of any project will depend less on exact siting, and more on the execution of the planning and design principals set forth in this document.

Key characteristics of potential redevelopment sites include:

- Minimum total depth of 1,500 feet;
- Approximately 50 acres or more;
- Visibility from major corridors; and
- Access and connections to adjacent neighborhoods.

## Ella Boulevard Catalyst

The Ella Boulevard Catalyst (Figure 18) provides a new standard of quality for commercial space in the area. The site would house office, retail, and service tenants in a much-improved setting compared to nearby properties but remain affordable to small, independent, and entrepreneurial businesses, especially for a newly constructed space.

This type of large project, approximately 120,000 square feet of retail and 675,000 square feet of office, may have to be phased over several years. It is possible that the office and retail space would initially lure some existing tenants away from lower-quality properties nearby. Building heights would be one to three stories with surface parking. Additional value would come from an improved street environment and the overall walkability of the development.

A significant feature of the proposed development is the reintroduction of a traditional street grid to the area. This pattern allows for flexible redevelopment over time, better connectivity of vehicular, pedestrian, and bicycle traffic, and can relieve congestion. Multiple connections to Cypress Creek Parkway and Ella Boulevard would give office tenants more options for travel, rather than having only one means of ingress and egress. Tree-shaded sidewalks and pleasant open space parks would allow office and service employees to access the retail space on foot, an unusual feature for the area. By providing a walkable environment throughout the development and a mixture of office and retail, the development could reduce the total number of daily automotive trips and make positive contributions to regional air quality.

Over time, this development would work to spur improvement of lesser quality properties nearby, benefitting the larger geographic area.

*Pedestrian friendly developments and human scale streetscapes are possible through rethinking the status quo of development within the region.*

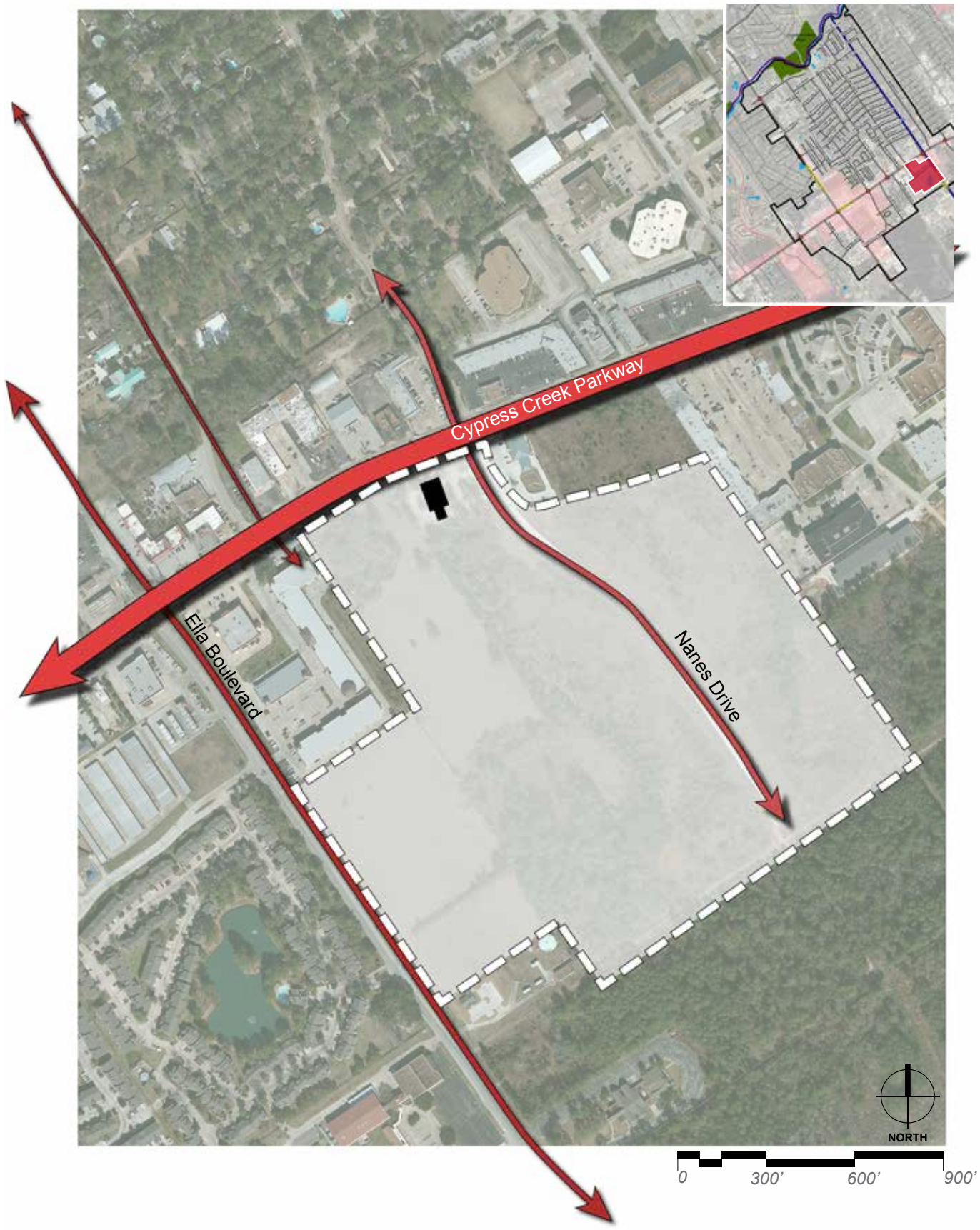
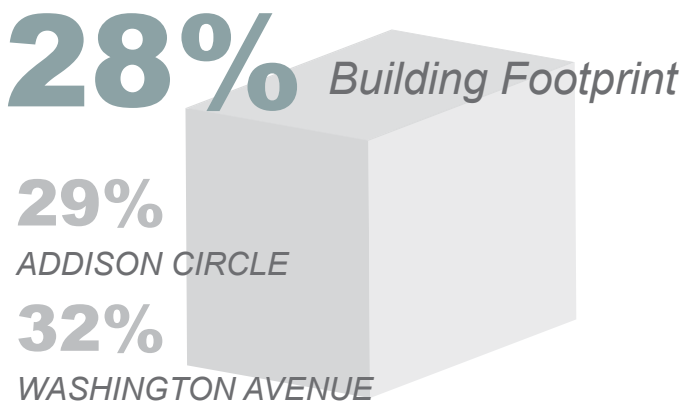



**Figure 17:** *Ella Boulevard Catalyst Figure Ground Diagram*


**Figure 18:** *Ella Boulevard Catalyst Site Schematic*

### *Building Massing and Footprints*

Similar to other developments of its size, the building footprint of the Ella Boulevard Catalyst would utilize two and three story buildings occupying just under a third of the site. The additional space utilized for roadways, drainage and open space networks meets City of Houston development standards for parking requirements (see Figure 21).




*Comparisons of Ella Boulevard Catalyst building footprint as percent of total space, compared with other developments.*


**Figure 19:** *Ella Boulevard Catalyst Pedestrian Zone Diagram*

**23%**

*Dedicated Pedestrian Space*

**10%**

*WASHINGTON AVENUE*

*Comparisons of Ella Boulevard Catalyst pedestrian friendly space as percent of total space.*

*Walkability*

Through an internally connected grid of streets and short block distances, as well as the establishment of complete sidewalk coverage and an internal trail network, this proposed office and retail space would offer a unique alternative to the parking lot and blank office buildings seen elsewhere within the Study Area.

Figure 19 illustrates the amount of this particular development that would be accessible from the central plaza area, allowing office workers to easily walk to meetings before or after work for food, drink and entertainment, bringing life to this area throughout the day.

*Multi Modal Transportation*

The location of this proposed development takes advantage of existing and planned infrastructure. Centered around Nanes Drive, the development constructs a grid which would connect to the proposed bikeway along Ella Boulevard, linking future development to the larger residential neighborhoods to the northwest.


**Figure 20:** *Ella Boulevard Catalyst Open Space Diagram*

*Public Spaces/Flexible Spaces*

Through the creation of a central green space which serves the dual purpose of a recreational trail and detention area for stormwater runoff, development on this site could be created as an attractive business and town center, providing space for employees to take lunch breaks, walk and exercise on the running trails and conduct informal meetings in courtyards (see Figures 19 and 20.) The retail in this development would act as support retail for local businesses.

*Parks and Environmental Impact*

With the addition of a central greenspace and street trees, a new development in this area could offer a unique retail and office environment that would provide a walkable center and connectivity where none currently exist. Comparable to the highly successful Addison Circle development, the Ella Boulevard Catalyst would offer a work environment significantly more park-like and pleasant than other developments within the area.

**9%**
*PARKS + OPEN SPACE*

**0%**
*WASHINGTON AVENUE*

**11%**
*ADDISON CIRCLE AVENUE*

*Comparisons of Ella Boulevard Catalyst open space as percent of total space.*

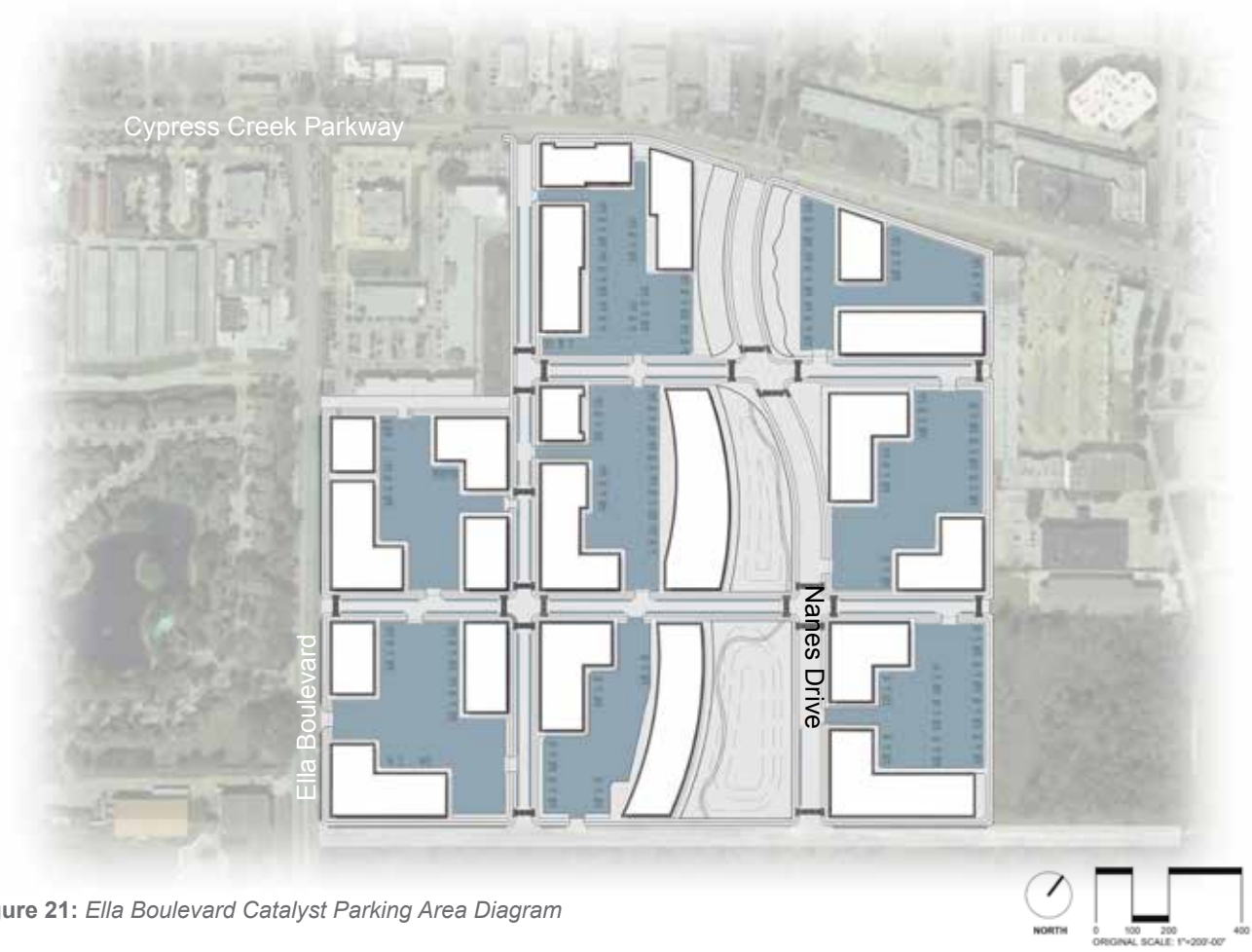



**Figure 21:** *Ella Boulevard Catalyst Parking Area Diagram*

**28%**
*PARKING AREA*

**34%**
*WASHINGTON AVENUE*

*Comparisons of Ella Boulevard Catalyst parking footprint as percent of total space.*

*Parking Availability*

It is critical to the success of any development along Cypress Creek Parkway to provide sufficient parking for visitors and employees. Figure 21 illustrates parallel parking along all new streets and parking lots that access each building. Parking lots are located behind buildings to the inside of blocks rather than adjacent to the street, creating an attractive and comfortable walking environment and streetscape appearance.

A detailed breakdown of City of Houston parking standards and catalyst parking supply can be found in the appendix.

*Road Widths*

The Study area is located in the City of Houston ETJ and Limited Purpose Annexation Area. Roadway design standards are governed by Harris County Engineers Office. This office typically adheres to the City of Houston's Infrastructure Design Manual. With this manual as the basis of recommendations, the design team proposed two separate roadway widths for the Ella Boulevard Catalyst (Figure 22).

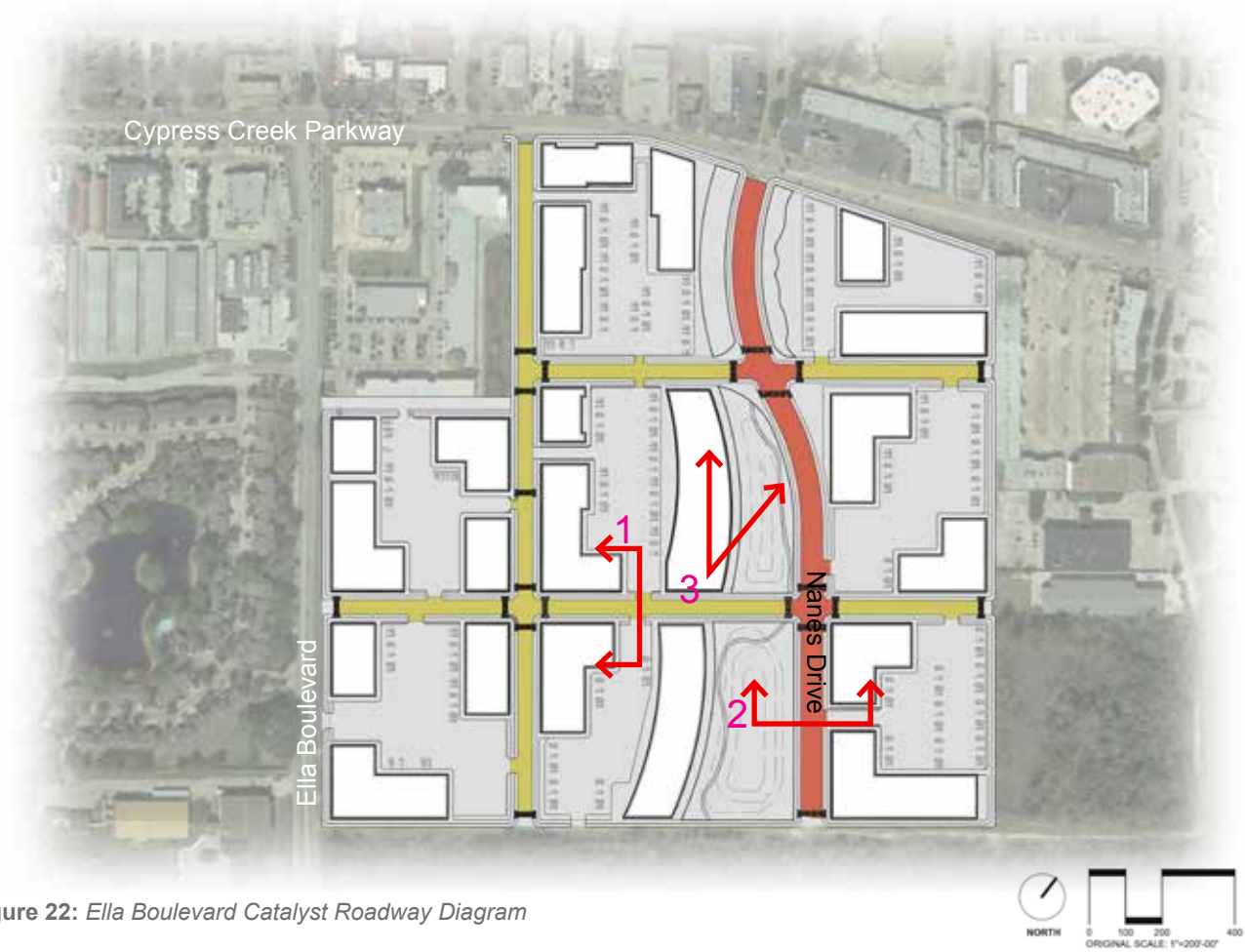



**Figure 22:** *Ella Boulevard Catalyst Roadway Diagram*

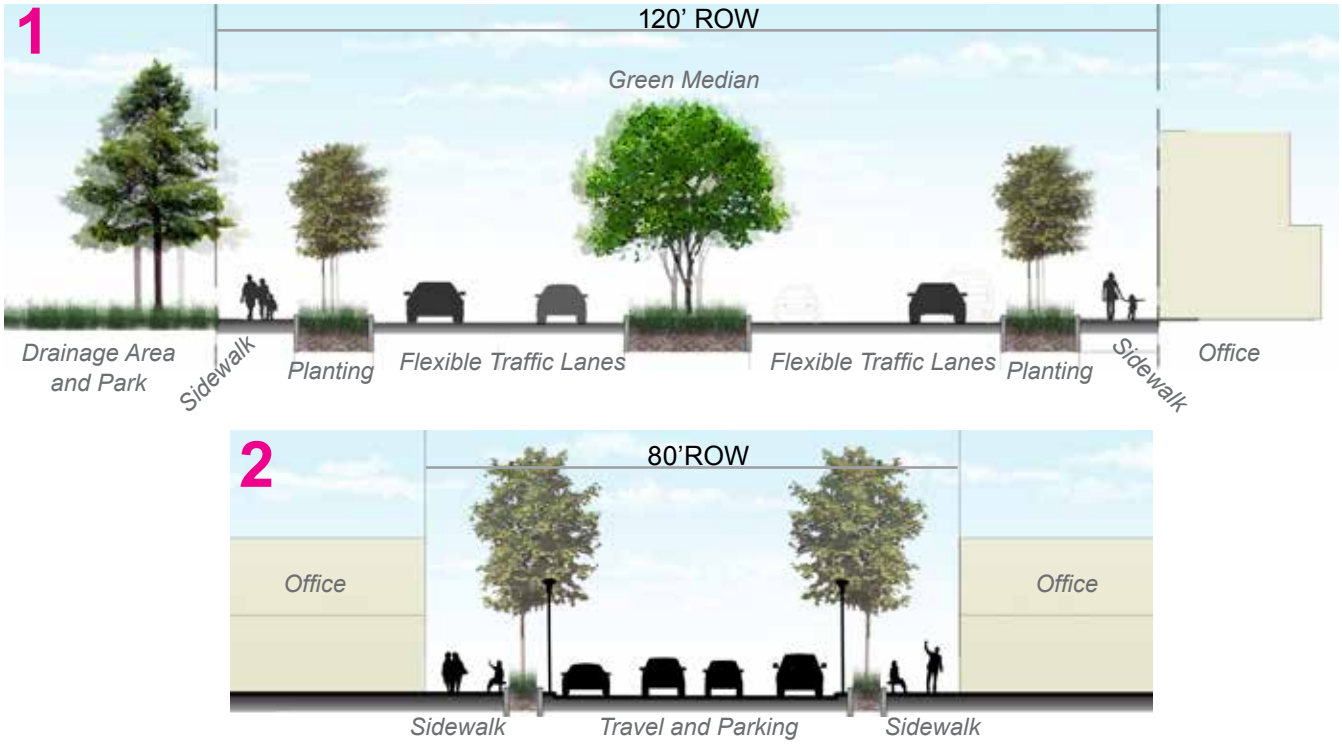



**Figure 23:** *Ella Boulevard Catalyst Street Sections - In both sections, the outer travel lane/parking lane could be converted for bicycle access.*


**Figure 24:** *Ella Boulevard Catalyst Land Use and Building Height Diagram*

Nanes Drive would be built out to 120 foot ROW to accommodate larger traffic loads, while still providing 10 foot wide sidewalks along the office building frontage and open space/detention preserves. On-street parking would not be utilized along these streets. The additional space would instead be utilized for bicycle lanes, turn lanes and other traffic management techniques needed as Nanes Drive intersects Cypress Creek Parkway.

Interior streets of the development would utilize an 80 foot ROW. This design provides room for two travel lanes, on street parking, street trees, and a wide pedestrian sidewalk, while still maintaining a comfortable human scale on the roadways between the buildings.

### *Land Use*

The Ella Boulevard Catalyst is intended to serve a majority of office uses, with a corner of service retail added to benefit from exposure along Cypress Creek Parkway, and to provide service based amenities to the workforce utilizing the development.

Figure 24 illustrates proposed building height and land uses for the development.

*Conceptual rendering, looking out from a second story office window to the park/detention area of the Ella Boulevard Catalyst.*

*Modern architecture and a walkable 'campus' environment could set this catalyst development apart from existing office parks in the area.*

*Probable Cost Estimates*

Table 3 indicates assumed probable costs for the construction of the Ella Boulevard Catalyst.

## Cypress Creek (Ella)

### Opinion of Probable Costs - PER

August 20, 2014

### Streetscape ROW

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Streetscape ROW | sf | 868,120 | $21.50 | $18,664,580.00 |
| | | | **Subtotal** | **$18,664,580.00** |

### Parking

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Parking Lots | sf | 854,672 | $6.50 | $5,555,368.00 |
| | | | **Subtotal** | **$5,555,368.00** |

### Parks + Open Space

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Parks + Open Space | sf | 262,766 | $40.00 | $10,510,640.00 |
| | | | **Subtotal** | **$10,510,640.00** |

### Building Footprint

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Building Footprint | sf | 844,511 | $85.00 | $71,783,435.00 |
| | | | **Subtotal** | **$71,783,435.00** |

### Utilities

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Utilities Installation | Unit | 1 | $4,400,000.00 | $4,400,000.00 |
| | | | **Subtotal** | **$4,400,000.00** |

### Landscaping

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Shade trees | ea | 382 | $1,750.00 | $668,500.00 |
| | | | **Subtotal** | **$668,500.00** |
| | | | **PROJECT SUBTOTAL** | **$111,582,523.00** |
| | | | CONTINGENCY 25% | **$27,895,630.75** |
| | | | **PROJECT GRAND TOTAL** | **$139,478,153.75** |

**Table 3:** *Ella Catalyst Estimation of Probable Costs*

## Kuykendahl Road Catalyst

At the northwest corner of Kuykendahl Road and Cypress Creek Parkway lies a group of aging box stores, strip malls, and garden apartments. Economic analysis shows these lots as prime candidates for redevelopment, with market areas that extend into the larger, more affluent geographies to the west.

Envisioned as a modern, unique mixed-use development, the Kuykendahl Road Catalyst transforms aging retail and multi-family properties into a walkable neighborhood center that would make a transformative statement for the entire area. A new set of public streets would create a walkable street network tying together a new mix of commercial and residential uses.

The corner at the main intersection will continue to showcase retail and dining, but reconfigured to eliminate the unsightly views of surface parking from the main street while still attracting shoppers off of the main thoroughfares. The development will provide parking for these uses in surface lots within the interior of the block. Businesses needing greater exposure will likely locate closer to the Kuykendahl Road and Cypress Creek Parkway intersection, while businesses that service the immediate neighborhood or need less exposure, will be suitable for the retail sites within the development.

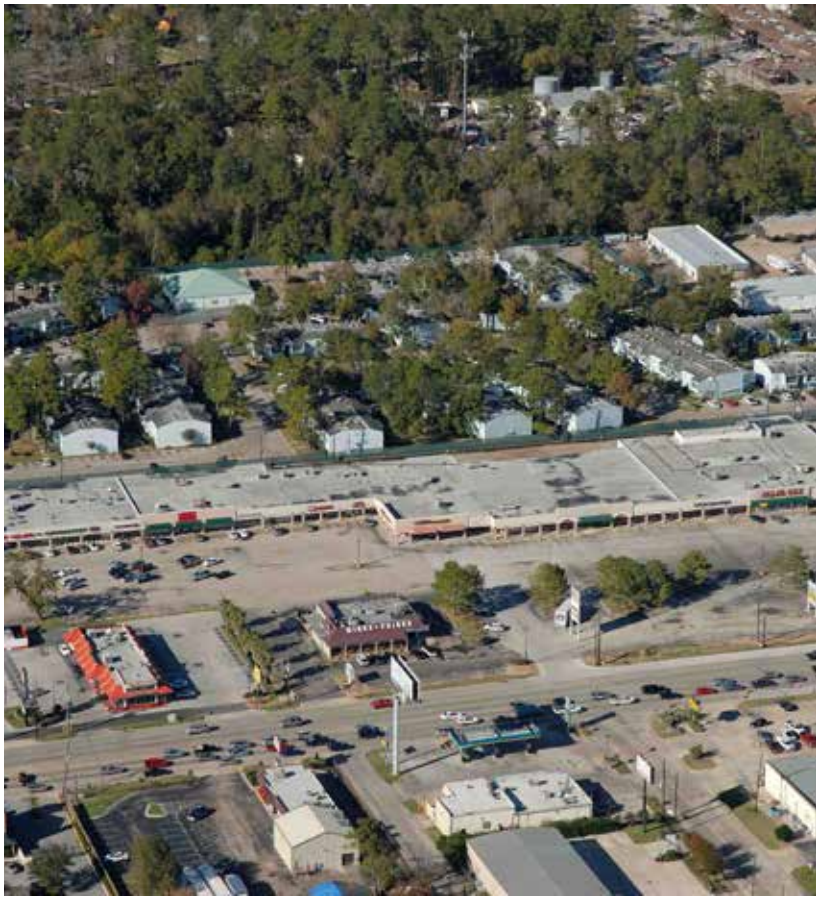
New residential will provide the first quality market-rate multi-family in the area in years. Along the northern edge of the project, modern townhomes will offer another new product to the area. Both types of residential uses will leverage the design and prestige of high quality neighborhoods, the internal open space within the development and easy access to retail and dining options to charge Class A rents (multi-family) and move up sales prices (townhomes).

*Economic Impact*

In order to succeed, this future development would need to provide future residents a competitive set of on-site amenities, such as a pool and fitness court. Screening parking and placing it on site to not dominate the property's street presence will be important to the project's success.

Retail uses on the site that can be supported by the Study Area's retail market area are small-scale neighborhood retail, such as specialty shops or boutique grocery stores and cafes.

However, by including neighboring census tracts surrounding the Study Area who are likely to travel via Kuykendahl Road and Cypress Creek Parkway, this area can support a full range of neighborhood level retail and services.



*Existing Conditions at Cypress Creek Parkway and Kuykendahl Road show an excess of parking and large expanses of strip mall development.*

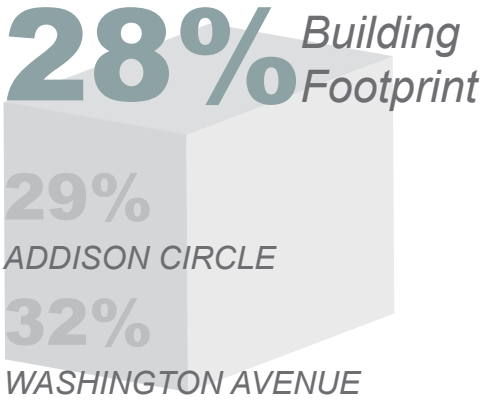

**Figure 25:** *Kuykendahl Catalyst Existing Conditions Figure Ground Diagram*


**Figure 26:** *Kuykendahl Road Catalyst Schematic Diagram*

### *Building Footprint*

Comparable with other developments in urban areas of Houston and Dallas, the Kuykendahl Road Catalyst would cover approximately a third of the site in building footprint. However, to comply with City of Houston parking requirements for residential uses, the site would require parking structures (Figure 26).


*A development of three and four story residential units with retail and commercial uses below is envisioned for the Kuykendahl Catalyst.*




*Comparisons of Kuykendahl Catalyst building footprint as percent of total space, compared with benchmark developments.*

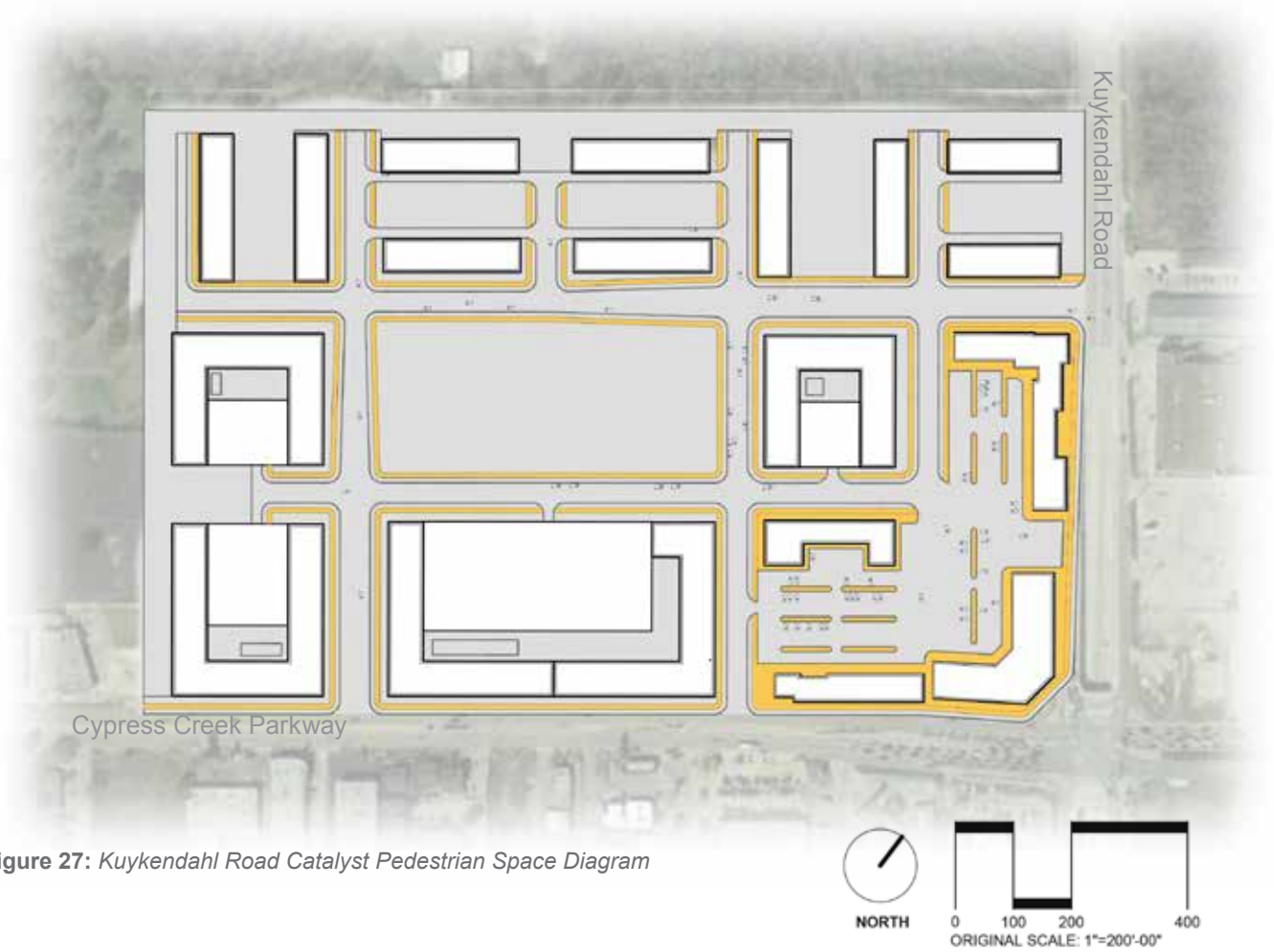



**Figure 27:** *Kuykendahl Road Catalyst Pedestrian Space Diagram*

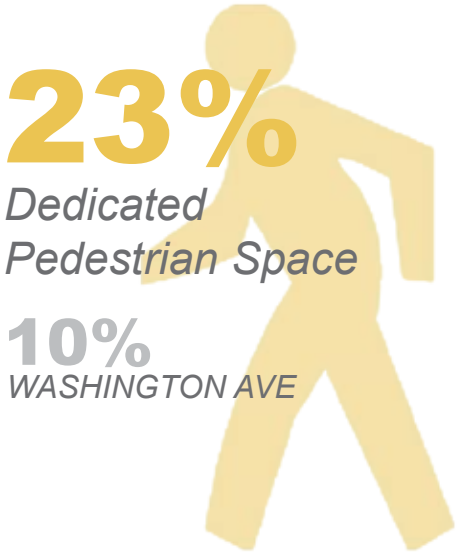



**Figure 28:** *Comparisons of Kuykendahl Road Catalyst pedestrian space as percent of total with benchmark developments.*

### *Walkability and Multi Modal Transportation*

This site is designed on the basis of a 300 foot x 300 foot grid. The grid provides multiple routes to any given destination, and in doing so reduces traffic load on any single route.

A well-designed streetscape, complete with sidewalks, access ramps, and pedestrian crossings, makes a neighborhood that encourages walking and cycling to a neighbor's home, the local cafe or grocer.

Future multi-modal connections beyond this site are limited by the heavy traffic loads and grade separated crossings of Kuykendahl Road and Cypress Creek Parkway. These barriers will inhibit multi-modal movement south and east of this site. Future multi-modal connections may be considered into neighborhoods to the north and west. These include enhanced sidewalks and pedestrian/bicycle connections to bus routes on Cypress Creek Parkway.

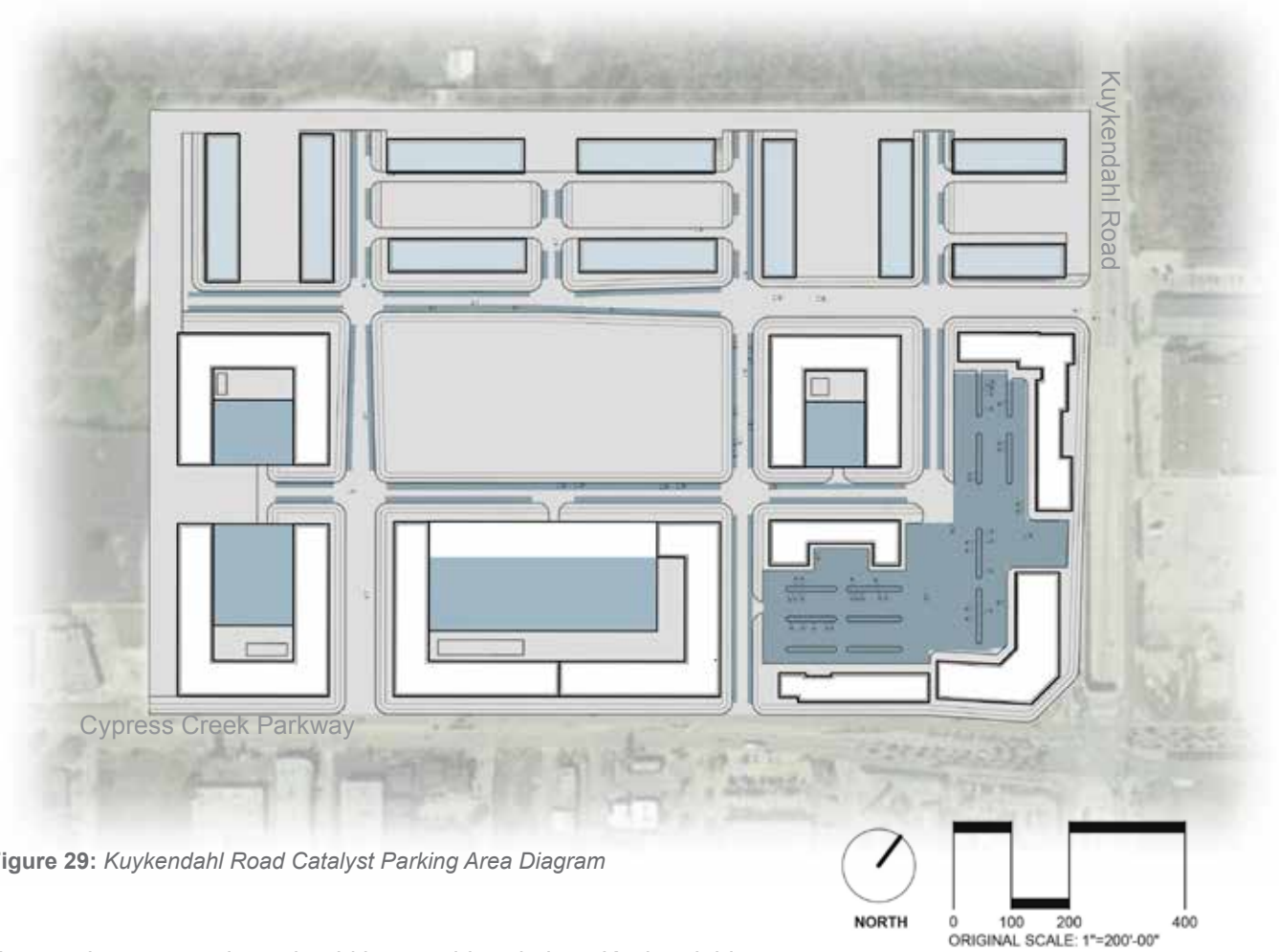



**Figure 29:** *Kuykendahl Road Catalyst Parking Area Diagram*

Express bus connections should be considered along Kuykendahl Road to connect the redevelopment area with employment centers to the north and south; this could be facilitated by the establishment of a multi-modal transit hub within the redevelopment area to provide convenient connections for area residents and employees.

### *Parking Availability*

It is critical to the success of development along Cypress Creek Parkway to provide sufficient parking for residents and visitors alike. The proposed plan includes parallel parking along all new streets, and parking lots to be shared by residents of each block. These parking lots locate parked cars inside the blocks rather than the outskirts, creating an attractive roadway appearance and walking environment. Because the site is located in City of Houston ETJ, all parking volumes adhere to City of Houston development standards, which are typically utilized by Harris County Engineers Office, who have the final say in development approval.


*Comparisons of Kuykendahl Road Catalyst parking footprint as percent of total space, compared with benchmark developments.*

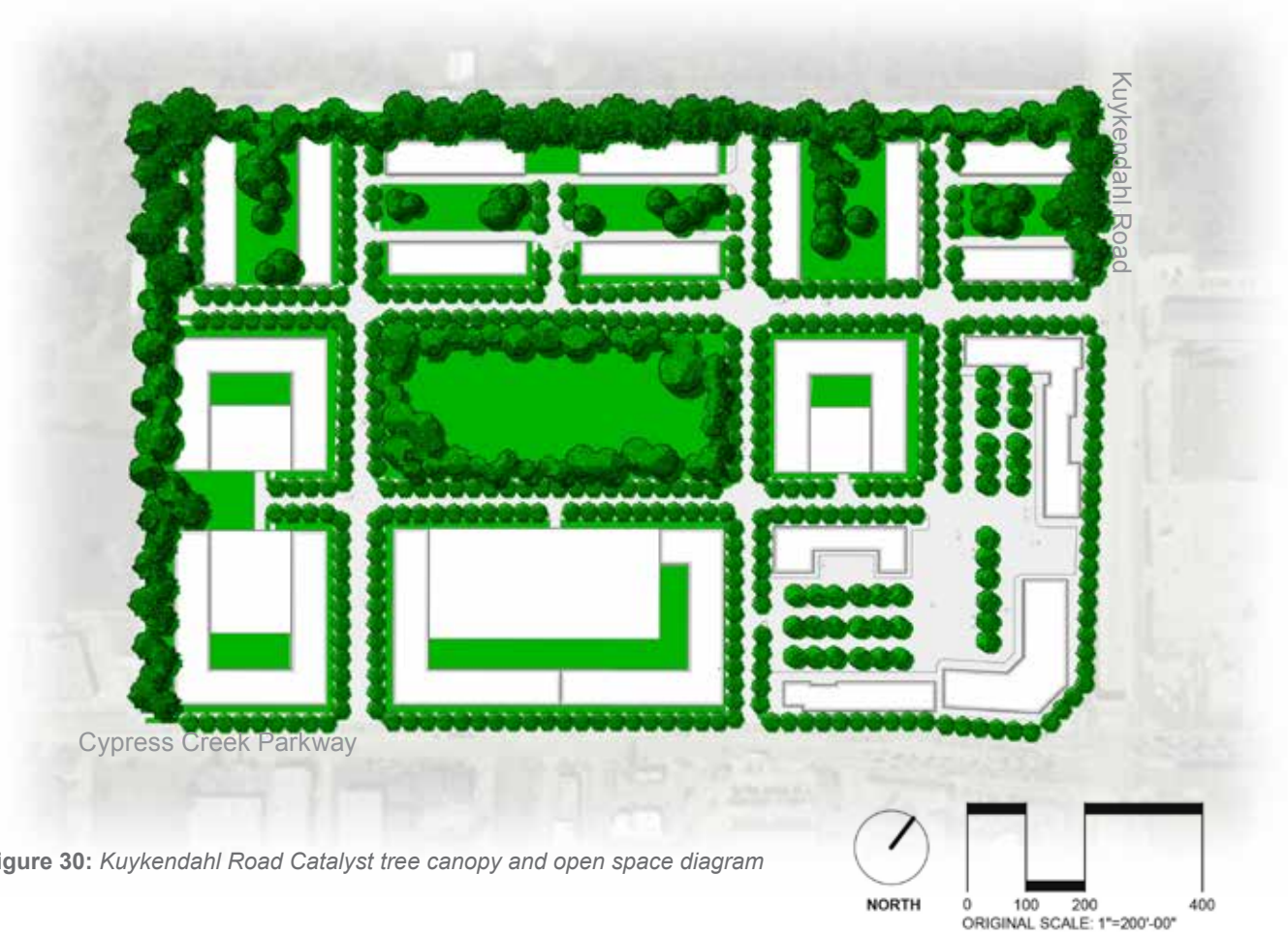



**Figure 30:** *Kuykendahl Road Catalyst tree canopy and open space diagram*

**9%**
*PARKS + OPEN SPACE*

**0%**
*WASHINGTON AVENUE*

**11%**
*ADDISON CIRCLE*

*Comparisons of Kuykendahl Road Catalyst open space as percent of total with benchmark developments.*

### *Public and Flexible Spaces*

Centered around a public lawn, this site creates an environment that promotes a social and family-friendly environment. The design allows community members to congregate in a pleasant, centrally located park environment and access adjacent cafe and retail uses. The central green space area, if designed correctly, could support not only public recreation and the associated increase of adjacent land values, but could become a revenue generating concert and event venue as well.

### *Parks and Environmental Impact*

A central park and tree lined streets would significantly contribute to improved air quality and reduced heat island effect. The design pictured above offers 14.7 acres of tree canopy and 13 acres of open space where previously there was only two acres of open space preserved behind the garden apartments to the north of the site.

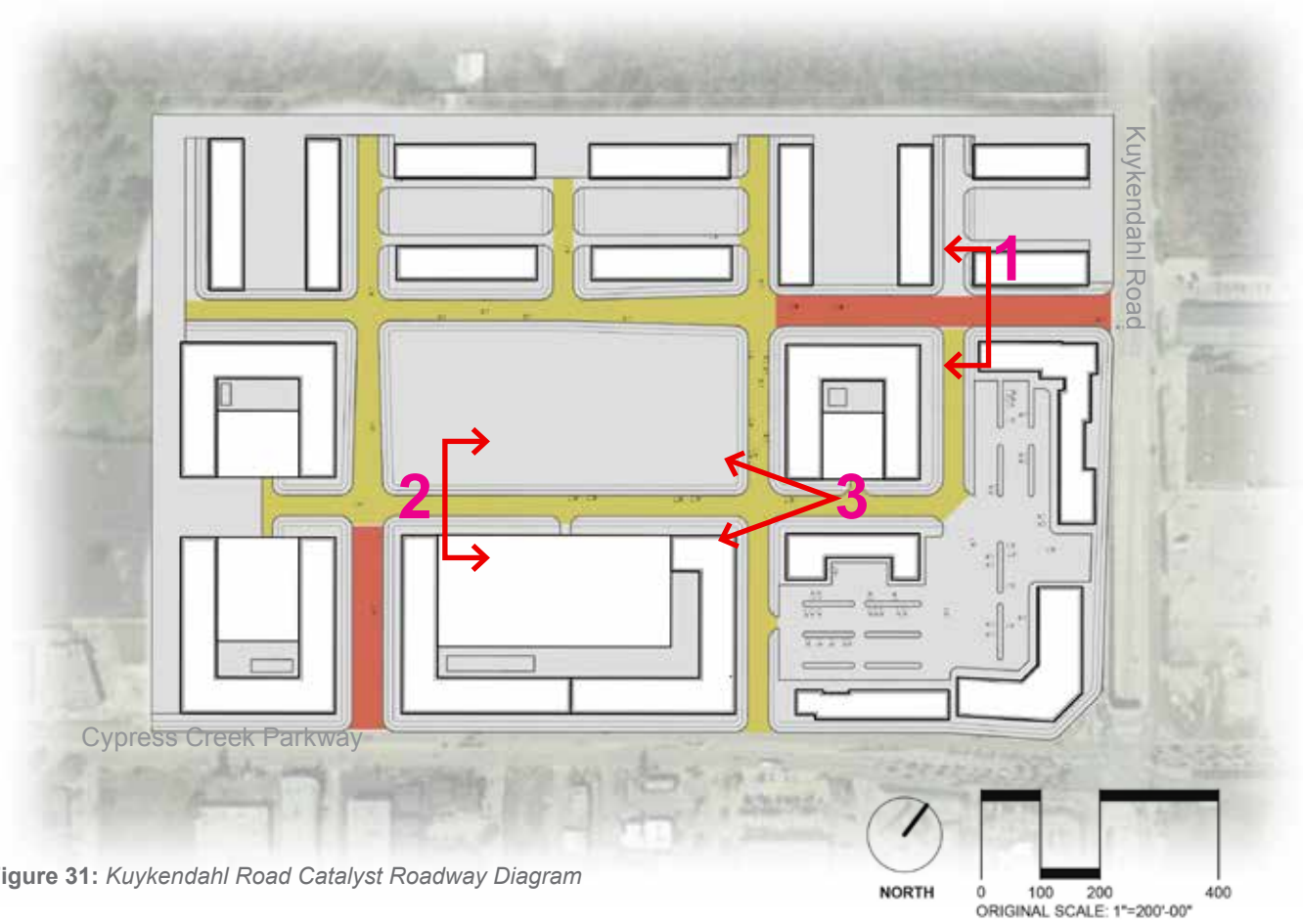



**Figure 31:** *Kuykendahl Road Catalyst Roadway Diagram*

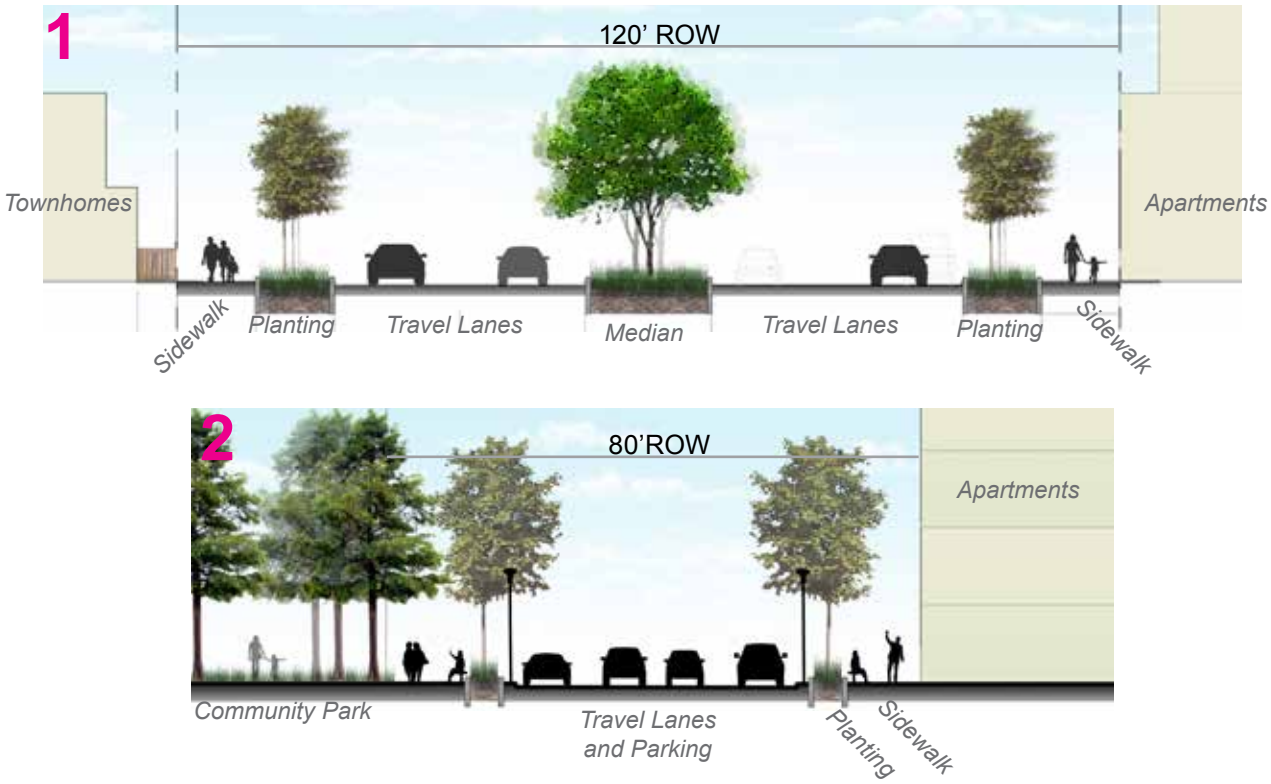



**Figure 32:** *Kuykendahl Road Catalyst Roadway Sections*

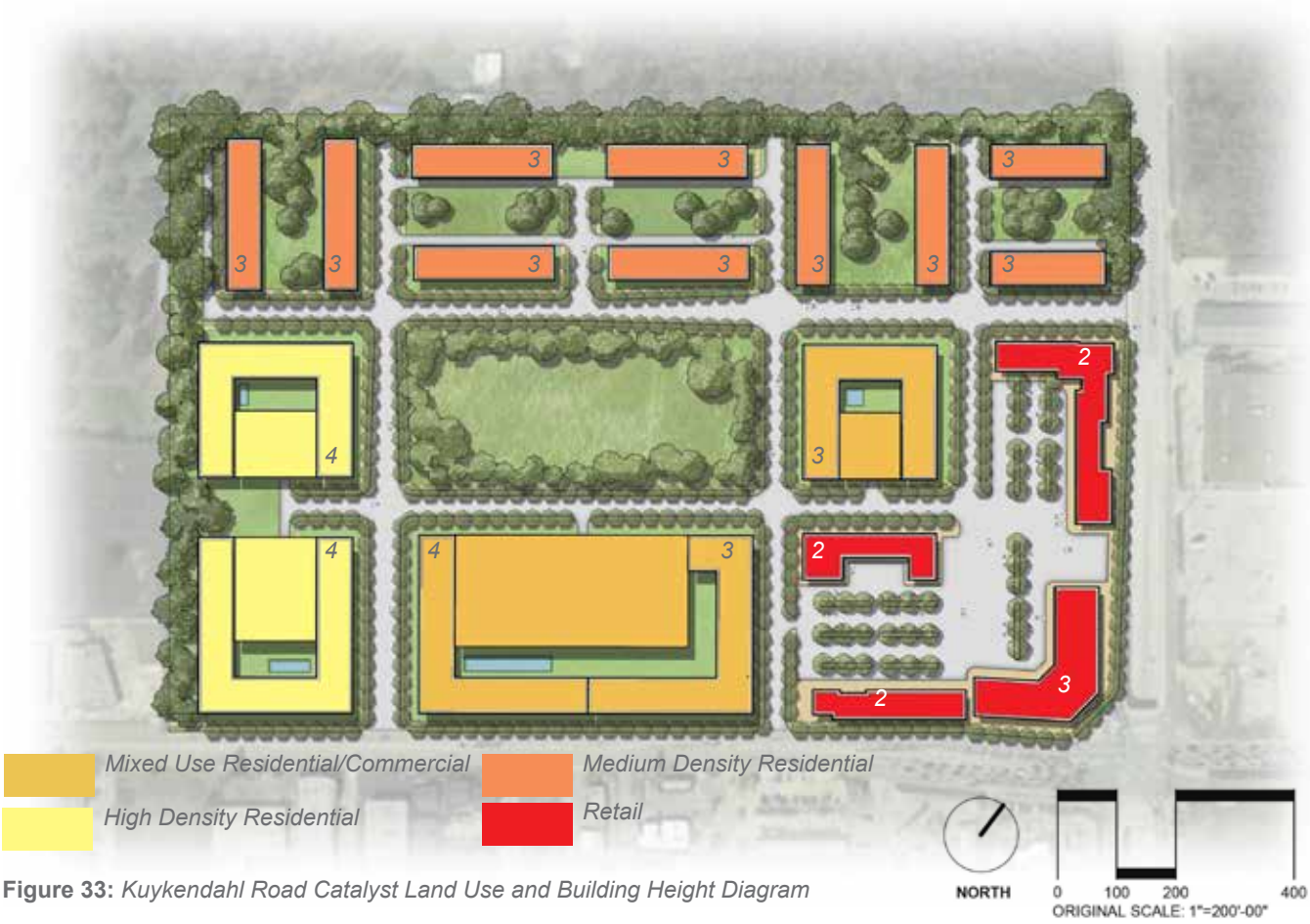



**Figure 33:** *Kuykendahl Road Catalyst Land Use and Building Height Diagram*

### *Roadway Widths*

Like the Ella Boulevard Catalyst, the Kuykendahl Road Catalyst is designed utilizing the 80 and 120 foot right of way (ROW) widths specified in the City of Houston's Infrastructure Design Manual (IDM), which is typically referenced by Harris County Engineers Office who has final say in development approval. The two major entry roads are designed as 120 foot, dual lane roadways with room for a dedicated turn lane to accommodate larger traffic volumes associated with access to the site. (Figure 32).

Internal roadways reduce to 80 foot ROW, which is designed to accommodate 2 parking lanes, two driving lanes, a wide 10 foot planting buffer and ample room for sidewalks. This creates a street with room for parking, bicycle lanes, and space to grow healthy street trees whose shade and comfort can become a defining feature of the Kuykendahl Road Catalyst.

As the community develops, bicycle lanes should be incorporated into the major cross streets accessing the central park. The outside lane of traffic can be utilized as a shared or dedicated bicycle lane.

### *Land Use*

As illustrated in Figure 33, the Kuykendahl Road Catalyst is conceived as a mixed-use land use plan, with retail and commercial uses facing the busy intersection of Cypress Creek Parkway and Kuykendahl Road, and a mix of uses surrounding the central park. The northern and western edges of the site are reserved for exclusively residential uses.

*Kuykendahl Roadway Catalyst conceptual rendering, looking southwest from within the site.*

*A traditional town center development is envisioned for the Kuykendahl Road Catalyst, acting as a social and commercial nexus for the community.*

*Probable Costs*

Table 4 represents an estimation of probable costs for the construction of the Kuykendahl Road Catalyst project.

## Cypress Creek (Kuykendahl)

### Opinion of Probable Costs - PER

August 20, 2014

#### Streetscape ROW

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Streetscape ROW | sf | 590,360 | $21.50 | $12,692,740.00 |
| | | | **Subtotal** | **$12,692,740.00** |

#### Utilities

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Utilities (Water/Wastewater, all) | Unit | 1 | $10,900,000.00 | $10,900,000.00 |
| | | | **Subtotal** | **$10,900,000.00** |

#### Parking

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Parking Lots | sf | 337,664 | $6.50 | $2,194,816.00 |
| | | | **Subtotal** | **$2,194,816.00** |

#### Parks + Open Space

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Parks + Open Space | sf | 566,775 | $40.00 | $22,671,000.00 |
| | | | **Subtotal** | **$22,671,000.00** |

#### Building Footprint

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Building Footprint | sf | 513,647 | $85.00 | $43,659,995.00 |
| | | | **Subtotal** | **$43,659,995.00** |

#### Landscaping

| ITEM | UNIT | QTY. | UNIT COST | TOTAL |
|---|---|---|---|---|
| . Shade trees | ea | 132 | $1,750.00 | $231,000.00 |
| | | | **Subtotal** | **$231,000.00** |
| | | | **PROJECT SUBTOTAL** | **$92,349,551.00** |
| | | | CONTINGENCY 25% | **$23,087,387.75** |
| | | | **PROJECT GRAND TOTAL** | **$115,436,938.75** |

**Table 4:** *Kuykendahl Road Catalyst Cost Estimates*

## Public Spaces Vision

By developing improved public spaces such as parks, trails and plazas, Cypress Creek Parkway can increase the quality of life for current and prospective residents, raise land values and attract new growth to the community. Through efforts that capitalize on and connect to regional projects such as the Cypress Creek Greenway, the Study Area can improve its status as a desirable place to live and work.

*Opportunity: Flood Plain Parcels*

Due to a large portion of the Study Area lying in the FEMA defined 100 year floodplain of Cypress Creek, many residential parcels have become vacant lands, or are owned by HCFCD and are unlikely to be redeveloped into new dwellings.

These parcels offer a unique opportunity to develop future park land. Not only are they adjacent to Cypress Creek and the regional 40 mile Cypress Creek Greenway that is under construction, but the development of active or passive recreation areas in these vacant lands can act as stormwater detention, reducing future flood damage to nearby properties.

## Circulation and Connectivity Vision

In addition to specific multi-modal improvements listed in the descriptions of the prior catalyst projects, there are a number of circulation and connectivity options that could help improve the Cypress Creek Parkway Study Area. Each of these options has the potential to improve multi-modal access to and through the Study Area and to help improve property values and the overall economic viability of Cypress Creek Parkway.


*A vacant lot at Canyon Creek and Grand Valley Drive, contrasted with the potential of a simple park.*

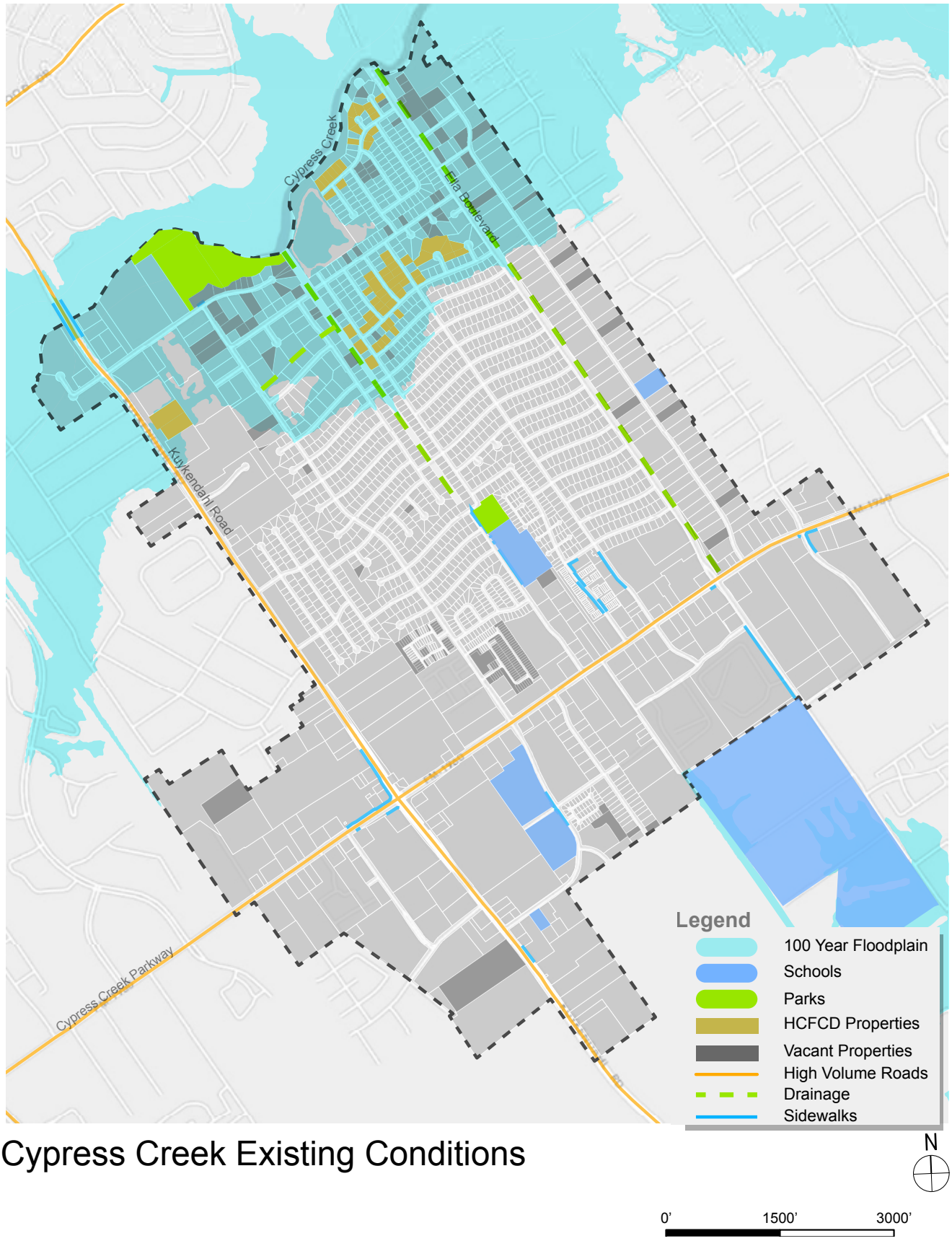



**Figure 34:** *Study Area Existing Conditions*

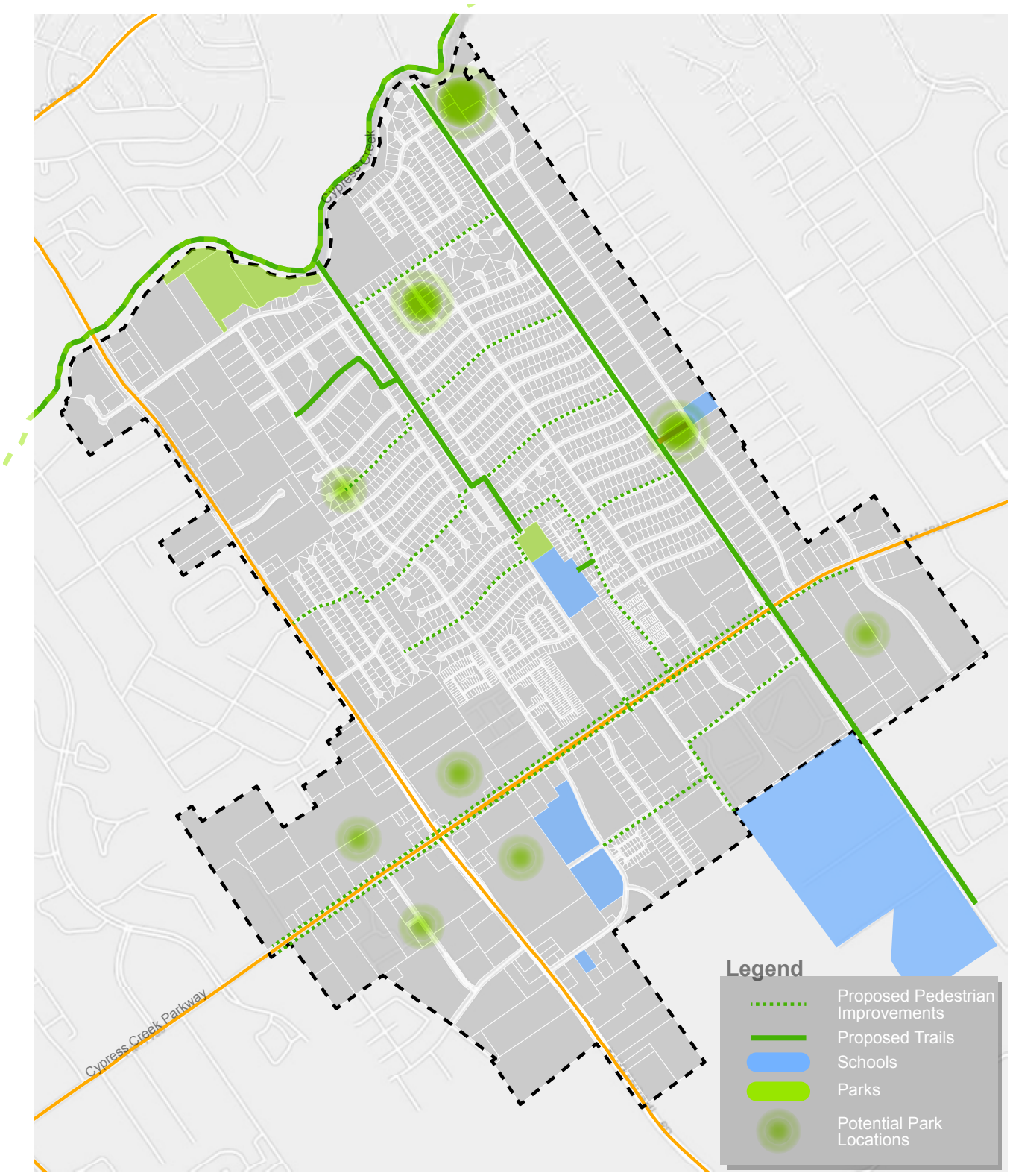



**Figure 35:** *Cypress Creek Parkway Proposed Park and Trail Network*

Heavy traffic volumes on Cypress Creek Parkway likely will not decrease. The roadway could benefit from a variety of redesign strategies that would improve pass-through movement, encourage ‘‘destination’’ travel to Study Area merchants, and improve pedestrian and bicycle movement and safety. Cypress Creek Parkway recommended improvements include many of the strategies highlighted in successful case studies cited in Chapter 1 and the following suggestions.

### *Park and Trail Network Opportunities*

The map on the previous page (Figure 35) illustrates what could be developed through a network of parks and trails throughout the Cypress Creek neighborhood. By creating safe and pleasant routes to schools and other amenities, Cypress Creek could significantly change the public perception of the neighborhood and catalyze an increase in home values and overall investment patterns.

*A green median both beautifies and provides safe refuge while crossing the street.*

### *Road Diets*

A series of ‘‘road diet’’ strategies could slow traffic through the area, improving pedestrian visibility and safety while facilitating the same heavy traffic volumes. In particular, this could include narrowing of traffic lanes, combined with improvements to signalization for better synchronization, and improvements to right- and left-turn lanes such as turn pockets with raised pedestrian/bicycle tables.

This approach is not feasible for Cypress Creek Parkway, but Sugar Pine Drive, Ella Boulevard, Kuykendahl Road and other major roadways could benefit from this treatment.

### *Sidewalk and Bus Stop Improvements*

Major improvements to sidewalks and bus stops along Cypress Creek Parkway are recommended. Currently, many bus stops are only accessible through retail parking lots and grass strips along the roadway and provide little if any ADA access. Sidewalks along Cypress Creek Parkway would provide safe and equitable access to all bus stops.

METRO could create enhanced bus stops or ‘‘super-stops’’, providing shelters and loading/unloading areas out of the way of heavy Cypress Creek Parkway traffic at key strategic locations near major activity centers. These facilities could be developed through public-private partnerships with local property owners. They could be designed with public art, bike racks, and other high-quality urban design features to make them community amenities.

### *Pedestrian Crossings*

For children, the elderly, the disabled or anyone who would prefer a walk over sitting in traffic, movement across Cypress Creek Parkway is hazardous. Additional signalized pedestrian crossings could be implemented. These crossings could be located at strategic mid-block locations and could be designed to minimize traffic delay.

If budget resources allow, one or more well-designed pedestrian/bicyclist underpasses could be constructed at high-volume locations to provide safe and convenient movement across Cypress Creek Parkway. These could be combined with the regional bus super-stops mentioned above.

Pedestrian facilities and crosswalks exist at Kuykendahl Road, Sugar Pine Drive, Butte Creek Road, Rolling Creek Drive and Ella Boulevard. These are the only locations where a pedestrian or bus rider might safely access one side of Cypress Creek Parkway from the other.

Due to the grade separated crossing and 170 foot crossing distance, the Kuykendahl Road crossing will remain a significant challenge to pedestrians, and consideration of non-motorized over or underpasses should be considered.

Preservation the Sugar Pine Drive, Rolling Creek Drive, Butte Creek Road and Ella Boulevard intersections as functional roadway crossings for vulnerable roadway users is highly recommended. These crossings reduce the risk and challenge of walking to access goods and services either side of Cypress Creek Parkway.

### *Median Enhancements*

In 2011, community members, the Houston Northwest Chamber of Commerce, and donors raised over half a million dollars to plant and green a number of medians within Cypress Creek Parkway. While attractive, the medians are thin and provide minimal pedestrian refuge to those attempting to cross the busy thoroughfare. Medians could be expanded to include additional landscaping and public art to enhance the beauty of the roadway. At major intersections, medians should be redesigned to provide pedestrian refuges to facilitate safe crossing of Cypress Creek Parkway, including ‘‘bump-outs’’, good signage and signalization for pedestrians, clearly designated pedestrian channels with bricks or pavement of distinct colors to clearly


*An underpass provides safe and efficient access for non-motorized traffic crossing major roadways in Chicago(image courtesy of sloopin.com).*

*Infrastructure exists for crossings, but the worn path in the grass makes school access challenging for many.*

delineate pedestrian or bicycle paths across roadways, and other amenities.

*Utility Improvements*

The elimination of the unsightly utility poles and wires could be combined with improvements to lighting along the roadway, further improving the safety of all road users.

*Bus Service Improvements*

Major enhancements to the METRO bus service are needed for the Study Area. The current 20 to 30 minute wait times between busses provide little incentive for transit use other than for the transit-dependent. METRO should study the potential of Cypress Creek Parkway becoming one of its high-frequency transit corridors with improved wait times.

METRO should study potential express connections from the Study Area to employment centers to the north and south. As local redevelopment occurs, METRO could work with the private sector and local community groups to establish a regional circulator to connect major employment, retail, restaurant, and residential areas within the Study Area and to reduce the need for dangerous pedestrian crossings of Cypress Creek Parkway.

This project could be a good opportunity to work with METRO to develop a menu of publicly- and privately-funded transit services that are innovative in their approach, such as a hybrid network of smaller fixed-route buses, combined with public and private local circulator systems and more sophisticated models for demand-response service designed for broader coverage, premier service with better vehicles and amenities, and easy access through mobile phone apps.

*Bicycle and Pedestrian Routes*

The development of Cypress Creek Greenway to the north creates the potential for the development of a coordinated regional plan for bicycle and pedestrian facilities where few exist today. Though it is not recommended to develop bicycle facilities along Cypress Creek Parkway, good north-south connections – along with safe crossings of the roadway are essential to promote bicycle and pedestrian connectivity and safety.

*Wayfinding and Signage*

The development of signage standards through a development district could promote well-designed signage that would improve safety and encourage access to local retail and residential areas.

*Transportation Management Association*

A Transportation Management Association (TMA) could operate independently or could be integrated into an existing community group. A TMA would work with local businesses and organizations to promote alternative modes of travel throughout the Study Area. TMAs have been successful in many parts of the region and the country in providing coordinated information and programs to local business owners and residents promoting the use of alternative transportation. Distribution of transit passes, promotion of ride-sharing services, developing public and private funding for improved bicycle and pedestrian facilities, are just a few of the services a TMA can provide.

The closest TMA to Cypress Creek would be the Bay Area Houston Transportation Management Association, and can be found at http://www.baytran.org.

*Canal Trail Vision*

Located directly between Butte Creek Road and Ridge Top Drive is a large concrete-lined canal that serves as a stormwater drainage channel for the neighborhood.

The canal is constructed with a wide grassy path on either side that could easily be converted into a trail and linear parkway system. The canal alignment provides direct alignment from Ponderosa Forest Park to roadways just north of Ponderosa Elementary School/ The canal could provide

*The canal space between Elk River Drive and Ridge Top Drive as it exists today.*

*A conceptual rendering of a future trail alignment at the same site.*

*The cul-de-sac connection could provide safe and easy access to school for neighborhood children.*


**Figure 36:** *Cul-de-sac Connectivity Diagram*

a safe route for children to access their local elementary school without crossing any dangerous intersections or thoroughfares.

### *Cul-de-sac Opportunities*

Three cul-de-sacs back up against the northeastern side of Ponderosa Elementary, and block access to the school. The current configuration forces children and parents drive or walk a circuitous route around the neighborhood in order to reach the school. A gated fence and short pathway could be installed to provide pedestrian connectivity between the school and these cul-de-sacs.

A single cul-de-sac opening of the three that abut the elementary school would shorten the distance to school for many families, and could be a simple, low cost project to enhance walkability and community pride.

Figure 36 illustrates the dramatic change in access that a simple cul-de-sac gateway can make.

*Opportunity: Ella Boulevard*

Ella Boulevard is a north/south roadway located to the eastern side of the Cypress Creek Parkway Study Area. Currently, the eastern side of the street is an unpaved right of way (ROW) that includes a drainage canal. Ella Boulevard connects a vacant lot adjacent to Cypress Creek down to the site of the former YMCA. The size and length of this site provides great opportunities for a linear park system that could connect a majority of homes on the eastern side of the Study Area to amenities along Cypress Creek. Any future trail construction should have a minimum of six foot trail width.

For either Ella Boulevard or the canal trail opportunities, a long-term vision would include the reconstruction of the drainage channel to remove the concrete and provide a more natural environment mimicking that of a river walk while still providing the functionality of the drainage channel.

*Internal Street Networks*

Along with a linear park system, the Cypress Creek neighborhood could become a safer, more connected, more walkable, and a healthier environment for children, adults, and seniors alike if major portions of the internal street network are developed with sidewalks and pedestrian crossing facilities.

Sugar Pine Road is one such street that could directly connect residents to the amenity of Ponderosa Forest Park, if only a pedestrian crossing were added across a drainage canal.

Along with the development of an internal trail network separated from traffic, a network of low traffic roads should be utilized as access to the trail network. These roads should include pedestrian and cyclist infrastructure, such as crosswalks, signage, and sidewalks to encourage and facilitate non-motorized access to the trail network. Figure 35 represents a conceptual alignment of these roadways.

*Estimation of Probable Trails Costs*

Table 5 illustrates an estimated probable cost for the major connectivity visions explored as part of this chapter. The line items are intended to illustrate cost differences that arise from different materials choices.

When choosing a material for public trail access, concrete is often a popular choice due to its low maintenance requirements. However, care should be taken that the desire for a low maintenance facility does not impinge upon a park or trail's natural character that would be better suited by natural surface trails, such as mulch or decomposed granite.

## Trails Construction

### Opinion of Probable Costs

August 20, 2014

**Ella Linear Park**

| Surface Type | UNIT | Length (ft) | Width (ft) | UNIT COST | TOTAL |
|---|---|---|---|---|---|
| Concrete | sf | 6,600 | 10' | $6.00 | $396,000.00 |
| Decomposed Granite | lf | 6,600 | 10' | $26.00 | $171,600.00 |

**Canal Trail (Between Ridge Top Dr. and Butte Creek Rd.)**

| ITEM | UNIT | Length | Width (ft) | UNIT COST | TOTAL |
|---|---|---|---|---|---|
| Concrete | sf | 3,960 | 5 | $6.00 | $118,800.00 |
| Decomposed Granite | lf | 3,960 | 5 | $26.00 | $102,960.00 |

**Table 5:** *Connectivity Catalyst Cost Estimates*

### *Cypress Creek Parkway - Complete Streets*

As a long term project goal, Cypress Creek Parkway should be designed as a street that provides for all forms of transportation, with a complete sidewalk network alongside the road, connecting businesses to bus stops and allowing for people to safely travel to and from their destinations.

Achieving this goal will be very challenging, as prior reports have identified only eight feet of usable right of way space between the back of curb and private property lines. This space is insufficient to accommodate both a sidewalk and a planting buffer wide enough to grow street trees.

The team's recommendation comes in two parts: a pragmatic recommendation for safety, and an ideal solution that would require the buy-in and assistance of adjacent property owners.

The pragmatic solution is to develop a five foot sidewalk against the property line, and preserve a three foot wide planting strip that is filled with a tall massing of shrubs. Unfortunately, this pragmatic recommendation does not allow for the planting of street trees, as any trees placed in such narrow confines would not live long and are not a recommended investment.

However, as the Study Area has more parking than is necessary in most locations, property owners may be willing to grant a public easement of five feet or more along the right of way line. In these cases a five foot sidewalk could be developed on the private side of the right of way.
This would be sufficient to maintain eight to ten feet of planting strip, enough to grow healthy street trees. (Figure 39)

### *Air Quality Benefits*

The total suggested trail network for the Cypress Creek Parkway Study Area totals 3.92 miles, which includes the segment of Cypress Creek Greenway which parallels the northern border of the site.

This network would connect the neighborhoods to regional recreational amenities along the extent of Cypress Creek and to commercial goods and services along Cypress Creek Parkway. These improvements, along with an improved pedestrian environment along Cypress Creek Parkway, could significantly reduce the number of trips taken by car within and beyond the Study Area, resulting in improved air quality contributions for the region.

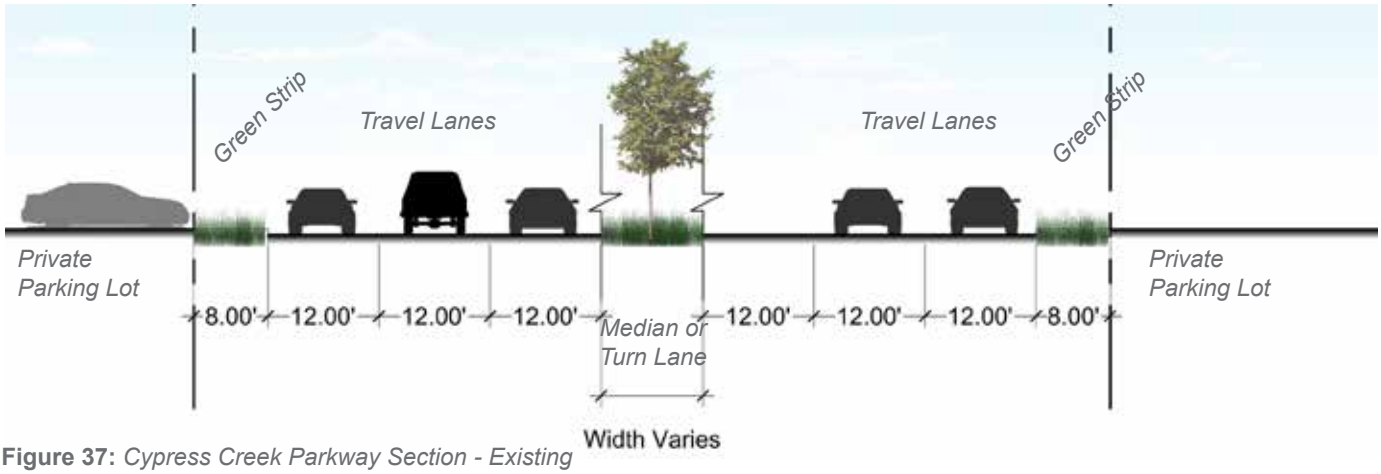



**Figure 37:** *Cypress Creek Parkway Section - Existing*

## Environmental and Sustainability Vision

Future development in the Cypress Creek Parkway Study Area should take care not to cause unintended damages to the natural environment. The waters and riparian habitat of Cypress Creek should be preserved for future generations to enjoy.

### *Low Impact Design*

As Houston and the surrounding region of Harris County grow, more roads are paved, more developments replace open land, and more people call the region home. Though these changes can benefit the overall economic health of the region, they also pose a threat to the natural environment which we all inhabit.

The main goal of low impact design techniques are to avoid polluting water and exacerbating flooding problems during storm events - two common side effects of intensive development.

### *Rain Gardens - Large and Small*

One of the most beautiful and simple LID techniques available is the rain garden. Rain gardens are concave gardens of varying shape or size, located at a low point on the land.

Planted with native and adapted plants that thrive in wet conditions, these gardens are placed and designed to capture stormwater runoff, filter and clean it, before slowly releasing it back into the ground.

These systems also work from the homeowner to the municipal scale. Often they are utilized as public infrastructure lining newly developed streetscapes. Though they are more involved to design and implement than a standard planting bed, when designed correctly, they are a way to add both beauty and function to an area. Rain gardens reduce requirements for expensive storm drain installations or upgrades, as well as providing room for attractive plantings and street trees.

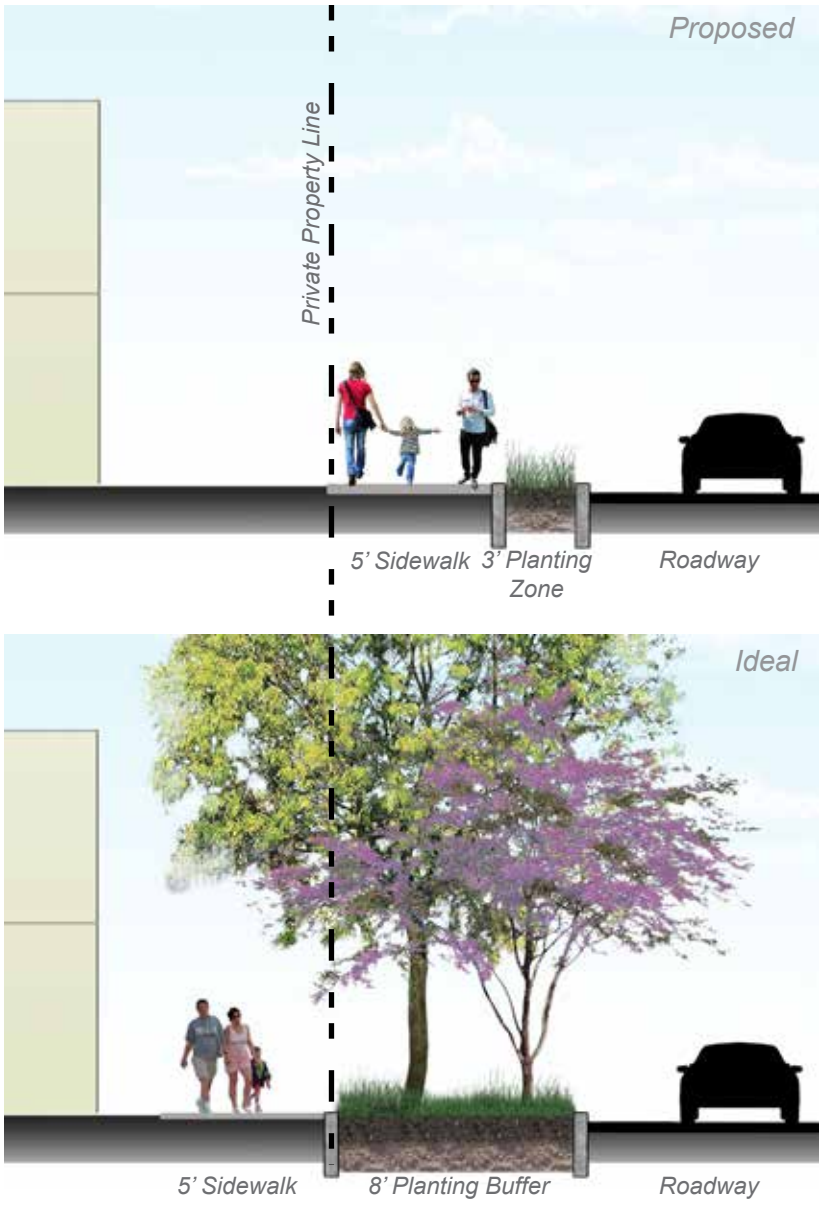



**Figure 38:** *Proposed Cypress Creek Parkway Pedestrian ROW Sections*

*Rain gardens along Bagby Street in Houston filter and clean urban runoff before it flows to the adjacent Buffalo Bayou.*

*What appears to be a underutilized vacant lot on Rolling Creek Drive could become valuable flood protection in the future.*

### *Permeable Pavement*

Permeable paving systems are brick pavers with small spaces preserved at their joints to allow water to filter through, instead of flowing off into storm drains. Installed in parking lots, driveways and other areas, they can significantly contribute to improved local water quality and flood damage reduction.

### *Regional Detention Basins*

Under City of Houston requirements, any development within the Study Area that increases impervious cover is required to construct detention basins at the rate of .5 acre-feet for every acre of increased impervious cover.

These requirements form an additional cost to developers looking to operate within the area. However, a waiver of detention requirements may be granted if development is located in an area within proximity to regional detention facilities.

Vacant parcels within the floodplain in the neighborhood could easily be converted into such regional detention facilities, and could serve as a tool to attract development to the area that would otherwise be required to locate and build detention facilities themselves.

These detention facilities act as important buffers from stormwater and flooding damage to surrounding properties and could help preserve and improve the value of the Cypress Creek neighborhoods through the years.

## Placemaking, Image and Branding Vision

Creating a recognizable logo and brand for a community is one way to celebrate the character and amenities that make that place special.

The Houston Northwest Chamber of Commerce has begun such an effort for

the Cypress Creek community, and their efforts form the basis of these branding recommendations.

### *Gateway Signage*

Large gateway elements oriented towards the roadway could inform travelers to the presence of the recognizable Cypress Creek community, promoting and inspiring interest.

Some key locations that could be considered for gateway signage are south of the creek on Kuykendahl Road, or either side of Cypress Creek Parkway when crossing Bamwood Road or Kuykendahl Road.  These are illustrated in Figure 41.

### *Lighting and Banners*

A common and successful corridor improvement program that has been adopted by many communities is a lighting and banner program.  Serving the dual purpose of providing safety lighting in the evenings and providing an opportunity to brand the community and utilize banner space for multiple messages, a corridor of banners down Cypress Creek Parkway could be a powerful method of promoting the community.

Any lighting that exceeds Houston minimum standards for street lighting will require a maintenance partner.  This typically applies to any gateway signage, banners, or furniture lighting.

### *Custom METRO Bus Shelters*

METRO has a current goal of installing and updating over 100 bus shelters annually, upgrading the pole and sign that form their basic stops.

The installation of bus shelters along Cypress Creek Parkway could improve the appearance of the street overall, and may provide an opportunity for a unique branding icon.  METRO will consider applications by communities that request custom shelters that reflect their branding, but METRO requires the design to adhere to their in-house design manual and will not provide funding for customized shelters.

METRO receives requests from any and all citizens interested in upgrading a bus stop to a bus shelter.

### *Events and Activities*

The flowing waters of Cypress Creek and future regional amenity of Cypress Creek Greenway, combined with numerous parks located along its banks, set the stage for the community to capitalize on events programming.

Events can draw new interest to a community, creating recurring and significant economic boosts, and renew interest in sleepy towns and neighborhoods. Events can range from sporting events, such as 5 and 10k runs, to cultural events such as plays, festivals or farmers markets.

The large parking lots of many vacant stores along Cypress Creek Parkway also provide

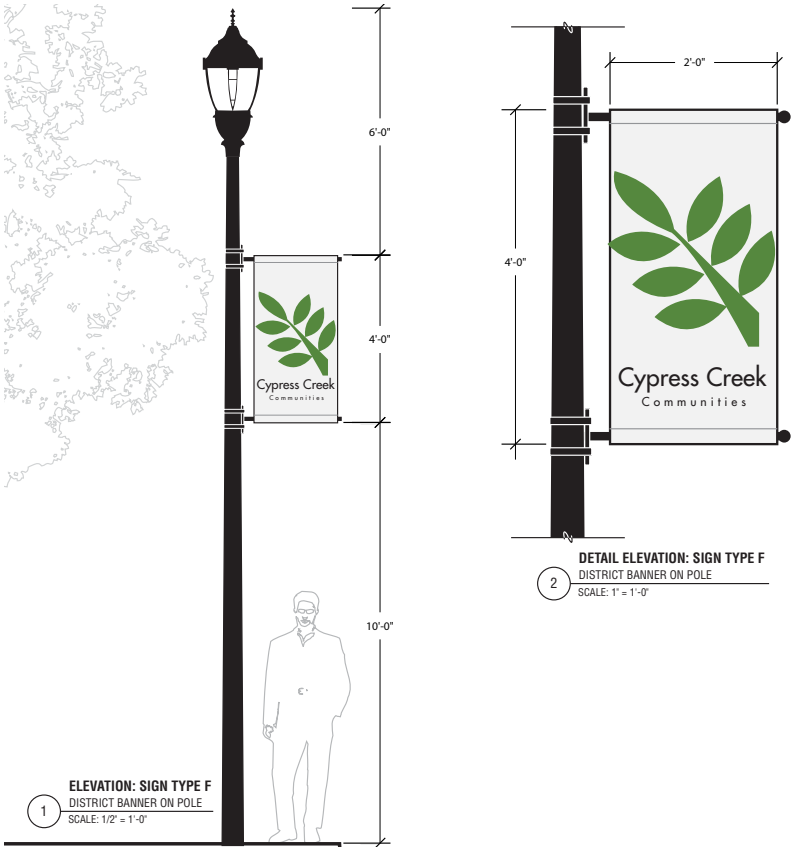



**Figure 39:** *A well designed and consistent banner program could add an element of sophistication to the street.*


# Cypress Creek Gateway + Banner Zones

N

0’ 1500’ 3000’

**Figure 40:** *Study Area Gateway and Banner Zone Map*

*Artists gather to paint murals on the street during CreekFest in Houston.*

unique opportunities. These large expanses of space could be reimagined as gathering centers that require little more than tents, music and food to become lively activity centers.

Currently, CreekFest Houston has begun to capitalize on the region's amenities, hosting a series of athletic events, arts festivals, and community gatherings. Their managers and organizers could become important partners in efforts to revitalize and re-imagine Cypress Creek Parkway.

## Design Guidelines Vision

Included in this document are design guidelines that serve client partners and others by providing a document to use in discussions with property owners and interested developers to express the desired character of future development throughout the Cypress Creek Parkway Corridor.

Many communities, such as The Woodlands in northwest Houston, utilize and enforce design guidelines and standards that govern a great deal of the built environment, in order to maintain a unified and attractive appearance throughout.

The design guidelines found in the appendix provide general design intent and recommendations that should be applied to future development along Cypress Creek Parkway. These recommendations are intended to allow for flexibility in design

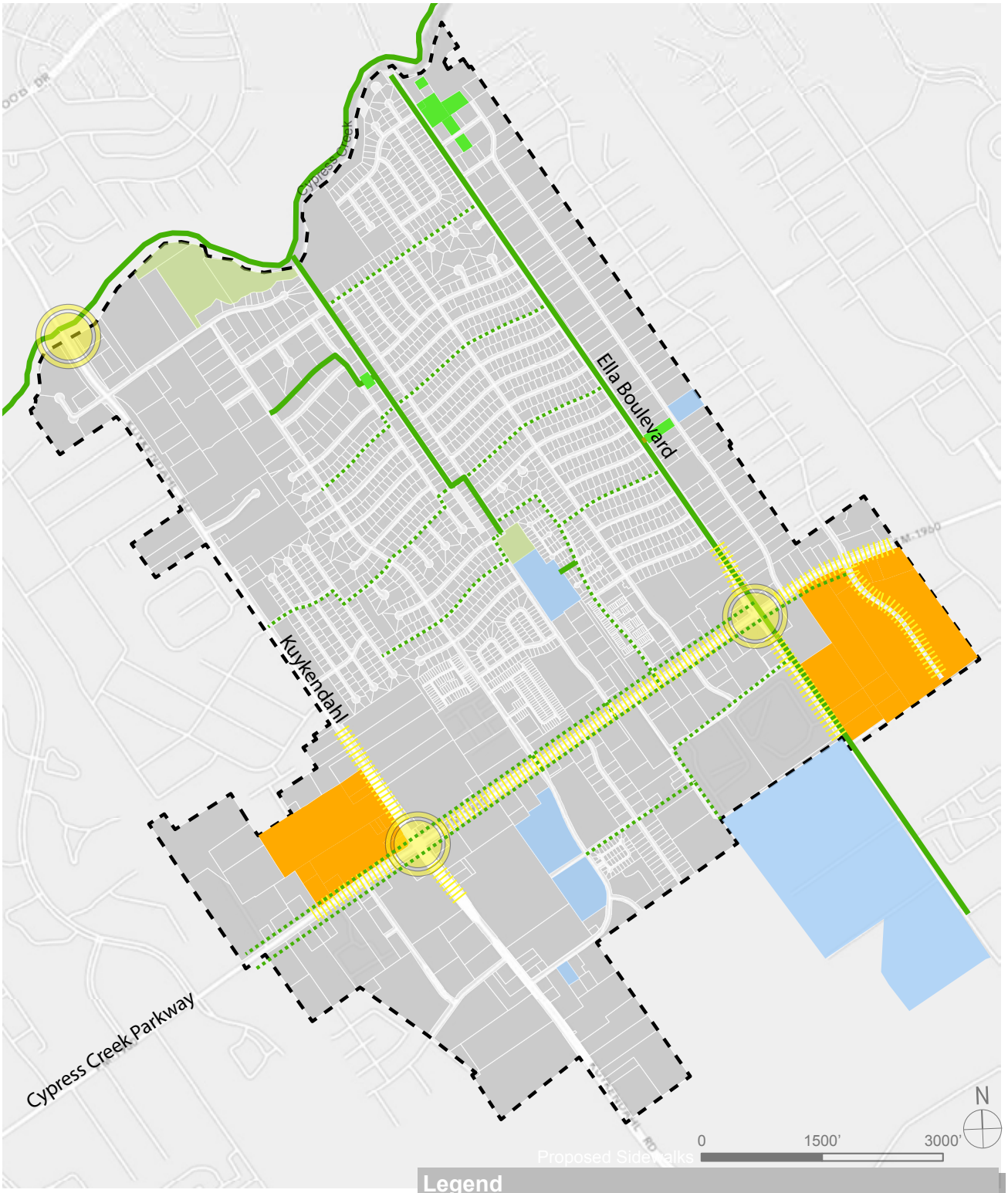
that invites development while still creating a cohesive design that contributes to the desired character of Cypress Creek Parkway.

It will not be possible to enforce design guidelines without the establishment of an Architectural Review Committee (ARC) or other regulatory body with the power of law.  In lieu of a regulatory body, the use of incentives such as funding assistance and permit expediting could encourage future developers to adhere to design guidelines. Future establishment of an ARC would allow the guidelines to play a more regulatory role.

The design guidelines in the appendix of this document cover the following categories:

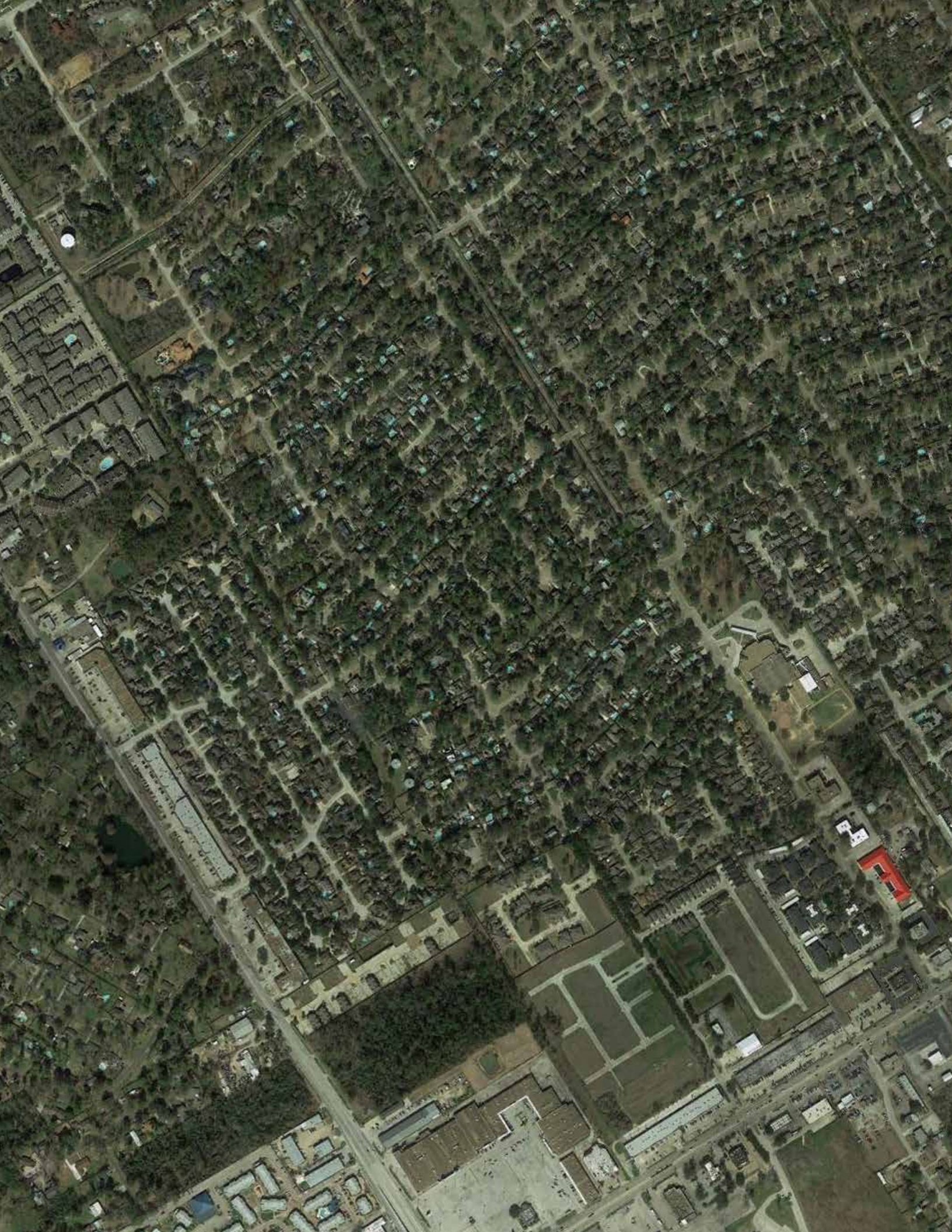
- Architectural design guidelines;
- Signage design guidelines;
- Lighting design guidelines;
- Streetscape design guidelines; and
- Utility design guidelines.

*Design standards help guide diverse development efforts to a unified and attractive overall appearance.*




# Cypress Creek Parkway Proposed Improvements

**Figure 41:** *Overall Improvements Map*



4

# IMPLEMENTATION

Overview
- **Short Range Vision**
- **Medium Range Vision**
- **Long Range Vision**

Implementation Matrix
- **Instant Impact Implementation Strategies**
- **Medium Range Vision Implementation Strategies**
- **Long Range Vision Implementation Strategies**

## Overview

The intent of this chapter is to provide a road map towards implementation for the vision elements laid out in the Cypress Creek Parkway Livable Centers Study.

In order to help local agencies and community activists find ways to improve their community in the short and long term, this chapter divides the vision elements into three categories - instant implementation, medium range and long term visions.

Funding and implementation strategies for each category are discussed in this chapter in further detail.

*Some projects, like Discovery Green, take significant time and resources to complete - but are highly successful examples of what is possible through dedicated public and private partnerships.*

## Implementation Matrix

| NAME | SHORT RANGE VISION | MEDIUM RANGE VISION | LONG TERM VISION | IMPLEMENTATION STRATEGIES | COST | POTENTIAL PARTNERS |
|---|---|---|---|---|---|---|
| Kuykendahl Road and Ella Catalyst Projects | | | | • Utility District Funding<br>• Adjusted MUD Tax Rates<br>• Creation of TIRZ<br>• Creation of PID<br>• Creation of Management District | $$$$$ | • TxDOT<br>• Harris County<br>• City of Houston<br>• MUD#86<br>• PFUD |
| Cul-de-sac connections | | | | • Safe Routes to School<br>• New Freedom Grants | $ | • TxDOT<br>• School PTA<br>• HOA/POA |
| Drainage Canal Trails | | | | • TxDOT STP<br>• Safe Routes to School<br>• CMAQ<br>• Texas Parks and Wildlife<br>• Federal Transportation Alternatives Program | $$ | • TxDOT<br>• Texas Parks and Wildlife |
| Vacant Lot to Park Conversion | | | | • Texas Parks and Wildlife<br>• Creation of TIRZ<br>• Creation of PID | $$$ | • Texas Parks and Wildlife<br>• HCFCD<br>• MUD/UD |
| TxDOT Partnership to improve Cypress Creek Parkway | | | | • TxDOT STP<br>• Creation of TIRZ | $$ | • TxDOT<br>• Property Owners |
| Farmers Market | | | | • Partnership with local farms and local vendors | $ | • Local Farm Collectives |
| Athletic Events | | | | • Partnerships with health organizations and event organizers | $ | • Local Sporting Clubs |
| Implementation Committee | | | | • Create advisory committee focused on realizing goals of this Study | $ | • Educational Institutions<br>• Houston NW Chamber of Commerce |
| Signage Regulation Commission | | | | • Partnerships with Houston NW Chamber of Commerce, local landowners, merchant associations and others | $ | • Merchant's Collective<br>• Property Owners |
| Signage Enforcement Contract | | | | • Contract with agency to report and enforce sign regulation, including removal of illegal signage. | $ | • Harris County Constable<br>• Harris County Public Works |

**Table 6:** *Project Implementation Matrix*

# Instant Impact Implementation Strategies

Promoting a new type of built environment along Cypress Creek Parkway does not have to begin with million dollar investments. Simple and creative urban interventions can spark interest and spur conversation among a wide range of residents, catalyzing community support for much greater changes.

A number of small scale, easily facilitated projects and programs could act as seeds for new ideas and a new vision for Cypress Creek Parkway. The implementation of farmers markets, Park(ing) day festivities, cul-de-sac connections, local festivals and athletic events are just some of the instant impact projects that could be considered.


*Social events such as Park(ing) day are designed specifically to enliven bland parking spaces.*

To create regular events, action committees, or other instant impact strategies, some basic steps should be considered:

- Address the problem, create a plan;
- Identify stakeholders (property owners, associated groups);
- Prepare a budget;
- Recruit volunteer groups;
- Obtain appropriate permits;
- Fundraise as needed;
- Assign Tasks; and
- Execute

### *Mobile Vendors and Pop-up Events*

Mobile vendors and pop-up events are one way to rethink alternative uses for empty parking lots and vacant land.

Setting up a community garden, farmers market, pop-up retail shop, or any kind of low impact/mobile program can liven up a formerly bland area. Such a quick and easy solution can illustrate the contrast of a barren lot to an activity center. Other ideas such as tot lots, pocket parks and parklets make great demonstrations as well.

Consider the following list of partners for the future creation of farmers markets or events within the Study Area:

- Mobile Food Unit Houston (food truck collective) www.mfuhouston.com;
- Home Sweet Farm , Wood Duck Farm - (local farm collective) www.homesweetfarm.com www.woodduckfarm.com; and
- CreekFest Houston (fun runs and festivals) www.creekfesthouston.com.

### *Signage Regulation Commission*

Contracting with a private or public entity to regulate signage along Cypress Creek Parkway may be a simple step to enforce regulations already in place, and markedly improve the aesthetics of the roadway.

The regulating entity would be charged with monitoring businesses facing Cypress Creek Parkway and reporting violations of Harris County sign regulations. This minor regulatory action would allow for the removal

of rogue signage and the adherence of new signage to existing standards.

### *Vision Implementation Committee*

The formation of a volunteer group dedicated to forwarding the visions set forth in this document should be considered as an instant impact strategy. The strategic advisory committee which contributed to this report may be able to form this committee themselves or use their social networks to recruit such a group.

Through regular meetings, the committee could establish plans to prioritize projects, secure funding, cater to developers, and work with local agencies to ensure that the vision for Cypress Creek Parkway Liveable Centers carries the momentum from this Study forward into physical implementation.

## Medium Range Vision Strategies

The implementation of an internal trails network, conversion of vacant parcels into park property, and creation of a management district are medium range visions. Though these are costly projects that will require coordination of multiple stakeholders and funding sources, they are not burdened by the same regulatory rigor and complexity to which large redevelopment projects are subject.

These projects are flexible in size and complexity, as a simple park or trail built and maintained by volunteers can become a reality much more quickly than a large regional park with sports fields.

### *Management Districts*

Management districts are special districts created by the Texas legislature, empowered to promote, develop, encourage and maintain employment, commerce, transportation, tourism, art and recreation within their boundaries. They are given power to finance their operations by issuing bonds or other obligations, which are payable through taxes, assessments, impact fees, and other means. They are not permitted to levy taxes or assessments on single-family detached residences.

A management district overseeing Cypress Creek Parkway could provide a strong funding channel and organizational body that would provide the structure to fund and maintain specific improvements to the area. In addition, a management district would be eligible for grants and other funding sources not available to property owner associations or other private entities.

The nearest management districts to the Study Area are the Greater Greenspoint and Near Northwest management districts just south of Cypress Creek Parkway.

Though initiatives to create a self-taxing management district have failed to achieve voter approval in the past, it does not mean that such an effort will not succeed in the future.

### *Transportation Funding*

Many of the transportation improvements mentioned in the vision chapter, such as drainage canal trails, pedestrian crossings, median improvements or cul-de-sac openings between schools and neighborhoods are eligible for funding sources dedicated specifically to alternative transportation projects. The following funding channels should be monitored to assist with non-motorized infrastructure implementation:

#### *Safe Routes to Schools*

The State of Texas does not currently offer funding assistance through this program, but it may return in future funding cycles, and pertains specifically to bicycle and pedestrian routes to schools. This is specifically applicable to the cul-de-sac and drainage trail visions.

#### *New Freedom Grants*

The federal government offers grants to fund facilities and services that facilitate the mobility of disabled people. These

have been combined recently in Houston with Job Access / Reverse Commute (JARC) programs designed to help urban dwellers access jobs in suburban locations. Existing bus lines and employment numbers may qualify the Study Area for this program. New Freedom Grants could help fund sidewalks and other pedestrian infrastructure.

*Congestion Mitigation and Air Quality (CMAQ)*

Harris County is a non-attainment area within the greater H-GAC Region, and the Cypress Creek Study Area is eligible for CMAQ funding. In order to receive funding from CMAQ, the project must be a transportation project and generate a reduction in emissions.

The funding for CMAQ comes from the federal level and is allocated to each state based on a formula derived by MAP-21 and CMAQ. Each state then allocates these funds to its respective Municipal Planning organizations (MPOs), such as H-GAC, who then determine what projects are funded.

*Community improvements such as streetscapes and parks typically utilize a variety of funding sources.*

*Surface Transportation Program (STP)*

STP is a funding mechanism that applies to a diverse field of transit options, including pedestrian and bicycle infrastructure projects. These projects range from bike racks to sidewalks to freeway overpasses. STP funds are available through both the state and through H-GAC. STP-MM funding is a specific category allocated to the local Municipal Planning Organization (MPO), which is H-GAC, and the rest of the STP funding is allocated through TxDOT.

STP will cover up to 80 percent of the project cost with the local/state government covering the rest. STP is typically oriented around large transit corridors.

*Transportation Alternatives Program (TAP)*

TAP is a large program that has absorbed several existing initiatives such as Safe Routes to Schools (SRTS). TAP encompasses a wide range of eligibility, pertaining specifically to any project that enhances alternative transportation infrastructure. Some specific project types include:

- Projects to achieve ADA compliance;
- Planning and construction projects providing safe non-motorized transportation routes;
- Rails to trails projects;
- Construction of viewing areas over scenic overlooks; and
- Historic preservation and rehabilitation of transit facilities.

The state allocates 50 percent of these funds to metropolitan areas over 200,000 residents, which then determine which projects the funding will be used on at a more local level. The remaining 50 percent is distributed to rural projects. TAP federal funding provides up to 80 percent of total project costs with the state/local entities providing the matching 20 percent.

*Recreational Trails Program (RTP):*
The RTP is funded through TAP, but the funding is routed differently. Funding is allocated through the Texas Parks and Wildlife Department, with approval of the Federal Highway Administration.

This program is designed specifically to fund projects which are recreational in nature, as opposed to having a transit oriented purpose (e.g. SRTS). Initial funding sources for RTP must be provided by project sponsors, who are then reimbursed up to 80 percent by RTP.

*Private Foundations*
Businesses, especially those in the health care industry, are a good source to reach out when seeking funding for pedestrian and bicycle infrastructure. The proximity of the hospital to both catalyst sites could be a major opportunity to spur funding. Unique branding opportunities at trail heads, fences, or interpretive signage are innovative ways to motivate businesses to provide funding. Some private funding bodies that could be considered are:

- American Hiking Society: The National Trails Fund;
- PeopleForBikes: Community Grant Program;
- Advocacy Advance: Rapid Response Grants;
- Houston Endowment; and
- The Kinder Foundation.

*Public Funding Process*
Transportation projects applying for funding for these or other programs from the state or federal government will be evaluated by the H-GAC and be placed in the long term Regional Transportation Plan (RTP) and the 4-year Transportation Improvement Program (TIP).

Because funding from the state and federal government is increasingly constrained, projects must undergo competitive evaluation and ranking to be included in RTP and TIP. To increase chances of funding, projects should satisfy the following key criteria:

- Completion of advanced design and engineering including construction documents;
- Demonstrated support by the local public agency;
- Committed local match funding from a public agency;
- Right-of-way acquisition completed or underway; and
- Inclusion in a Livable Center Plan or other planning document.

## Long Range Vision Implementation Strategies

Both the Ella Boulevard Catalyst and the Kuykendahl Road Catalyst are long range visions.

The implementation of these projects will require the dedicated effort of multiple stakeholders to find ideal properties, market to potential developers, and locate funding sources and programs to ensure high quality development.

*Ella Boulevard Catalyst and Kuykendahl Road Catalysts*
The two catalysts are eligible for many of the same funding sources and subject to similar complexities. The major distinctions between the two are the utility district within which they fall and the type of development envisioned. Ella Boulevard Catalyst falls within MUD #86, and the Kuykendahl Road Catalyst falls within the Ponderosa Forest Utility District. Kuykendahl Road Catalyst is a redevelopment project and will require significant demolition, whereas Ella Boulevard Catalyst is, for the most part, a greenfield development project. In the following discussion, funding sources and opportunities for both are discussed simultaneously.

It is important to note that developments of this size (approximately 120,000 square feet of retail and 675,000 square feet of office for the Ella Boulevard Catalyst), need to be developed in phases due to area market conditions.

While the occupant space will need to be phased over time, a majority of infrastructure will need to be installed at the beginning of the project. New streets and some amount of detention and open space would need to be developed in relationship to the impervious coverage developed. This represents a significant financial investment for prospective developers. There are public sector tools which can help fund these improvements in order to ease the burden on the private sector.

*Utility District Funding*
Utility districts provide for a taxing mechanism to fund the reimbursement of costs to private developers for water, sewer, drainage and park facilities.

Certain MUDs, including MUD #86 and Ponderosa Forest Utility District (PFUD) have the ability to do the same for construction of major and collector streets. Reimbursements, typically accomplished through the issuance of tax-exempt debt, are funded at a 70 percent share back to the developer, though a 100 percent share can be used if assessed values are evaluated to be sufficiently elevated.

While property taxes form the dedicated revenue stream to fund debt service as well as operations and maintenance expenses, the district also charges rates for water and sewer usage. State law is restrictive on the use of MUD property tax revenue, but flexible on the use of water and sewer rate revenue, provided that the revenue is used for a public purpose.

Another revenue stream available to MUD #86 and Ponderosa Forest is sales tax revenue shared with the district by the City of Houston, which has a Strategic Partnership Agreement (SPA) with the district.

The SPA allows the City to levy its 1 percent sales tax on transactions within the district in return for protection from annexation by the City for a period of time. The use of this revenue stream by the district is also flexible.

The infrastructure and amenities in the Catalyst plans that could be funded through MUD tax-supported debt include:

- Water and sewer facilities;
- Drainage and detention facilities;
- Parks – subject to limitations on the total eligible funding amounts; and
- Roads and streets – only thoroughfares and collectors (funded streets would be required to be designated as collectors by the City of Houston).

MUD #86 has existing development elsewhere in the district, for which the district has likely funded infrastructure. Its tax rate (currently $0.60 per $100 assessed value) and user rates have been set to reflect existing debt and current operations / maintenance needs. The Ella Boulevard Catalyst will add assessed value, though whether that amount would be enough to fund developer reimbursement for new infrastructure is not known.

Because development will be phased, it cannot be assumed that sufficient incremental assessed value will be available in the early years for a relatively quick reimbursement through new debt issuance. The Board of Directors of the MUD could decide to increase the tax rate to accelerate the reimbursement process, which would ease the developer's financial burden.

The SPA sales tax revenue will also get an uptick from the addition of new taxable sales activities in the retail spaces, growing as space is built and leased over the phases of the project. Assuming a 50 percent share of the 1 percent sales tax levied by the City of Houston and ultimately 80 percent of the retail space occupied by businesses generating an average of $250 per square foot annually, the MUD could expect to receive an additional $120,000 per year in sales tax revenue. This revenue could be used to help maintain public spaces in the development, or contribute toward developer reimbursements.

*Economic Development Programs*

Certain economic development opportunities are also available to assist Catalyst Project development and reduce financial obstacles for developers. One is Chapter 380 / Chapter 381 economic development agreements, named for their chapters in the Texas Local Government Code. This statute allows cities (Chapter 380) and counties (Chapter 381) to use their tax revenues and other resources to make flexible agreements with businesses and developers, as long as the purpose is tied to economic development objectives.

The most common way this has been applied in the Houston region is to make

annual payments to the beneficiary equal to the incremental taxes generated (property, sales, or both). However, these programs also allow other types of assistance and incentives, including provision of public infrastructure, land and direct grants. Unlike some other types of public economic development assistance, the assistance provided under Chapter 380 / 381 does not have to be for public facilities.

As both catalyst sites are in unincorporated Harris County, property tax revenue would fall to the county. This revenue is limited by the fact that the County's tax rate is approximately $0.41 per $100 assessed value. This is a relatively low value; $20 million of additional taxable value produces just $83,000 in annual incremental property tax revenue to the County.

*Tax Increment Reinvestment Zones*

Many cities in Texas have created Tax Increment Reinvestment Zones (TIRZs) since the 1980s. TIRZs demarcate tax revenue (property or sales taxes) earned from properties within the zone boundaries after a certain date (the base year); the incremental revenue brought in above the base year's amount, whether from appreciation or new development, is retained by the zone to fund improvements.

Though created by a city (if within an incorporated city boundary) or county (in unincorporated areas), multiple taxing jurisdictions can participate in a TIRZ. It should be noted that state law has made it essentially impossible for school districts to participate. TIRZs typically have a defined life span, after which the incremental revenue is no longer retained by the TIRZ and flows to the usual locations of the participating taxing jurisdictions.

TIRZs typically fund capital projects intended for public use and access. This can range from infrastructure and transportation facilities to amenities such as parks and public cultural venues.

City-created TIRZs may issue debt to finance large projects, but county-created TIRZs cannot. Despite covering the Catalyst Project site with a SPA, the City of Houston cannot create a property tax TIRZ over it, because property tax is not levied.

The City of Houston would be able to create a sales tax TIRZ through the SPA, but a Chapter 380 agreement may make more sense, as it is more efficient in its administration. TIRZs require a separate board (a TIRZ exists as a separate decision-making public entity) and often requires a local government corporation to act as the primary spending mechanism, so administrative costs can be high.

Harris County could create a TIRZ for the Catalyst Project area, but it would be limited by the same low revenue amounts described above. Including other taxing jurisdictions could mitigate this issue.

*A beautiful new development in the Study Area will take time, but one successful idea could be a catalyst for an entire new neighborhood.*

Based on previous discussions with County economic development officials, Harris County is unlikely to participate with its special purpose property taxes such as the Education District and Port of Houston. The closest Harris County TIRZ to the Study Area would be the Greenspoint TIRZ located to the Southeast of the Study Area.

*Public Improvement District*

A Public Improvement District (PID) can also be created by Harris County to fund capital projects, operating activities or a mix of both. A PID will levy an assessment over all the properties within its boundary, proportional among properties to the benefits received by each property.

PIDs may issue debt backed by assessments and liens on the assessed properties to create a fund which reimburses the developer for fronting the costs of up-front infrastructure and facilities. PID debt is completely separate from the general fund of the creating entity. All improvements and services funded by the PID must be available to the general public. Because the assessment is in addition to the existing tax burden, care should be taken to avoid damaging the marketability of the project.

*Future success in Cypress Creek Parkway depends on the actions and commitments of local advocates and stakeholders.*

There have been local efforts to create a PID for Cypress Creek Parkway as recently as 2010. A Houston Community Newspaper article from that year indicated efforts to create the FM 1960 Improvement District. Current filing status for the PID indicate that it is no longer in existence.

Other local PIDs include:

- Old Town Spring Improvement District, Spring, TX; and
- Sterling Place Public Improvement District Number One, Conroe TX.

In order to create a PID, a petition must be submitted to the state legislature indicating the following:

- The nature of the proposed improvements;
- The estimated costs of the improvements;
- The boundaries of the proposed assessment district;
- The proposed method of assessment;
- specifying included or excluded classes of property;
- The proposed sharing of cost between the PID and the municipality or county as a whole;
- The management structure of the proposed PID (public/private/both); and
- The creation of an advisory body to develop and recommend the improvement plan.

The petition for a PID must be signed by:

- Owners of taxable real property representing more than 50 percent of the appraised value of taxable real property liable for assessment under the proposed PID; and
- Record owners of real property liable for assessment under the PID who:
  - Constitute more than 50 percent of all record owners of property liable for assessment under the PID; or
  - Own taxable real property that constitutes more than 50 percent of the area of all taxable real property that is liable for assessment under the proposal.

Getting a PID petition signed by the large land owners or a group of smaller land owners, and establishing the advisory councils are some of the larger hurdles to be surmounted in creating a PID.  For further reference on creation of a PID, consult Texas Local Government Code Title 12A, Chapter 372 Subchapter A.

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Marshel Reed, Ponderosa Forest Utility District
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*Stakeholder Advisory Committee*
Beverly Collier, Kelsey-Seybold Spring
Ella Edmiston, Harris County Precinct 4
Juan Fresquez, Houston Northwest Medical Center
Theresa Harris, Harris County Constable: Precinct 4
Shaida Libhart, METRO
Carol Little, Northwest Assistance Ministries
Travis Milner, TxDOT
Dr. Bakeyah Nelson, Harris County Public Health and Environmental Services
Jim Robertson, Cypress Creek Flood Control Coalition
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*Team*
Rebecca Leonard, Principal-in-charge, Design Workshop
Claire Hempel, Project Manager, Design Workshop
Amy Harbert, Project Planner, Design Workshop
Dayton Crites, Project Planner, Design Workshop
Mike Piano, Project Planner, Design Workshop
Steve Spillette, CDS
Ty Jacobsen, CDS
Steve Byington, Cobb Fendley
Bill Odle, Cobb Fendley
Tim Baldwin, Steer Davies Gleave
Chris Proud, Steer Davies Gleave

# 6

# Appendix and Design Guidelines

**Architectural Design Guidelines**
**Signage Design Guidelines**
**Lighting Design Guidelines**
**Streetscape Design Guidelines**
**Utility Design Guidelines**
**Parking Minimums Calculations**
**Air Quality Calculations**
**Glossary of Terms**

## Architectural Design Guidelines

*Intent*

Guidelines governing the form, size, articulation and surfacing of buildings serve to create a unified character among diverse developments and create an identifiable sense of place.

*By using different materials and heights, large sized buildings can appear to be separate and smaller in scale.*

*With proper setbacks and landscaping, buildings of different but similar height can easily blend together and create a lively and varied streetscape.*

*Guidelines*

- Break up front face of large retail buildings by dividing face into individual bays 25 to 40 feet wide.
- When making transitions to lower density areas, modulate the mass of the building to relate to smaller buildings. Reduce height near lower density uses.
- Buildings are encouraged to be contiguously arranged along the street face and large breaks between buildings in development sites should be avoided.
- New development should choose materials that offer texture and avoid monotonous faces to add visual appearance and reduce apparent scale.
- Design buildings with a ‘human scale’ by using architectural enhancements. The building facade facing parks, plazas, entry corridors or side streets should have visible, clearly defined customer entrances that include at least three of the following elements: canopies or porticoes, overhangs, recesses or projections, arcades, raised cornice parapets over the entrance door, outdoors patios or plazas, display windows or integral planters.
- Use of standardized “corporate” architectural designs associated with chain or franchise buildings (prevalent with restaurants, service stations and retail stores) is strongly discouraged and alternative designs consistent with this design manual may be required.
- No parking lots should be constructed directly facing a street intersection.

## Signage Design Guidelines

*Intent*

A pressing issue along Cypress Creek Parkway is the unfettered placement of commercial signs along the roadway. This has resulted in a cluttered landscape that is visually chaotic and difficult to discern, defeating sign owner's individual intents.

With design guidelines in place, future signage along Cypress Creek Parkway would become more unified in appearance, predictable in location and less numerous, resulting in a more easily navigable and attractive streetscape.

*Guidelines*

- Reflective, fluorescent, neon and flashing signs should not be allowed.
- Free standing signs should be limited in height to eight feet.
- Street address range should be prominently displayed on each sign.
- One sign is recommended per property. Multiple tenants should share space on the same sign.
- When possible, signs should be integrated into building and site design so they do not appear as an afterthought.
- Billboard signage is discouraged.

*Regular signage design results in merchants who are easy to locate.*


*This graphic illustrates the three types of signs encouraged for future development along Cypress Creek Parkway.*

## Lighting Design Standards

*Intent*

Design standards should be applied which ensure a level of lighting that makes the night time environment feel welcoming and navigable.

*Lighting design standards provide an inviting environment after hours.*

*Specifying the lighting direction minimizes light pollution and specific lighting styles help establish the community brand.*

*Guidelines*

- Lighting should be used to provide illumination for the security and safety of on-site areas such as parking, loading/ unloading, pedestrian pathways and working areas. Excessive use of lighting fixtures is discouraged.
- Light fixtures should be located facing away from adjacent sites (particularly residential parcels) so that the light does not spill over onto abutting properties.
- Parking and building light fixtures should be cut-off luminaries that have less than 90 degree cut-off so that the light is not emitted horizontally or upward.
- Projects located near residential or open space areas should use low intensity/ wattage lights and all lighting is to extinguished or reduced in intensity 30 minutes after the close of business.
- Off-site street lighting may be required over driveways to provide safe entrances and exits.
- Decorative seasonal lighting is encouraged.
- Fixture design and materials should be congruous throughout development area.

## Streetscape Design Guidelines

*Intent*

Streetscape design guidelines are intended to provide a uniform appearance to the street by ensuring lighting, signage, buildings and parking work together as a coherent whole.

Though Cypress Creek Parkway is a TxDOT owned road, the local MUD and other stakeholder groups can work with TxDOT to incorporate specific improvements to the streets as redevelopment occurs.

*Guidelines*

- Sidewalks along the street right of way should be a minimum of 5 feet wide.
- To create a cohesive tree canopy that provides consistent shade, street trees should be planted a minimum of every 30 feet on center (between curb and sidewalk).
- To ensure tree and planting health, all at grade planting areas should be a minimum 5 feet in width and 10 feet in length.
- All pedestrian areas should comply with the most current American with Disabilities Act (ADA) standards and regulations. Particular attention should be given to ramps, accessible paths of travel, level landings and handrails.
- Sidewalks and pedestrian pathways should safely connect from the street to commercial buildings, surrounding residential areas and parks and open spaces, without requiring pedestrians to walk in automotive parking or travel lanes.
- Streetscape furnishing should be made of high quality, tamper proof materials and coordinated with the architecture of the building.
- Bicycle parking facilities should be provided at all new development that occurs on any street intersection. The design, color and materials should coordinate with other site elements and should be well-lit for nighttime use.
- Seating is encouraged in front of businesses, public spaces and all other instances where appropriate.
- New development should bury all utility lines below ground.

*Trees placed 30 feet on center provide an attractive rhythm to the street and provide much needed shade in summer months.*

*Planting, street furniture and lighting are all governed by streetscape standards.*

## Utility Design Guidelines

*Intent*

Often overlooked by typical urban and suburban designs is the layout and appearance of the requisite electric, water, service and communications utilities that are part of any functioning development.

Utility design guidelines encompass categories such as parking lot guidelines, service area guidelines and electrical and water service guidelines. They ensure that these functionally necessary elements compliment, rather than detract from the overall appearance of a development.

*A planting buffer of 10 feet is placed around parking.*

*A simple screen of vines and wood slats significantly improves the appearance of a standard dumpster.*

*Guidelines*

- Low Impact Development (LID) techniques such as rain barrels, cisterns, rain gardens, naturalized landscaping, porous pavement and roof gardens are encouraged.
- Whenever parking areas/drive aisles are connected to adjacent sites, the circulation should provide for similar direction of travel (both vehicular and pedestrian) and parking stalls to reduce conflict at points of connection.
- A minimum of a 4-inch diameter tree per 8 parking spaces should be planted in planting beds located in the corners of parking lots and ‘‘islands’’.
- Shared driveways are encouraged.
- Loading/unloading areas should be clearly identified by installing no parking signs and/ or striping of the space. The areas should be located to the rear or sides of the building and shielded so as not to be visible from the street.
- All trash, recycling and utilities facilities should be visually and acoustically screened from pedestrian rights of way.
- Screening should be achieved through the installation of a wall or fence six foot in height or a height sufficient to obscure the area or equipment, whichever is less.
- It is encouraged to provide separate waste and recycling units to encourage environmental sustainability and support efforts to reduce, reuse and recycle.

## Parking Minimum Calculations

This worksheet illustrates the approximate parking calculations and land use assumptions for both the Ella Boulevard Catalyst and the Kuykendahl Road Catalyst.

### Ella Boulevard Catalyst

| **Ground Floor Area (sf)** | 841215 | |
|---|---|---|
| Retail GFA | 117770 | 14% |
| Office GFA | 723444 | 86% |
| Detention Area | 266625 | |

| **COH Parking Requirements (per 1000sf GFA)** | | |
|---|---|---|
| Retail | 4 | |
| Office | 2.5 | |

| **Parking Requirements (sf)** | | |
|---|---|---|
| Retail Parking Required | 164878 | |
| Office Parking Required | 633014 | |
| **Total Required** | **797892** | |
| Parking Space Provided | 1199656 | |

### Kuykendahl Catalyst

| **Ground Floor Area (sf)** | 1017477 | |
|---|---|---|
| Restaurant GFA | 10174 | 1% |
| Residential GFA | 905554 | 89% |
| Retail GFA | 101747 | 10% |

| **COH Parking Requirements (per 1000sf GFA)** | | |
|---|---|---|
| Restaurant | 8 | |
| Retail | 4 | |
| Residential | 1.5* | residential parking averages to approximately 1 parking unit/bedroom |

| **Parking Requirements (sf)** | |
|---|---|
| Restaurant Parking Required | 28489 |
| Residential Parking Required | 713124 |
| Retail Parking Required | 142446 |
| **Total** | **884059** |
| Parking Space Provided | 894030 |

## Air Quality Benefit Calculations

The following metrics and table represent a high level estimate of potential air quality benefits that could arise from the development of an improved bicycle/ pedestrian circulation and recreation network in the Cypress Creek Parkway Study Area.

The methodology used for this Study is based on calculations derived by Cambridge Systematics for the Atlanta Regional Commission (ARC), the Atlanta Georgia region being another large urban non-attainment area.

These numbers serve as a broad level estimate, as specific details of impacts due to multi-modal transportation in the Houston region would require further study.

# Bike + Ped + Transit

| CALCULATION INPUTS | | Source |
|---|---|---|
| **Data Type** | **User-Defined Values** | |
| Scenario Year | **2015** | |
| Annual average daily traffic (ADT) on the parallel arterial | **5,788** | Google Earth Pro (Ella Blvd) |
| Capacity of parallel arterial (vph) | **800** | Atlanta Regional Council (assumes Ella Boulevard) |
| Length of bike/ped project (miles) | **3.9** | DW |
| Posted Speed on parallel arterial (mph) | **20** | Ella Boulevard |
| Number of destinations within 1/2 mile of project | **7** | Site Visits/Google Earth |
| Within 2 miles of a university or college (Y/N)? | **N** | Site Visits/Google Earth |
| Area Type | **Suburban** | |
| **Bicycle** | | |
| Does this project have a bicycle component? | **Y** | |
| Average length of one-way bicycle trips (miles) | **1.8** | ARC |
| **Pedestrian** | | |
| Does this project have a pedestrian component? | **Y** | |
| Average length of one-way pedestrian trips (miles) | **0.5** | ARC |
| **Transit** | | |
| Does project provide access to transit (Y/N)? | **Y** | |
| Average length of one-way transit trips (miles) | **5.2** | ARC |
| Existing daily transit boardings in project transit corridor or at fixed-guideway station | **194** | FM 1960 Access Management Study |
| Is ped/bike access to fixed guideway transit (Y/N)? | **Y** | |

| CONSTANTS | | |
|---|---|---|
| **Look Up Table Values and Other constants** | **Values** | |
| (C) activity center credit near project | 0.002 | ARC |
| (A) adjustment factor for ADT | 0.004 | ARC |
| Annualization factor | 250 | ARC |
| Increase in transit trips resulting from new bike/ped connections | 4.0% | ARC |
| ADT to Hourly Volume Conversion | 10.0% | ARC |
| Volume Density Function/BPR Curve Alpha | 0.71 | ARC |
| Volume Density Function/BPR Curve Beta | 2.10 | ARC |

| SCENARIO YEAR OUTPUTS | |
|---|---|
| **Data Type** | **Value** |
| Annual One-Way Auto Trips Reduced - Total | 34,414 |
| Daily One-Way Auto Trips Reduced - Total | 96 |
| Hourly Volume Reduced due to Improvements | 10 |
| Free flow travel time on parallel arterial (minutes) | 11.8 |
| V/C Ratio before improvements on parallel arterial | 0.72 |
| V/C Ratio after improvements on parallel arterial | 0.71 |
| Congested Travel Time before Improvements on parallel arterial (mins) | 15.99 |
| Congested Travel Time after Improvements on parallel arterial (mins) | 15.85 |
| Congested Speed (mph) before Improvements on parallel arterial | 14.71 |
| Congested Speed (mph) after Improvements on parallel arterial | 14.84 |
| **Emission Factors - Existing** | |
| Light Duty Emission Factor CO2(g/mi) | 570.57 |
| Light Duty Emission Factor PM NOx(g/mi) | 0.57 |
| Light Duty Emission Factor PM (g/mi) | 0.03 |
| Light Duty Emission Factor NOx (g/mi) | 0.75 |
| Light Duty Emission Factor VOC (g/mi) | 0.31 |
| **Emission Factors - Improved** | |
| Light Duty Emission Factor CO2(g/mi) | 566.55 |
| Light Duty Emission Factor PM NOx(g/mi) | 0.57 |
| Light Duty Emission Factor PM (g/mi) | 0.03 |
| Light Duty Emission Factor NOx (g/mi) | 0.75 |
| Light Duty Emission Factor VOC (g/mi) | 0.31 |
| **Emissions - Existing** | |
| Light Duty Emissions CO2(g) | 3,236,400,598.03 |
| Light Duty Emissions PM NOx(g) | 3,255,061.46 |

| | |
|---|---|
| Light Duty Emissions PM (g) | 172,227.77 |
| Light Duty Emissions NOx (g) | 4,263,974.69 |
| Light Duty Emissions VOC (g) | 1,769,832.45 |
| **Emissions - Improved** | |
| Light Duty Emissions CO2(g) | 3,213,608,961.72 |
| Light Duty Emissions PM NOx(g) | 3,244,548.31 |
| Light Duty Emissions PM (g) | 170,963.59 |
| Light Duty Emissions NOx (g) | 4,236,072.91 |
| Light Duty Emissions VOC (g) | 1,753,082.97 |

**RESULTS**

**DELAY IMPACT**

| | |
|---|---|
| **Reduction in Annual Vehicle Hours of Delay** | **12,596** |
| **Annual Auto VMT Reduced** | **0** |

**TOTAL REDUCTION**

| | |
|---|---|
| **Total Annual Reductions in GHG emissions (g CO2 /year)** | **22,791,636** |
| **Total Annual Reductions in PM NOx Emissions (g/year)** | **10,513** |
| **Total Annual Reductions in PM Emissions (g/year)** | **1,264** |
| **Total Annual Reductions in NOx Emissions (g/year)** | **27,902** |
| **Total Annual Reductions in VOC Emissions (g/year)** | **16,749** |
| **Total Daily Reductions in GHG emissions (short tons/day)** | **0.100** |
| **Total Daily Reductions in PM NOx Emissions (short tons/ day)** | **0.000** |
| **Total Daily Reductions in PM Emissions (short tons/day)** | **0.000** |
| **Total Daily Reductions in NOx Emissions (short tons/day)** | **0.000** |
| **Total Daily Reductions in VOC Emissions (short tons/day)** | **0.000** |

# List of Acronyms

| | |
|---|---|
| ADT | Average Daily Traffic |
| ARC | Architectural Review Committee |
| CMAQ | Congestion Mitigation and Air Quality |
| COH | City of Houston |
| EPA | Environmental Protection Agency |
| ETJ | Extra Territorial Jurisdiction |
| FEMA | Federal Emergency Management Agency |
| HCFCD | Harris County Flood Control District |
| H-GAC | Houston-Galveston Area Council |
| HOA | Home Owner's Association |
| IDM | Infrastructure Design Manual |
| JARC | Job Access Reverse Commute |
| MAP-21 | Moving Ahead for Progress in the 21st Century (Funding Source) |
| METRO | Metropolitan Transit Authority of Harris County |
| MPO | Municipal Planning Organization |
| MUD | Municipal Utility District |
| PFUD | Ponderosa Forest Utility District |
| PID | Public Improvement District |
| POA | Property Owner's Association |
| PTA | Parent Teacher's Association |
| ROW | Right of Way |
| RTP | Rails and Trails Program |
| SAC | Stakeholder Advisory Committee |
| SPA | Strategic Partnership Agreement |
| SRTS | Safe Routes to School |
| STP | Surface Transportation Program |
| TAP | Transportation Alternatives Program |
| TIRZ | Tax Increment Reinvestment Zone |
| TMA | Transportation Management Association |
| TxDOT | Texas Department of Transportation |