Lower Kirby Urban Center Master Plan and Implementation Strategy

Prepared for:
Pearland Economic Development Corporation and City of Pearland

PEARLAND
ECONOMIC DEVELOPMENT CORPORATION

CITY OF PEARLAND
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Executive Summary

In the summer of 2009, the Pearland Economic Development Corporation (PEDC) and the City of Pearland retained Gateway Planning Group, Inc., to develop a market-based master plan and implementation strategy for the Lower Kirby Urban Center (formerly the Spectrum District) to create a unified identity and maximize its regional location advantages. The key issues addressed by the plan include drainage; transportation access, linkages and transit; revision of the existing zoning and development standards; incorporating new development with existing uses; evolving the existing municipal management districts; and incorporating public parks and open spaces.

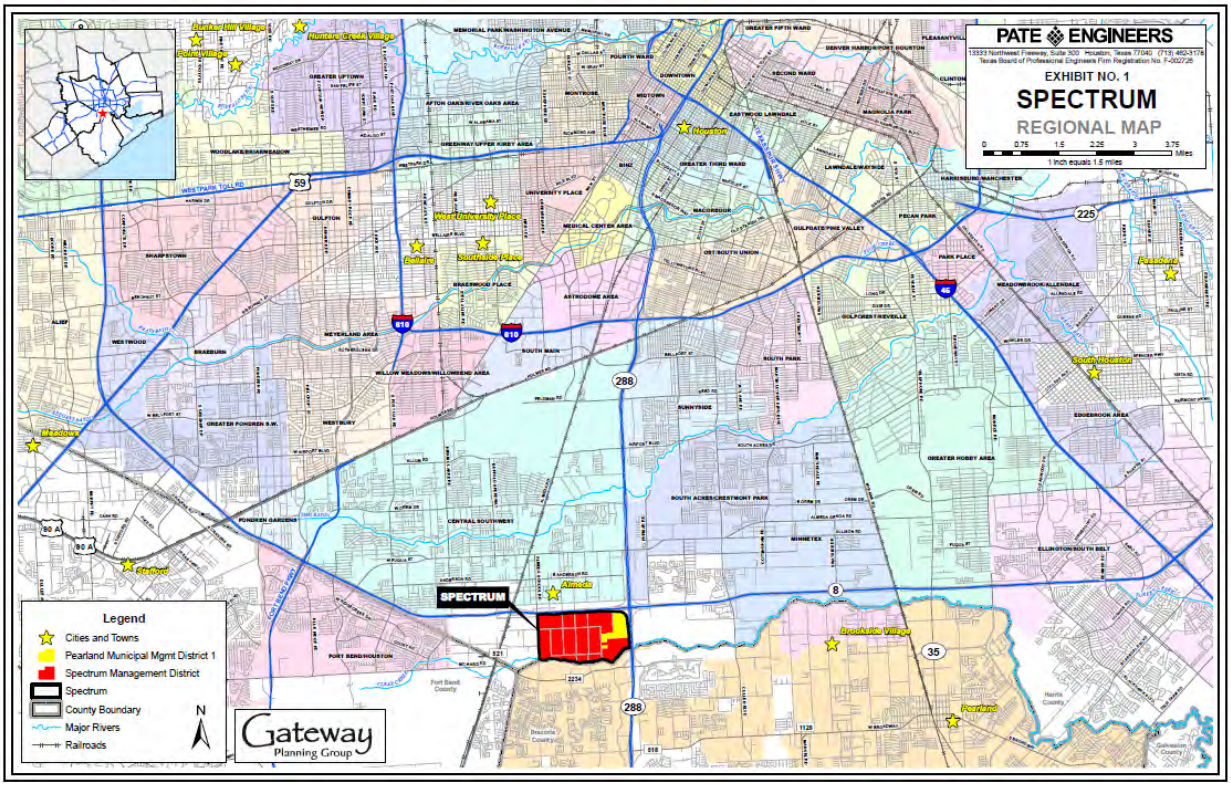
Through the Lower Kirby Urban Center, the City of Pearland is positioning to be a livable center per H-GAC's program and a regional transit-oriented destination in the greater Houston region. Ultimately, this project is about creating a partnership for sustainable development between the local and regional stakeholders.

A series of design workshops were held that resulted in the Gateway Planning Team developing two options for the Master Plan Framework for the Spectrum Area. Based on the feedback and input received from these meetings, Gateway Planning finalized the Master Plan Framework and developed regulatory recommendations and infrastructure framework to implement the plan. Gateway Planning also developed the market feasibility and target industry analysis in addition to evaluating cost estimates for the major infrastructure network required to implement the plan.

Finally, the Master Plan and Implementation Strategy looks at the financial feasibility of the vision and identifies funding options for the major infrastructure needed. The Master Plan and associated regulatory recommendations of a form-based code envision a market-based approach and identify different "character zones" of development, each implementing a unique neighborhood within the Lower Kirby Urban Center. This form-based code is combined with the overall infrastructure strategy that identifies the major regional drainage and roadway improvements needed to bring the plan together. This Master Plan and Implementation Strategy for Lower Kirby ensure that the vision for the mixed use regional destination is feasible but flexible to address changing market conditions.

1. INTRODUCTION

The Lower Kirby Urban Center located in the City of Pearland, Texas, is approximately 1,000 acres of mostly undeveloped land. The property generally occupies the southwest quadrant of the intersection of Beltway 8 and Hwy 288, two major regional highways. It is located along the northern edge of the City of Pearland and represents the largest conglomeration of undeveloped property within the city. The Lower Kirby Urban Center, as discussed in this report, consists of all the properties south of Beltway 8, west of Hwy 288, east of Alameda School Road, and north of Clear Creek.



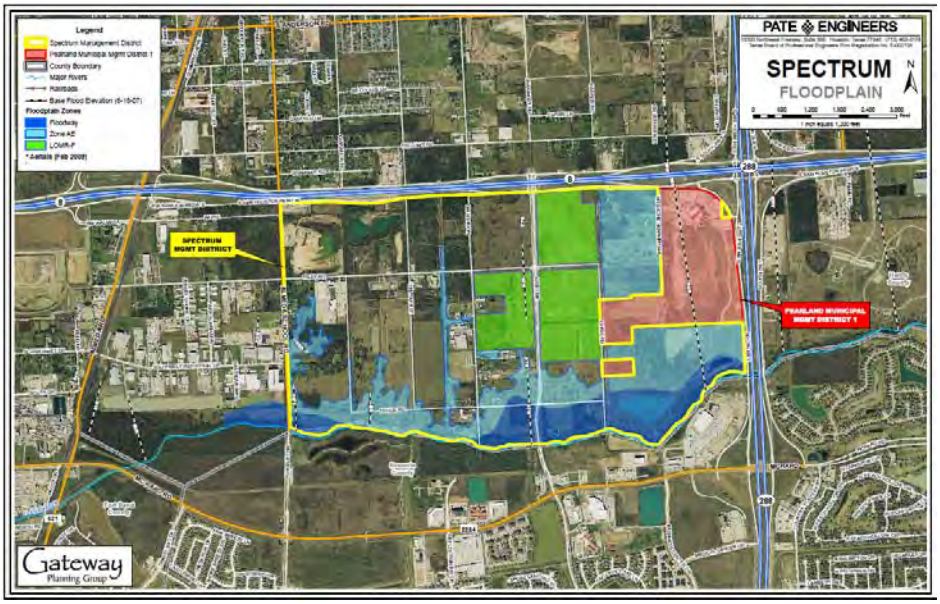
a. About this Initiative:

Various development plans for the Lower Kirby area have been proposed ranging from corporate office parks to life-style retail centers to mixed use developments over the last ten (10) years. The development focus has mainly been on the eastern portions of the Lower Kirby area, immediately adjacent to Beltway 8 and Hwy 288. Of the many projects, only one significant retail development is on the ground – the Bass Pro Shops at the intersection of the two highways. Other associated retail and the Waterlights District concept to the south along Clear Creek were planned previously but are now shelved. There were plans for expanding the Promenade Shops development with additional retail, but these have also been put on hold.

The original plans for the two major development projects – Promenade Shops and Waterlights included the creation of specific and separate Municipal Management Districts to support the infrastructure investment that the projects would require. Meanwhile, several transportation and drainage infrastructure projects have either been just completed or are underway including the construction of Kirby Drive from Beltway 8 to Shadow Creek Parkway.

In addition, the 2004 Comprehensive Plan update of the city of Pearland specifically created the Spectrum District land use category to implement an overarching plan that integrated a mix of uses, created a distinct gateway to the City of Pearland at Hwy 288 and Beltway 8, and connected the different properties within the district with a comprehensive street network which has not been implemented.

Some of the originally planned major development projects have yet to be realized and the major area property owners are evaluating alternative plans to jump start development in the Lower Kirby. In addition, the physical constraints on the property (a large portion of the property is in the 100-year flood plain) require significant public participation in the drainage and transportation infrastructure to make many of these projects viable.



Lower Kirby Urban Center – Existing Conditions

The purpose of this initiative is to reevaluate the feasibility of current development plans and create a market responsive master plan and implementation strategy for the entire Lower Kirby Urban Center that is based on current uses and new potential uses that would then provide the city and the PEDC the tools necessary to prioritize the public investment necessary to support private development. Currently, there is no unified master plan for land uses, street network, drainage improvements, parking, and other major elements. In fact, different development plans for various properties are competing for similar users/tenants and limited public funds for infrastructure.

This effort is intended to create a “master developer” environment over multiple properties that will tie future development, required infrastructure priorities, and public-private partnership criteria to a cohesive vision for the entire Lower Kirby area.

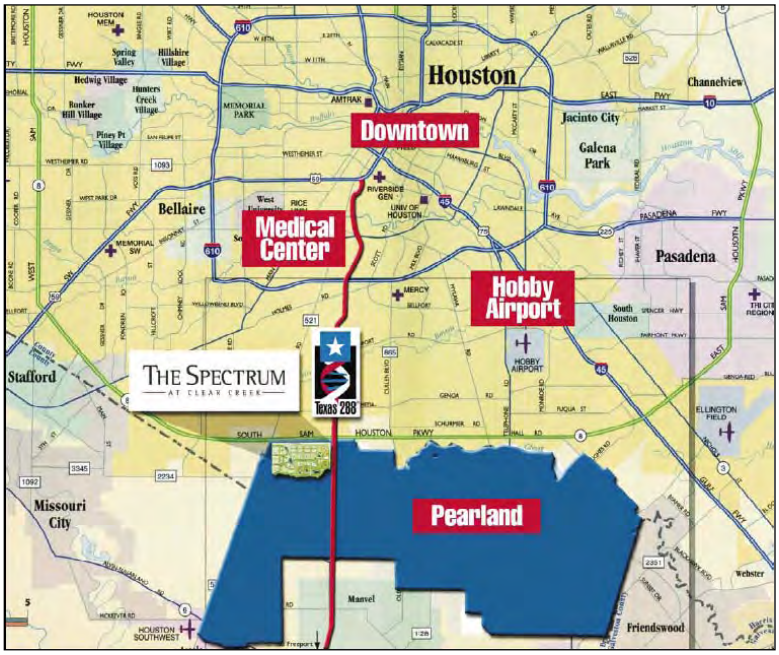
2. Preliminary Assessment Overview

This section provides a summary of the preliminary assessment undertaken by the team for this initiative. The complete preliminary assessment is included in Appendix A of this document.

a. Property Location and Overview

The Lower Kirby area in Pearland is located at the intersection of two major regional highways, Beltway 8 and Hwy 288, in the Houston Metro area, immediately south of the city of Houston (see map below). The Lower Kirby area is generally defined as the area bound by Beltway 8 to the north, Hwy 288 to the east, Alameda School Road to the west, and Clear Creek to the south.

Lower Kirby (Spectrum) Location



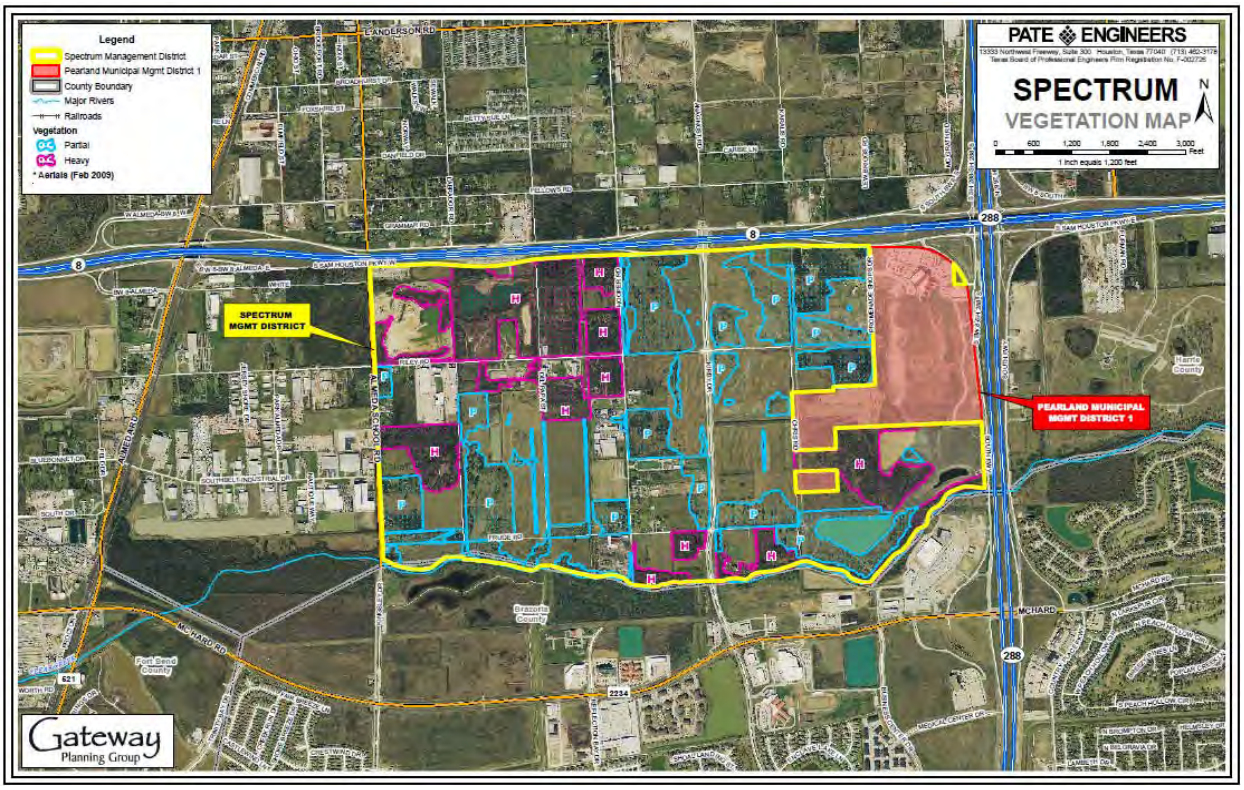
Source: Pearland EDC, TXP

Kirby Road, a recently constructed north-south roadway bisects the Lower Kirby area. Properties along Kirby Road and east to Hwy 288 are generally undeveloped and have been the focus of development projects over the past few years. The properties to the west of Kirby to Alameda School road consist of a range of existing industrial and residential uses.

The Lower Kirby area is served regionally by Beltway 8 and Hwy 288 and locally by Kirby Road and Shadow Creek Parkway. Local street connectivity is limited and several streets have not been improved. Clear Creek is a major regional drainage way that borders the south and is a major barrier to connectivity to the rest of Pearland.

b. Physical Features of the Land

The area generally slopes from the north to the Clear Creek to the south. A significant portion of the Lower Kirby area is located within the 100-year flood plain. Several properties along Beltway 8 were used to provide fill during the construction of the Highway and have significant areas of cut and fill on the property. Several areas have significant existing tree stands (see map below of existing vegetation). Existing drainage improvements such as detention areas and easements crisscross the Lower Kirby area and isolate portions of the site making it difficult to provide access across the area and create a unified development plan.



Lower Kirby Urban Center – Existing Vegetation

c. Previous Studies and Reports

The City of Pearland, Pearland EDC, and private developers have generated several studies and reports that relate to specific issues affecting the Lower Kirby area. This section provides a listing of all studies made available to the Gateway design team by topic area. Subsequent sections of the report and the Appendix provide summaries of relevant studies as it pertains to different functional issues.

Drainage studies

i. Promenade Regional Development Mitigation Plan and Impact Analysis
ii. Water Lights Development-Conditional Letter of Map Revision

iii. Letter of Map Revision (LOMR-F) Goldknight Tracts

Market Studies
i. Market Potential for General & Special Purpose Office Space, July 2008
ii. Public Facilities Option Study for Pearland, September 2009

Traffic studies
i. The Promenade Shops at Shadow Creek Traffic Impact Analysis
ii. LJA-September 30, 2005
iii. TXDOT-AADT 2007&2008
iv. City of Pearland ADT 2009

Other
i. Projected Residential Growth 2007 – 2017, June 2008
ii. Innovative Pearland: Action Plan, May 2009
iii. West Lower Kirby Water and Sewer Utilities Engineering Study
iv. Goldston Engineering – *August 2008*

d. Major Issues

The following is a summary of the major issues impacting development in the Lower Kirby Area. Appendix A of this report discusses each of these issues in detail.

i. Drainage

Clear Creek forms the south boundary on the Lower Kirby and is the only source of floodplain on the study site. It has a wide floodplain (Zone AE) especially near the bridge crossing under SH 288. Several portions of the floodplain have been modified and recovered in recent years. A LOMR-F removed several tracts along Kirby Drive from the floodplain. A CLOMR has been prepared and is currently in review with FEMA to narrow the floodway within the previously proposed Waterlights portion of the Lower Kirby. The CLOMR is also intending to remove the development from the floodplain. There are still several areas within the floodplain. Those are predominately north of the Waterlights and west of the Promenade.

Storm water runoff from the site typically drains from north to south into Clear Creek where it is conveyed to the east. There are 2 primary drainage channels flowing from north to south and convey storm water from Beltway 8 to Clear Creek. These channels are under the jurisdiction of the Texas Department of Transportation. The Promenade's drainage study indicates detention for a large portion of the eastern portion of the project has already been provided.

ii. Utilities

The western portion of the Lower Kirby (west of Kirby Drive) is currently served by water wells and septic systems. The Goldston engineering study was completed in 2008 identifying over $16 million in infrastructure to serve future development west of Kirby Drive.

There are currently water mains, sanitary sewer mains, storm sewer along Kirby Drive from Beltway 8 to FM 2234. A sanitary sewer lift station is located along near the intersection of Kirby Drive and Fruge Road.

The proposed North Spectrum to connect Kirby Drive to the Promenade Shops. Although the roadway has not been constructed, water and sanitary sewer mains have been constructed along that alignment. Maps for telecommunications have not been obtained for the area.

iii. Transportation, circulation and access

The Lower Kirby Development Area is bordered by Beltway 8 to the north, SH 288 to the east, FM 2234 to the south, and Almeda School Road to the west. Kirby Drive is a significant roadway located at the center of the Lower Kirby with a north and south alignment connecting Beltway 8 to FM 2234. The only other existing roadway within the study area with a north and south alignment is Hooper Road. Rights of way for Del Papa St., Labrador Road, and Chris Road exist, but have not been improved. Roadways with east and west alignments include Riley Road and Fruge Road. Most of the on site roadways are located primarily west of Kirby Road.

iv. Existing zoning and land uses

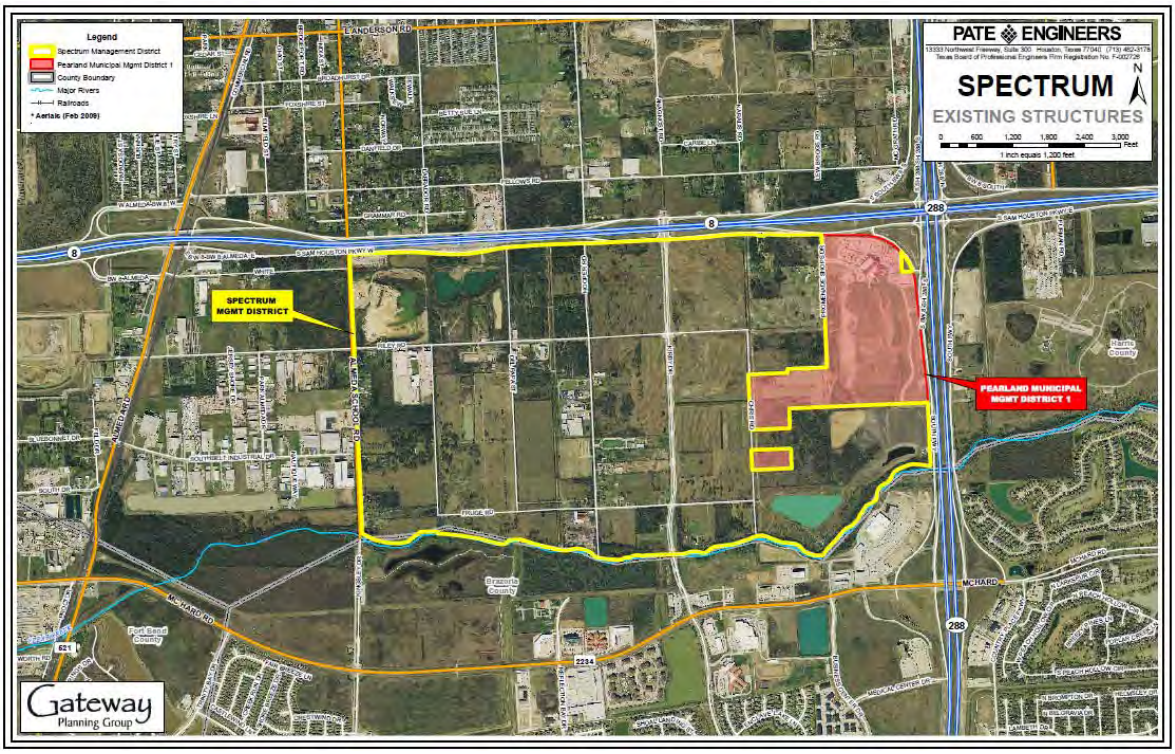
Most of the Lower Kirby area is zoned as Spectrum District, Planned Development (PUD), or M-1 Light Industrial. Portions east of Hooper are zoned SP 1 Beltway District, SP 2 Mixed Use District, SP 3 Mixed Use High Density Residential District, and PUD with the Spectrum District as the base. Portions west of Hooper are zoned SP 4 Light Industrial & Science & Technology District, SP 5 Light and Heavy Industrial District, and M-1 Light Industrial District (see zoning map in Appendix A). A detailed discussion of each zoning category and standards within each established PUD follows in the Appendix of this report.

Existing land uses – Most of the property east of Kirby Road is currently vacant with the exception of the major regional retail (Bass Pro Shops) at the intersection of Beltway 8 and Hwy 288. One new office building has been built recently on the west side of Kirby Road to accommodate a medical device manufacturing company. Several long-standing industrial businesses are located along Riley and Hooper Roads. Some large-lot, older residential uses are located along Alameda School and Hooper Roads.

v. Governance & Fiscal structure

The Lower Kirby Urban Center is within the city limits of the City of Pearland and also contains two different management districts. The Pearland Municipal Management district was create in 2005 and includes approximately 127 acres and includes all the properties within the former Pearland Lifestyle Center development. The other is the Lower Kirby MMD which includes the rest of the Lower Kirby area. This MMD was created in 2007 and includes approximately 940 acres.

The MMDs were created to support infrastructure improvements with the Lower Kirby Urban Center through additional property tax assessments to all properties within the boundaries. The tax rates and assessments are set by the respective boards of the Municipal Management districts.



Lower Kirby Urban Center – Municipal Management District Boundaries

3. Market Environment and Potential

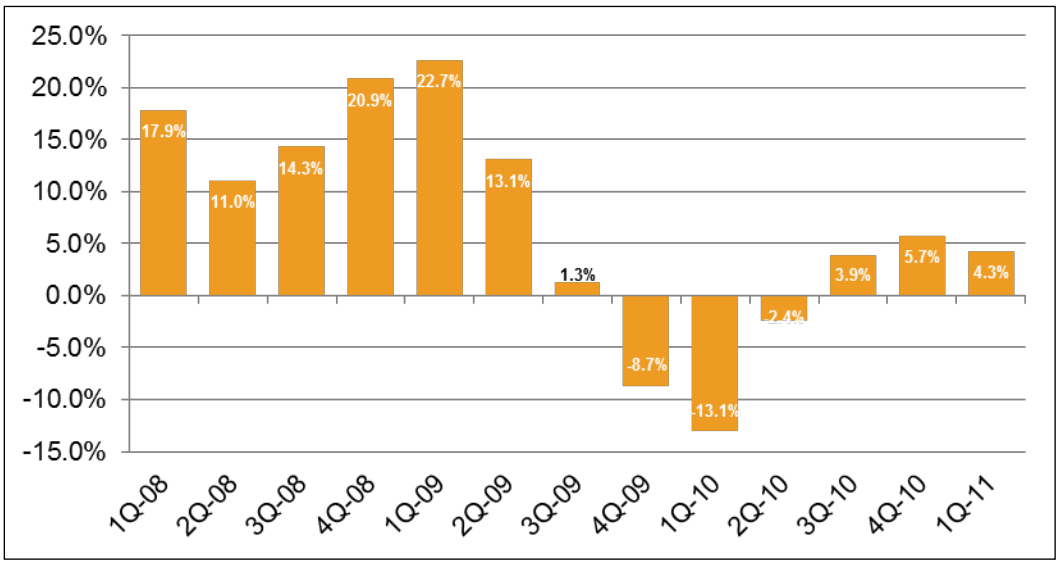
a. Near-Term

As the nation continues to struggle to emerge from recession, there is no question that the impacts in the Houston area and Pearland are discernable. The numbers tell the story, as job growth is flat, sales tax revenue is stagnant, and development has more or less come to a halt. That having been said, the Houston-Galveston region have been relatively less hit than elsewhere, and the area should be well-positioned to bounce back. Factors that will contribute to the resurgence, aside from recovery of the national economy, include continued in-migration and overall population growth and well-diversified regional economy with a strong presence in energy, transportation, and technology. In addition, relatively low current market values, competitive labor costs, and a comparatively modest overall tax burden all indicate a cost environment that accommodates to future development and growth.

Table 1: Recent Pearland Indicators

Year	A. Sales Tax	B. Population	C. Unemployment	D. Housing Units Permitted
2004	$10,194,134	59,414	5.0%	2,102
2005	$11,844,132	63,945	4.6%	2,610
2006	$14,530,600	71,051	4.0%	2,072
2007	$16,120,866	77,112	3.4%	1,639
2008	$18,717,189	82,290	3.8%	1,207
2009	$19,957,822	86,341	5.8%	776
2010	$19,544,443	91,252	6.7%	722
Sources: A. Texas State Comptroller's Office; B. Census Bureau; C. Bureau of Labor Statistics; D. Census				

Recent Pearland Sales Tax Revenue Growth



Sources: Texas State Comptroller's Office; TXP

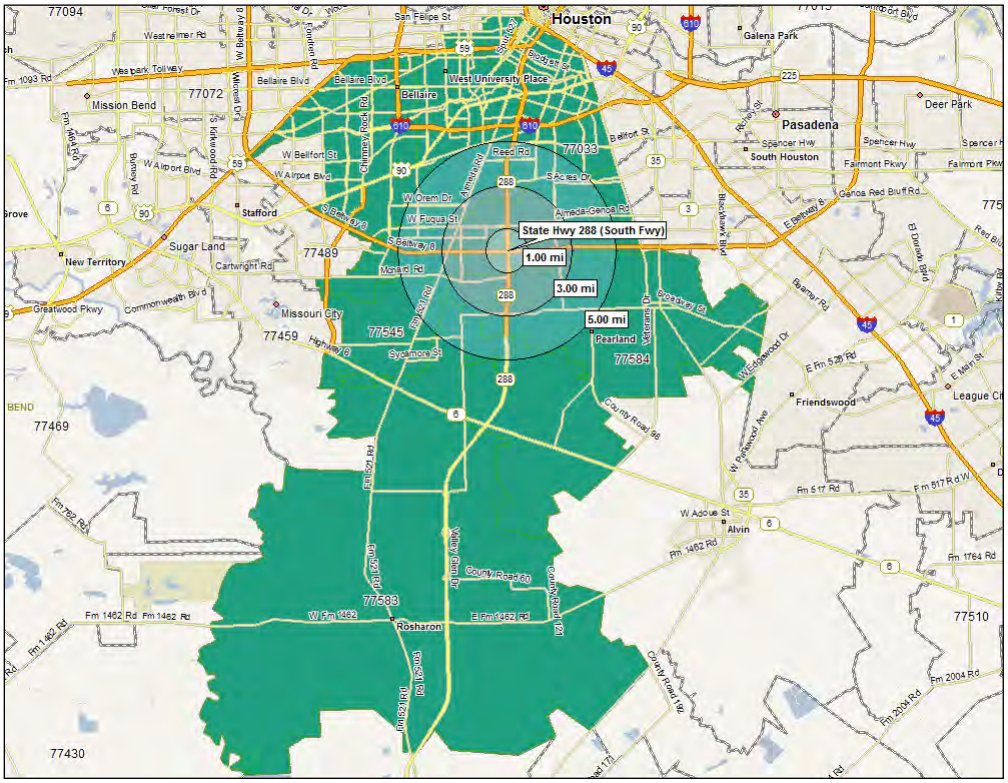
As the Houston-area market begins to recover from the impact of recession and over-capacity, the Lower Kirby's location at the intersection of the emerging 288 and Beltway 8 Corridor, as well as its location between the Medical Center, the Port of Houston and Freeport, suggests that it will be a prime location for development at the point when growth and demand resume.

b. Market Area Real Estate Demand

i. Specific Assumptions

- Base data was derived from a number of sources, including County Business Patterns, the Bureau of Labor Statistics, the Census Bureau, and the Texas Real Estate Research Center.
- The market area is based on an estimate of the labor shed for the community, consistent with ZIP Code boundaries. Market area population projections were based on the 3.0 Migration Scenario from the Texas State Data Center (2000-07), updated to reflect base data through 2008 for the county and local cities and 2007 data for the ZIP Codes in the market area. The estimate of the number of people per household comes from the Census Bureau, and is very gradually reduced over time in line with both historical patterns and anticipated demographic trends.
- Non-commercial business uses are not included in this analysis, as demand for these categories is likely to be more project-specific, which could have a constraining effect on the ultimate level of residential development. The cluster analysis provides guidance as the level of non-commercial development that can be anticipated.
- Employment forecasts were developed using 2007 base data for the ZIP Codes referenced in the map and table that follows. A thirty-year time planning horizon was assumed.
- A blended American Planning Association (APA) ratio of 650 sq. ft./employee was used to estimate aggregate new development required for retail/restaurant/entertainment. Similarly, an adjusted APA ratio of 250 sq. ft./employee was used to estimate aggregate new development required to meet office/commercial demand.

Market Area



Source: TXP

Baseline employment figures for the market area are as follows:

Projected Market Area Population, Households, & Employment

Sectors	2007 Job Counts
Retail/Restaurant/Entertainment	64,983
Office	77,647
Other Sectors	106,169
Total Employment	248,798

Sources: County Business Patterns, TXP

Projected Market Area Population, Households, & Employment by Year

Year	Population	Households	Office-Related Jobs	Retail/Rest./Ent. Jobs
2011	669,215	252,710	75,975	64,664
2012	685,336	259,057	76,902	65,472
2013	701,844	265,562	77,841	66,291
2014	718,749	272,231	78,790	67,322
2015	736,062	279,067	79,752	68,370
2016	753,139	285,828	80,675	69,395
2017	770,611	292,751	81,609	70,436
2018	788,488	299,843	82,554	71,492
2019	806,780	307,106	83,510	72,564
2020	825,495	314,544	84,476	73,652
2021	843,911	321,883	85,407	74,719
2022	862,736	329,393	86,349	75,802
2023	881,981	337,078	87,300	76,900
2024	901,655	344,942	88,262	78,014
2025	921,767	352,989	89,235	79,145
2026	941,571	360,934	90,168	80,251
2027	961,799	369,057	91,112	81,374
2028	982,462	377,363	92,065	82,512
2029	1,003,568	385,856	93,028	83,666
2030	1,025,127	394,539	94,001	84,836
2031	1,046,450	403,149	95,462	86,023
2032	1,068,216	411,946	96,946	87,226
2033	1,090,435	420,936	98,452	88,446
2034	1,113,116	430,121	99,982	89,683
2035	1,136,268	439,507	101,536	90,937
2036	1,159,335	448,878	103,114	92,209
2037	1,182,869	458,449	104,716	93,499
2038	1,206,881	468,223	106,343	94,806
2039	1,231,381	478,207	107,996	96,132
2040	1,256,378	488,403	109,674	97,477

Source: TXP

Projected Market Area Overall Real Estate Demand by Year

Year	Housing Units	Office-Related Sq. Ft.	Retail/Rest./Ent. Sq. Ft.
2011	4,161	102,958	104,817
2012	4,265	208,612	525,395
2013	4,372	211,158	531,963
2014	4,482	213,735	670,508
2015	4,595	216,343	680,941
2016	4,537	207,735	666,340
2017	4,646	210,140	676,331
2018	4,759	212,572	686,472
2019	4,874	215,033	696,765
2020	4,992	217,523	707,212
2021	4,917	209,450	693,688
2022	5,031	211,758	703,739
2023	5,149	214,091	713,937
2024	5,269	216,451	724,281
2025	5,391	218,836	734,776
2026	5,314	210,060	719,495
2027	5,433	212,258	729,558
2028	5,556	214,478	739,762
2029	5,680	216,722	750,108
2030	5,808	218,990	760,599
2031	5,750	328,676	771,237
2032	5,876	333,783	782,023
2033	6,004	338,970	792,961
2034	6,135	344,238	804,051
2035	6,269	349,587	815,297
2036	6,252	355,020	826,699
2037	6,385	360,537	838,262
2038	6,521	366,140	849,986
2039	6,660	371,829	861,873
2040	6,802	377,608	873,928

Source: TXP

c. Development Orientation

If the Lower Kirby and Pearland are to capture a significant share of the the projections outlined above, a development orientation that reflects a changing market structure is desirable. For example, a number of trends are beginning to influence land development and urban revitalization in the United States, including:

- *Demographics*, specifically smaller household sizes;
- *Changes in the structure of the economy*, with a heightened emphasis on adding value through the provision of service and knowledge;
- *Shifts in consumer tastes and preferences*, including a greater acceptance of owner-occupied multi-family housing and a strong desire for "authenticity" and "experience;"

- *Technology*, especially as it enables decentralized work and informs consumer tastes;
- *Transportation*, including congestion and rising energy costs, and
- *Cultural/entertainment*, an element of society that is increasingly multi-faceted and diverse.

Underlying all of the above (which have an impact through all of society) is the desire for what has been termed *Walkable Urbanism.* According to the Brookings Institute, "since the rise of cities 8,000 years ago, humans have only wanted to walk about 1,500 feet (approximately a quarter mile) until they begin looking for an alternative means of transport: a horse, a trolley, a bicycle, a car. This distance translates into about 160 acres – about the size of a super mall, including its parking lot. It is also about the size, +/- 25 percent, of Lower Manhattan, Downtown Albuquerque, the financial district of San Francisco, Town Center Atlanta, and most other major Town Centers in the country."

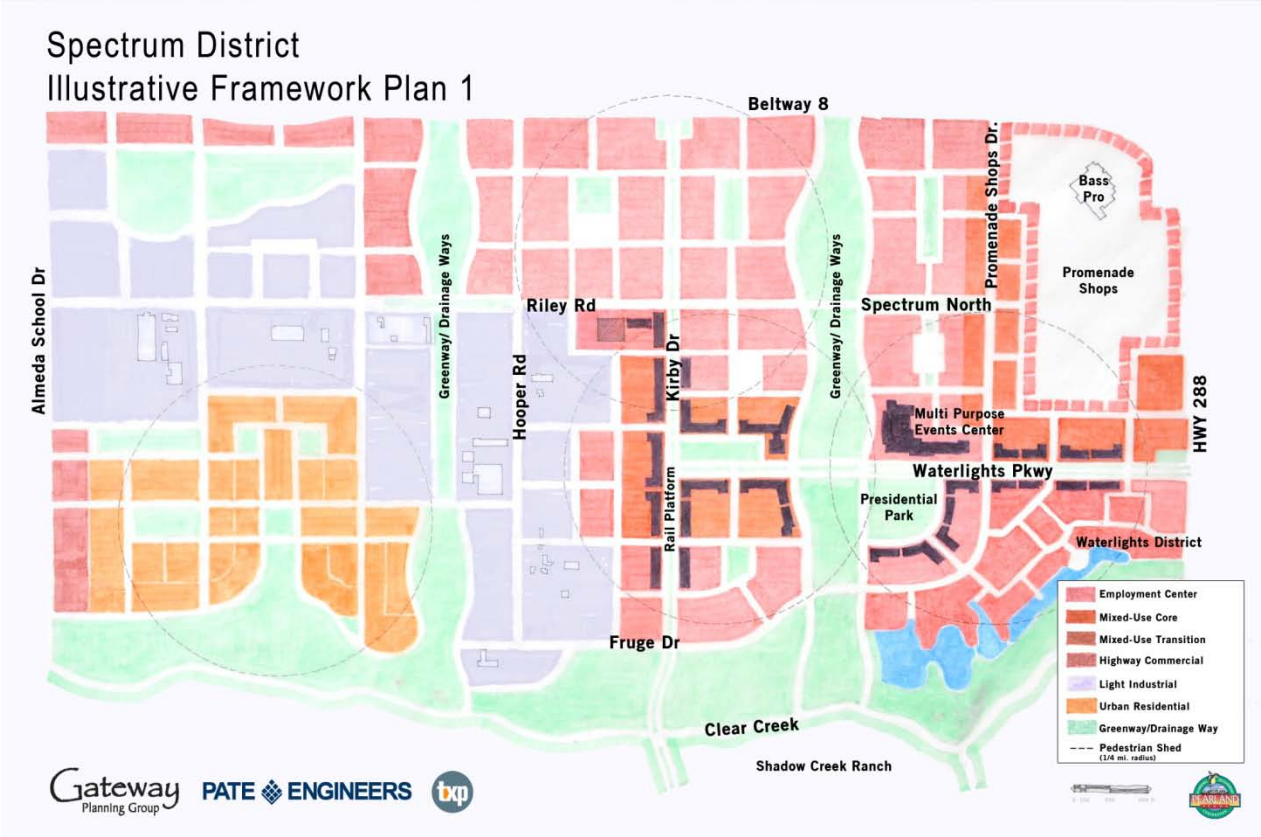
What makes Walkable Urbanism function is not merely distance, but the quality of the experience – a pedestrian trip where one encounters a mix of sights and sounds in the context of a range of land uses and a diverse built environment. The translation is that "critical mass" occurs when visitors can find enough to do for an afternoon or an evening, residents' daily needs are largely met within easy access, and the underlying economics justify ongoing investment. When this happens (and is sustained), a dynamic system is in place that will create enhanced economic and fiscal value.

Accordingly, the southeast quadrant of the Lower Kirby Urban Center (formerly known as "Waterlights") provides an opportunity to set a unique market dynamic in motion by establishing several hundred acres of walkable urbanism. This development context then would provide an opportunity to distinguish the Lower Kirby as a competitive location as an employment center anchored along the Kirby Corridor. It would also reposition the Bass Pro Shops to attract additional entertainment and restaurant uses that would be more sustainable in association with an urban destination as was originally envisioned for the "Waterlights" area.

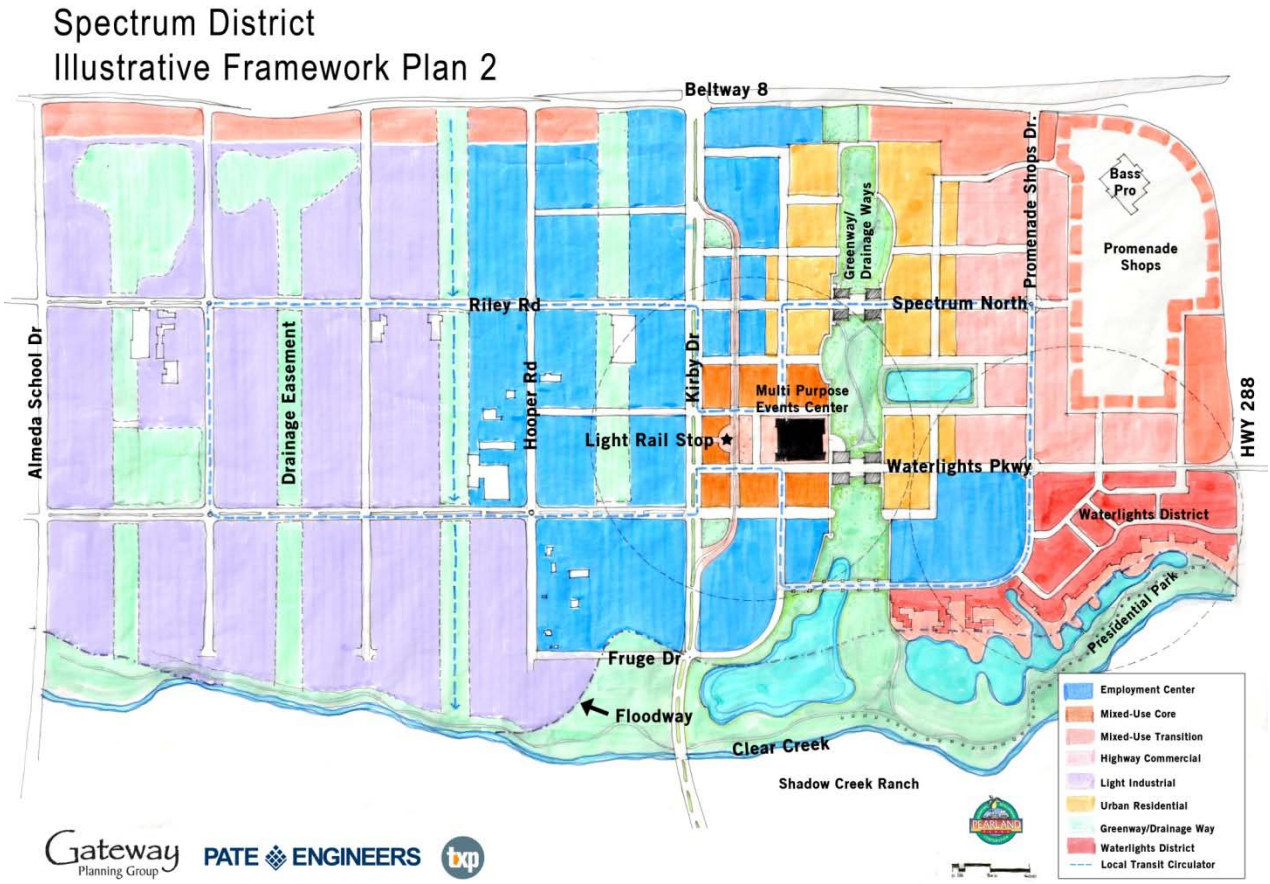
4. Design Workshop

The Lower Kirby Urban Center Design Workshop was held between November 30 and December 3, 2009. The workshop was intended to use the prior months of background analysis to develop a physical master plan for the Lower Kirby area in an intense 3-day design workshop.

Several key issues were identified during the preliminary assessment that needed to be addressed during the design workshop. One key issue was a plan that was sensitive to the regional drainage needs of the Lower Kirby area. Based on the input from city staff, key stakeholders and the public, two illustrative framework plans for the Lower Kirby Urban Center were developed at the end of the design workshop. Both these options (see images below) were presented to the public at the closing session on December 3, 2009.



Illustrative Framework Plan – Option 1 developed during the Design Workshop



Illustrative Framework Plan – Option 2 developed during the Design Workshop

Both Illustrative Framework Plans had some key elements that were common – a regional drainage and detention plan that took advantage of the existing TxDOT drainage channels and the existing 100-year floodplain, a major development node at the intersection of Kirby Drive and Waterlights Parkway (South Spectrum Drive), and regional retail along the Hwy 288 and Beltway 8 frontages. In addition, the majority of the Kirby Corridor itself was identified as a major employment center. The key difference between the two options was the inclusion of residential uses west of Kirby Drive in Option 1 and inclusion of light industrial uses west of Kirby in Option 2.

In addition, both Illustrative Plans identified Kirby Drive as a key transit corridor that would anchor a major employment center and its intersection at Lower Kirby Drive would be the location for a higher intensity urban core. This location could also be attractive for a future multi-purpose events center with access to transit and major retail/entertainment uses along Lower Kirby Drive. Some key design concepts were explored for the redesign of the TxDOT drainage channels and Kirby Drive (see images below). The TxDOT channel is envisioned to become a linear open space amenity that could be the front door for significant urban residential development between Kirby and Hwy 288.

Image of the TxDOT Drainage Channel transformed into a linear green anchoring urban residential development adjacent to it.

Image of Kirby Drive transformed into a complete street supporting a vibrant street life and various modes of transportation.

A copy of the presentation made at the closing public session after the workshop on December 3, 2009 is included in Appendix B.

5. Lower Kirby Urban Center Plan Framework

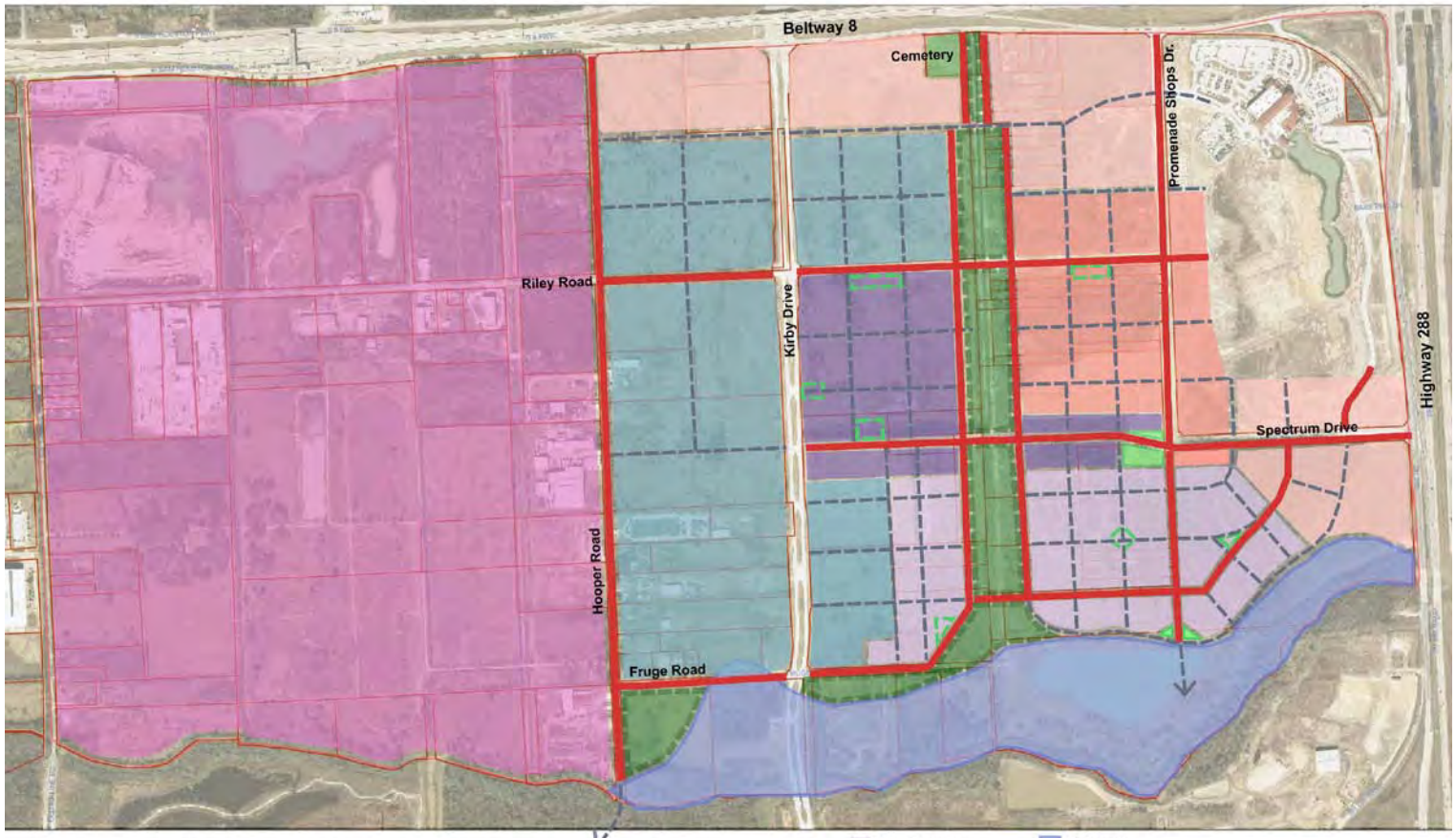
After the Design Workshop, the Gateway Team presented the two illustrative framework options developed during the workshop to City Council to get feedback before developing the final Framework Plan. The major concern expressed with Option 1 was the proposed residential west of Kirby Drive. Given the lack of available industrial property in the city and the fact that any residential would be surrounded by industrial uses, the Gateway Team recommended Option 2 as a more feasible plan for the Lower Kirby Urban Center.

The framework plan developed for Lower Kirby/Lower Kirby included a regulatory matrix that identified the characteristics of the different zones with images showing design intent. This was presented at a joint work session of City Council, Planning and Zoning Commission, Pearland EDC, and the two Management District Boards on November 1, 2010.

The Framework Plan and associated regulatory matrix envisions a market-based approach and identifies different "character zones" of development, each implementing a vision for a unique neighborhood within the Lower Kirby Urban Center (former Spectrum District). The goal of the framework plan and regulatory matrix is to create a foundation for a form-based code to implement the vision for the area. The proposed Illustrative Framework Plan and regulatory framework is included in the following section.

In addition, the Illustrative Framework Plan proposed recommends retaining the existing zoning for the area west of Hooper Road. The lack of needed infrastructure for development makes this area a longer term development focus for the city.

The Illustrative Framework Plan together with the Regulatory Framework is the basis for the form-based code proposed to implement the vision for Lower Kirby. Appendix D includes a draft version of the proposed form-based code for the Lower Kirby Urban Center.


Beltway 8
Cemetery
Promenade Shops Dr.
Riley Road
Kirby Drive
Highway 288
Spectrum Drive
Hooper Road
Fruge Road
Illustrative Framework Plan
Lower Kirby Urban Center, Pearland, Texas
October 14, 2011
Required Streets
Recommended Streets
Maintain Existing Zoning
Mixed Use Core
Urban Neighborhood
Commercial Transition
Highway Commercial
Research/Tech Campus
Floodway
Recommended Regional Detention Area
Required Open Space
Reccomended Open Space
Gateway
txp
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Lower Kirby Urban Center Regulatory Framework

Character District - Mixed Use Core	
Purpose and Intent	• Highest intensity of development in the Lower Kirby Urban Center • Maximize the locational benefits of the two regional highways and future light rail stop • Preserve the opportunity for higher intensity development when the market is mature
Building Scale and Massing	• 15 stories (maximum) • Clear distinction of a building 'base' that is 4 – 6 stories tall • Allow lower intensity buildings (1 – 2 stories) initially transitioning to higher intensity as market demand increases
Land Use Mix	• Ground floor commercial (retail, office, restaurant) and upper floors may be office, lodging or residential • Establish minimum height and intensity standards at key locations within the Mixed Use Core
Design Elements • Building articulation	• Building base is articulated at a pedestrian rhythm/scale (20' to 30' bay/demarcation width) • Upper floors are more flexible
• Materials	• Higher standards for building materials apply only to the building 'base' • Materials to be masonry (minimum 75%) of primary facades of building 'base' • Upper floor materials to be more flexible (include glass curtain wall, split face concrete, etc)
• Orientation	• Buildings built to the edge of the sidewalk establishing a strong street wall (90% building frontage along Type 'A' Streets) • High pedestrian orientation • Ground floors of buildings along Type 'A' Streets to be built to commercial standards
• Transitions to adjoining uses	• Establish building height transitions to adjoining Urban Neighborhood Zone
• Civic/Open Space	• Require/recommend plazas and squares • Establish standards for plazas and squares
• Landscaping	• Mostly in the public realm (street trees, plazas, and squares)
• Signage	• Limited to pedestrian oriented signage palette • Allow building identity signs on high-rise buildings
Parking strategy	• On-street parallel or angled parking • Off-street parking in parking structures • Establish regulations for interim surface parking lots to be phased into urban development • Establish the same parking ratio for all non-residential uses • Establish one ratio for all residential uses
Block standards	• Urban block standards – generally block face dimensions not to exceed 400' • Regular orthogonal grid • Allow for limited exceptions under certain design/performance criteria

	• Establish required and recommended street network on the Regulating Plan
Street Design Standards	• Establish a manual for the design of new streets within the Lower Kirby Urban Center to implement the goals of the plan. The Street Design manual would include context sensitive design standards for streets. • Standards will be established for cross sections, number of lanes, accommodate of pedestrians and bicyclists, parkway, development frontage, and streetscape standards based on the location and context of the street.
Approval Process	• Administrative approval for development that meets the standards established in the Code • Establish alternative legislative process with criteria for approval for development projects that do not meet the specific standards Code.
Phasing and Infrastructure	• Establish phasing plan for public infrastructure and infill of surface parking • Establish standards for any major civic venues such as the conference facility/convention facility

Characteristic Images – Mixed Use Core

Character District – Urban Neighborhood	
Purpose and Intent	• Encourage the development of a unique walkable neighborhood of urban lofts, apartments, townhomes, and live-work units • Maximize frontage along the drainage features and creek
Building Scale and Massing	• 6 stories (maximum)
Land Use Mix	• Mostly residential with corner commercial uses and live-work uses • Live-work uses to include artists' studios and professional offices
Design Elements • Building articulation	• Building rhythm of 20' to 30' • Residential scale • Simple roofs and facades with porches, stoops, bay windows and balconies
• Materials	• Would allow for masonry, hardi plank, stucco as the primary building materials along Type 'A' Street facades (minimum 60%)
• Orientation	• Buildings to be built with shallow setbacks (less than 10') • Limit front loaded garages • High pedestrian orientation
• Transitions to adjoining uses	• NA
• Civic/Open Space	• Require/recommend greens, parks, play grounds • Establish standards for the same
• Landscaping	• Both in the public and private realms
• Signage	• Live-work units and corner commercial to be • permitted pedestrian oriented signage
Parking strategy	• On-street parallel or angled parking • Off-street parking in parking structures or surface parking in the rear of the lot (behind the principal structure) • Establish the same parking ratio for all non-residential uses • Establish one ratio for all residential uses
Block standards	• Urban block standards – generally block face dimensions not to exceed 600' • Regular orthogonal grid or curved to match topography or address natural features • Allow for limited exceptions under certain design/performance criteria • Establish required and recommended street network on the Regulating Plan
Street Design Standards	• Establish a manual for the design of new streets within the Lower Kirby Urban Center to implement the goals of the plan. The Street Design manual would include context sensitive design standards for streets. • Standards will be established for cross sections, number of lanes, accommodate of pedestrians and bicyclists,

Character District – Urban Neighborhood	
	parkway, development frontage, and streetscape standards based on the location and context of the street.
Approval Process	• Administrative approval for development that meets the standards established in the Code • Establish alternative legislative process with criteria for approval for development projects that do not meet the specific standards Code.
Phasing and Infrastructure	• Establish phasing plan for public infrastructure

Characteristic Images – Urban Neighborhood

Character District – Research/Tech Campus	
Purpose and Intent	• Encourage the development of a regional employment center • Establish an overall "campus" like design vocabulary within which individual projects can vary • Link to regional highways and future rail transit
Building Scale and Massing	• 6 stories (maximum)
Land Use Mix	• Mostly office, research, flex-office, and supporting uses • Light industrial and assembly uses • Educational and other institutional uses • Ensure that the Kirby Drive frontage is consistently developed with the Mixed Use Core
Design Elements • Building articulation	• Some building articulation required • Simple building and roof forms
• Materials	• Allow a range of building materials
• Orientation	• Buildings shall be set in a campus environment with landscaping and natural features • Pedestrian linkages and trails to be provided • Development to be both auto and pedestrian oriented (hybrid) • Emphasis on key linkage streets for more pedestrian oriented development
• Transitions to adjoining uses	• Buffer/screen loading, unloading and service areas
• Civic/Open Space	• More natural and unstructured spaces • Generally private yards
• Landscaping	• Combination of private and public landscaping
• Signage	• Unified wayfinding program with a palette of monument and building signs
Parking strategy	• Off-street parking in parking structures or surface parking • Screen surface parking from adjacent streets and development • Landscape surface parking lots • Allow shared parking
Block standards	• Allow larger block standards 800' – 1,200' • Establish a limited required/recommended street network
Street Design Standards	• Establish a manual for the design of new streets within the Lower Kirby Urban Center to implement the goals of the plan. The Street Design manual would include context sensitive design standards for streets. • Standards will be established for cross sections, number of lanes, accommodate of pedestrians and bicyclists, parkway, development frontage, and streetscape standards based on the location and context of the street.
Approval Process	• Administrative approval for development that meets the

Character District – Research/Tech Campus	
	standards established in the Code • Establish alternative legislative process with criteria for approval for development projects that do not meet the specific standards Code.
Phasing and Infrastructure	• Establish phasing plan for public infrastructure

Characteristic Images – Research/Tech Campus

Character District – Commercial Transition	
Purpose and Intent	• Intended as a transition between the Highway Commercial and Urban Neighborhood zones
Building Scale and Massing	• 6 stories (maximum)
Land Use Mix	• Mix of smaller professional/garden office and retail uses • Some live work uses as a transition
Design Elements • Building articulation	• • Building rhythm of 20' to 30' • Residential scale • Simple roofs and facades
• Materials	• Materials to be masonry (minimum 75%) of primary facades of building
• Orientation	• Buildings to be built to the edge of the sidewalk or with shallow setbacks (less than 10') • Suburban orientation towards the Highway Commercial frontage and urban orientation towards the Urban Neighborhood frontage
• Transitions to adjoining uses	• Transitions happen at the back of buildings
• Civic/Open Space	• Require/recommend plazas and squares
• Landscaping	• Both in the public and private realms
• Signage	• Allows both pedestrian-oriented and auto-oriented signage (monument signs) when adjoining Mixed Use Core or Highway Commercial
Parking strategy	• On-street parallel or angled parking • Off-street parking in surface parking at the rear of the lot (behind the principal structure or along Highway Commercial zone frontage) • Establish the same parking ratio for all non-residential uses
Block standards	• Transitions from a suburban scale to the Urban Neighborhood scale. Block face dimensions not to exceed 600' • Regular orthogonal grid or curved to match topography or address natural features • Allow for limited exceptions under certain design/performance criteria • Establish required and recommended street network on the Regulating Plan
Street Design Standards	• Establish a manual for the design of new streets within the Lower Kirby Urban Center to implement the goals of the plan. The Street Design manual would include context sensitive design standards for streets. • Standards will be established for cross sections, number of lanes, accommodate of pedestrians and bicyclists, parkway, development frontage, and streetscape standards based on the location and context of the street.
Approval Process	• Administrative approval for development that meets the

Character District – Commercial Transition	
	standards established in the Code • Establish alternative legislative process with criteria for approval for development projects that do not meet the specific standards Code.
Phasing and Infrastructure	• Establish phasing plan for public infrastructure

Characteristic Images – Commercial Transition

Character District – Highway Commercial	
Purpose and Intent	• Intended for regional scale retail and employment uses that take advantage of highway frontage along 2 major roadways
Building Scale and Massing	• 15 stories (maximum)
Land Use Mix	• Mostly large format retail with restaurants and entertainment uses or high to mid-rise office buildings • May include lodging and related uses
Design Elements • Building articulation	• Focus on minimizing the impact of a 'big box' look • Horizontal and vertical articulation to break up the building mass
• Materials	• Allow a range of building materials; primarily masonry for retail/restaurant and masonry, glass, and more flexible materials for high to mid-rise office.
• Orientation	• Buildings set back from the highway frontage roads • Low pedestrian orientation along the highway frontage, but higher pedestrian orientation on the cross streets and interior roadways.
• Transitions to adjoining uses	• NA
• Civic/Open Space	• Private yards
• Landscaping	• Generally in the private realm • Screening of parking and service areas
• Signage	• Auto-oriented palette of signs (generally monument and building signs)
Parking strategy	• Off-street parking in surface parking along the highway frontage • Soften surface parking lots with landscaping and shade trees
Block standards	• Allow larger blocks (greater than 1,000 block face dimensions)
Street Design Standards	• Establish a manual for the design of new streets within the Lower Kirby Urban Center to implement the goals of the plan. The Street Design manual would include context sensitive design standards for streets. • Standards will be established for cross sections, number of lanes, accommodate of pedestrians and bicyclists, parkway, development frontage, and streetscape standards based on the location and context of the street.
Approval Process	• Administrative approval for development that meets the standards established in the Code • Establish alternative legislative process with criteria for approval for development projects that do not meet the specific standards Code.
Phasing and Infrastructure	• Limited public infrastructure

Characteristic Images – Highway Commercial

6. Market Cluster Analysis and Target Industries

This section is designed to serve as guidance for Pearland in the targeting of industries as potential tenants within the Lower Kirby Urban Center. It builds on a cluster analysis, evaluation of the community and the site's particular attributes, previous local target industry work, and the overall planning effort. The end product is a selection of fairly detailed target sectors for the Lower Kirby, with a focus on office-oriented sectors of the economy that are growing, fit well with local comparative advantage, and are consistent with the design of the built environment for the Lower Kirby. These include professional and technical services, with an emphasis on life sciences, certain selected services related to waste remediation and transportation support, education, and back office operations, with a likely focus on medical-related activity. The target list does not include warehousing or manufacturing per se, although each potentially could find a place in Lower Kirby, specifically west of Kirby Drive. The key would be actual location within the project (more likely on the west side) and integration with the overall project plan. By the same token, mixed-use development in this context is also a target, and should be a priority.

The above having been said, this list should not be viewed as either exclusive or exhaustive, as individual firms in sectors not identified could well make sense. Ultimately, the best measures of a firm's suitability will be tax base and economic impact (including job creation) along with integration with the existing and planned development within the project.

a. Methodology & Approach

Industry cluster analysis is a common approach used in economic development to evaluate the economic base of a region, usually at the county or multi-county level. Clusters are highly-integrated groups of businesses with strong vertical and horizontal linkages. Not only does industry cluster analysis describe the current state, but this technique is often used to identify areas of recruitment opportunity. Industry cluster analysis, however, is a broad concept rather than a precise term. There is not a unified definition of industry clusters or their subcomponents. In general, a cluster consists of firms and related economic actors and institutions that draw productive advantage from their mutual proximity and connections. First, linkages are established in which businesses build relationships with existing specialized supplier firms throughout a region. Second, these developing clusters attract additional supplier firms and supporting business from outside of the area. Finally, by creating a critical mass of production, labor, and information, related manufacturers and supplier firms are attracted to these developing cluster regions to take advantage of the existing human and physical infrastructure.

A comprehensive analysis of industry cluster techniques released by The Brookings Institute (*Making Sense of Clusters: Regional Competitiveness and Economic Development, 2006*) highlights seven drivers called "micro-foundations" of clustering.

Foundations of Clustering

Micro-foundations	Description
Labor Market Pooling	Strong market/supply for the distinctive skilled labor needed
Supplier Specialization	Large number of industrial customers in the nearby area create sufficient demand to enable suppliers to acquire and operate expensive specialized machinery
Knowledge Spillovers	Concentration of many people working on a similar set of economic problems produces a widely shared understanding of an industry and its workings
Entrepreneurship	Entrepreneurship includes both the willingness of individuals to form new businesses and the willingness of owners of existing businesses to undertake new ideas
Path Dependence and Lock-In	Set of opportunities available to any particular place will be shaped by the economic activities it has already established.
Culture	Culture may be particularly important in helping local economies and clusters adapt to change over time
Local Demand	Demanding local consumers can pressure firms to innovate and to maintain and improve product quality, which in turn improves their competitiveness in other markets
Source: Brookings Institution, TXP	

The Brookings study concludes, "It is difficult for public policy to create new clusters deliberately. Instead, policymakers and practitioners should promote and maintain the economic conditions that enable new clusters to emerge. Such an environment, for example, might support knowledge creation, entrepreneurship, new firm formation, and the availability of capital."

b. Application of Industry Cluster Analysis and Pearland/Lower Kirby

To assess the strength of a cluster in a regional economy, the location factors are calculated by comparing the cluster's share of total local employment to the cluster's national share. Cluster location factors greater than 2.0 indicate a strong cluster agglomeration, while those less than 0.5 indicate very weak clusters.

The biggest challenge for performing a cluster analysis on a sub-geographic area like the Lower Kirby is data availability. Clusters are typically defined using 6-digit NAICS (a business classification system). Given the employment base size of Pearland, detailed data is not readily available because government agencies "suppress" data to protect the confidentiality of the businesses. Therefore, TXP performed an initial cluster analysis using location quotients at a higher NAICS level. The following table highlights the major segments of the economy where Harris County is more heavily concentrated than the state as a whole.

Harris County Location Quotients, 2008 Data

	Location Quotient
NAICS 483 Water transportation	3.371
NAICS 486 Pipeline transportation	2.904
NAICS 211 Oil and gas extraction	2.620
NAICS 482 Rail transportation	1.982
NAICS 481 Air transportation	1.920
NAICS 333 Machinery	1.872
NAICS 324 Petroleum and coal	1.799
NAICS 325 Chemical	1.636
NAICS 488 Support activities for	1.598
NAICS 335 Electrical equipment	1.408
NAICS 221 Utilities	1.366
NAICS 541 Professional and	1.357
NAICS 213 Support activities for	1.304
NAICS 712 Museums, historical	1.299
NAICS 611 Educational services	1.257
NAICS 312 Beverage and tobacco	1.228
NAICS 562 Waste management	1.219
NAICS 711 Performing arts and	1.217
NAICS 531 Real estate	1.215
NAICS 236 Construction of	1.205
NAICS 423 Merchant wholesalers,	1.190
NAICS 523 Securities, commodity	1.149
NAICS 561 Administrative and	1.119
NAICS 532 Rental and leasing	1.118
NAICS 622 Hospitals	1.103
NAICS 238 Specialty trade	1.097
NAICS 551 Management of	1.085
NAICS 424 Merchant wholesalers,	1.043
NAICS 812 Personal and laundry	1.004
Source: Texas Workforce Commission, TXP	

Not surprisingly, energy and transportation are areas where Harris County has sizeable concentrations, as the port and the petrochemical complex create an outsized presence. Similarly, medical activity (especially hospitals) and management of companies in part reflect the size of the region – as one of the largest metro areas in the nation, Houston and Harris County logically will have a greater concentration in this sectors than Texas as a whole.

c. Targeted Sectors Analysis

i. Identification Process

The location quotient analysis above suggests regional concentration in Energy and Energy-Related activity, Transportation, Professional & Technical Services,

Educational Services, and Wholesale Trade. Because the Lower Kirby is a relatively small area within a larger regional economy, a target industry approach driven entirely by these location quotients likely would be incomplete. Instead, the community would be well served to identify targets by including the following additional criteria.

Evaluate the expected national performance of individual sectors over both the short term and the next ten years.
Essentially, supply and demand forces should be at work in identifying candidate business sectors for recruitment. Current and expected economic growth in a given sector is perhaps the best measure of demand, with national performance normally the most appropriate standard of measure (although local growth can be used to either confirm national trends or indicate a rising local share of a flat or declining national market).

Beyond the cluster analysis, review the local and regional economy to identify possible supply gaps.
Once sectors with rising demand have been identified, supply factors should be considered. For example, a supply gap may exist in the local market, where growing firms are forced to buy inputs from outside the region due to absence of local suppliers. Similarly, a concentration of interconnected firms (typically referred to as "clusters") can create opportunities. In Pearland/Lower Kirby, interviews indicated no clear opportunities to recruit either upstream firms (suppliers) or downstream firms (those who used locally-produced products for further production).

Evaluate possible target businesses in light of the region's comparative advantages/constraints.
A second "supply" consideration relates to comparative advantage. Workforce characteristics, transportation components (proximity to highway infrastructure and the presence of Hobby airport), the quality and scope of local infrastructure, and unique local factors (such as proximity to the medical complex) can create comparative advantage or reveal constraints. Niche opportunities may also be identified as part of this review, such as back-office medical operations. By the same token, proximity to markets may also be a consideration, along with other measures of comparative advantage.

The net effect is that target business sectors normally fall into two broad categories: those industries which are growing rapidly, with the hope that the community will get a share of that growth, and those industries or projects in which the community has a comparative advantage, be it infrastructure-related, labor force, unique local considerations, existing local/regional economic linkages (including clusters), or proximity to markets.

Evaluate possible target industries in light of the region's competitors.
Once the target sector candidates have been identified, a final step is to compare Pearland/Lower Kirby to its logical competitors. Other communities throughout the Houston region could, in theory, offer many of the advantages that Pearland/Lower Kirby might provide to a relocating firm, although proximity to healthcare and strategic location are distinguishing assets.

Confirm that the target industries are consistent with Pearland/Lower Kirby's values, vision for its economy, and the plan for the Lower Kirby.
As referenced above, it is important that the above process could does not yield candidate industries that would be inconsistent with existing plans and strategies. Similarly, the community's commitment to development of a particular sector (perhaps based on factors that are not easily measured or quantified) could override an apparent impediment to success.

d. Targeted Sectors Recommendations

The following table delineates the areas identified for Pearland/Lower Kirby as targets for recruitment and expansion. Overall, the five focus areas include a total of thirteen specific targets.

Pearland Lower Kirby Target Sectors

NAICS 488 Support Activities for Transportation	Location Quotients
NAICS 48832 Marine cargo handling	3.757
NAICS 488991 Packing and crating	3.024
NAICS 541 Professional and Technical Services	
NAICS 54133 Engineering services	2.147
NAICS 54136 Geophysical surveying and mapping	2.810
NAICS 54138 Testing laboratories	1.871
NAICS 54162 Environmental consulting services	1.677
NAICS 54171 Physical, engineering and biological	1.585
NAICS 54172 Social science and humanities research	1.518
NAICS 54169 Other technical consulting services	1.516
NAICS 54142 Industrial design services	1.248
NAICS 562 Waste Management and Remediation Services	
NAICS 56291 Remediation services	1.325
Non-Location Quotient Targets	
NAICS 611 Education Services	
Back-Office Operations, with a Focus on Medical	

Source: TXP

In reviewing each category above, several general points should be made:

- *New transportation capacity (especially passenger rail) and continued growth of the medical complex could create opportunities that would be viable at the Lower Kirby beyond those currently envisioned.* While back-office medical and

educational services have already been identified, additional opportunities could emerge, especially related to specialty medical services (perhaps related to laboratories) and other niche office uses. Smaller firms likely will be a significant part of the mix, especially in sectors that can take advantage of both the quality of life amenities and the area's evolving demographics.

- *The targets make sense at this point, but shifting conditions (both external and local) will require ongoing reevaluation*. The impact of healthcare reform (either as currently slated for implementation or revised), for example, could have an impact on the flow of medical research dollars (positive or negative) that could, in turn, influence the prospects for research laboratories. Target industry selection is necessarily a dynamic process, as sectors that may make sense at one point may not be viable in the future. Telecommunications is a good example; after having appeared on virtually every target industry list in the mid-to-late 1990s, significant over-capacity lead to massive industry lay-offs and restructuring in the wake of 9/11 and the dot-com crash.

- *Expansion represents the bulk of the near-term opportunity*. Conventional wisdom holds that local expansion and entrepreneurship creates approximately 4 out of 5 jobs nationwide, a trend that is likely to be the case (at least in the near term) for Pearland/Lower Kirby as well. By the same token, retention is an equally vital economic development task, as a job saved is just as valuable (if not more so) than a new job created.

An Additional Target: Project-Based Development

For a number of reasons, standard economic development practice does not typically include housing, retail trade, and consumer services as candidates for economic development and financial incentives. First, consumer activity is normally considered a secondary industry, meaning that it serves mainly local markets, rather than a primary industry, which sells its products and services to non-local customers. Importing of external funds by primary industries is traditionally considered the foundation of economic development, as a region's primary employers create spin-off effects that increase demand for small business services, promote consumer activity, and directly and indirectly enhance the community's tax base. Second, local competition is likely to be strong for a new retailer to a community in light of the Pearland Town Center, and it is politically challenging to provide a subsidy to a direct competitor to an existing local firm. Finally, the ripple effects associated with retail trade (and consumer-driven industries in general) are relatively lower than for production sectors of the economy, as the backward and forward linkages to other industries are not as extensive, reducing the multiplier effect. As a result, some communities have explicitly prohibited retail trade from receiving incentives under the city's economic development policy.

In the Lower Kirby, however, entertainment, retail trade, and consumer services (including certain types of housing) are valid targets for economic development, especially on the eastern side of the project. In particular, the strategic location at the intersection of key highway infrastructure, the possibility of passenger rail, the strong income demographics in the region, and the ability to build on the impetus provided by activity anchored by Bass Pro Shops makes the Lower Kirby an ideal site for destination retail/entertainment. As a result, the following benefits should accrue from this aspect of the project:

- Since this development is a "destination," it should draw shoppers from outside the local market, a pattern that would be amplified with the inclusion of a strong entertainment element . It could also include unique retail that is not currently available in the local market. This would clearly an opportunity at the Lower Kirby, as the shopping "catchment basin" would extend well beyond City boundaries.

- Mixed-use developments tend to have a longer "shelf-life" than traditional developments, which will tend to create a greater fiscal impact over the medium and longer-term. This planning effort is largely about creating the conditions necessary for this type of sustainability, including implementation of the proper regulatory regime, identification of an implementation strategy for catalytic infrastructure, and targeting complementary land uses that will create inter-locking demand.

Pearland/Lower Kirby's target industries should evolve based on market conditions, national and local economic trends, and specific regional issues. Because the needs of the target industries can vary year-to-years, TXP believes the community should continually refine and refocus this target industry list over time. However, core principles should remain in place; reflect broad economic trends, build on both the communities overall strengths and the specific attributes of the Lower Kirby, and be mindful of competitor activity.

e. Absorption Capacity

As discussed in previous sections, the Lower Kirby offers a unique opportunity to take advantage of a highly advantageous combination of location, transportation infrastructure, land use planning and regulatory environment to develop an integrated project that includes a regional employment center (along Kirby), destination mixed use urban living (along Lower Kirby Boulevard between Kirby and SH 288), and concentrated retail/entertainment (anchored by the Bass Pro Shop site). This capacity informs the estimate of the "market share" the Lower Kirby can absorb, as the emphasis will tilt toward commercial, as opposed to residential and industrial. That having been said, all three broad categories are accommodated, especially when more detailed land use categories are applied. For example, there likely will be a mix of residential units, including both owner-occupied and rental townhomes, live-work units, stacked flats, and urban residential buildings.

By the same token, the target industry analysis suggests that new industrial activity will be less about traditional production and more about the use of flex and/or warehouse space that could also be used for other commercial purposes. The "flexible" orientation also extends to the commercial side, as a given building or unit could easily transition from a storefront to a professional office to restaurant over time. With this in mind, distribution assumptions of specific land uses follow.

Absorption Capacity

	Residential	Implied Market Share
Regional Market Demand	235,800 Units	
Lower Kirby Residential (Total)	**5,000-7,000 Units**	**2.1% - 3.0%**
Patio homes, townhomes, and live-work units	1,000 to 1,800	
Small apt. buildings/stacked flats	800 to 1,400	
Multi-family (condos, lofts over retail, mid-rise residential	3,200 to 3,800	
	Commercial	**Implied Market Share**
Regional Market Demand	33.2 Million Sq. Ft	
Lower Kirby Commercial (Total)	**2.9 to 4.9 million Sq. Ft**	**8.7% - 14.8%**
Retail, restaurant, & entertainment (includes lodging)	2.2 to 3.6 million	
Other Non-Residential (Professional office, garden office, flex, light industrial/warehouse, and R&D)	0.7 to 1.3 million	

Note: Implied Market Share calculations are based on the assumed percentage ranges of the Lower Kirby totals for residential and commercial as a percentage of the regional market demand for each land use type.

Sources: Gateway Planning & TXP

The proposed Lower Kirby Urban Center Master Plan and associated regulatory framework anticipates a potential for build-out that is at the upper end (especially on the commercial side) of what a traditional market study would anticipate. Under conventional zoning, excess entitlement relative to the market potential can actually stunt the realization of any significant quality development. However, the proposed regulatory approach that uses "character zones" with flexibility in uses and design continuity from property to property provides the capacity for a more efficient absorption regardless of the ultimate proportion of relative uses. In other words, the proportion and distribution of uses can change over time and at the same time maintain efficient absorption without compromising the overall integrity of the design environment and character of the development. Thus, a preliminary assessment of the build-out potential as established in the Lower Kirby Master Plan Framework balances predictability with flexibility. Specifically, the Urban Center can absorb a greater than its implied share of development, if the market conditions are favorable.

f. Conclusions About Market Potential

The potential development of the Lower Kirby promises to capture a significant share of region's future growth. Build-out calculations of the site's capacity indicate it could accommodate, as planned, between 5,000 and 7,000 housing units and somewhere between 3 and 5 million sq. ft. of total commercial (i.e., non-residential)

space. These projections, while aggressive, are within the range of reasonable expectation as a share of demand through 2040.

The timing and intensity of actual development is dependent on multiple factors, including:

- the type of commercial and residential development that occurs initially, and the proportion of urban residential versus lower density residential over time;
- development phasing;
- structured parking capacity over time;
- the potential for a hotel and related entertainment; and
- the level and timing of public participation in infrastructure necessary to achieve higher intensity development.

This last point is especially crucial, as the ability to prioritize and implement catalytic infrastructure is likely to be a key element in the Lower Kirby's ability to leverage its assets and realize its development potential. This is specifically true due to the need for major drainage and detention infrastructure to realize the plan. As a result, it is crucial that the various taxing authorities and the private sector work cooperatively to craft a financing approach that is both viable and provides shared benefit. Failure to implement policies, procedures, and investment decisions related to infrastructure along these lines puts the community in danger of missing this opportunity, and could heighten the risk of losing its "fair-share" to adjacent areas.

7. Implementation

Based on the Lower Kirby Urban Center Framework Plan, assessment of the market opportunities including cluster analysis, and the infrastructure needs, several implementation recommendations are made in this report. There are three main areas of implementation as identified by the design team – regulatory recommendations, infrastructure framework and phasing, and financing strategy.

a. Regulatory Recommendations

Based on the preferred Framework Plan for the Lower Kirby Urban Center, the Gateway Planning team developed a form-based code to implement the vision for the Urban Center. This form-based code is intended to balance predictability with flexibility by providing an overarching infrastructure framework with a flexible use entitlement.

Form-based codes are development regulations used by cities that emphasize the physical character of development and de-emphasize the regulation of land use. They are intended to implement a specific form of development based on a master plan developed through a community involvement process. They provide greater predictability about the look and feel of development and offer builders and developers a clearer understanding of what the community seeks in terms of development. In addition, FBCs can make it easier for a community to help create the vision for physical development they want, which will more likely lead to their acceptance of development and street designs in their community.

The Form-Based Codes Institute (www.fbci.org) defines FBCs as follows:

> *Form-based codes foster predictable built results and a high-quality public realm by using physical form (rather than separation of uses) as the organizing principle for the code. They are regulations, not mere guidelines, adopted into city or county law. Form-based codes offer a powerful alternative to conventional zoning.*
>
> *Form-based codes address the relationship between building facades and the public realm, the form and mass of buildings in relation to one another, and the scale and types of streets and blocks. The regulations and standards in form-based codes are presented in both words and clearly drawn diagrams and other visuals. They are keyed to a regulating plan that designates the appropriate form and scale (and therefore, character) of development, rather than only distinctions in land-use types.*

i. Differences between Form-Based Codes and Conventional Zoning

Conventional zoning which is common throughout the United States primarily regulates development by separating uses since its origin is rooted in preventing incompatible uses next to residential uses. Zoning requirements are usually applied generically throughout the entire community. Conventional zoning regulations are often applied in a one-size-fits-all manner, without any plan about

what the community should look like. The key differences are outlined in table below.

Key Differences between Conventional Zoning and Form-Based Zoning.

Conventional Zoning	Form-Base Codes
Creates single use pods of development	Promotes mixed use
Uses buffers instead of transitions	Uses transitions instead of buffers
Not pedestrian-friendly or transit-friendly; mostly auto-oriented	Pedestrian and transit friendly while still accommodating the automobile
Planned obsolescence, so constructed accordingly	Planned to endure
New uses often require scraping and building	Accommodates change of use in the same building
Value of the development drops when the intended use is no longer viable	Value of the development holds when the current use is no longer viable

The recommended form-based code for the Lower Kirby Urban Center is included in Appendix D of this document.

b. Infrastructure Framework and Phasing

The purpose of this section is to identify the infrastructure needed to serve the Urban Center's master development plan and to estimate the costs of the infrastructure. The types of infrastructure included in this report include streets, streetscape, storm sewers, detention, domestic water, and sanitary sewer collection.

For purposes of this section, two costing scenarios were considered. The first scenario tries to predict how development would occur over the next 30 years based on the market analysis and proximity to existing infrastructure. Four development phases were considered: Years 0-5, Years 6-10, Years 11-20, and Years 21-30.

The second scenario was created to reflect two major categories of infrastructure improvements that would be subject to priority reimbursement from the Lower Kirby Management District. Each Priority was further segmented to assist the City and Management District's in identifying what infrastructure is needed to serve the development of particular properties as potential projects present themselves in the future.

i. Streets

A form based development code is being developed for the Districts. The Code would require a mandatory street network that specifies the location of future streets needed to implement the Lower Kirby Urban Center District Regulating Plan (Exhibit 1 of the proposed form-based code). The code also establishes the

street cross section assemblages for each type of street. The assemblages cover right of way width, number and width of travel lanes, parking, bike lanes, medians, sidewalk widths and landscaping. Each street section has an alphanumeric code that indicates the street type, right of way width, and total pavement width. The District's Regulating Plan has 12 street types. The sections used in the Regulating Plan and this report include those of Type "A" Streets. Existing Streets within the district include Kirby Dr., Riley Rd.(North Spectrum Drive), Promenade Shops Dr., Spectrum Dr., Fruge Rd., and Hooper Rd. Of those, Kirby Dr. is fully constructed while Riley Rd, Hooper Rd., and Fruge Rd. are substandard street sections. Promenade Shops Dr. is partially constructed for approximately 550 feet. Currently, a half section of Spectrum Drive has been constructed for approximately 460 feet.

The City's Master Thoroughfare Plan should be revised to add the mandatory streets recommended to develop a street network consistent with the vision for Lower Kirby.

When performing the cost analysis for each segment of street, the cross section, as established by the form based development code, was utilized to compute quantities for pavement widths and pavement and sub-grade thicknesses. Standard thicknesses for each street were taken from the standard paving details for the City of Pearland. Ten inch pavement thicknesses were used for major thoroughfares such as Kirby, Spectrum Dr., Promenade Shops Dr., and Hooper. Eight inch pavement widths were used for Fruge Rd., while 6" pavement widths were used for all other Roads. Lengths for each segment were computed and the corresponding quantities were calculated from the length.

Earthwork computations for each street were taken from the street length as well. The street type provided the width of right-of-way required and from that, the site preparation for clearing and grubbing was computed and was provided in acres. There are existing half sections for Areas of Spectrum Drive and Promenade Shops Dr. which were taken into account when computing the entire pavement quantities for both Promenade Shops Dr. and Spectrum Drive.

Traffic items were also considered during both the development phasing as well as priority phasing. Costs for traffic signals at each intersection were included for each intersection as the adjacent streets were developed. Computations for the paving quantities have been presented for both the development phasing as well as for the priority phasing.

Streetscape items such as sidewalks and street trees are included. The widths of sidewalks vary from 6 feet to 20 feet depending on the street assembly. Street trees are assumed to be installed every 40 feet.

ii. Storm Water Management

Existing drainage patterns for the Lower Kirby Urban Center generally flow from the north to the south towards Clear Creek. An existing TxDOT channel is located between Kirby Dr. and Promenade Dr. The channel extends from Beltway 8 to Clear Creek. There are two existing storm sewer systems located within Kirby Drive. The first system drains to an existing channel just north of Clear Creek. An existing 60 inch storm drain extends from the discharge point north 860 feet. At that point, the pipe diameter changes to 48 inches which continues north for 500 feet. The second system discharges to an existing channel located between Fruge Road and Riley Road which ultimately drains to an existing pond east of Kirby. From this discharge point, two existing storm sewer systems extend north and south. A 36 inch storm sewer main extends south for 250 to the end of the system. A 60 inch storm sewer main extends north from the discharge point for 1200 feet. At that point the diameter of the pipe changes to 48 inches which it then extends northward for 920 feet. The storm sewer diameter then changes to 36 inches which then extends northward for 440 feet to the end of the system. There is an existing storm drain located with the recently constructed portion of Promenade Shops Dr. and within the constructed half section of Spectrum Dr.

Currently there are two existing detention ponds located within the District. The first detention pond is located between Fruge Rd. and Riley Rd along the west right of way of Promenade Shops. The second pond is located on the west side of an existing TxDOT channel north of Fruge Road. Both of these ponds will be removed and consolidated within the proposed regional detention facilities.

In order to accommodate a more urban development, reclaim land from the 100-year floodplain, and create the increased property values needed to pay for infrastructure improvements, the District will approach detention in a regional manner rather than making each property provide individual on-site detention. The necessary storage needed to compensate for future development and floodplain reclamation is listed below:

Flood Plain Reclamation and Detention Requirements

Flood plain Reclamation and Detention requirements	
Area	Volume (Ac-ft.)
Promenade Shops	366.5
Waterlights (CLOMR)	35
Between Kirby & TXDOT Channel	89
Between Kirby & Hooper	105
Kirby Dr.	9
Total	604.5

There are a total of four ponds identified that will provide the required storage. Detention Pond #1 is located along Clear Creek and east of the existing TxDOT

channel. This pond is currently being designed by the City but will ultimately need to be increased in capacity. Pond #2 is an expansion of the TxDOT channel from Clear Creek to just south of the Beltway 8 access road. Preliminary discussions and non-binding agreements have occurred with TxDOT on this channel to transfer ownership to the City so that the proposed modifications can be performed. Pond #3 will be located along Clear Creek and east of Kirby Dr. Pond #4 is located along Clear Creek and west of Kirby Dr. Below is a summary of the estimated storage in each pond.

Detention Pond Storage Capacity Requirements

Detention Pond Storage Capacity	
Detention Pond	Storage (Ac-ft)
1	192
2	174.5
3	102
4	114

Pond construction sequencing was established according to development and priority phasing as well as contributing storm drains. Pond capacities were calculated to mitigate for both development and flood plain reclamation. Exhibit 9 shows watersheds contribute flows to each detention pond.

Four primary storm sewer systems were identified, sized and phased according to both the development and priority scenarios. The four main storm sewer systems ultimately discharge into one of the four proposed regional detention facilities. The storm sewer systems were phased according to development as well as priority phasing. Runoff computations for sizing of the storm sewers were computed in accordance with the City of Pearland Engineering Design Criteria Manual for ultimate developed conditions. The storm sewer systems were designed, taking into account street capacities, to maintain a 100-year storm event within the street right-of-way. In keeping within the design criteria, the storm sewer systems were designed for a 3-year event while storm sewers located within major thoroughfares were designed to a 5-year event. Manholes for each of the systems were placed at a maximum spacing of 600 feet along conduit runs and inlets were placed at a maximum total of 700 feet of pavement draining towards each of the inlets.

For watershed 1, the storm drain system required to convey flow to Pond 1 ranges in pipe size from 2 barrels of 48 inch diameter pipe to a single barrel of 48 inch diameter pipe and will follow the alignment for Promenade Shops Dr and Fruge Road. Pipe sizes for the second storm drain system range from 2 barrels of 54 inch diameter pipe to 2 barrels of 48 inch diameter pipe and is located within Riley Road west of Pond 2 and Promenade Shops Dr. north of Riley Dr. Flows from this system will be conveyed to the first section of Pond 2. Pipe diameter ranges for the third storm sewer system that will convey flows to the second

portion of Pond 2 range from 2 barrels of 48”x72” reinforced concrete box to 2 barrels of 54 inch diameter pipe. This system will be located within Spectrum Dr and within Promenade Shops Dr. north of Spectrum Drive. The fourth storm drain system will be located along Hooper drive and it will convey flows from properties adjacent Hooper Road to Pond 4. Pipe sizes for this storm drain system range from 2 barrels of 54 inch pipe to a single barrel of 54 inch pipe.

Quantity assumptions included that of excavation as computed from existing ground. Outfalls for each of the ponds were computed as percentage of excavation which remained at 15 percent. Back slope interceptors as well as back slopes swales were included in the cost. Land acquisition was also considered and it was computed from the footprint of each of the ponds. Detention Pond 2 incorporates 3 of the proposed bridges into its cost. The bridges were priced as clear span bridges.

iii. Water Distribution System

In order to perform a cost analysis for the proposed water distribution system, an evaluation of the existing water system needed to be performed. Existing maps indicate that an existing 12” water line runs within the Kirby Drive right-of-way between the Beltway 8 east bound access road and Riley Road. An existing 20” water line runs within the Kirby Drive right-of-way south from the Riley Road intersection to Clear Creek. An existing 12” water line runs within the Riley Road right-of-way east from the intersection of Riley Road and Kirby Drive to the intersection of Riley Road and Promenade Shops Dr. This water line ties into an existing 12” water line which runs within the Promenade Shops Dr. right-of-way north towards the eastbound access road for Beltway 8. A 16” water line runs south from the intersection of Riley Road and Promenade Shops Dr. within the Promenade Shops Dr. right-of-way to the intersection of Promenade Shops Dr. and Spectrum Drive. A 12” water line extends from the intersection of Promenade Shops Dr. and Spectrum Drive east towards Hwy 288.

For analysis, existing water line information as well as fire flow information including static and residual pressures was inputted into the water model in order to calibrate the model and provide a basis for the application of additional improvements. Fire flow tests and results can be found in Appendix A. The water model was phased in the same manner as the street phasing as the utilities would need to be extended along with each road that was constructed. Even though the water line was phased along with the street phasing, the waterline was also phased in a manner that interconnected loops were created through out each phase. By doing this, the proposed waterlines were maintained at an 8” diameter while keeping adequate pressures above 30 psi during normal and fire flow conditions. If the actual phasing does not provide for interconnected loops, additional water modeling would be required to establish if larger diameter water lines are needed to maintain flow rates and pressures.

A fire flow analysis was performed for each development phase. An additional demand of 2500 gallons per minute was placed on the system at each phase to ensure that the system could provide the pressures and flows during a fire event. It was determined that 8-inch mains would be adequate throughout the District.

The quantities required for the system were determined from the model as well as placing assumptions that were directly related to the length of water line required. For instance, fire hydrants were placed every 300 feet of water line while gate valves were placed every 1000 feet.

iv. Sanitary Sewer Collection System

The existing sanitary sewer collection system was analyzed as it would provide connection points for each of the proposed systems that would tie into the existing sanitary sewer. As previously discussed, the sanitary sewer collection system was phased along with the street network as it would be constructed before each of the streets within each phase.

An existing 30" sanitary sewer main located in Kirby Dr. at Clear Creek serves as the discharge point for the entire District. The 30" main extends along Kirby Dr. to Riley Rd. where the diameter changes to 12" as it extend up to Beltway 8. A 21-inch main exists in Riley Rd. between Kirby Dr. and Chris Road where the diameter reduces to 18 inches as it continues to Promenade Shops Dr. At that point, the sewer branches into a 15-inch main that extends along Promenade Shops Dr. to Beltway 8 and another 15-inch main that extends along Promenade Shops Dr. to the intersection with Spectrum Drive. At that point, the main reduces to 12-inches and turns along Spectrum Dr. to the access road of State Highway 288.

Future sanitary sewer demands were determined utilizing the proposed land uses percentages for Mixed Use Core, Urban Neighborhoods, Commercial Transition, Highway Commercial and Research Tech Campus. The demand computed from each of the uses was then subject to a design peaking factor of 4.0. All pipes within the system were designed to 90% full capacity at minimum slopes in accordance with TCEQ regulations. Proposed sanitary sewer line sizes range from 8 inches to 18 inches. Sanitary Sewer Demands and equivalent dwelling units (EDUs) per phase have been summarized below.

Sanitary Sewer Collection Demand (EDUs)

Phasing	Mixed Used Core	Urban Neighborhood	Commercial Transition	Highway Commercial	Research Tech Campus	Total
1	273	306	37	50	63	729
2	273	263	25	50	126	737
3	1092	306	86	117	157	1758
4	1092	0	98	117	283	1590

Phase	Demand (gpm)
1	177.16
2	178.80
3	427.25
4	386.31

In order to compute the different design depths for the sanitary sewer main, the sanitary sewer mains were designed at minimum slopes from existing tie in elevations for each sanitary sewer system. Manholes for the system were assumed at 500 foot intervals.

v. Electric

Currently, electric service for the property is centralized within Kirby Drive and the northern portion of Promenade Shops Dr. Due to the nature of the proposed development and the form based development code, electric service throughout the District will need to be done underground in duct banks. The electrical duct banks, like other utilities, will follow both developmental phasing as well as priority phasing. For quantity assumptions electrical duct banks are proposed to be underground with 12-4" and 3-2" conduits.

For street lighting, the City will use of the street light type used on Kirby Dr. throughout the development. For quantity purposes, a spacing assumption was used of every 160 feet.

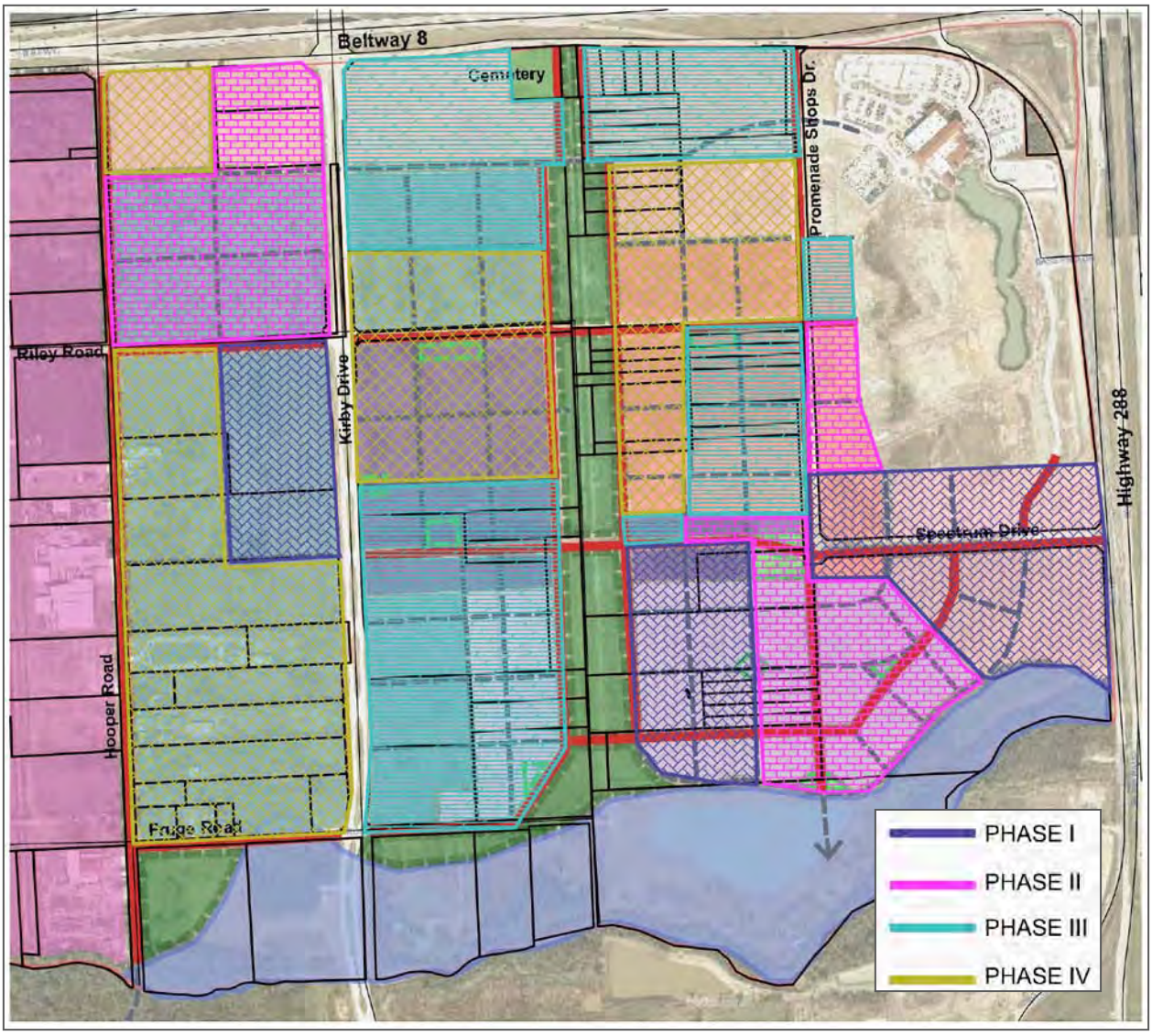
vi. Phasing

The cost estimates for infrastructure to serve the Urban Center was analyzed and broken out into two different scenarios.

Scenario 1: Phasing (Maps on Page 51-55)

The first scenario is to reflect how possible development might occur over the next 30 years. The development scenario was phased into 4 phases or time periods. Phase 1 is for the first 5 years of the District (0-5 years). Phase 2 is for the following 5 years (6-10). Phases 3 and 4 are the subsequent two ten year periods (11-20 years and 21-30 years respectfully). Exhibit 2 shows graphically

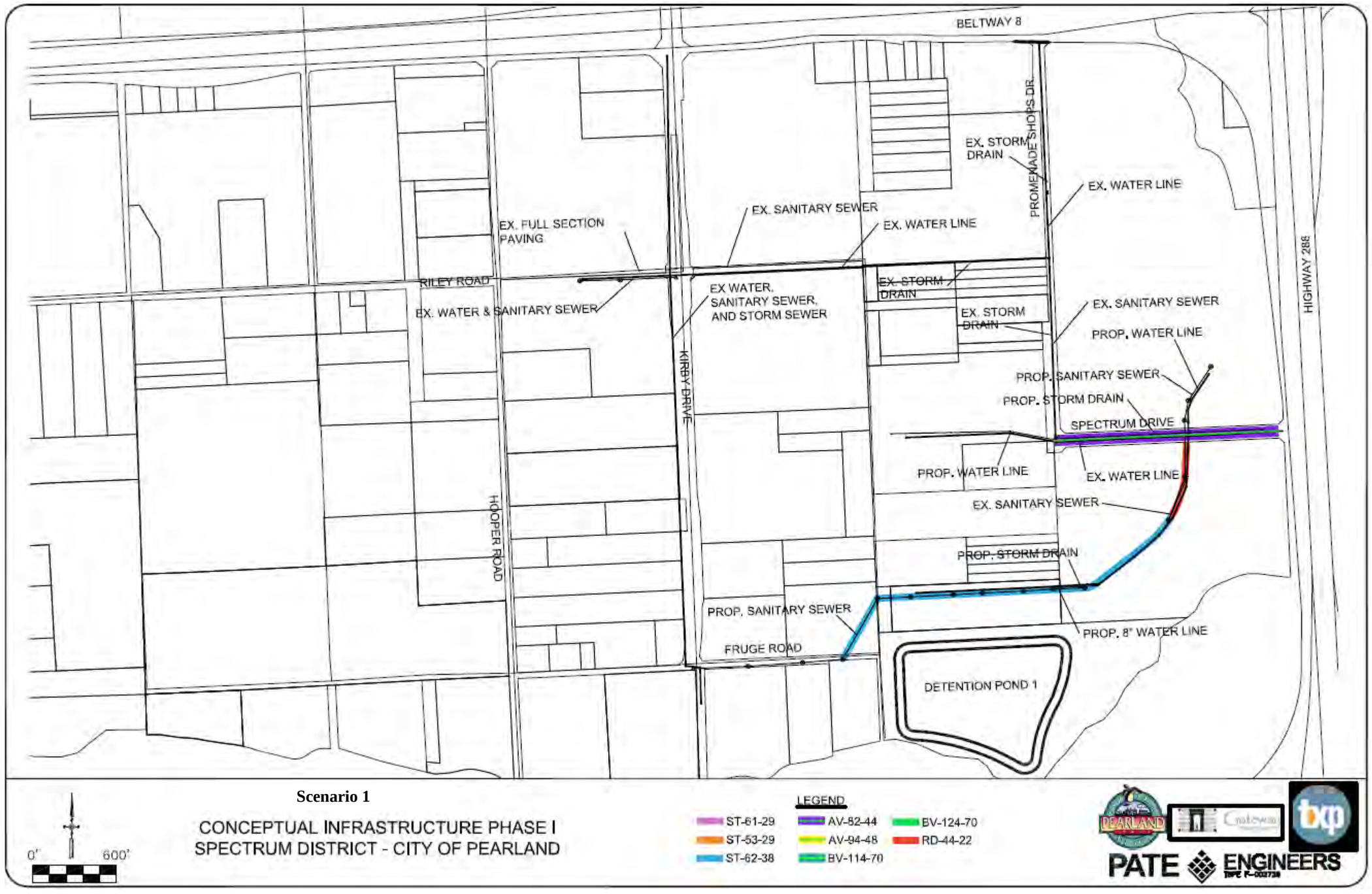
the land areas in which development is predicted per Phase. Criteria used to determine the area is based on market absorption, proximity to existing infrastructure, and ease of constructing new infrastructure.
Total Infrastructure Cost: $56,553,498



Lower Kirby Urban Center – Scenario 1 Infrastructure Phasing Map

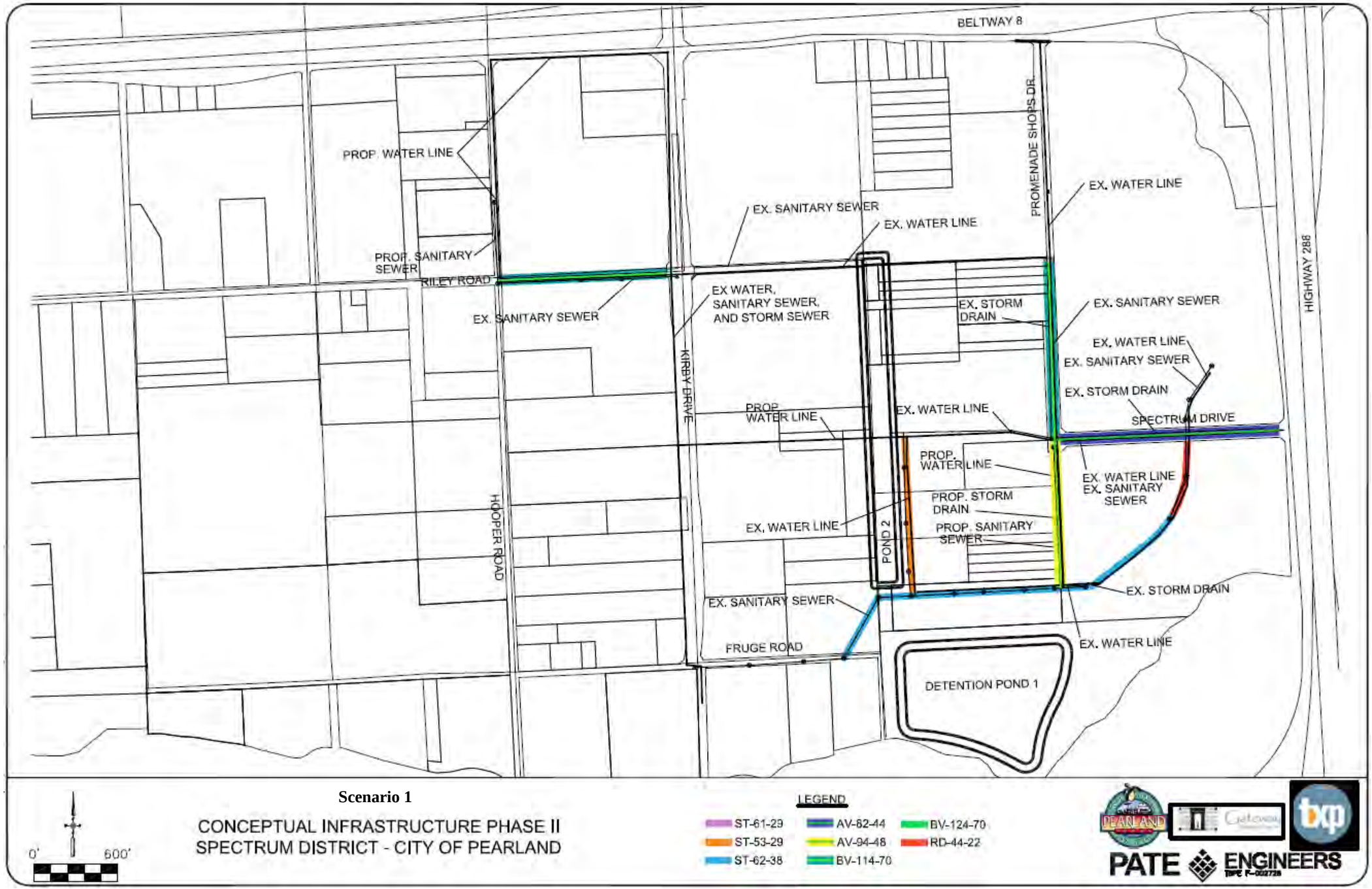
The following table shows the summary of infrastructure costs by development phase for Scenario 1:

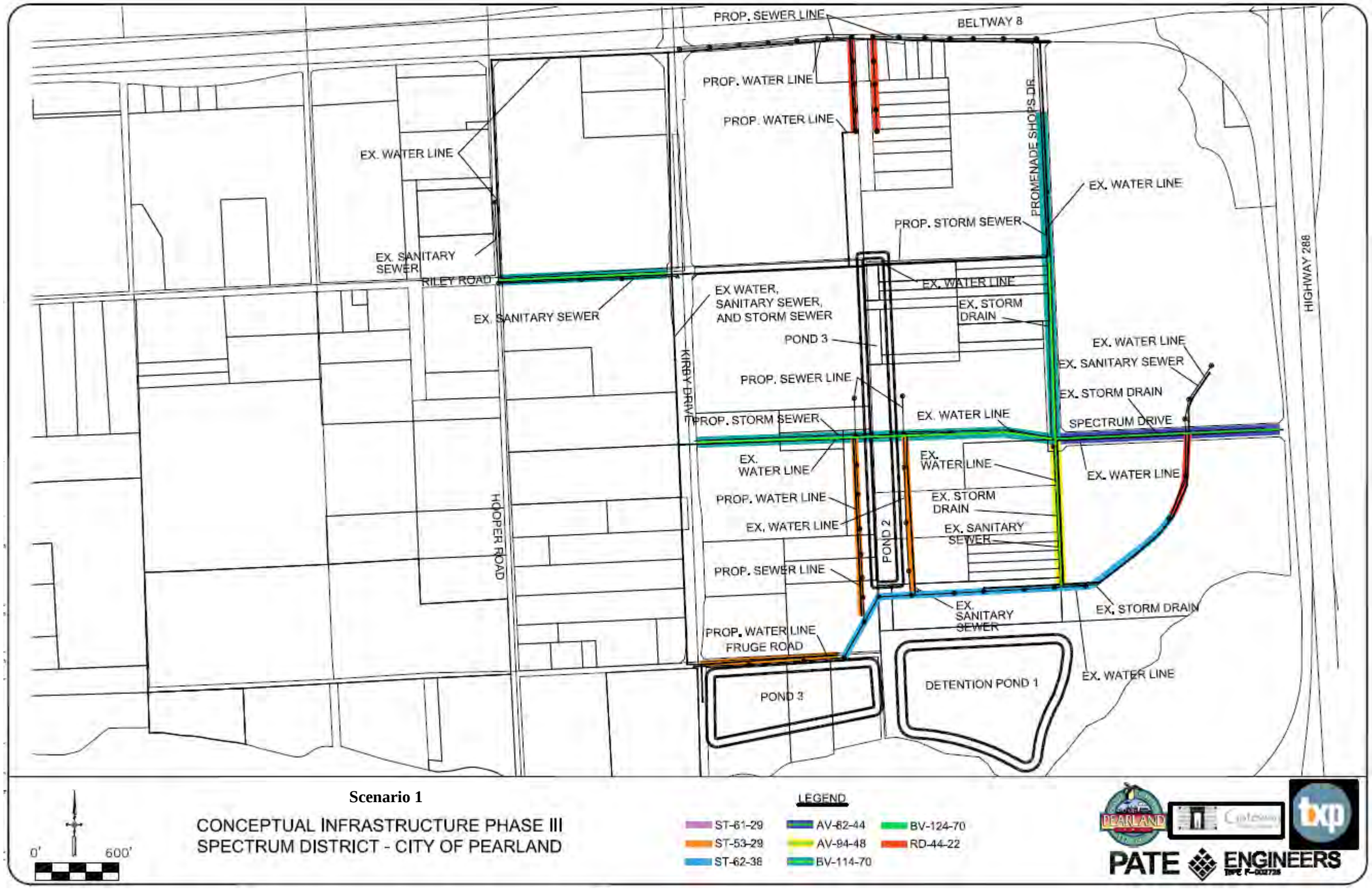
	Phase 1 (0-5 years)	Phase 2 (6-10 years)	Phase 3 (11-20 years)	Phase 4 (21-30 years)	**Total**
Streets	$ 1,389,000	$ 2,168,000	$ 3,171,000	$ 5,447,000	**$ 12,175,000**
Drainage	$ 2,559,500	$ 469,800	$ 1,658,500	$ 1,120,400	**$ 5,808,200**
Detention	$ 3,168,000	$ 5,905,900	$ 2,666,000	$ 5,406,100	**$ 17,146,000**
Water	$ 289,250	$ 304,500	$ 325,500	$ 233,250	**$ 1,152,500**
Sanitary Sewer	$ 412,000	$ 217,000	$ 370,000	$ 390,000	**$ 1,389,000**
Electrical	$ 1,793,000	$ 1,963,000	$ 2,214,000	$ 3,083,000	**$ 9,053,000**
Streetscape	$ 1,818,000	$ 2,021,000	$ 2,065,000	$ 3,189,000	**$ 9,093,000**
Total	**$ 11,428,750**	**$ 13,049,200**	**$ 12,470,000**	**$ 18,868,750**	**$ 55,816,700**



Scenario 1

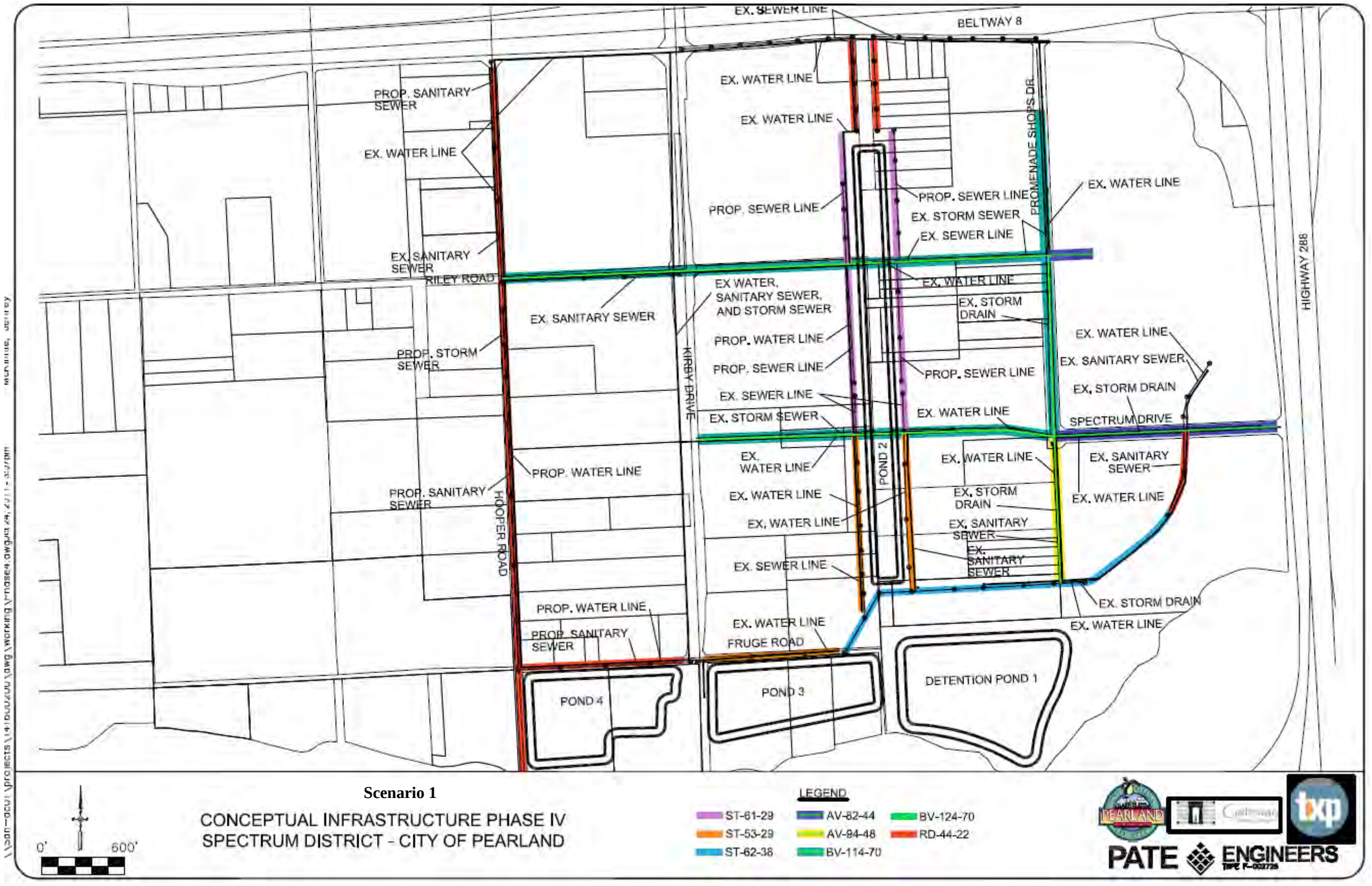
CONCEPTUAL INFRASTRUCTURE PHASE I
SPECTRUM DISTRICT - CITY OF PEARLAND


BELTWAY 8
PROP. WATER LINE
PROP. SANITARY SEWER
RILEY ROAD
EX. SANITARY SEWER
EX WATER, SANITARY SEWER, AND STORM SEWER
EX. SANITARY SEWER
EX. WATER LINE
PROMENADE SHOPS DR.
EX. WATER LINE
HIGHWAY 288
EX. STORM DRAIN
EX. SANITARY SEWER
EX. WATER LINE
EX. SANITARY SEWER
EX. STORM DRAIN
SPECTRUM DRIVE
KIRBY DRIVE
PROP. WATER LINE
EX. WATER LINE
PROP. WATER LINE
EX. WATER LINE
EX. SANITARY SEWER
PROP. STORM DRAIN
PROP. SANITARY SEWER
EX. WATER LINE
POND 2
HOOPER ROAD
EX. SANITARY SEWER
EX. STORM DRAIN
FRUGE ROAD
EX. WATER LINE
DETENTION POND 1
0'
600'
Scenario 1
CONCEPTUAL INFRASTRUCTURE PHASE II
SPECTRUM DISTRICT - CITY OF PEARLAND
LEGEND
ST-61-29
ST-53-29
ST-62-38
AV-82-44
AV-94-48
BV-114-70
BV-124-70
RD-44-22
PEARLAND
Gateway
txp
PATE ENGINEERS



Scenario 1

CONCEPTUAL INFRASTRUCTURE PHASE III
SPECTRUM DISTRICT - CITY OF PEARLAND



Scenario 1

CONCEPTUAL INFRASTRUCTURE PHASE IV
SPECTRUM DISTRICT - CITY OF PEARLAND

Scenario 2: Phasing (Maps on Page 59 and 60)
The second scenario is based on the regional infrastructure priorities that are the most critical infrastructure that will be necessary to facilitate development over a large portion of the district. The priorities are meant to be a basis for the management districts to determine priorities for reimbursement to developers based on the regional significance. 4 priorities for reimbursements have been identified.

Priority 1 is the operation and maintenance of district.

Regional Priority 2 is the street and related utility improvements of South Spectrum Drive., Promenade Shops Dr., and North Spectrum Drive (Riley Road). Priority 2 also includes all regional detention.

Sub regional Priority 3 is the street and related utility improvements of Hooper Rd and several unnamed roads in the south east portion of the District.

Priority 4 consists of the remaining infrastructure.

Within each Priority, segments of the roadways have been set to determine costs associated with infrastructure to serve individual parcels as development opportunities present themselves.

Regional Priority 2 consists of segments A through I. (Map on Page 59)

- Segment A is the portion of Spectrum Rd. from Promenade Shops Dr. to State Highway 288.
- Segment B consists of the extension of Spectrum Drive from Promenade Shops Dr. to Pond 2.
- Segment C is the further extension of Spectrum Dr. from Pond 2 to Kirby Dr.
- Segment D are the electrical improvements within Kirby Drive.
- Segment E is the extension of Riley Rd. from Hooper to Almeda School Rd. The segment between Hooper and Kirby Dr. is included in the Merit Medical project
- Segment F is the extension of Riley Rd. between Kirby Dr. and Pond 2.
- Segment G is the extension of Riley Rd. between Pond 2 and Promenade Shops Dr.
- Segment H consists of the completion of the portion of Promenade Shops Drive between Beltway 8 and Riley Rd.
- Segment I includes the portion of Promenade Shops between Riley Rd. and Spectrum Dr.

Sub-Regional Priority 3 consists of segments J through P. (Map on Page 60)

- Segment J is the extension of Fruge Road between the extension of Promenade Shops Dr. and Spectrum Dr.

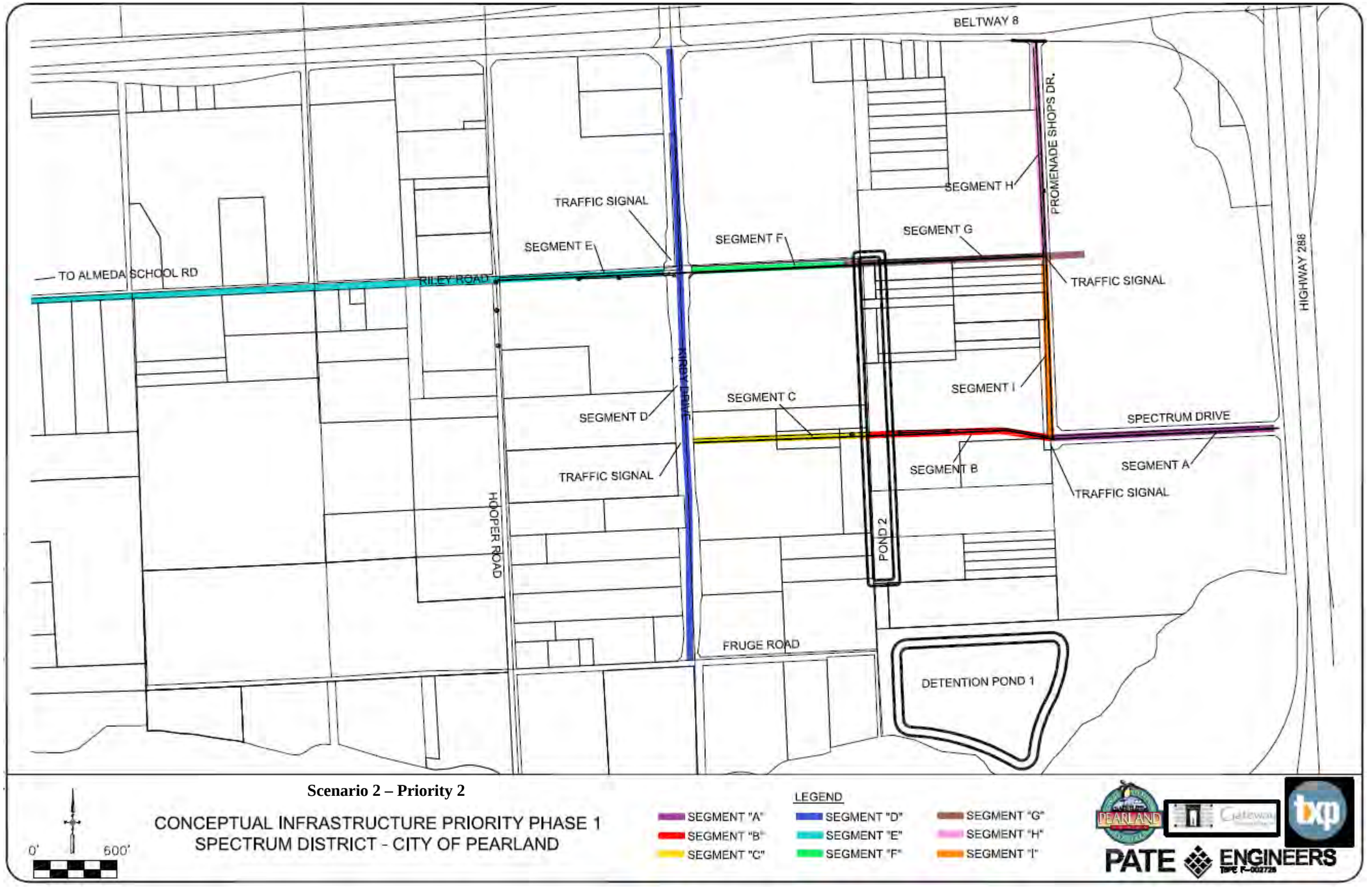
- Segment K is the extension of Promenade Shops Dr. from Spectrum Dr. to Fruge Rd.
- Segment L is the portion of Fruge Rd between Promenade Shops Dr. and Pond #2.
- Segment M is the further extension of Fruge Rd. from Pond 2 to Kirby Dr.
- Segment N will extend Fruge Rd. from Kirby Dr. to Hooper Rd.
- Segment O consists of Hooper Rd. from Clear Creek to Riley Rd.
- Segment P will include the completion of Hooper Rd. from Riley Rd. to Beltway 8.

Priority 4

All other minor roads and infrastructure were considered to be in Priority 4.

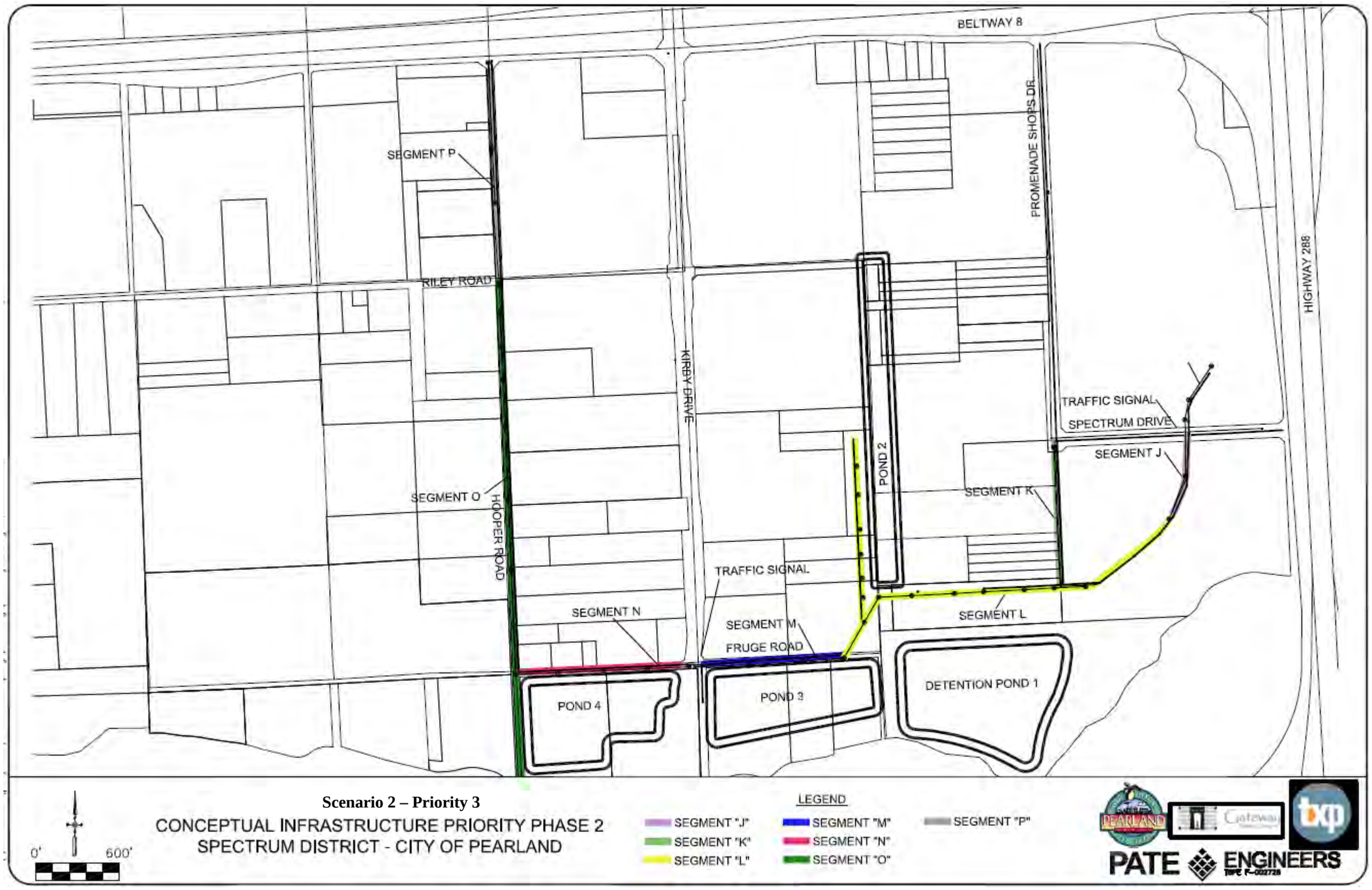
The following table shows the summary of infrastructure costs by Regional and Sub-Regional Priority in Scenario 2:

Priority	Infrastructure Included	Costs	Total Cost
1	Operation and Maintenance	Unknown	Unknown
2 (Regional)	Segments A through I	$19,155,000	$30,760,000
	Detention Ponds 1 and 2	$11,605,000	
3 (Sub-Regional)	Segments J through P	$12,451,000	$17,992,000
	Detention Ponds 3 and 4	$5,541,000	
4	Remainder of Infrastructure	TBD	TBD



Scenario 2 – Priority 2

CONCEPTUAL INFRASTRUCTURE PRIORITY PHASE 1
SPECTRUM DISTRICT - CITY OF PEARLAND



Scenario 2 – Priority 3

CONCEPTUAL INFRASTRUCTURE PRIORITY PHASE 2
SPECTRUM DISTRICT - CITY OF PEARLAND

c. Fiscal Analysis and Financing Strategy

As discussed in previous sections, Lower Kirby offers a unique opportunity to take advantage of a highly advantageous combination of location, transportation infrastructure, and land use planning and regulatory environment to develop an integrated project that includes a regional employment center (along Kirby), destination mixed use urban living (along Spectrum Boulevard between Kirby and SH 288), and concentrated retail/entertainment (anchored by the Bass Pro Shop site). This capacity informs the estimate of the "market share" the Lower Kirby can absorb, as the emphasis will tilt toward commercial, as opposed to residential and industrial. That having been said, all three broad categories are accommodated, especially when more detailed land use categories are applied. For example, there likely will be a mix of residential units, including both owner-occupied and rental patio homes, townhomes, live-work units, stacked flats, and more typical condo and apartment buildings. By the same token, the target industry analysis suggests that new industrial activity will be less about traditional production and more about the use of flex and/or warehouse space that could also be used for other commercial purposes. The "flexible" orientation also extends to the commercial side, as a given building or unit could easily transition from a storefront to a professional office to restaurant over time. With this in mind, distribution assumptions of specific land uses follow.

i. Refined Absorption Capacity

A refined estimate of the overall development of Lower Kirby was done in consultation with the planning and engineering members of the Gateway team, and reflects the phasing plan shown in the figure below. This analysis was undertaken to tie development phasing with infrastructure needs and the actual timing of development will be determined by the market over time. The proposed Lower Kirby District Master Plan and associated regulatory framework anticipates a potential for build-out that is at the upper end (especially on the commercial side) of what a traditional market study would anticipate. Under conventional zoning, excess entitlement relative to the market potential can actually stunt the realization of any significant quality development. However, the proposed regulatory approach that uses "character zones" with flexibility in uses and design continuity from property to property provides the capacity for a more efficient absorption regardless of the ultimate proportion of relative uses. In other words, the proportion and distribution of uses can change over time and at the same time maintain efficient absorption without compromising the overall integrity of the design and character of the development. Thus, a refined assessment of the build-out potential as established in the Lower Kirby Master Plan Framework balances predictability with flexibility. Specifically, the District can absorb a greater its implied share of development, if the market conditions are favorable.

New development projections over the expected thirty-year build out of the project are grouped into four phases. Phase 1 is from 2013 to 2017; Phase 2 goes from 2018 to 2022; Phase 3 extends from 2023 to 2032; and Phase 4 covers 2033

to 2042. The bulk of development occurs in the final two phases, reflecting both their longer duration and current market conditions. Over the next thirty years, a total of just over 5,000 housing units are projected to be developed on the eastern side of the Lower Kirby project, as outlined above. On the non-residential side, approximately 1.4 million square feet of office, 1.5 million square feet of retail, and 400,000 square feet of research/industrial will be added over the same period. The following tables provide more detail.

Phased Lower Kirby Residential Absorption (Units)

Phasing of Residential (units)	Phase I	Phase II	Phase III	Phase IV
Mixed Use Core	376	376	1,503	1,503
Urban Neighborhood	332	284	332	-
Commercial Transition	24	16	56	64
Highway Commercial	16	16	38	38
Research Tech Campus	20	41	51	102
Total	768	733	1,979	1,707
% of total	15%	14%	38%	33%
Cumulative Total	768	1,501	3,480	5,187
Cumulative % of Total	15%	29%	67%	100%

Phased Lower Kirby Office Absorption (Square Feet)

Phasing of Office Space (sq ft)	Phase I	Phase II	Phase III	Phase IV
Mixed Use Core	56,715	56,715	226,860	226,860
Urban Neighborhood	10,465	8,970	10,465	-
Commercial Transition	10,036	6,691	23,418	26,763
Highway Commercial	19,430	19,430	45,338	45,338
Research Tech Campus	56,982	113,964	142,455	284,910
Total	153,629	205,770	448,536	583,871
% of total	11%	15%	32%	42%
Cumulative Total	153,629	359,399	807,935	1,391,806
Cumulative % of Total	11%	26%	58%	100%

Sources: Gateway Planning, Pate Engineers, & TXP

Phased Lower Kirby Retail Absorption (Square Feet)

Phasing of Office Space (sq ft)	Phase I	Phase II	Phase III	Phase IV
Mixed Use Core	68,058	68,058	272,233	272,233
Urban Neighborhood	10,465	8,970	10,465	-
Commercial Transition	33,454	22,303	78,060	89,211
Highway Commercial	64,768	64,768	151,126	151,126
Research Tech Campus	11,396	22,793	28,491	56,982
Total	188,142	186,892	540,374	569,551
% of total	13%	13%	36%	38%
Cumulative Total	188,142	375,034	915,407	1,484,959
Cumulative % of Total	13%	25%	62%	100%

Sources: Gateway Planning, Pate Engineers, & TXP

Phased Lower Kirby Research/Industrial Absorption (Square Feet)

Phasing of Office Space (sq ft)	Phase I	Phase II	Phase III	Phase IV
Mixed Use Core	-	-	-	-
Urban Neighborhood	-	-	-	-
Commercial Transition	-	-	-	-
Highway Commercial	-	-	-	-
Research Tech Campus	37,445	74,891	93,613	187,226
Total	37,445	74,891	93,613	187,226
% of total	10%	19%	24%	48%
Cumulative Total	37,445	112,336	205,949	393,175
Cumulative % of Total	10%	29%	52%	100%

Sources: Gateway Planning, Pate Engineers, & TXP

ii. Analysis of Property Value

Taxable property values are being estimated using existing appraisal district data, with supplementation from RS Means cost of construction data for 2010 specific to both land use and the region. The range per square foot is from $95 (some multi-family residential) to $185 (medical office) per square foot, which is inclusive of real (land and improvements) and business personal property. All values are expressed in $2010.

While it is expected to take ten years for development to accelerate, the total build out value should reach $1.2 billion (absent inflation) at the end of 30 years.

Lower Kirby Taxable Property Value by Phase ($2010)

Phasing of Office Space (sq ft)	Phase I	Phase II	Phase III	Phase IV
Mixed Use Core	$73,545,33	$73,545,332	$294,181,3	$294,181,3
Urban Neighborhood	$47,634,54	$40,829,612	$47,634,54	$0
Commercial Transition	$8,946,876	$5,853,070	$20,485,74	$8,335,642
Highway Commercial	$12,888,88	$12,888,887	$30,074,06	$30,074,06
Research Tech Campus	$16,573,60	$33,147,200	$41,434,00	$82,868,00
Total	$159,589,2	$166,264,10	$433,809,6	$415,459,0

Sources: Gateway Planning, Pate Engineers, & TXP

Cumulative Lower Kirby Taxable Property Value ($2010)

Phasing of Office Space (sq ft)	Phase I	Phase II	Phase III	Phase IV
Mixed Use Core	$73,545,33	$147,090,66	$441,271,9	$735,453,31
Urban Neighborhood	$47,634,54	$88,464,159	$136,098,7	$136,098,70
Commercial Transition	$8,946,876	$14,799,946	$35,285,69	$43,621,332
Highway Commercial	$12,888,88	$25,777,773	$55,851,84	$85,925,912
Research Tech Campus	$16,573,60	$49,720,800	$91,154,79	$174,022,79
Total	$159,589,2	$325,853,34	$759,663,0	$1,175,122,0

Sources: Gateway Planning, Pate Engineers, & TXP

iii. Infrastructure Costs

Significant investment into infrastructure will be necessary to development the Lower Kirby Urban Center. An interconnected street network with associated utilities and streetscape will create the framework of the development. A regional detention network will be needed to reclaim a large portion of the District from the existing 100-year floodplain and to compensate for the increase of impervious

cover. The table on page 52 shows the summary of infrastructure costs by development phase per Scenario 1.

iv. Financing Strategy

While located in the City of Pearland, two separate municipal management districts are encompassed within the Lower Kirby project area. The following reviews the history and current status of each, and is drawn from the most recent audited financial statements that are available.

Spectrum Management District

Spectrum Management District (Spectrum) was created effective June 15, 2007 by the Texas Legislature under provisions of Senate Bill No. 1984, later codified as Chapter 3840, Special Districts Local Laws Code. Pursuant to the provisions of Chapter 3840, the Spectrum is empowered to promote, develop, encourage, and maintain employment, commerce, transportation, housing, tourism, recreation, arts, entertainment, economic development, safety, and the public welfare.

Property & Sales Taxes

In 2008, the voters of the Spectrum approved the levy and collection of an ad valorem tax not to exceed $0.10 per $100 of assessed valuation of taxable property within the District. The ad valorem tax is to be used for administration, operation, and maintenance purposes and for programs to promote District purposes. Funds are placed in the General Fund. During the year ended March 31, 2011, the Spectrum levied an ad valorem tax of $0.10 per $100 of assessed valuation, resulting in a tax levy of $53,179 on the adjusted taxable valuation of $53,149,847 for the 2010 tax year. Also in 2008, the voters of the District authorized the Spectrum's Board of Directors to levy and collect sales and use tax not to exceed 0.5 percent within the District. The Spectrum may use this tax for the funding of all of its programs, functions and services. The Spectrum collected $47,561 from the levy of the sales and use tax for the fiscal year ended March 31, 2011.

Reimbursement & Debt

The Spectrum has executed development financing agreements with Developers within the District. The agreements call for the Developers to fund costs associated with water, sewer, drainage, road and park facilities until such time as the District can sell bonds. As of March 31, 2011, the Developers have indicated that approximately $1,605,000 has been paid on behalf of the Spectrum for projects that are not complete. Reimbursement to the Developers is contingent upon approval from the District and the future sale of bonds for the water, sewer and drainage facilities and by the Attorney General of Texas for all purposes. In 2008, voters in the Spectrum authorized the issuance of street and road bonds up to $39,500,000; economic development bonds up to $26,395,000; water, sewer and drainage bonds up to $48,735,000; and recreational facilities bonds up to $29,120,000.

Pearland Municipal Management District Number 1

Pearland Municipal Management District Number 1 (District Number 1) was organized, created and established effective June 17, 2005. District Number 1's primary activities will include construction, maintenance and operation of (1) water, sewer and drainage facilities, (2) parking facilities, (3) public transportation, (4) economic development, (5) recreational facilities, and (6) roads. District Number 1 has contracted with various consultants to provide services to operate and administer the affairs of the District. District Number 1 has no employees, related payroll or pension costs.

Property & Sales Taxes

On November 6, 2007, the voters of the District authorized District Number 1's Board of Directors to levy taxes annually for use in financing general operations limited to $1.50 per $100 of assessed value. All property values and exempt status, if any, are determined by the Harris County Appraisal District. District Number 1 did not levy property taxes for the year ended December 31, 2010. On November 8, 2005, the voters of District Number 1 authorized the District to levy, assess and collect local sales and use taxes in the District at the rate of one half of one percent (0.5%) in accordance with applicable provisions of Chapter 3838, Texas Special Districts Local Laws Code. During the year ended December 31, 2010, District Number 1 recorded $138,640 in sales and use tax revenues, of which $11,622 is receivable on December 31, 2010.

Reimbursement & Debt

As of December 31, 2010, District Number 1 had $80,500,000 unlimited tax bonds authorized, but unissued for the purposes of promoting economic development; acquiring, constructing and improving the water system, sanitary sewer system, drainage system, public transportation services and parking facilities within the District; and accomplishing the purposes for which District Number 1 was created. District Number 1 also has $48,300,000 authorized, but unissued, for refunding purposes.

v. Infrastructure Finance Recommendations

In outlining an infrastructure financing strategy for Lower Kirby, a number of key assumptions are made. First, no incremental City revenue is allocated to the project since the City has no further capacity at this point to impose a tax-increment financing district or otherwise dedicate tax revenue sources from the project. However, the City may at some point choose to implement impact fees as an element of infrastructure finance.

Under Texas Local Government Code Chapter 395, the City can impose impact fees to cover capital improvement projects related to water, sanitary sewer, drainage, and roadways. The City is already complying with Chapter 395 and imposing impact fees on new developments. An update to the City's Capital

Improvement Plan is necessary for any Lower Kirby projects to be eligible to be paid for through impact fees.

Given the above, the management districts will form the financial basis of infrastructure finance going forward. For purposes of this analysis, the two management districts are treated as one, since it is impossible to determine definitively where and when within the overall Lower Kirby project new development will occur. This likely could be accomplished via contract between the two entities. An effective tax rate of $0.35/$100 assessed valuation is used as the baseline, with a range of rates from $0.10/$100 to $1.00/$100 are also included for comparison. Historical collection rates have average 95 percent, which is used for these projections. Annual sales tax during 2010 totaled $186,201 between the two districts; this level is held constant going forward for existing activity, while taxable retail sales from new development are projected at $145/square foot.

Regional stormwater is the next key piece of infrastructure, and should be implemented in a manner that is phased and responsive to development patterns. Current City commitments should be able to address the first phase; market timing likely will determine what combination of developer reimbursement and/or debt service (which would be issued by the management district(s)) will make the most financial sense. If debt issuance is contemplated, the level of debt service capacity is likely to be equal to the level of unencumbered revenue available in the year of issuance. In the meantime, developers will be expected to provide required roadways/streets, utilities, etc. on reimbursement basis.

Annual Tax Revenue at Lower Kirby (in millions of $2010)

Year	Property Value (millions of $)	$0.10	$0.20	$0.50	$0.60	$0.70	$0.80	$0.90	$1.00
2013	$109.22	$0.10	$0.21	$0.52	$0.62	$0.73	$0.83	$0.93	$1.04
2014	$141.14	$0.13	$0.27	$0.67	$0.80	$0.94	$1.07	$1.21	$1.34
2015	$173.06	$0.16	$0.33	$0.82	$0.99	$1.15	$1.32	$1.48	$1.64
2016	$204.97	$0.19	$0.39	$0.97	$1.17	$1.36	$1.56	$1.75	$1.95
2017	$236.89	$0.23	$0.45	$1.13	$1.35	$1.58	$1.80	$2.03	$2.25
2018	$270.14	$0.26	$0.51	$1.28	$1.54	$1.80	$2.05	$2.31	$2.57
2019	$303.39	$0.29	$0.58	$1.44	$1.73	$2.02	$2.31	$2.59	$2.88
2020	$336.65	$0.32	$0.64	$1.60	$1.92	$2.24	$2.56	$2.88	$3.20
2021	$369.90	$0.35	$0.70	$1.76	$2.11	$2.46	$2.81	$3.16	$3.51
2022	$403.16	$0.38	$0.77	$1.91	$2.30	$2.68	$3.06	$3.45	$3.83
2023	$446.54	$0.42	$0.85	$2.12	$2.55	$2.97	$3.39	$3.82	$4.24
2024	$489.92	$0.47	$0.93	$2.33	$2.79	$3.26	$3.72	$4.19	$4.65
2025	$533.30	$0.51	$1.01	$2.53	$3.04	$3.55	$4.05	$4.56	$5.07
2026	$576.68	$0.55	$1.10	$2.74	$3.29	$3.83	$4.38	$4.93	$5.48
2027	$620.06	$0.59	$1.18	$2.95	$3.53	$4.12	$4.71	$5.30	$5.89
2028	$663.44	$0.63	$1.26	$3.15	$3.78	$4.41	$5.04	$5.67	$6.30
2029	$706.82	$0.67	$1.34	$3.36	$4.03	$4.70	$5.37	$6.04	$6.71
2030	$750.20	$0.71	$1.43	$3.56	$4.28	$4.99	$5.70	$6.41	$7.13
2031	$793.58	$0.75	$1.51	$3.77	$4.52	$5.28	$6.03	$6.79	$7.54

Year	Property Value (millions of $)	$0.10	$0.20	$0.50	$0.60	$0.70	$0.80	$0.90	$1.00
2032	$836.97	$0.80	$1.59	$3.98	$4.77	$5.57	$6.36	$7.16	$7.95
2033	$878.51	$0.83	$1.67	$4.17	$5.01	$5.84	$6.68	$7.51	$8.35
2034	$920.06	$0.87	$1.75	$4.37	$5.24	$6.12	$6.99	$7.87	$8.74
2035	$961.60	$0.91	$1.83	$4.57	$5.48	$6.39	$7.31	$8.22	$9.14
2036	$1,003.15	$0.95	$1.91	$4.76	$5.72	$6.67	$7.62	$8.58	$9.53
2037	$1,044.70	$0.99	$1.98	$4.96	$5.95	$6.95	$7.94	$8.93	$9.92
2038	$1,086.24	$1.03	$2.06	$5.16	$6.19	$7.22	$8.26	$9.29	$10.32
2039	$1,127.79	$1.07	$2.14	$5.36	$6.43	$7.50	$8.57	$9.64	$10.71
2040	$1,169.33	$1.11	$2.22	$5.55	$6.67	$7.78	$8.89	$10.00	$11.11
2041	$1,210.88	$1.15	$2.30	$5.75	$6.90	$8.05	$9.20	$10.35	$11.50
2042	$1,252.42	$1.19	$2.38	$5.95	$7.14	$8.33	$9.52	$10.71	$11.90
TOTALS		$18.64	$37.28	$93.20	$111.84	$130.48	$149.12	$167.76	$186.40

d. Conclusion

The potential development of the Lower Kirby promises to capture a significant share of region's future growth. Build-out calculations of the site's capacity indicate it could accommodate, as planned, between 5,000 and 7,000 housing units and somewhere between 3 and 5 million sq. ft. of total commercial (i.e., non-residential) space. These projections, while aggressive, are within the range of reasonable expectation as a share of demand over the next thirty years.

The timing and intensity of actual development is dependent on multiple factors, including:

- the type of commercial and residential development that occurs initially, and the proportion of urban residential versus lower density residential over time;
- development phasing in response to market demand; and
- the level of public participation in infrastructure necessary to achieve higher intensity development.

This last point is especially crucial, as the ability to prioritize and implement catalytic infrastructure is likely to be a key element in the Lower Kirby's ability to leverage its assets and realize its development potential. As a result, it is crucial that the various taxing authorities and the private sector work cooperatively to implement a financing approach that is both viable and provides shared benefit, as per the approach outlined here. Failure to implement policies, procedures, and investment decisions related to infrastructure along these lines puts the community in danger of missing this opportunity, and could heighten the risk of losing its "fair-share" to adjacent areas.

8. Next Steps

In order to implement the vibrant vision for the Lower Kirby Urban Center, the EDC, City, and the two Municipal Management District (MMD) Boards need to create a coordinated action plan that identifies the responsibilities and roles for each of the entities in implementation.

a. Infrastructure

This plan identifies and prioritizes key infrastructure that need to be evaluated periodically based on proposed development projects and the market. The infrastructure priorities are the team's best guess of needs based on our understanding of the local market and needs of projects currently underway and the city's need to leverage the investment already made on Kirby Drive.

The City and the two MMDs need to be committed to the regional drainage and phasing plan outlined in this report. Regional drainage infrastructure is the most critical investment needed to attract the quality and scale of development envisioned in the master plan. To this end, the City and the MMD need to coordinate their efforts to identify a significant portion of the infrastructure funding dedicated to regional drainage and detention. This is an element that needs the city's coordinated guidance since no one property owner or development has the capacity to address the regional detention needs. The City needs to proceed with coordinating with TxDOT on utilizing the two TxDOT drainage ditches as part of this regional drainage and detention strategy.

b. Regulatory Changes

The City needs to continue with the implementation of the proposed form-based code including the rezoning of Lower Kirby under the proposed regulating plan. This piece is critical to establish adjacency predictability. The proposed form-based code and regulating plan establish a "master developer environment" providing the city and the property owners the benefit of a master planned community without the need of any one property owner controlling the entire plan area. Although the proposed form-based code provides the overarching framework for a market-based master plan to be implemented, it will need to be evaluated periodically to ensure that it provides enough flexibility to allow for projects that may not have been specifically identified during this process, but may be viable in the future due to changing market conditions.

c. Municipal Management District (MMD) Coordination

In the interest of efficiency and effectiveness, the EDC should facilitate the coordination of the MMDs so that they de facto operate as a single entity and joint benefits may be achieved versus a competitive impasse for new development.

d. MMD Funding and Reimbursement Policies

The EDC should work with the MMD Boards to accomplish the phasing plan for infrastructure proposed in this document by amending their funding and reimbursement policies. One path to this goal would be to establish different "buckets" of funding to support different elements of the MMDs overall program of work. For example, one such "bucket" could dedicate funds to address the maintenance and operations of the MMDs. Other buckets could dedicate funds to implement the priority infrastructure segments identified in this plan, either on a reimbursement basis or to provide debt service. Such "buckets" could include: 1) funds for the Regional Priority segments; 2) funds for Sub-Regional Priority segments; and 3) funds for economic incentives and reimbursements for specific development related infrastructure not in the priority infrastructure plan (on a case-by-case basis). In addition, the actual assessment for the MMDs needs to be evaluated and potentially revised so that a financially feasible plan is implemented for the needed infrastructure.

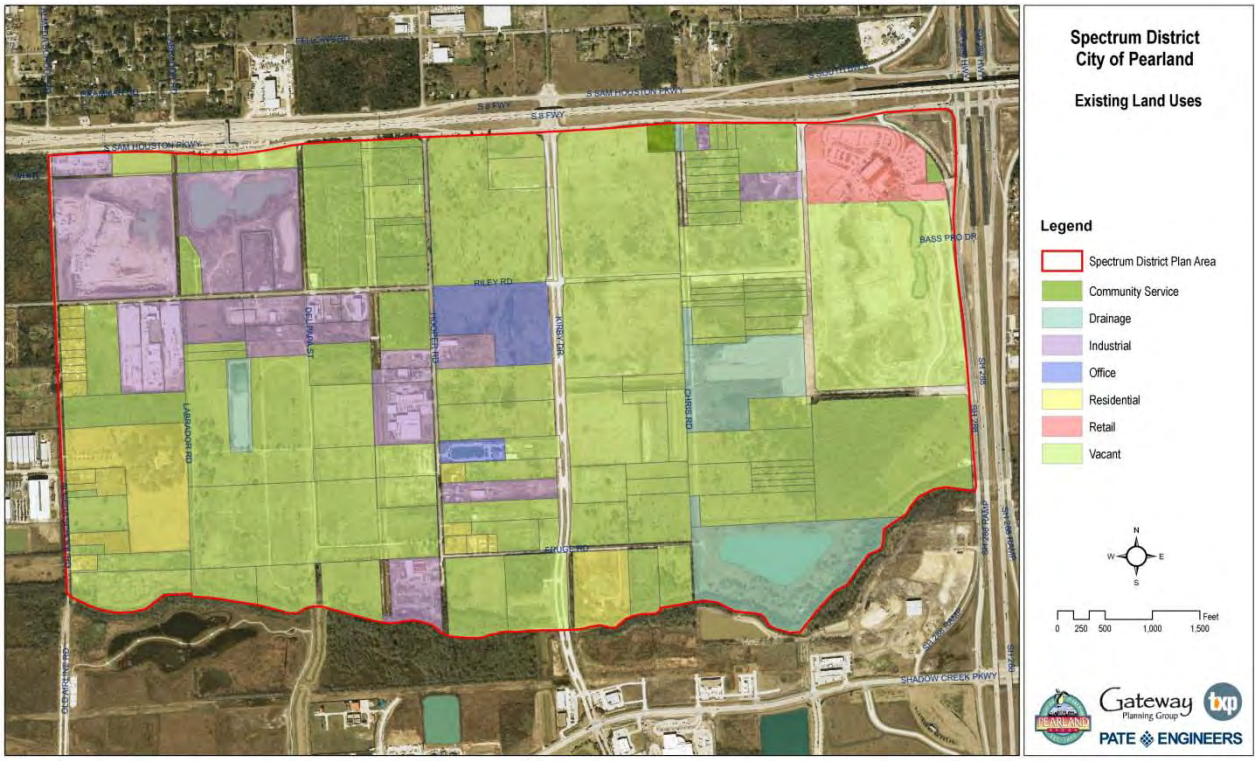
If adequate resources are put in place, the Lower Kirby Urban Center will be best positioned to leverage and attract high-quality development in the long-run. To accomplish this, all the recommended next steps should be undertaken in a coordinated manner.

APPENDICES

APPENDIX A – PRELIMINARY ASSESSMENT

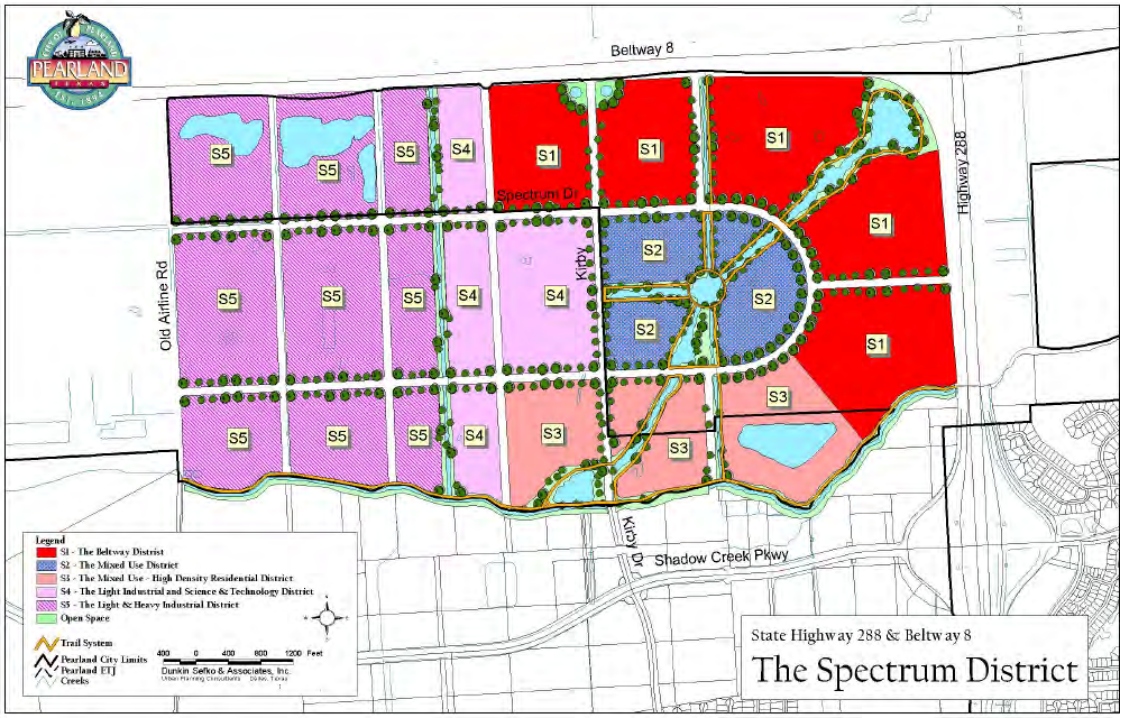
Existing Land Uses and Zoning

a. Land uses in the Lower Kirby Urban Center are generally vacant. Several light and heavy industrial uses are located west of Kirby Drive. The only major retail, Bass Pro Shops, is located at the intersection of Beltway 8 and Hwy 288. Several sites are also dedicated to storm water retention and detention uses due to the proximity to Clear Creek to the south. Figure below shows the existing land uses in the Lower Kirby Urban Center.



Map showing existing land uses in the Lower Kirby Urban Center (source: Pearland Planning Department)

The 1999 Comprehensive Plan envisioned the creation of "an attractive business park environment along S.H. 288". The goal was to attract corporate headquarters to locate in a campus-like setting with a mix of commercial uses including light manufacturing, retail, restaurants, regional shopping centers, hotels, motels, and limited multifamily development. Pearland's 2004 update of the Comprehensive Plan further clarified this vision and recommended the creation of a specific land use and subsequent zoning category to implement the vision for Lower Kirby as a mixed use regional employment center. In addition, the 2004 Comprehensive Plan identified the Spectrum (Lower Kirby) area as appropriate for traditional neighborhood development. The resulting Spectrum District (see figure below) was an attempt to distinguish the development on this site from a generic business park. Rather, the goal was to create a destination that took advantage of the site's regional location, access, and market demand.



2004 Land Use Plan recommendations for the Spectrum District (Lower Kirby Urban Center)

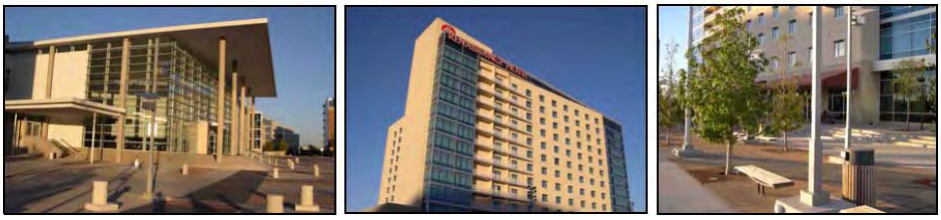
Specifically, the Spectrum District land use category was to implement an overarching plan that:

- integrated a mix of land uses including multiple-family, retail, office, public/semi-public, and light manufacturing,
- created a distinct gateway announcing the City of Pearland in a location visible from both State Highway 288 and Beltway 8, and
- connected the different properties in the district with a comprehensive streetscape program, with medians, street trees, cohesive lighting, pedestrian walkways, etc.

Within the Spectrum District land use category, 5 distinct sub-districts were envisioned, each with specific development goals and design recommendations (see figure above). The S1 Beltway District is intended for nonresidential uses that require high visibility from regional highways such as retail, restaurants, and regional shopping centers.

Images showing the desired character of development in the S1 Beltway District (source: 2004 Comprehensive Plan Update, City of Pearland)

The S2 Mixed Use District is intended to accommodate a range of commercial uses such as hotels, conference centers, tourism oriented uses, light industrial and technology uses.



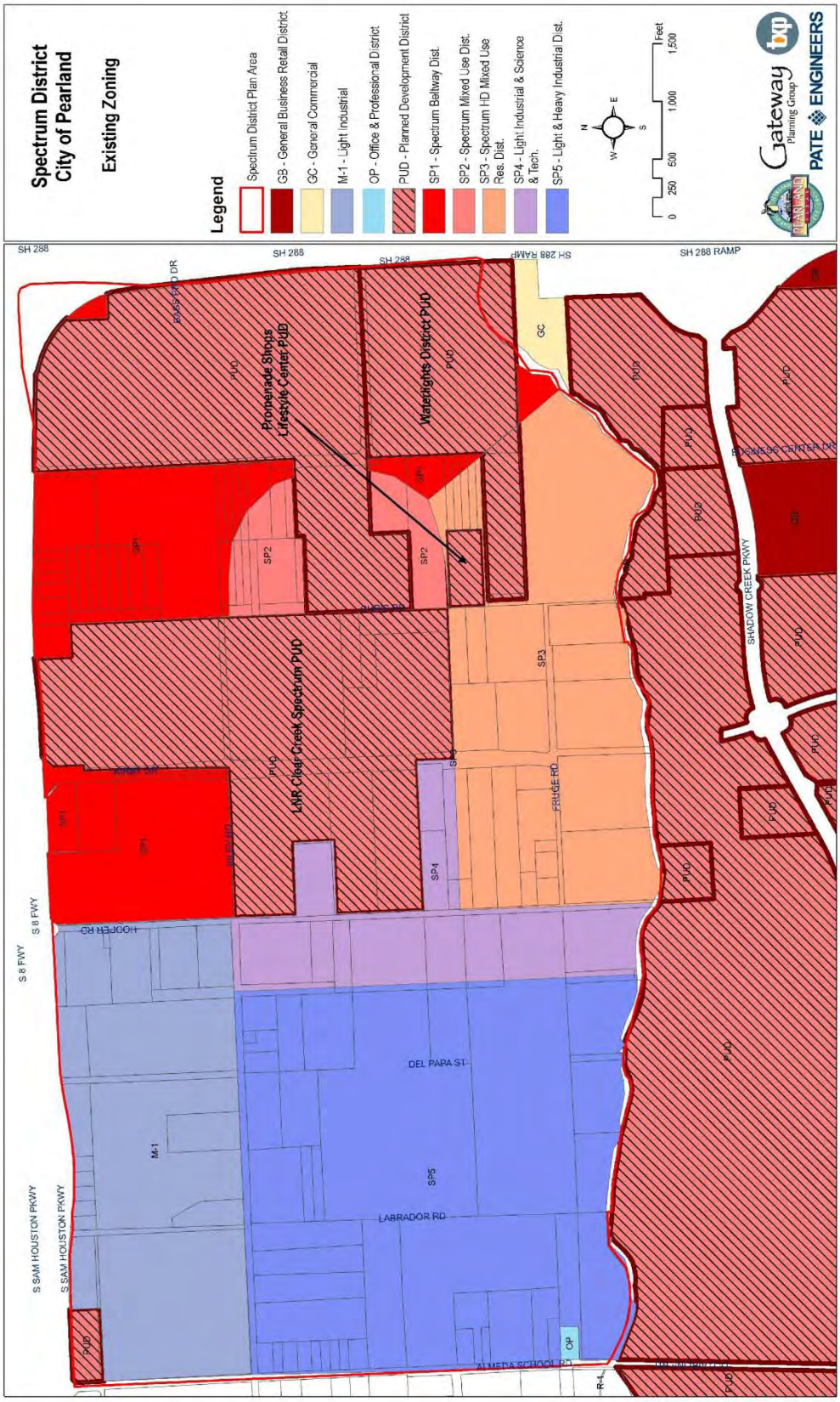
Images showing the desired character of development in the S2 Mixed Use District (source: 2004 Comprehensive Plan Update, City of Pearland)

The S3 Mixed Use High Density Residential District is intended for Traditional Neighborhood Development. A vertical mix of nonresidential and residential uses is envisioned, with retail and/or office uses on the ground floor and residential uses above. This district is not intended for conventional multi-family residential projects.

Images showing the desired character of development in the S3 Mixed Use High Density Residential District (source: 2004 Comprehensive Plan Update, City of Pearland)

The S4 Light Industrial and Science & Technology District is intended for light industrial uses similar to those that are envisioned for location within District S2. The S4 District allows uses that may have some business activity that takes place outside and/or some outside storage of materials. Such outside activity and/or storage has guidelines for screening.

Images showing the desired character of development in the S4 Light Industrial and Science & Technology District (source: 2004 Comprehensive Plan Update, City of Pearland)



Lower Kirby Urban Center – Existing Zoning

The S5 Light and Heavy Industrial District is intended for a variety of industrial uses west of Kirby Drive. It is intended to retain the existing mix of industrial uses within the Spectrum District while establishing some design guidelines to improve aesthetics from area roadways.


Images showing the desired character of development in the S5 Light and Heavy Industrial District (source: 2004 Comprehensive Plan Update, City of Pearland)

b. Approved development projects and current entitlement (Planned Unit Developments- PUD's)

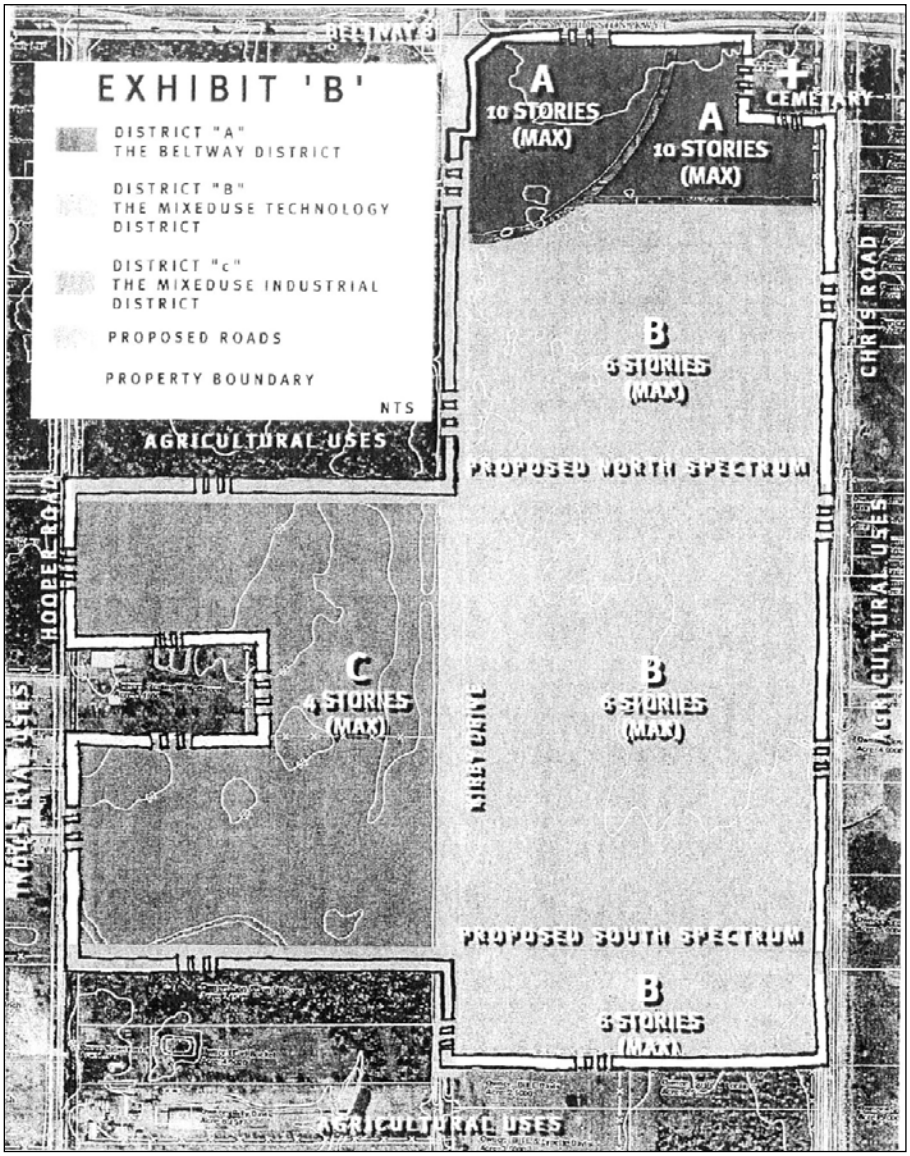
The Lower Kirby Urban Center area has three major Planned Unit Development Districts for the three major development projects and the rest of the area is zoned as Spectrum District (see existing zoning map for details). The frontage along Beltway 8 west of Kirby Drive is zoned as Light Industrial.

The three major PUD's are: (i) LNR Clear Creek Spectrum District, (ii) Promenade Shops Lifestyle Center, and (iii) Waterlights District.

i. LNR Clear Creek Spectrum District PUD – The LNR Clear Creek Spectrum District PUD is approximately 146 acres and was approved in 2004 in conjunction with the rezoning of the LNR Clear Creek property from Suburban Development District to a PUD. The PUD includes property along the east side of Kirby from Beltway 8 to the future South Spectrum Drive. It also includes three properties located at the southwest corner of Riley Road and Kirby Drive. The PUD standards approved with the rezoning include detailed specifications for:
   - Development guidelines and standards including guidelines and standards for building materials (including color palette), paving, roofing materials, fencing, and building design;
   - Site design guidelines for building orientation, parking, building height, and landscaping;
   - Public right-of-way design guidelines (including cross sections) for Kirby Drive, Spectrum Drive, Beltway 8 streetscape, collector roadways, and local streets within the district;
   - Building signage standards; and
   - Permitted land use table and definitions.

   A land use plan that shows the conceptual layout of the different Lower Kirby sub-districts was approved as part of the PUD. The S1 Beltway district is permitted a

maximum of 10 stories, the S2 Mixed Use district is permitted a maximum of 6 stories, the S4 Mixed Use Industrial district is permitted a maximum of 4 stories.

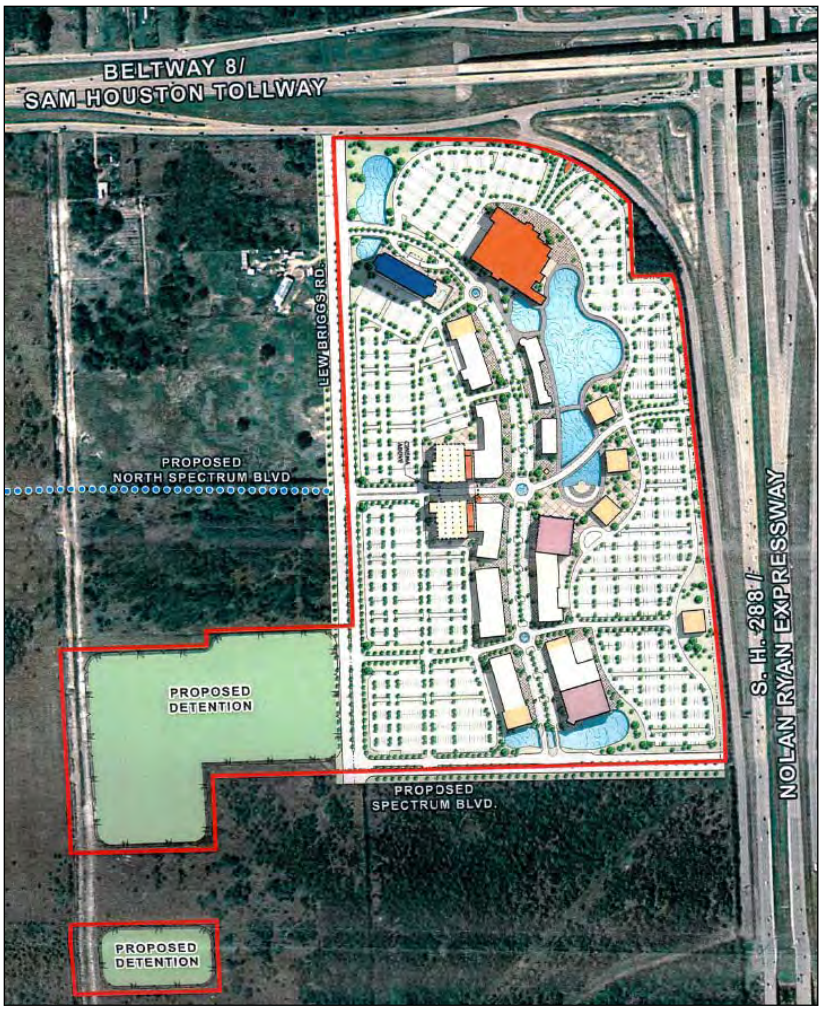


Land use conceptual plan for LNR Clear Creek as approved with the PUD Ordinance

ii. Promenade Shops Lifestyle Center – The PUD for the Promenade Shops Lifestyle Center is approximately 116 acres and was originally approved in 2005 and amended in 2006. This PUD is located at the southwest corner of Beltway 8 and Hwy 288. The original plan was to construct a maximum of 700,000 sq.ft. lifestyle retail center with no residential uses. Subsequently, this plan was amended to include 614,000 sq.ft. of retail, 100,000 sq.ft. of hotel uses, and no more than 350 multi-family residential units.

The PUD standards include requirements for site access along proposed Promenade Shops Drive (Lew Briggs Road) and South Spectrum Drive. In addition to listing

permitted uses, yard/setback standards, parking, loading, and lighting standards, the PUD ordinance also specifies requirements for open space/amenities and architectural design of buildings. No specific architectural standards were included in the PUD reviewed by the design team.



Original concept plan for Promenade Shops Lifestyle Center

iii. Waterlights District – The PUD for the Waterlights District was approved in 2008. The Waterlights District is approximately 60 acres located immediately north of Clear Creek along Highway 288. The approved PUD standards include some concept statements for the overall development. The Waterlights District was intended to be a mixed use development with retail, entertainment, and residential uses that are oriented along a network of canals. Also envisioned were some major technology employment centers. A major destination park was also planned along Clear Creek.

Approved Concept Plan for Waterlights District

c. Issues and opportunities as it relates to current entitlement and zoning:

- Although the land use plan envisioned an overall master planned concept that included 5 separate subdistricts within the Spectrum District, the PUDs for the 288 frontage have not incorporated the specific subdistrict designations.
- The main differences between the 5 different subdistricts are the list of permitted uses and maximum building heights. Development standards are uniform across all subdistricts. This can be problematic if portions of the site are intended for mixed use, pedestrian-oriented development.
- Standards for current PUDs and zoning districts are all in separate documents and there is no one resource for development related to the Spectrum District.
- Any changes to the PUD standards require a legislative action by City Council.
- Most standards for development are suburban in nature and will need to be revised to facilitate pedestrian-oriented development.
- Architectural standards and guidelines are uniform across all Spectrum Districts (from Industrial to Mixed Use) and this will need to be revised to implement specific public realm conditions.
- The PUD standards do not include urban lot and block standards and ensuring a consistent pattern of development across multiple properties will be difficult.
- As it exists, current entitlement does not implement a walkable mixed-use environment or maximize development opportunities and provide the framework for regional infrastructure.

Drainage

LJA prepared a drainage study titled "Mitigation Plan and Impact Analysis for the Promenade Regional Development" dated 2005. The study included the drainage impact analysis of the 233 acre proposed development. The 233 acres is located on the south west corner of the intersection of SH 288 and Beltway 8. The study included a recommendation for three ponds to mitigate for both the increase in storm water runoff due to development and compensate storage for fill placed in the floodplain. Two of the three ponds have been constructed. One is located on the Waterlights property and the other is on the Promenade property. A LOMR is believed to exist but has not been obtained at the time of this report.

An additional drainage study was prepared by Occam Consulting Engineers for the Waterlights development (~85 acres) which is located to the south of the Promenade Regional development. The study included a Conditional Letter of Map Revision (CLOMR) which proposes to adjust the Clear Creek floodway by providing additional volume for floodplain mitigation. The proposed improvements for the development consist of a total of 44 acres. The 44 acres of improvements included 27 acres of land already accounted for in the Promenade Regional study. The remainder of approximately 17 acres would require mitigation for the loss of conveyance to the floodway and increase in impervious cover due to development. The required storage would be provided by adding volume to the regional detention pond and the construction of a canal parallel to Clear Creek.

A Letter of Map Revision based on fill by Carter and Burgess Engineers has been completed for six tracts of land located along Kirby Drive. These tracts of land, labeled as the Goldknight tracts, had portions of the property located within the 100 year floodplain removed by placing fill in those areas.

There are still approximately 300 acres of floodplain and floodway within the boundaries of the Lower Kirby. This is predominately located immediately along Clear Creek and also to the north of Waterlights and west of the Promenade.

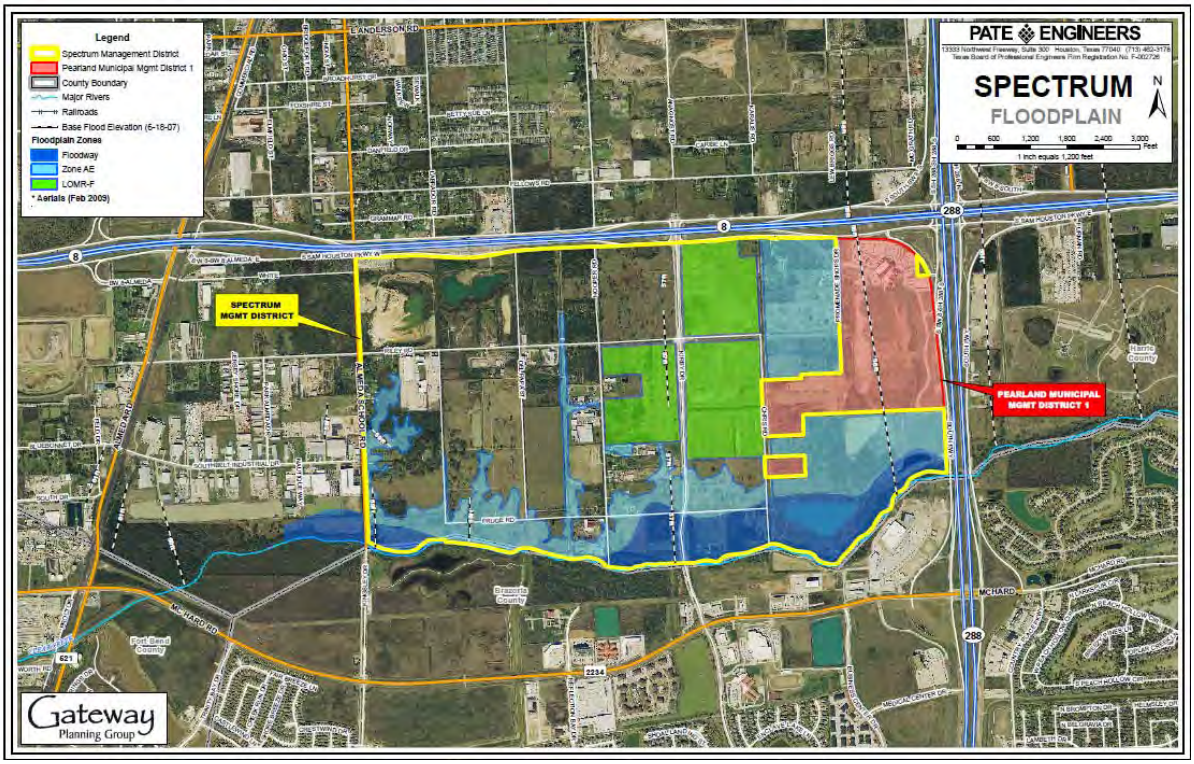
There are also two channels conveying storm water runoff from Beltway 8 to Clear Creek. One is adjacent to Chris Road and the other is between Del Papa Street and Hooper Road. Those channels were constructed and maintained by TxDOT and are typically only sized to accommodate existing condition 25-year frequency storms.

Kirby Drive also has a storm sewer system that runs along its entire alignment from Beltway 8 to Clear Creek. The northern half of the roadway has a storm sewer that gradually increases in diameter from 36" to 60" as it discharges towards the east into a channel that connects to one of the existing TxDOT channels. The southern half of roadway has a storm sewer system that increases in diameter from 48" to 60" before it discharges in a detention pond located at the northwest corner of Kirby Drive and Clear Creek.

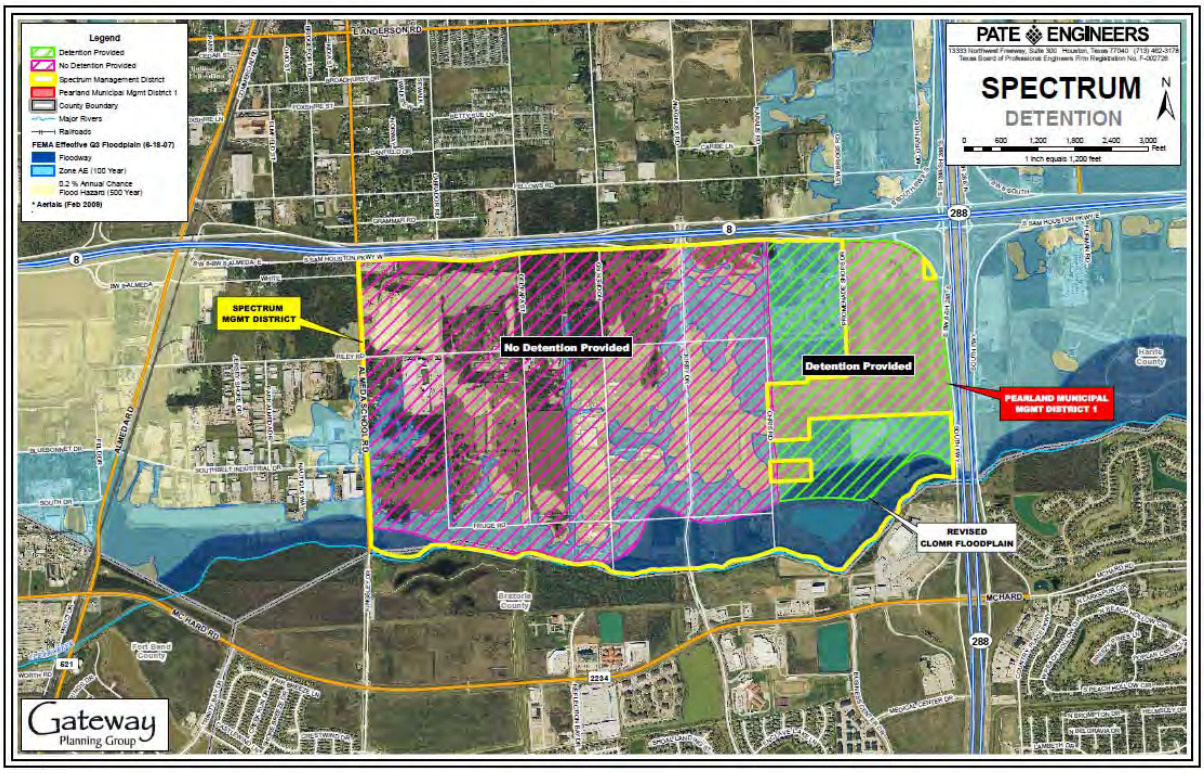
Constraints and Assessment

From a storm water management perspective, a regional approach to providing detention is preferable to requiring individual detention ponds per tract. Regional ponds can require less volume when compared to the cumulative volume of individual ponds, are easier and more cost effective to maintain, and can accommodate a multi-use facility (i.e. amenities, park, athletic fields). In addition, a regional storm water management approach will provide better integration of adjoining development that can create a distinct district identity. Individual retention/detention facilities could result in piece-meal development that is disconnected from a larger master plan.

If regional detention is to be utilized in the Lower Kirby, the most efficient locations would be along and within the floodway of Clear Creek. A requirement to the regional approach is that conveyance systems routing the storm water to the pond have to be sized to accommodate the post-development runoff. There are three existing, major conveyance systems within the Lower Kirby. There are the two TxDOT channels as well as the storm sewer in Kirby Drive. All three conveyance systems are sized for pre-development conditions. Therefore detention must occur before runoff reaches these conveyance systems or they need to be modified to accept an increase in runoff. The storm sewer in Kirby Drive will be less cost effective to oversize and should be left in its current configuration. The TxDOT channels could be modified, but TxDOT has previously been non-receptive to the concept.



Lower Kirby Urban Center - Existing Floodplain



Lower Kirby Urban Center – Drainage Issues

Utilities (Water and Sanitary Sewer)

The portion of the Lower Kirby west of Kirby Drive receives water service through the use of individual water wells. The closest water mains to that area are located within Kirby Drive. The water mains consist of a 12-inch and 20-inch main located along the west right of way of Kirby Drive. The 20-inch eventually ties into a 16-inch water line located just south of Clear Creek. An additional 16-inch water line has been added to the system at the intersection of the proposed North Lower Kirby Boulevard and Kirby Drive. This 16-inch water line runs east towards Promenade Shops Drive.

The western portion of the Lower Kirby primarily uses septic systems. The only sanitary sewer collection mains located within the project limits are along Kirby Drive. The existing sanitary sewer main is located along the east right of way of Kirby Drive begins with a 12-inch line near Beltway 8 and is increased to a 36-inch line as it continues south towards Clear Creek. The 36-inch line then feeds into a lift station located at Fruge Road and Kirby Drive. The lift station pumps into a 6" force main that discharges into a 42-inch diameter gravity trunk line on the south side of Clear Creek where it is conveyed to the Far North West Wastewater Treatment Plant. An additional 18-inch gravity sewer line has been added to the system at the intersection of the proposed North Lower Kirby Boulevard and Kirby Drive. The 18-inch sewer line runs east toward Promenade Shops Drive.

The water and wastewater study prepared for the City of Pearland West Lower Kirby Area by Goldston Engineering analyzed the infrastructure required to accommodate future development. The limits of the study included the area of land bordered by Beltway 8, Almeda Road, FM 2334, and Kirby Drive. The study includes both existing and proposed conditions for the area. The Far North West Water and Wastewater Treatment plants were included in the study as the main providers for the service area. A proposed build out of three phases was modeled for the water and sanitary sewer. The first phase was the most western portion of the study area and progressed to the east for later phases. A cost estimate of $16 million was reported. The estimates on the future demand used in the Goldston report will need to relate to the demands projected in the new planning process to determine if any modifications to the proposed infrastructure need to be made.

Transportation/Traffic and Circulation

The City of Pearland Engineering Design Criteria Manual, June 2007 identifies 5 roadway types. Below is the classification along with their requirements:

	Major Thoroughfare	Secondary Thoroughfare	Major Collector	Minor Collector	Local Street
Right-of-Way Width	120 feet	100 feet	80 feet	60 feet	50 feet
Curb Face to Curb Face Distance (1)	N/A	N/A	44 feet	36 feet	28 feet
Total Paved width of Travel Lanes- One Direction	33 feet	25 feet	24 feet	20 feet	14 feet
Median Width (2)	14 feet	30 feet	N/A	N/A	N/A
Distance from Curb Face to ROW line (3)	10 feet	11 feet	12 feet	20 feet	11 feet
Distance from ROW Line to Sidewalk	Varies	Varies	Varies	Varies	3 feet
Max. Number of Lanes (one direction)	3	2	2	1	1
(1) With on -street parallel parking.					
(2) Median turning lanes are included in median widths					
(3) On non-curb and gutter streets substitute 'edge of pavement' for' curb face.'					

The Major Thoroughfare Plan for Pearland established Almeda Road (FM 521), Shadow Creek Parkway (FM 2234), and Kirby Drive as Major Thoroughfares with sufficient ROW width. Almeda School Road, Riley Road, and Southbelt Industrial Drive are Secondary Thoroughfares that will require ROW widening. Business Center Drive, Hooper Road and portions of Fruge Road are classified as Major Collectors with future ROW widening required. Del Papa and Labrador Road are classified as Minor Collectors that require ROW widening. There are several other unnamed and unconstructed roadways identified in the Major Thoroughfare Plan. Those roadways are classified as Secondary Thoroughfares, Major Collectors, or Minor Collectors.

Additionally, a 2008 amendment to the Major Thoroughfare Plan included changes to State Highway 288, Business Center Drive, Spectrum Boulevard, South Spectrum Boulevard and North Spectrum Boulevard.

Changes in this 2008 amendment include:

1. New grade separation at SH 288 and Spectrum Boulevard with a “jug-handle”.
2. Realignment of South Spectrum Boulevard to intersect with Business Center Drive.
3. Realignment of North Spectrum Boulevard to intersect with Business Center Drive.
4. Extension and realignment of Business Center Drive between South Spectrum Boulevard and North Spectrum Boulevard.

5. Extension of Spectrum Boulevard as a Major Thoroughfare from west of Business Center Drive to Kirby Drive.

The City of Pearland regulates commercial development along all of its public road facilities and how each development accesses those facilities. Spacing for these driveways is as follows:

Roadway Classification	Min. Separation
Major Thoroughfares	350’
Secondary Thoroughfares	250’
Major Collectors	200’
Minor Collectors	165’
Local Streets	75’

According to the city design manual, the driveway separation distance is measured from the projected curb line of the intersecting street or drive to the nearest projected curb line of the proposed driveway. In order to meet separation distances, shared access between adjacent properties is required. For collector streets and larger, driveways must maintain alignment with opposing driveways or meet minimum separation distances. Single-family driveways are not allowed on roadways classified as major collector or greater unless the lot has a 100’ or wider frontage.

The Lower Kirby area is bounded on the north side by Beltway 8 and on the east side by SH 288. Both roadways are designed as controlled access highways. The only direct access to these highways is along the paralleling access roads which are under the jurisdiction of TxDOT. Access is controlled by TxDOT through their Access Management Manual. The manual typically allows access every 360 feet for roads ways with posted speed limits of 45 mph. Other restrictions apply at intersections and entrance/exit ramps.

A Traffic Impact Analysis (TIA) was performed by LJA Engineering and Surveying Inc. on September 30, 2005 for the adjacent Promenade Shops at Shadow Creek. New roads were proposed to distribute traffic such as Lower Kirby Boulevard and the North Lower Kirby Boulevard. In summary, the LJA report concluded and recommended that based upon capacity analysis, that there was no significant impact due to the Promenade Shops at Shadow Creek to existing street infrastructure. However, the intersections of the Beltway 8 eastbound frontage road at Kirby Drive and Promenade Shops Drive at North Lower Kirby Boulevard would warrant traffic signals. Currently there is signalization at the intersection of Kirby Drive and Beltway 8 access roads.

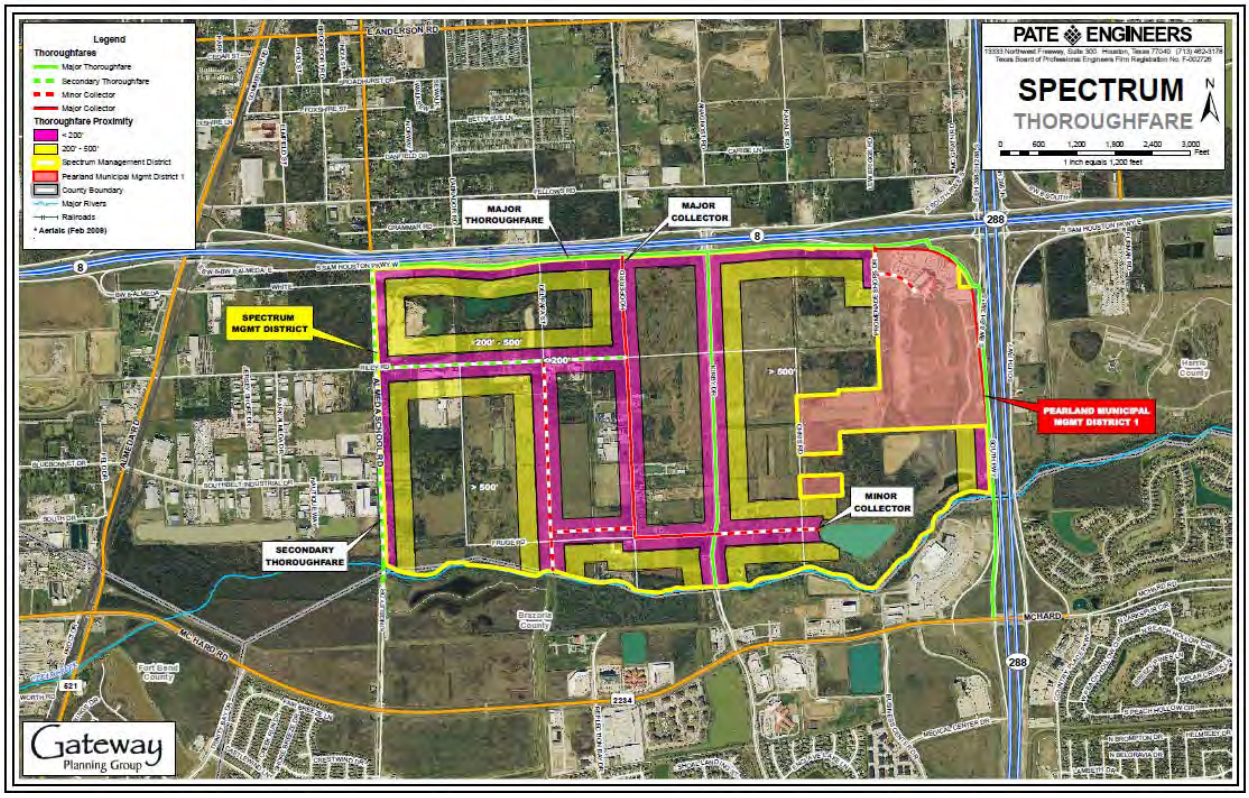
The most current traffic counts (2008) available from TxDOT indicate approximately 23,000 Average Daily Trips (ADT) on the main lanes of Beltway 8 and 93,000 ADT on SH 288. Neither roadway showed much change from the previous year. The City of Pearland has provided 2009 trip rates indicating approximately 2600 ADT on Kirby Drive near the Beltway 8 intersection. They also indicate approximately 1200 ADT along the southbound frontage road of SH288. No other traffic counts were available to generate a trend.

A review of Houston METRO service maps indicates that no mass transit service is currently available or even planned for the Lower Kirby. The closest bus route is approximately a mile away and northwest of the Lower Kirby along Almeda-Genoa. The closest light rail is over 5 miles away near Fannin Street and Loop 610.

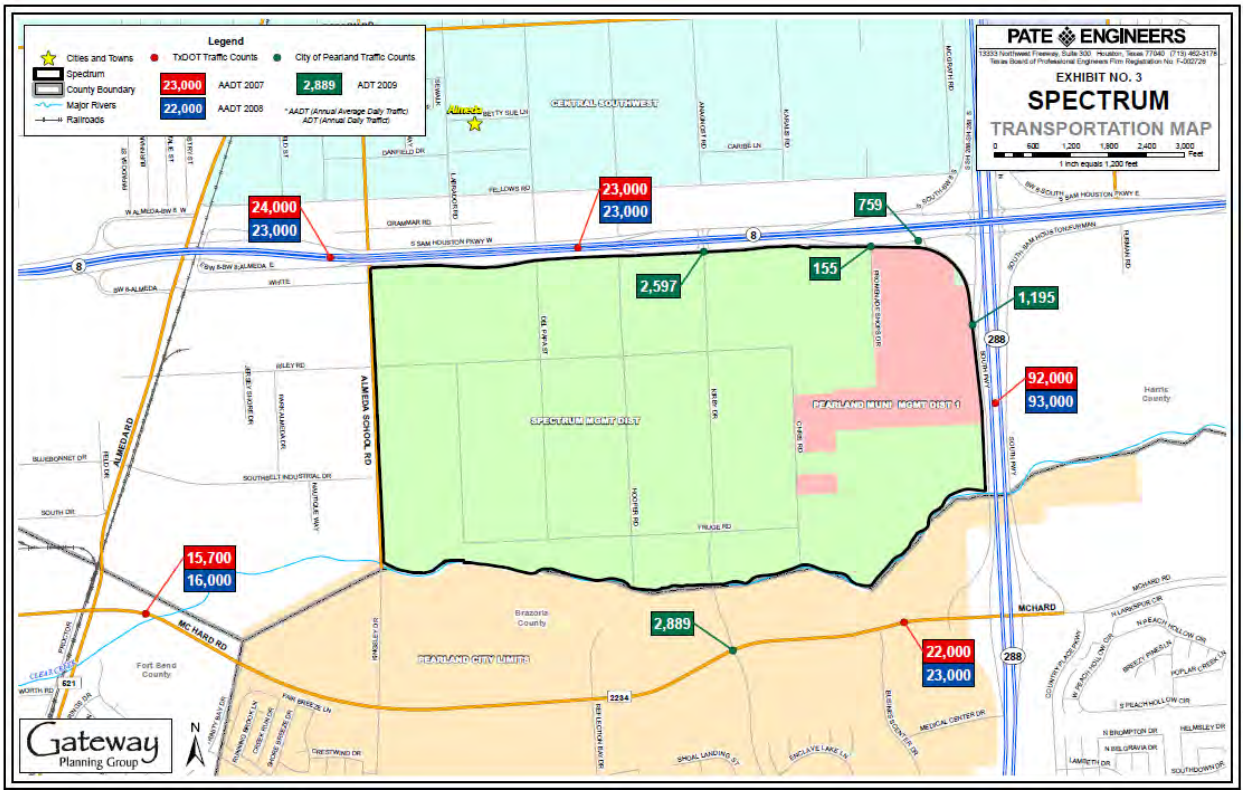
Constraints and Assessment

The existing street cross sections within the Lower Kirby as well as the existing development code for future street cross sections are intended for a suburban setting. In other words, it is more focused on the car and the capacity of the roadways to convey cars quickly from one point to the next. If the Lower Kirby Urban Center is to accommodate a more walkable, mixed use development pattern over portions of the property, then the cross sections of the future streets need to be re-evaluated to create a more pedestrian friendly streetscape based on the context of adjacent land uses. Alternative transportation modes such as pedestrians, bicycles, and mass transit need to also be accommodated in the street cross sections.

Kirby and Hwy 288 are the only two major north-south roadways providing access to the majority of undeveloped land in the Lower Kirby Urban Center. Clear Creek running along the southern edge of the Lower Kirby is a natural barrier and most internal streets will have to provide access to Kirby and the access road of Hwy 288 to accommodate new development. Although plans for a direct connect from Hwy 288 to west bound Spectrum Drive have been discussed in the past including an amendment to the Thoroughfare Plan to include this improvement, there has been no funding identified for such an improvement.



Lower Kirby Urban Center – Master Thoroughfare Plan



Lower Kirby Urban Center – Traffic Counts

Appendix B – Design Workshop Closing Presentation

THE SPECTRUM
AT CLEAR CREEK
Pearland, Texas
Gateway Planning Group

The Spectrum District

Design Workshop Closing Session

December 3, 2009

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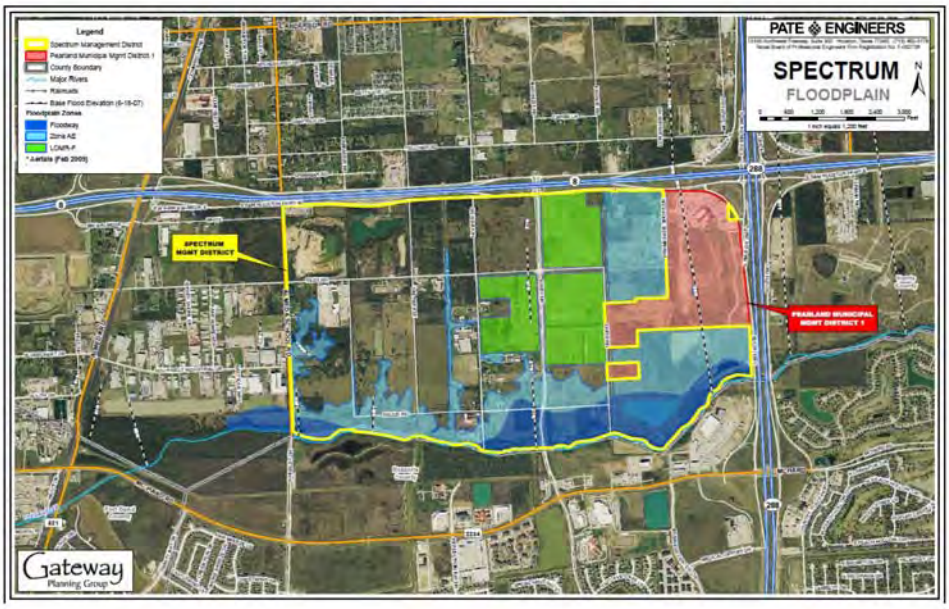

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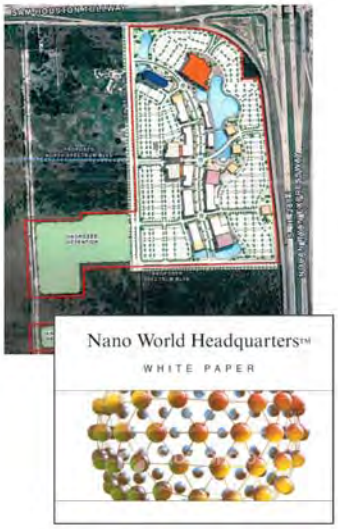
This is not the beginning, but a continuation…



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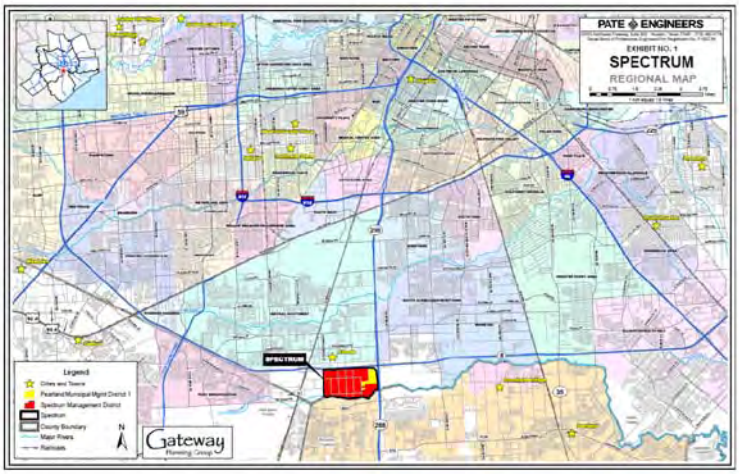
The Initiative



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The Initiative

- Leveraging regional location
- Building on prior investments
- Creating a unified identity
- Infrastructure investment plan
- Creating competitive advantage

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Putting the Spectrum in Context

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The Spectrum compared to the Central Business District of Houston

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Spectrum Development Issues

- Drainage
- Transportation access, linkages and transit
- Existing zoning and development standards
- Incorporating new development with existing uses
- Incorporating public parks and open space connections

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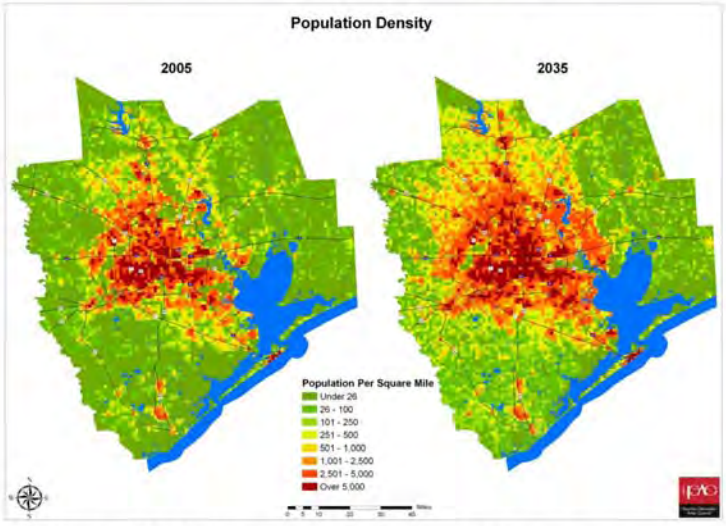
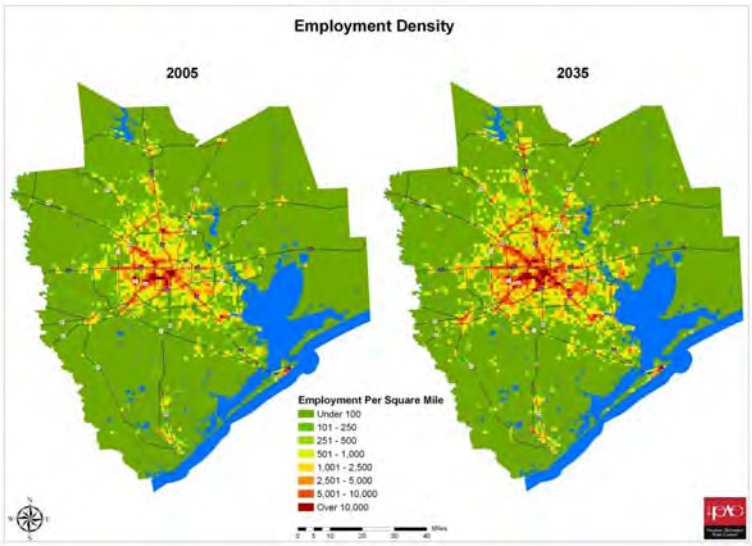
The Spectrum should be considered in the Regional Context

Houston Regional Growth Trends



Current Population
4.5 million

2035 Population
8.5 million



Current Employment
2.5 million

2035 Employment
4 million

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The H-GAC "Livable Centers" approach offers a way to harness the regional opportunity.

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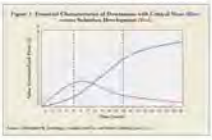
Keys to realizing the market as a Livable Center

- Mix of mutually reinforcing land uses
- Adjacency predictability through urban planning and regulation
- Key entertainment & cultural attractions must be authentic
- Public spaces are an important part of the mix
- Walkability and connectivity



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Streets as places and for transportation options

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Reinforcing mixed uses through design

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The street/building form accommodates evolving uses.

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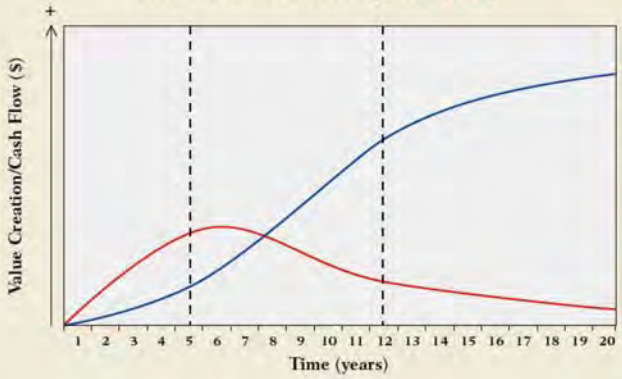
Sustaining value, not just cash flow, is the new real estate business model

Figure 1. Financial Characteristics of Downtowns with Critical Mass (Blue) versus Suburban Development (Red)



Source: Christopher B. Leinberger, Arcadia Land Co. and Robert Charles Lesser & Co.

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Conventional Development

- single use pods of development
- buffers instead of transitions
- narrowly stratified market
- planned obsolescence
- value drops when the original use is no longer viable

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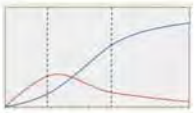
Sustainable Development

- mixed use
- transitions instead of buffers
- broad market
- planned to endure
- value holds when the current use is no longer viable



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How can the Spectrum District realize its potential as a "livable center"?

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We started with the basic transportation network

Context Sensitive Streets

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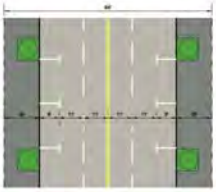
Kirby Drive



Avenue I

Multi-Way Blvd
Waterlights Pkwy/Spectrum Blvd

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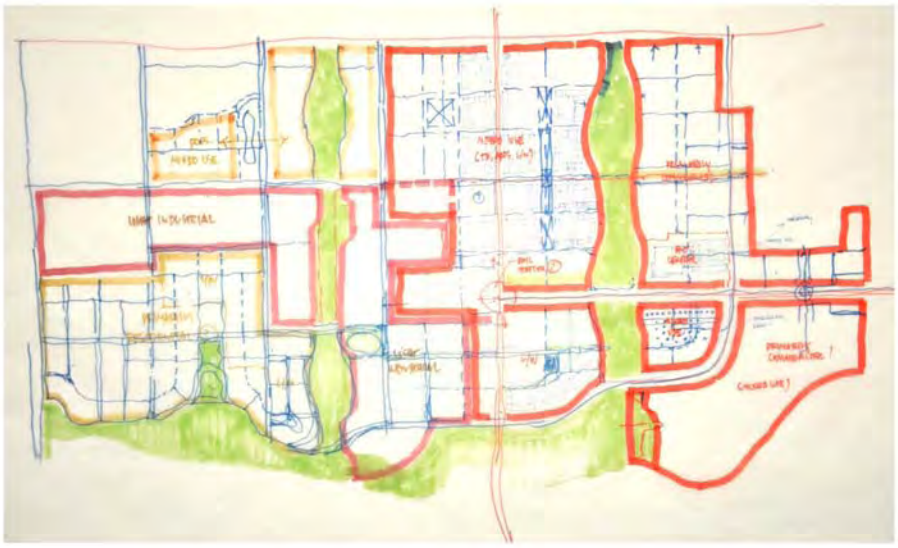
Framework Plan
Option 1



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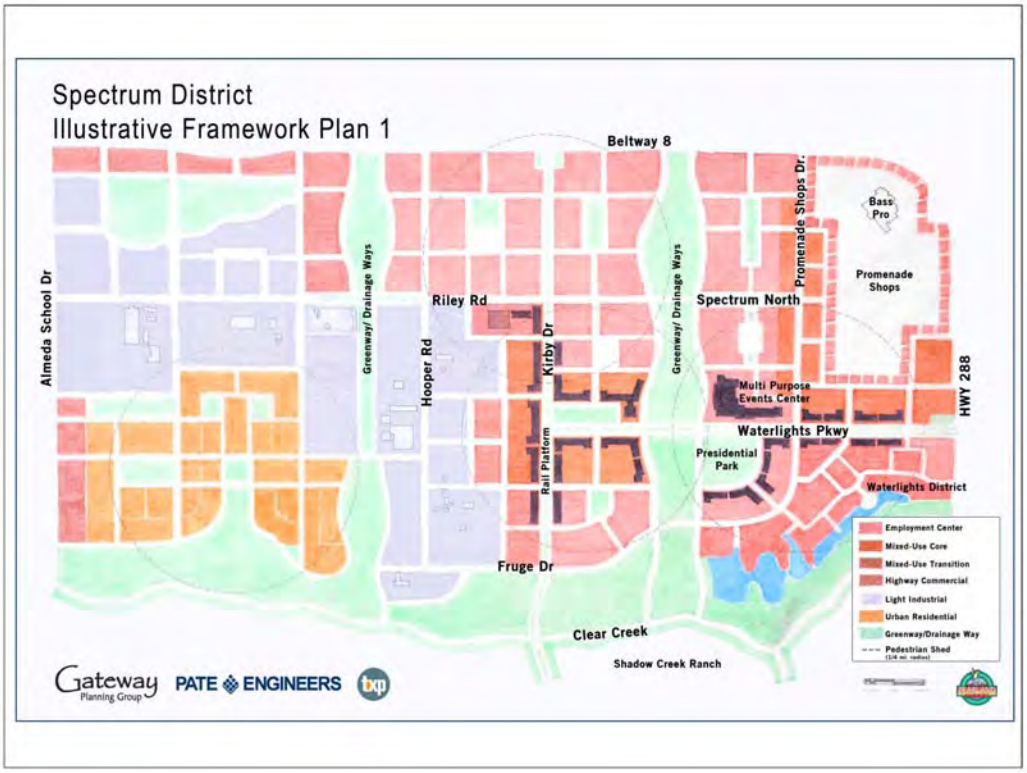

Green Space Connectivity

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Framework Plan
Option 2

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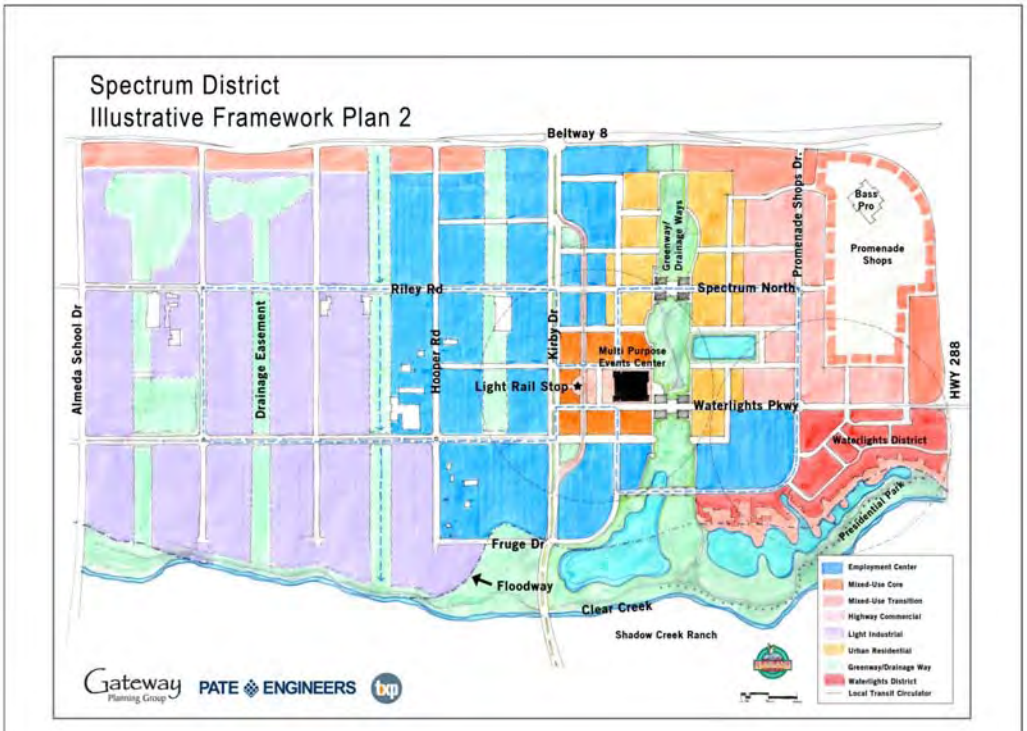

Optional Light Rail Alignment/Development

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Regional Drainage is critical

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Likely development scenario under current conditions (individual site drainage detention)

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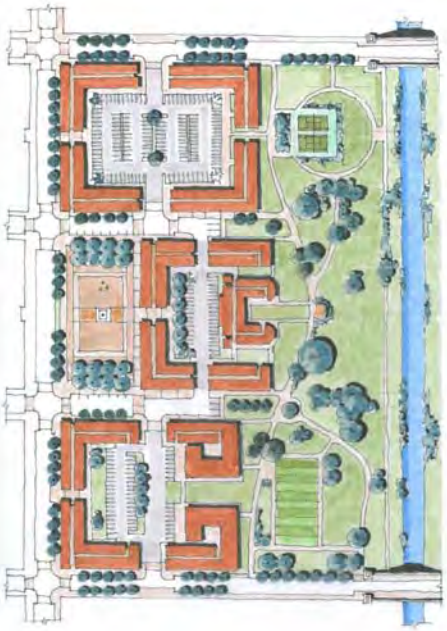

TxDOT Channel Development Potential

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Utilization of the TxDOT Channels for Regional Drainage

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Light Rail is a serious opportunity
(and a regional bike-way too!)

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Kirby Drive reinvented with light rail

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Next Steps

- Refine and finalize the framework plan based on input
- Finalize market analysis based on the plan
- Recommend changes to regulatory structure
- Infrastructure investment strategy
- Identify and support catalytic projects

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Appendix C – Infrastructure Cost Estimates

Pate Engineers, Inc.
13333 Northwest Freeway, Suite 300
Houston, Texas 77040
(713) 462-3178

LOWER KIRBY URBAN CENTER
SUMMARY
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

Phase I	**(0-5yrs)**	
Streets	$	1,389,000.00
Drainage	$	2,559,500.00
Water	$	289,250.00
Sewer	$	412,000.00
Detention Pond 1	$	3,168,000.00
Electric	$	1,793,000.00
Streetscape	$	1,818,000.00
Phase I Total	**$**	**11,428,750.00**

Phase II	**(6-10yrs)**	
Streets	$	2,168,000.00
Drainage	$	469,800.00
Water	$	304,500.00
Sewer	$	217,000.00
Detention Pond 2 (70%)	$	5,905,900.00
Electric	$	1,963,000.00
Streetscape	$	2,021,000.00
Phase II Total	**$**	**13,049,200.00**

Phase III	**(11-20yrs)**	
Streets	$	3,171,000.00
Drainage	$	1,658,500.00
Water	$	325,500.00
Sewer	$	370,000.00
Detention Pond 3	$	2,666,000.00
Electric	$	2,214,000.00
Streetscape	$	2,065,000.00
Phase III Total	**$**	**12,470,000.00**

Phase IV	**(21-30yrs)**	
Streets	$	5,447,000.00
Drainage	$	1,120,400.00
Water	$	233,250.00
Sewer	$	390,000.00
Detention Pond 4	$	2,875,000.00
Detention Pond 2 (30%)	$	2,531,100.00
Electric	$	3,083,000.00
Streetscape	$	3,189,000.00
Phase IV Total	**$**	**18,868,750.00**

Total for all Phases	**$**	**55,816,700.00**

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LOWER KIRBY URBAN CENTER
PAVING
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Phase I				
RD-44-22 Total Length =	**1583 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	$ 1,200.00	$ 2,000.00
Roadway Excavation	CY.	2,308	$ 3.25	$ 8,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	4,397	$ 1.75	$ 8,000.00
Lime for Stabilization (7% per dry weight)	TON	103	$ 120.00	$ 12,000.00
6-inch Reinforced Concrete Pavement (22' B-B)	SY.	4,045	$ 26.00	$ 105,000.00
6-inch Reinforced Concrete Curb	L.F,	3,166	$ 2.50	$ 8,000.00
			Sub Total	$ 143,000.00
ST-62-38 Total Length =	**3823 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	5	$ 1,200.00	$ 6,000.00
Roadway Excavation	CY.	7,080	$ 3.25	$ 23,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	13,593	$ 1.75	$ 24,000.00
Lime for Stabilization (7% per dry weight)	TON	318	$ 120.00	$ 38,000.00
6-inch Reinforced Concrete Pavement (30' B-B)	SY.	12,743	$ 26.00	$ 331,000.00
6-inch Reinforced Concrete Curb	L.F,	7,646	$ 2.50	$ 19,000.00
			Sub Total	$ 441,000.00
AV-82-44 Total Length =	**1620 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	3	$ 1,200.00	$ 4,000.00
Roadway Excavation	CY.	5,532	$ 3.25	$ 18,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	8,460	$ 1.75	$ 15,000.00
Lime for Stabilization (7% per dry weight)	TON	198	$ 120.00	$ 24,000.00
8-inch Reinforced Concrete Pavement (45' B-B)	SY.	8,100	$ 36.00	$ 292,000.00
6-inch Reinforced Concrete Curb	L.F,	3,240	$ 2.50	$ 8,000.00
			Sub Total	$ 361,000.00
		Sub Total for Phase 1 Paving		**$ 945,000.00**
			Appurtenances (5%)	$ 47,000.00
			Contingency (25%)	$ 248,000.00
			Engineering (12%)	$ 149,000.00
			Total Phase I Items:	**$ 1,389,000.00**

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LOWER KIRBY URBAN CENTER
PAVING
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Phase II				
EARTHWORK AND SITE PREPARATION ITEMS				
RD-44-22 Total Length =	**1535 ft**			
Site Preparation (Clearing & Grubbing)	AC.	2	$ 1,200.00	$ 2,000.00
Roadway Excavation	CY.	2,238	$ 3.25	$ 7,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	4,264	$ 1.75	$ 7,000.00
Lime for Stabilization (7% per dry weight)	TON	100	$ 120.00	$ 12,000.00
6-inch Reinforced Concrete Pavement (23' B-B)	SY.	3,923	$ 26.00	$ 102,000.00
6-inch Reinforced Concrete Curb	L.F,	3,070	$ 2.50	$ 8,000.00
			Sub Total	$ 138,000.00
AV-94-48 Total Length =	**3619 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	5	$ 1,200.00	$ 6,000.00
Roadway Excavation	CY.	8,712	$ 3.25	$ 28,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	16,487	$ 1.75	$ 29,000.00
Lime for Stabilization (7% per dry weight)	TON	386	$ 120.00	$ 46,000.00
7-inch Reinforced Concrete Pavement (39' B-B)	SY.	15,682	$ 31.00	$ 486,000.00
6-inch Reinforced Concrete Curb	L.F,	7,238	$ 2.50	$ 18,000.00
			Sub Total	$ 613,000.00
BV-114-70 Total Length =	**1210 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	$ 1,200.00	$ 3,000.00
Roadway Excavation	CY.	4,132	$ 3.25	$ 13,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	6,319	$ 1.75	$ 11,000.00
Lime for Stabilization (7% per dry weight)	TON	148	$ 120.00	$ 18,000.00
8-inch Reinforced Concrete Pavement (45' B-B)	SY.	6,050	$ 36.00	$ 218,000.00
6-inch Reinforced Concrete Curb	L.F,	2,420	$ 2.50	$ 6,000.00
			Sub Total	$ 269,000.00
BV-114-70 Total Length =	**1315 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	4	$ 1,200.00	$ 4,000.00
Roadway Excavation	CY.	6,916	$ 3.25	$ 22,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	10,666	$ 1.75	$ 19,000.00
Lime for Stabilization (7% per dry weight)	TON	250	$ 120.00	$ 30,000.00

LOWER KIRBY URBAN CENTER
PAVING
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
8-inch Reinforced Concrete Pavement (71' B-B)	SY.	10,374	$ 36.00	$ 373,000.00
6-inch Reinforced Concrete Curb	L.F,	2,630	$ 2.50	$ 7,000.00
			Sub Total	$ 455,000.00
			Sub Total for Phase 1 Paving	**$ 1,475,000.00**
			Appurtenances (5%)	$ 74,000.00
			Contingency (25%)	$ 387,000.00
			Engineering (12%)	$ 232,000.00
			Total Phase II Items:	**$ 2,168,000.00**
Phase III				
RD-44-22 Total Length =	**1321 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	1	$ 1,200.00	$ 2,000.00
Roadway Excavation	CY.	1,926	$ 3.25	$ 6,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	3,669	$ 1.75	$ 6,000.00
Lime for Stabilization (7% per dry weight)	TON	86	$ 120.00	$ 10,000.00
6-inch Reinforced Concrete Pavement (23' B-B)	SY.	3,376	$ 26.00	$ 88,000.00
6-inch Reinforced Concrete Curb	L.F,	2,642	$ 2.50	$ 7,000.00
			Sub Total	$ 119,000.00
ST-53-29 Total Length =	**3200 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	4	$ 1,200.00	$ 5,000.00
Roadway Excavation	CY.	5,926	$ 3.25	$ 19,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	11,378	$ 1.75	$ 20,000.00
Lime for Stabilization (7% per dry weight)	TON	267	$ 120.00	$ 32,000.00
6-inch Reinforced Concrete Pavement (30' B-B)	SY.	10,667	$ 26.00	$ 277,000.00
6-inch Reinforced Concrete Curb	L.F,	6,400	$ 2.50	$ 16,000.00
			Sub Total	$ 369,000.00
AV-82-44 (Half-Section) Total Length =	**1556 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	1	$ 1,200.00	$ 2,000.00
Roadway Excavation	CY.	2,657	$ 3.25	$ 9,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	4,063	$ 1.75	$ 7,000.00

LOWER KIRBY URBAN CENTER
PAVING
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Lime for Stabilization (7% per dry weight)	TON	95	$ 120.00	$ 11,000.00
8-inch Reinforced Concrete Pavement (45' B-B)	SY.	3,890	$ 36.00	$ 140,000.00
6-inch Reinforced Concrete Curb	L.F,	1,556	$ 2.50	$ 4,000.00
			Sub Total	$ 173,000.00
BV-114-70 Total Length =	**2586 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	7	$ 1,200.00	$ 9,000.00
Roadway Excavation	CY.	13,639	$ 3.25	$ 44,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	20,975	$ 1.75	$ 37,000.00
Lime for Stabilization (7% per dry weight)	TON	491	$ 120.00	$ 59,000.00
8-inch Reinforced Concrete Pavement (71' B-B)	SY.	20,401	$ 36.00	$ 734,000.00
6-inch Reinforced Concrete Curb	L.F,	5,172	$ 2.50	$ 13,000.00
			Sub Total	$ 896,000.00
TRAFFIC ITEMS				
Signalized Intersection	EA.	3	$ 200,000.00	$ 600,000.00
			Sub Total	$ 600,000.00
		Sub Total for Phase 1 Paving		**$ 2,157,000.00**
			Appurtenances (5%)	$ 108,000.00
			Contingency (25%)	$ 566,000.00
			Engineering (12%)	$ 340,000.00
			Total Phase III Items:	**$ 3,171,000.00**

Phase IV

RD-44-22 Total Length =	**5800 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	6	$ 1,200.00	$ 7,000.00
Roadway Excavation	CY.	8,457	$ 3.25	$ 27,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	16,111	$ 1.75	$ 28,000.00
Lime for Stabilization (7% per dry weight)	TON	377	$ 120.00	$ 45,000.00
6-inch Reinforced Concrete Pavement (23' B-B)	SY.	14,822	$ 26.00	$ 385,000.00
6-inch Reinforced Concrete Curb	L.F,	11,600	$ 2.50	$ 29,000.00
			Sub Total	$ 521,000.00
ST-61-29 Total Length =	**3438 ft**			
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	5	$ 1,200.00	$ 6,000.00

LOWER KIRBY URBAN CENTER
PAVING
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY		UNIT PRICE		TOTAL COST
Roadway Excavation	CY.	6,367	$	3.25	$	21,000.00
PAVING ITEMS						
8-inch stabilized subgrade	SY.	12,224	$	1.75	$	21,000.00
Lime for Stabilization (7% per dry weight)	TON	286	$	120.00	$	34,000.00
6-inch Reinforced Concrete Pavement (30' B-B)	SY.	11,460	$	26.00	$	298,000.00
6-inch Reinforced Concrete Curb	L.F,	6,876	$	2.50	$	17,000.00
				Sub Total	$	397,000.00
BV-114-70 Total Length =	**1745 ft**					
EARTHWORK AND SITE PREPARATION ITEMS						
Site Preparation (Clearing & Grubbing)	AC.	5	$	1,200.00	$	6,000.00
Roadway Excavation	CY.	9,203	$	3.25	$	30,000.00
PAVING ITEMS						
8-inch stabilized subgrade	SY.	14,154	$	1.75	$	25,000.00
Lime for Stabilization (7% per dry weight)	TON	332	$	120.00	$	40,000.00
8-inch Reinforced Concrete Pavement (71' B-B)	SY.	13,766	$	36.00	$	496,000.00
6-inch Reinforced Concrete Curb	L.F,	3,490	$	2.50	$	9,000.00
				Sub Total	$	606,000.00
BV-124-70 Total Length =	1099 ft					
Site Preparation (Clearing & Grubbing)	AC.	3	$	1,200.00	$	4,000.00
Roadway Excavation	CY.	5,796	$	3.25	$	19,000.00
PAVING ITEMS						
8-inch stabilized subgrade	SY.	8,914	$	1.75	$	16,000.00
Lime for Stabilization (7% per dry weight)	TON	209	$	120.00	$	25,000.00
8-inch Reinforced Concrete Pavement (71' B-B)	SY.	8,670	$	36.00	$	312,000.00
6-inch Reinforced Concrete Curb	L.F,	2,198	$	2.50	$	5,000.00
				Sub Total	$	381,000.00
TRAFFIC ITEMS						
Signalized Intersection	EA.	9	$	200,000.00	$	1,800,000.00
				Sub Total	$	1,800,000.00
				Sub Total for Phase 1 Paving	**$**	**3,705,000.00**
				Appurtenances (5%)	$	185,000.00
				Contingency (25%)	$	973,000.00
				Engineering (12%)	$	584,000.00
				Total Phase IV Items:	**$**	**5,447,000.00**

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LOWER KIRBY URBAN CENTER
STORM WATER MANAGEMENT
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Phase I				
Type "C-2A"	EA.	10	$ 3,100.00	$ 31,000.00
Manholes	EA.	10	$ 3,500.00	$ 35,000.00
24-inch Leads	L.F.	234	$ 50.00	$ 12,000.00
48-inch Sewer RCP	L.F.	2,860	$ 130.00	$ 372,000.00
54-inch Sewer RCP	L.F.	3,000	$ 175.00	$ 525,000.00
48" X 72" RCB	L.F.	2,320	$ 265.00	$ 615,000.00
			Appurtenances (15%)	$ 238,500.00
			Contingency (25%)	$ 457,000.00
			Engineering (12%)	$ 274,000.00
			Subtotal Phase I Items:	**$ 2,559,500.00**
Phase II				
Type "C-2A"	EA.	4	$ 3,100.00	$ 12,000.00
Manholes	EA.	2	$ 3,500.00	$ 7,000.00
24-inch Leads	L.F.	0	$ 50.00	$ -
42-inch Sewer RCP	L.F.	840	$ 100.00	$ 84,000.00
48-inch Sewer RCP	L.F.	0	$ 130.00	$ -
48" X 84" RCB	L.F.	600	$ 315.00	$ 189,000.00
			Appurtenances (15%)	$ 43,800.00
			Contingency (25%)	$ 84,000.00
			Engineering (12%)	$ 50,000.00
			Subtotal Phase II Items:	**$ 469,800.00**
Phase III				
Type "C-2A" Inlets	EA.	2	$ 3,100.00	$ 6,000.00
Manholes	EA.	4	$ 3,500.00	$ 14,000.00
24-inch Leads	L.F.	132	$ 50.00	$ 7,000.00
48-inch Sewer RCP	L.F.	1,560	$ 130.00	$ 203,000.00
54-inch Sewer RCP	L.F.	2,414	$ 175.00	$ 422,000.00
48" X 84" RCB	L.F.	1,200	$ 315.00	$ 378,000.00
			Appurtenances (15%)	$ 154,500.00
			Contingency (25%)	$ 296,000.00
			Engineering (12%)	$ 178,000.00
			Subtotal Phase III Items:	**$ 1,658,500.00**
Phase IV				
Type "C-2A" Inlets	EA.	16	$ 3,100.00	$ 50,000.00
Manholes	EA.	5	$ 3,500.00	$ 18,000.00
24-inch Leads	L.F.	643	$ 50.00	$ 32,000.00
30-inch Leads	L.F.	374	$ 65.00	$ 24,000.00
42-inch Sewer RCP	L.F.	700	$ 100.00	$ 70,000.00

LOWER KIRBY URBAN CENTER
STORM WATER MANAGEMENT
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
48-inch Sewer RCP	L.F.	3,500	$ 130.00	$ 455,000.00
54-inch Sewer RCP	L.F.	270	$ 175.00	$ 47,000.00
			Appurtenances (15%)	$ 104,400.00
			Contingency (25%)	$ 200,000.00
			Engineering (12%)	$ 120,000.00
			Subtotal Phase IV Items:	**$ 1,120,400.00**
Detention Pond 4				
Detention Pond Excavation	C.Y.	149,334	$ 5.00	$ 747,000.00
Outfall (5% of Excavation)	EA.	1	$ 37,000.00	$ 37,000.00
Backslope Interceptor	EA.	3	$ 5,000.00	$ 15,000.00
Backslope swale	L.F.	1,600	$ 3.50	$ 6,000.00
Land Acquisition	S.F.	651,587	$ 2.25	$ 1,466,000.00
			Appurtenances (25%)	$ 201,000.00
			Contingency (25%)	$ 252,000.00
			Engineering (12%)	$ 151,000.00
			Subtotal Detention Pond 4 Items:	**$ 2,875,000.00**
Detention Pond 3				
Detention Pond Excavation	C.Y.	123,233	$ 5.00	$ 616,000.00
Outfall (15% of Excavation)	EA.	1	$ 92,000.00	$ 92,000.00
Backslope Interceptor	EA.	3	$ 5,000.00	$ 15,000.00
Backslope swale	L.F.	2,230	$ 3.50	$ 8,000.00
Land Acquisition	S.F.	615,806	$ 2.25	$ 1,386,000.00
			Appurtenances (25%)	$ 183,000.00
			Contingency (25%)	$ 229,000.00
			Engineering (12%)	$ 137,000.00
			Subtotal Detention Pond 3 Items:	**$ 2,666,000.00**
Detention Pond 2				
Detention Pond Excavation	C.Y.	118,653	$ 5.00	$ 593,000.00
Outfall (15% of Excavation)	EA.	1	$ 89,000.00	$ 89,000.00
Backslope Interceptor	EA.	11	$ 5,000.00	$ 55,000.00
Backslope swale	L.F.	7,700	$ 3.50	$ 27,000.00
Bridge @ AV-116-70	S.F.	12,300	$ 75.00	$ 923,000.00
Bridge @ BV -124-70	S,F	12,300	$ 75.00	$ 923,000.00
Signature Bridge	S,F	12,300	$ 75.00	$ 923,000.00
Land Acquisition	S.F.	1,002,127	$ 2.25	$ 2,255,000.00
			Appurtenances (25%)	$ 883,000.00
			Contingency (25%)	$ 1,104,000.00
			Engineering (12%)	$ 662,000.00
			Subtotal Detention Pond 2 Items:	**$ 8,437,000.00**

LOWER KIRBY URBAN CENTER
STORM WATER MANAGEMENT
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Detention Pond 1				
Detention Pond Excavation	C.Y.	309,760	$ 5.00	$ 1,549,000.00
Outfall (15% of Excavation)	EA.	1	$ 232,000.00	$ 232,000.00
Backslope Interceptor	EA.	4	$ 5,000.00	$ 20,000.00
Backslope swale	L.F.	2,500	$ 3.50	$ 9,000.00
			Appurtenances (25%)	$ 453,000.00
			Contingency (25%)	$ 566,000.00
			Engineering (12%)	$ 339,000.00
			Subtotal Detention Pond 1 Items:	**$ 3,168,000.00**

Note #1: Costs for easement acquisition is not accounted for in this estimate.

Note #2: Costs for any temporary drainage channels to re-direct sheet flow before street network is completed is not accounted for in this estimate

Pate Engineers, Inc.
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LOWER KIRBY URBAN CENTER
WATER DISTRIBUTION SYSTEM
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Phase I				
8" PVC Pipe	LF.	6,333	$ 16.00	$ 101,000.00
Fire Hydrant	EA.	22	$ 2,700.00	$ 59,000.00
8" Gate Valve	EA.	7	$ 700.00	$ 5,000.00
			Appurtenances (25%)	$ 41,250.00
			Contingency (25%)	$ 52,000.00
			Engineering (12%)	$ 31,000.00
			Subtotal Phase I Items:	**$ 289,250.00**
Phase II				
8" PVC Pipe	L.F.	6,684	$ 16.00	$ 107,000.00
Fire Hydrant	EA.	23	$ 2,700.00	$ 62,000.00
8" Gate Valve	EA.	7	$ 700.00	$ 5,000.00
			Appurtenances (25%)	$ 43,500.00
			Contingency (25%)	$ 54,000.00
			Engineering (12%)	$ 33,000.00
			Subtotal Phase II Items:	**$ 304,500.00**
Phase III				
8" PVC Pipe	L.F.	7,182	$ 16.00	$ 115,000.00
Fire Hydrant	EA.	24	$ 2,700.00	$ 65,000.00
8" Gate Valve	EA.	8	$ 700.00	$ 6,000.00
			Appurtenances (25%)	$ 46,500.00
			Contingency (25%)	$ 58,000.00
			Engineering (12%)	$ 35,000.00
			Subtotal Phase III Items:	**$ 325,500.00**
Phase IV				
8' PVC	L.F.	5,259	$ 16.00	$ 84,000.00
Fire Hydrant	EA.	18	$ 2,700.00	$ 49,000.00
8" Gate Valve	EA.	6	$ 50.00	$ -
			Appurtenances (25%)	$ 33,250.00
			Contingency (25%)	$ 42,000.00
			Engineering (12%)	$ 25,000.00
			Subtotal Phase IV Items:	**$ 233,250.00**

Note #1: Costs for easement acquisition is not accounted for in this estimate.

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LOWER KIRBY URBAN CENTER
SANITARY SEWER COLLECTION SYSTEM
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Phase I				
8" SDR-26	LF.	2,248	$ 22.00	$ 49,000.00
10" SDR-26	LF.	765	$ 33.00	$ 25,000.00
12" SDR-26	LF.	890	$ 35.00	$ 31,000.00
15" SDR-26	LF.	810	$ 50.00	$ 41,000.00
18" SDR-26	LF.	1,185	$ 58.00	$ 69,000.00
Sanitary Sewer Manhole (0-8')	EA.	22	$ 2,000.00	$ 44,000.00
Extradepth Manhole	VF.	45	$ 100.00	$ 5,000.00
Trench Safety Systems	LF.	5,898	$ 0.50	$ 3,000.00
			Appurtenances (10%)	$ 27,000.00
			Contingency (15%)	$ 74,000.00
			Engineering (12%)	$ 44,000.00
			Subtotal Phase I Items:	**$ 412,000.00**
Phase II				
8" SDR-26	LF.	1,550	$ 22.00	$ 34,000.00
10" SDR-26	LF.	1,595	$ 33.00	$ 53,000.00
12" SDR-26	LF.	615	$ 35.00	$ 22,000.00
Sanitary Sewer Manhole (0-8')	EA.	14	$ 2,000.00	$ 28,000.00
Extradepth Manhole	VF.	18	$ 100.00	$ 2,000.00
Trench Safety Systems	LF.	3,760	$ 0.50	$ 2,000.00
			Appurtenances (10%)	$ 14,000.00
			Contingency (15%)	$ 39,000.00
			Engineering (12%)	$ 23,000.00
			Subtotal Phase II Items:	**$ 217,000.00**
Phase III				
8" SDR-26	LF.	7,215	$ 22.00	$ 159,000.00
10" SDR-26	LF.	805	$ 33.00	$ 27,000.00
Sanitary Sewer Manhole (0-8')	EA.	23	$ 2,000.00	$ 46,000.00
Extradepth Manhole	VF.	40	$ 100.00	$ 4,000.00
Trench Safety Systems	LF.	8,020	$ 0.50	$ 4,000.00
			Appurtenances (10%)	$ 24,000.00
			Contingency (15%)	$ 66,000.00
			Engineering (12%)	$ 40,000.00
			Subtotal Phase III Items:	**$ 370,000.00**
Phase IV				
8" SDR-26	LF.	4,945	$ 22.00	$ 109,000.00
10" SDR-26	LF.	2,655	$ 33.00	$ 88,000.00
Sanitary Sewer Manhole (0-8')	EA.	25	$ 2,000.00	$ 50,000.00
Extradepth Manhole	VF.	20	$ 100.00	$ 2,000.00

LOWER KIRBY URBAN CENTER
SANITARY SEWER COLLECTION SYSTEM
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Trench Safety Systems	LF.	7,600	$ 0.50	$ 4,000.00
			Appurtenances (10%)	$ 25,000.00
			Contingency (15%)	$ 70,000.00
			Engineering (12%)	$ 42,000.00
			Subtotal Phase IV Items:	**$ 390,000.00**

Note #1: Costs for easement acquisition is not accounted for in this estimate.

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LOWER KIRBY URBAN CENTER
ELECTRIC
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION		UNIT	QTY	UNIT PRICE	TOTAL COST
Phase I					
RD-44-22	**Total Length =**	**1583 ft**			
Ductbank		LF.	1,583	$ 165.00	$ 261,000.00
Street Light		LF.	10	$ 2,700.00	$ 27,000.00
				Contingency (25%)	$ 72,000.00
				Engineering (12%)	$ 43,000.00
				Subtotal Items:	**$ 403,000.00**
ST-62-38	**Total Length =**	**3823 ft**			
Ductbank		LF.	3,823	$ 165.00	$ 631,000.00
Street Light		LF.	24	$ 2,700.00	$ 65,000.00
				Contingency (25%)	$ 174,000.00
				Engineering (12%)	$ 104,000.00
				Subtotal Items:	**$ 974,000.00**
AV-82-44	**Total Length =**	**1620 ft**			
Ductbank		LF.	1,620	$ 165.00	$ 267,000.00
Street Light		LF.	11	$ 2,700.00	$ 30,000.00
				Contingency (25%)	$ 74,000.00
				Engineering (12%)	$ 45,000.00
				Subtotal Items:	**$ 416,000.00**
				Total for Phase 1 Electric	**$ 1,793,000.00**
Phase II					
RD-44-22	**Total Length =**	**1535 ft**			
Ductbank		LF.	1,535	$ 165.00	$ 253,000.00
Street Light		LF.	10	$ 2,700.00	$ 27,000.00
				Contingency (25%)	$ 70,000.00
				Engineering (12%)	$ 42,000.00
				Subtotal Items:	**$ 392,000.00**

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LOWER KIRBY URBAN CENTER
ELECTRIC
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION		UNIT	QTY	UNIT PRICE	TOTAL COST
AV-94-48	**Total Length =**	**3619 ft**			
Ductbank		LF.	3,619	$ 165.00	$ 597,000.00
Street Light		LF.	23	$ 2,700.00	$ 62,000.00
				Contingency (25%)	$ 165,000.00
				Engineering (12%)	$ 99,000.00
				Subtotal Items:	**$ 923,000.00**
AV-114-70	**Total Length =**	**1210 ft**			
Ductbank		LF.	1,210	$ 165.00	$ 200,000.00
Street Light		LF.	8	$ 2,700.00	$ 22,000.00
				Contingency (25%)	$ 56,000.00
				Engineering (12%)	$ 33,000.00
				Subtotal Items:	**$ 311,000.00**
AV-114-70	**Total Length =**	**1315 ft**			
Ductbank		LF.	1,315	$ 165.00	$ 217,000.00
Street Light		LF.	9	$ 2,700.00	$ 24,000.00
				Contingency (25%)	$ 60,000.00
				Engineering (12%)	$ 36,000.00
				Subtotal Items:	**$ 337,000.00**
				Sub Total for Phase 2 Electric	**$ 1,963,000.00**

Phase III

RD-44-22	**Total Length =**	**1321 ft**			
Ductbank		LF.	1,321	$ 165.00	$ 218,000.00
Street Light		LF.	9	$ 2,700.00	$ 24,000.00

LOWER KIRBY URBAN CENTER
ELECTRIC
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION		UNIT	QTY	UNIT PRICE	TOTAL COST
				Contingency (25%)	$ 61,000.00
				Engineering (12%)	$ 36,000.00
				Subtotal Items:	**$ 339,000.00**
ST-53-29	**Total Length =**	**3200 ft**			
Ductbank		LF.	3,200	$ 165.00	$ 528,000.00
Street Light		LF.	20	$ 2,700.00	$ 54,000.00
				Contingency (25%)	$ 146,000.00
				Engineering (12%)	$ 87,000.00
				Subtotal Items:	**$ 815,000.00**
AV-82-44 (Half-Section)	**Total Length =**	**1556 ft**			
Ductbank		LF.	1,556	$ 165.00	$ 257,000.00
Street Light		LF.	10	$ 2,700.00	$ 27,000.00
				Contingency (25%)	$ 71,000.00
				Engineering (12%)	$ 43,000.00
				Subtotal Items:	**$ 398,000.00**
BV-114-70	**Total Length =**	**2586 ft**			
Ductbank		LF.	2,586	$ 165.00	$ 427,000.00
Street Light		LF.	17	$ 2,700.00	$ 46,000.00
				Contingency (25%)	$ 118,000.00
				Engineering (12%)	$ 71,000.00
				Subtotal Items:	**$ 662,000.00**
				Sub Total for Phase 3 Electric	**$ 2,214,000.00**

Phase IV

RD-44-22	**Total Length =**	**5800 ft**			
Ductbank		LF.	5,800	$ 165.00	$ 957,000.00
Street Light		LF.	37	$ 2,700.00	$ 100,000.00
				Contingency (25%)	$ 264,000.00
				Engineering (12%)	$ 159,000.00

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LOWER KIRBY URBAN CENTER
ELECTRIC
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION		UNIT	QTY	UNIT PRICE	TOTAL COST
				Subtotal Items:	**$ 1,480,000.00**
ST-61-29	**Total Length =**	**3438 ft**			
Ductbank		LF.	3,438	$ 165.00	$ 567,000.00
Street Light		LF.	22	$ 2,700.00	$ 59,000.00
				Contingency (25%)	$ 157,000.00
				Engineering (12%)	$ 94,000.00
				Subtotal Items:	**$ 877,000.00**
BV-114-70	**Total Length =**	**1745 ft**			
Ductbank		LF.	1,745	$ 165.00	$ 288,000.00
Street Light		LF.	11	$ 2,700.00	$ 30,000.00
				Contingency (25%)	$ 80,000.00
				Engineering (12%)	$ 48,000.00
				Subtotal Items:	**$ 446,000.00**
BV-124-70	**Total Length =**	1099 ft			
Ductbank		LF.	1,099	$ 165.00	$ 181,000.00
Street Light		LF.	7	$ 2,700.00	$ 19,000.00
				Contingency (25%)	$ 50,000.00
				Engineering (12%)	$ 30,000.00
				Subtotal Items:	**$ 280,000.00**
				Sub Total for Phase 4 Electric	**$ 3,083,000.00**

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LOWER KIRBY URBAN CENTER
ELECTRIC
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION		UNIT	QTY	UNIT PRICE	TOTAL COST
Phase I					
RD-44-22	**Total Length =**	**1583 ft**			
Sidewalks		SY	2,111	$ 32.00	$ 68,000.00
Street Trees		LF.	1,583	$ 29.00	$ 46,000.00
Irrigation		L.F.	3166	$ 45.00	$ 142,000.00
				Contingency (25%)	$ 64,000.00
				Engineering (12%)	$ 38,000.00
				Subtotal Items:	**$ 358,000.00**
ST-62-38	**Total Length =**	**3823 ft**			
Sidewalks		SY	10,195	$ 32.00	$ 326,000.00
Street Trees		LF.	3,823	$ 29.00	$ 111,000.00
Irrigation		L.F.	7646	$ 45.00	$ 344,000.00
				Contingency (25%)	$ 195,000.00
				Engineering (12%)	$ 117,000.00
				Subtotal Items:	**$ 1,093,000.00**
AV-82-44	**Total Length =**	**1620 ft**			
Sidewalks		SY	2,160	$ 32.00	$ 69,000.00
Street Trees		LF.	1,620	$ 29.00	$ 47,000.00
Irrigation		L.F.	3240	$ 45.00	$ 146,000.00
				Contingency (25%)	$ 66,000.00
				Engineering (12%)	$ 39,000.00
				Subtotal Items:	**$ 367,000.00**
				Sub Total for Phase 1 Streetscape	**$ 1,818,000.00**
Phase II					
RD-44-22	**Total Length =**	**1535 ft**			
Sidewalks		SY	2,047	$ 32.00	$ 65,000.00
Street Trees		LF.	1,535	$ 29.00	$ 45,000.00
Irrigation		L.F.	3070	$ 45.00	$ 138,000.00
				Contingency (25%)	$ 62,000.00
				Engineering (12%)	$ 37,000.00
				Subtotal Items:	**$ 347,000.00**
AV-94-48	**Total Length =**	**3619 ft**			

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LOWER KIRBY URBAN CENTER
ELECTRIC
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION		UNIT	QTY	UNIT PRICE	TOTAL COST
Sidewalks		SY	8,846	$ 32.00	$ 283,000.00
Street Trees		LF.	3,619	$ 29.00	$ 105,000.00
Irrigation		L.F.	7238	$ 45.00	$ 326,000.00
				Contingency (25%)	$ 179,000.00
				Engineering (12%)	$ 107,000.00
				Subtotal Items:	**$ 1,000,000.00**
BV-114-70	**Total Length =**	**1210 ft**			
Sidewalks		SY	2,689	$ 32.00	$ 86,000.00
Street Trees		LF.	1,210	$ 29.00	$ 35,000.00
Irrigation		L.F.	2420	$ 45.00	$ 109,000.00
				Contingency (25%)	$ 58,000.00
				Engineering (12%)	$ 35,000.00
				Subtotal Items:	**$ 323,000.00**
BV-114-70	**Total Length =**	**1315 ft**			
Sidewalks		SY	2,922	$ 32.00	$ 94,000.00
Street Trees		LF.	1,315	$ 29.00	$ 38,000.00
Irrigation		L.F.	2630	$ 45.00	$ 118,000.00
				Contingency (25%)	$ 63,000.00
				Engineering (12%)	$ 38,000.00
				Subtotal Items:	**$ 351,000.00**
		Sub Total for Phase 2 Streetscape			**$ 2,021,000.00**

Phase III

RD-44-22	**Total Length =**	**1321 ft**			
Sidewalks		SY	1,761	$ 32.00	$ 56,000.00
Street Trees		LF.	1,321	$ 29.00	$ 38,000.00

LOWER KIRBY URBAN CENTER
ELECTRIC
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION		UNIT	QTY	UNIT PRICE	TOTAL COST
Irrigation		L.F.	2642	$ 45.00	$ 119,000.00
				Contingency (25%)	$ 53,000.00
				Engineering (12%)	$ 32,000.00
				Subtotal Items:	**$ 298,000.00**
ST-53-29	**Total Length =**	**3200 ft**			
Sidewalks		SY	4,267	$ 32.00	$ 137,000.00
Street Trees		LF.	3,200	$ 29.00	$ 93,000.00
Irrigation		L.F.	6400	$ 45.00	$ 288,000.00
				Contingency (25%)	$ 130,000.00
				Engineering (12%)	$ 78,000.00
				Subtotal Items:	**$ 726,000.00**
AV-82-44 (Half-Section)	**Total Length =**	**1556 ft**			
Sidewalks		SY	2,075	$ 32.00	$ 66,000.00
Street Trees		LF.	1,556	$ 29.00	$ 45,000.00
Irrigation		L.F.	3112	$ 45.00	$ 140,000.00
				Contingency (25%)	$ 63,000.00
				Engineering (12%)	$ 38,000.00
				Subtotal Items:	**$ 352,000.00**
BV-114-70	**Total Length =**	**2586 ft**			
Sidewalks		SY	5,747	$ 32.00	$ 184,000.00
Street Trees		LF.	2,586	$ 29.00	$ 75,000.00
Irrigation		L.F.	5172	$ 45.00	$ 233,000.00
				Contingency (25%)	$ 123,000.00
				Engineering (12%)	$ 74,000.00
				Subtotal Items:	**$ 689,000.00**
				Sub Total for Phase 3 Streetscape	**$ 2,065,000.00**
Phase IV					
RD-44-22	**Total Length =**	**5800 ft**			
Sidewalks		SY	7,733	$ 32.00	$ 247,000.00
Street Trees		LF.	5,800	$ 29.00	$ 168,000.00
Irrigation		L.F.	11600	$ 45.00	$ 522,000.00
				Contingency (25%)	$ 234,000.00

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LOWER KIRBY URBAN CENTER
ELECTRIC
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 07/26/11

DESCRIPTION		UNIT	QTY	UNIT PRICE	TOTAL COST
				Engineering (12%)	$ 141,000.00
				Subtotal Items:	**$ 1,312,000.00**
ST-61-29	**Total Length =**	**3438 ft**			
Sidewalks		SY	12,224	$ 32.00	$ 391,000.00
Street Trees		LF.	3,438	$ 29.00	$ 100,000.00
Irrigation		L.F.	6876	$ 45.00	$ 309,000.00
				Contingency (25%)	$ 200,000.00
				Engineering (12%)	$ 120,000.00
				Subtotal Items:	**$ 1,120,000.00**
BV-114-70	**Total Length =**	**1745 ft**			
Sidewalks		SY	3,878	$ 32.00	$ 124,000.00
Street Trees		LF.	1,745	$ 29.00	$ 51,000.00
Irrigation		L.F.	3490	$ 45.00	$ 157,000.00
				Contingency (25%)	$ 83,000.00
				Engineering (12%)	$ 50,000.00
				Subtotal Items:	**$ 465,000.00**
BV-124-70	**Total Length =**	1099 ft			
Sidewalks		SY	2,442	$ 32.00	$ 78,000.00
Street Trees		LF.	1,099	$ 29.00	$ 32,000.00
Irrigation		L.F.	2198	$ 45.00	$ 99,000.00
				Contingency (25%)	$ 52,000.00
				Engineering (12%)	$ 31,000.00
				Subtotal Items:	**$ 292,000.00**
		Sub Total for Phase 4 Streetscape			**$ 3,189,000.00**

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LOWER KIRBY URBAN CORE
SUMMARY
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

Segment	Name		
A	**S. Spectrum 288 to Promenade**		
	Streets	$	264,000.00
	Drainage	$	980,000.00
	Water	$	-
	Sewer	$	-
	Electric	$	211,000.00
	Traffic Items	$	-
	Streetscape	$	264,000.00
	Segment A Total	**$**	**1,719,000.00**
B	**S. Spectrum - Promenade to TXDOT**		
	Streets	$	668,000.00
	Drainage	$	1,009,000.00
	Water	$	54,000.00
	Sewer	$	45,000.00
	Electric	$	337,000.00
	Traffic Items	$	280,000.00
	Streetscape	$	267,000.00
	Segment B Total	**$**	**2,660,000.00**
C	**S. Spectrum - TXDOT to Kirby Dr.**		
	Streets	$	647,000.00
	Drainage	$	1,253,000.00
	Water	$	50,000.00
	Sewer	$	32,000.00
	Electric	$	325,000.00
	Traffic Items	$	280,000.00
	Streetscape	$	258,000.00
	Segment C Total	**$**	**2,845,000.00**
D	**Kirby Drive - Beltway 8 to Fruge**		
	Streets	$	-
	Drainage	$	-
	Water	$	-
	Sewer	$	-
	Electric	$	1,017,000.00
	Traffic Items	$	-
	Streetscape	$	720,000.00
	Segment D Total	**$**	**1,737,000.00**
E	**N Spectrum/Riley - Kirby to Almeda School Rd**		
	Streets	$	1,306,000.00
	Drainage	$	386,000.00
	Water	$	222,000.00
	Sewer	$	200,000.00
	Electric	$	1,019,000.00
	Traffic Items	$	-
	Streetscape	$	812,000.00
	Segment E Total	**$**	**3,945,000.00**

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F	**N. Spectrum: TXDOT to Kirby**		
	Streets	$	560,000.00
	Drainage	$	-
	Water	$	-
	Sewer	$	-
	Electric	$	280,000.00
	Traffic Items	$	280,000.00
	Streetscape	$	224,000.00
	Segment F Total	**$**	**1,344,000.00**
G	**N. Spectrum: Promenade to TXDOT**		
	Streets	$	892,000.00
	Drainage	$	-
	Water	$	-
	Sewer	$	-
	Electric	$	446,000.00
	Traffic Items	$	280,000.00
	Streetscape	$	356,000.00
	Segment G Total	**$**	**1,974,000.00**
H	**Promenade: Beltway 8 to N. Spectrum**		
	Streets	$	549,000.00
	Drainage	$	-
	Water	$	-
	Sewer	$	-
	Electric	$	258,000.00
	Traffic Items	$	-
	Streetscape	$	220,000.00
	Segment H Total	**$**	**1,027,000.00**
I	**Promenade: N. Spectrum to S. Spectrum**		
	Streets	$	673,000.00
	Drainage	$	346,000.00
	Water	$	-
	Sewer	$	-
	Electric	$	337,000.00
	Traffic Items	$	280,000.00
	Streetscape	$	268,000.00
	Segment I Total	**$**	**1,904,000.00**

Total for all Segments	**$**	**19,155,000.00**

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LOWER KIRBY URBAN CORE
SUMMARY
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

Segment	Name		
J	**Fruge: Promenade to S. Spectrum (Curve)**		
	Streets	$	208,000.00
	Drainage	$	329,000.00
	Water	$	65,000.00
	Sewer	$	76,000.00
	Electric	$	403,000.00
	Traffic Items	$	280,000.00
	Streetscape	$	258,000.00
	Segment J Total	**$**	**1,619,000.00**
K	**Promenade: S. Spectrum to Fruge**		
	Streets	$	403,000.00
	Drainage	$	474,000.00
	Water	$	66,000.00
	Sewer	$	166,000.00
	Electric	$	413,000.00
	Traffic Items	$	280,000.00
	Streetscape	$	343,000.00
	Segment K Total	**$**	**2,145,000.00**
L	**Fruge: Promenade to TXDOT**		
	Streets	$	189,000.00
	Drainage	$	-
	Water	$	32,000.00
	Sewer	$	158,000.00
	Electric	$	195,000.00
	Traffic Items	$	280,000.00
	Streetscape	$	169,000.00
	Segment L Total	**$**	**1,023,000.00**
M	**Fruge: TXDOT to Kirby**		
	Streets	$	287,000.00
	Drainage	$	-
	Water	$	48,000.00
	Sewer	$	119,000.00
	Electric	$	296,000.00
	Traffic Items	$	280,000.00
	Streetscape	$	188,000.00
	Segment M Total	**$**	**1,218,000.00**
N	**Fruge: Kirby to Hooper**		
	Streets	$	158,000.00
	Drainage	$	-
	Water	$	49,000.00
	Sewer	$	82,000.00
	Electric	$	307,000.00
	Traffic Items	$	280,000.00
	Streetscape	$	196,000.00
	Segment N Total	**$**	**1,072,000.00**

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O

Hooper: Beltway 8 to N. Spectrum		
Streets	$	483,000.00
Drainage	$	1,568,000.00
Water	$	146,000.00
Sewer	$	194,000.00
Electric	$	928,000.00
Traffic Items	$	280,000.00
Streetscape	$	597,000.00
Segment N Total	**$**	**4,196,000.00**

P

Hooper: N. Spectrum to Fruge		
Streets	$	203,000.00
Drainage	$	138,000.00
Water	$	65,000.00
Sewer	$	62,000.00
Electric	$	392,000.00
Traffic Items	$	66,000.00
Streetscape	$	252,000.00
Segment N Total	**$**	**1,178,000.00**

Total for all Segments	**$**	**12,451,000.00**

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LOWER KIRBY URBAN CORE
DETENTION SUMMARY
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

Name		Cost
Detention Pond 1	**$**	**3,168,000.00**
Detention Pond 2	**$**	**8,437,000.00**
Detention Pond 3	**$**	**2,666,000.00**
Detention Pond 4	**$**	**2,875,000.00**

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Estimate 2
Priority Phasing
Segment A

LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment A - S. Spectrum 288 to Promenade				
Total Segment Length	**1620**	**ft**		
Existing Segment Length	**810**	**ft**		
New Segment Length	**810**	**ft**		
Paving				
AV-82-44				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	$ 1,200.00	$ 2,000.00
Roadway Excavation	CY.	2,766	$ 3.25	$ 9,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	4,230	$ 1.75	$ 7,000.00
Lime for Stabilization (7% per dry weight)	TON	99	$ 120.00	$ 12,000.00
10-inch Reinforced Concrete Pavement (45' B-B)	SY.	4,050	$ 36.00	$ 146,000.00
6-inch Reinforced Concrete Curb	L.F,	1,620	$ 2.50	$ 4,000.00
			Sub Total	$ 180,000.00
			Appurtenances (5%)	$ 9,000.00
			Contingency (25%)	$ 47,000.00
			Engineering (12%)	$ 28,000.00
			Subtotal Items:	**$ 264,000.00**
Drainage				
Type "C-2A"	EA.	4	$ 3,100.00	$ 12,000.00
Manholes	EA.	2	$ 3,500.00	$ 7,000.00
24-inch Leads	L.F.	44	$ 50.00	$ 2,000.00
54-inch Sewer RCP	L.F.	3,048	$ 175.00	$ 533,000.00
Conveyance to Ex. Poag Pond (10% of Drainage Cost)	EA.	1	$ 55,400.00	$ 55,000.00
			Appurtenances (15%)	$ 91,000.00
			Contingency (25%)	$ 175,000.00
			Engineering (12%)	$ 105,000.00
			Subtotal Items:	**$ 980,000.00**
Water		0	$ -	$ -
Sewer		0	$ -	$ -
Electric				
Ductbank	LF.	810	$ 165.00	$ 134,000.00
Street Light	LF.	6	$ 2,700.00	$ 16,000.00
			Contingency (25%)	$ 38,000.00
			Engineering (12%)	$ 23,000.00
			Subtotal Items:	**$ 211,000.00**
Streetscape				
Sidewalks	SY	2,160	$ 32.00	$ 69,000.00
Street Trees	LF.	1,620	$ 29.00	$ 47,000.00
Irrigation	L.F.	1620	$ 45.00	$ 73,000.00

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment A - S. Spectrum 288 to Promenade				
Contingency (25%)			$	47,000.00
Engineering (12%)			$	28,000.00
Subtotal Items:			**$**	**264,000.00**
Segment Total:			**$**	**1,719,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment B - S. Spectrum: Promenade to TXDOT				
Total Segment Length	**1310**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**1310**	**ft**		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	4	$ 1,200.00	$ 4,000.00
Roadway Excavation	CY.	6,909	$ 3.25	$ 22,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	10,626	$ 1.75	$ 19,000.00
Lime for Stabilization (7% per dry weight)	TON	249	$ 120.00	$ 30,000.00
10-inch Reinforced Concrete Pavement (71' B-B)	SY.	10,334	$ 36.00	$ 372,000.00
6-inch Reinforced Concrete Curb	L.F,	2,620	$ 2.50	$ 7,000.00
Sub Total for Segment B Paving				**$ 454,000.00**
Appurtenances (5%)				$ 23,000.00
Contingency (25%)				$ 119,000.00
Engineering (12%)				$ 72,000.00
Total Segment B Items:				**$ 668,000.00**
Drainage				
Type "C-2A"	EA.	2	$ 3,100.00	$ 6,000.00
Manholes	EA.	2	$ 3,500.00	$ 7,000.00
24-inch Leads	L.F.	40	$ 50.00	$ 2,000.00
48" X 72" RCB	L.F.	2,308	$ 265.00	$ 612,000.00
Sub Total for Segment B Drainage				**$ 627,000.00**
Appurtenances (15%)				$ 94,000.00
Contingency (25%)				$ 180,000.00
Engineering (12%)				$ 108,000.00
Subtotal Items:				**$ 1,009,000.00**
Water				
8" PVC Pipe	LF.	1,310	$ 16.00	$ 21,000.00
Fire Hydrant	EA.	3	$ 2,700.00	$ 8,000.00
8" Gate Valve	EA.	2	$ 700.00	$ 1,000.00
Sub Total for Segment B Water				**$ 30,000.00**
Appurtenances (25%)				$ 8,000.00
Contingency (25%)				$ 10,000.00
Engineering (12%)				$ 6,000.00
Subtotal Items:				**$ 54,000.00**
Sanitary Sewer				
8" SDR-26	LF.	1,122	$ 22.00	$ 25,000.00
Sanitary Sewer Manhole (0-8')	EA.	3	$ 2,000.00	$ 6,000.00

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Estimate 2
Priority Phasing
Segment B

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment B - S. Spectrum: Promenade to TXDOT				
Extradepth Manhole	VF.	1	$ 100.00	$ -
Trench Safety Systems	LF.	1,122	$ 0.50	$ 1,000.00
		Sub Total for Segment B Sewer		**$ 32,000.00**
			Appurtenances (10%)	$ 3,000.00
			Contingency (15%)	$ 5,000.00
			Engineering (12%)	$ 5,000.00
			Subtotal Items:	**$ 45,000.00**
Electric				
Ductbank	LF.	1,314	$ 165.00	$ 217,000.00
Street Light	LF.	9	$ 2,700.00	$ 24,000.00
			Contingency (25%)	$ 60,000.00
			Engineering (12%)	$ 36,000.00
			Subtotal Items:	**$ 337,000.00**
Traffic Items				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	2,911	$ 32.00	$ 93,000.00
Street Trees	LF.	1,310	$ 29.00	$ 38,000.00
Irrigation	L.F.	1310	$ 45.00	$ 59,000.00
			Contingency (25%)	$ 48,000.00
			Engineering (12%)	$ 29,000.00
			Subtotal Items:	**$ 267,000.00**
			Segment Total:	**$ 2,660,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment C - S. Spectrum: TXDOT to Kirby Dr.				
Total Segment Length	**1270**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**1270**	**ft**		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	4	$ 1,200.00	$ 4,000.00
Roadway Excavation	CY.	6,698	$ 3.25	$ 22,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	10,301	$ 1.75	$ 18,000.00
Lime for Stabilization (7% per dry weight)	TON	241	$ 120.00	$ 29,000.00
10-inch Reinforced Concrete Pavement (71' B-B)	SY.	10,019	$ 36.00	$ 361,000.00
6-inch Reinforced Concrete Curb	L.F,	2,540	$ 2.50	$ 6,000.00
			Sub Total	$ 440,000.00
			Appurtenances (5%)	$ 22,000.00
			Contingency (25%)	$ 116,000.00
			Engineering (12%)	$ 69,000.00
			Total Segment C Items:	**$ 647,000.00**
Drainage				
Type "C-2A"	EA.	2	$ 3,100.00	$ 6,000.00
Manholes	EA.	2	$ 3,500.00	$ 7,000.00
24-inch Leads	L.F.	40	$ 50.00	$ 2,000.00
48" X 84" RCB	L.F.	2,422	$ 315.00	$ 763,000.00
			Sub Total for Segment Drainage	**$ 778,000.00**
			Appurtenances (15%)	$ 117,000.00
			Contingency (25%)	$ 224,000.00
			Engineering (12%)	$ 134,000.00
			Subtotal Items:	**$ 1,253,000.00**
Water				
8" PVC Pipe	LF.	1,270	$ 16.00	$ 20,000.00
Fire Hydrant	EA.	3	$ 2,700.00	$ 8,000.00
8" Gate Valve	EA.	2	$ 700.00	$ 1,000.00
			Sub Total for Segment Water	**$ 29,000.00**
			Appurtenances (25%)	$ 7,000.00
			Contingency (25%)	$ 9,000.00
			Engineering (12%)	$ 5,000.00
			Subtotal Items:	**$ 50,000.00**
Sewer				
8" SDR-26	LF.	801	$ 22.00	$ 18,000.00
Sanitary Sewer Manhole (0-8')	EA.	2	$ 2,000.00	$ 4,000.00

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Estimate 2
Priority Phasing
Segment C

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment C - S. Spectrum: TXDOT to Kirby Dr.				
Extradepth Manhole	VF.	5	$ 100.00	$ 1,000.00
Trench Safety Systems	LF.	801	$ 0.50	$ -
		Sub Total for Segment Water		**$ 23,000.00**
			Appurtenances (10%)	$ 2,000.00
			Contingency (15%)	$ 4,000.00
			Engineering (12%)	$ 3,000.00
			Subtotal Items:	**$ 32,000.00**
Electric				
Ductbank	LF.	1,272	$ 165.00	$ 210,000.00
Street Light	LF.	8	$ 2,700.00	$ 22,000.00
			Contingency (25%)	$ 58,000.00
			Engineering (12%)	$ 35,000.00
			Subtotal Items:	**$ 325,000.00**
Traffic Items				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	2,822	$ 32.00	$ 90,000.00
Street Trees	LF.	1,270	$ 29.00	$ 37,000.00
Irrigation	L.F.	1270	$ 45.00	$ 57,000.00
			Contingency (25%)	$ 46,000.00
			Engineering (12%)	$ 28,000.00
			Subtotal Items:	**$ 258,000.00**
			Segment Total:	**$ 2,845,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment D - Kirby Drive: Beltway 8 to Fruge				
Total Segment Length	**4400 ft**			
Existing Segment Length	**4400 ft**			
New Segment Length	**0 ft**			
Paving		0	$ -	$ -
Drainage		0	$ -	$ -
Water		0	$ -	$ -
Sewer		0	$ -	$ -
Electric				
Ductbank	LF.	4,400	$ 165.00	$ 726,000.00
Street Light	LF.	0	$ 2,700.00	$ -
			Contingency (25%)	$ 182,000.00
			Engineering (12%)	$ 109,000.00
			Subtotal Items:	**$ 1,017,000.00**
Streetscape				
Sidewalks	SY	5,867	$ 32.00	$ 188,000.00
Street Trees	LF.	4,400	$ 29.00	$ 128,000.00
Irrigation	L.F.	4,400	$ 45.00	$ 198,000.00
			Contingency (25%)	$ 129,000.00
			Engineering (12%)	$ 77,000.00
			Subtotal Items:	**$ 720,000.00**
			Segment Total:	**$ 1,737,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment E - N Spectrum/Riley: Kirby to Almeda School Rd				
Total Segment Length	**5200**	**ft**		
Existing Segment Length	**1200**	**ft**		
New Segment Length	**4000**	**ft**		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	8	$ 1,200.00	$ 9,000.00
Roadway Excavation	CY.	13,659	$ 3.25	$ 44,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	20,889	$ 1.75	$ 37,000.00
Lime for Stabilization (7% per dry weight)	TON	489	$ 120.00	$ 59,000.00
10-inch Reinforced Concrete Pavement (45' B-B)	SY.	20,000	$ 36.00	$ 720,000.00
6-inch Reinforced Concrete Curb	L.F,	8,000	$ 2.50	$ 20,000.00
			Sub Total	$ 889,000.00
			Appurtenances (5%)	$ 44,000.00
			Contingency (25%)	$ 233,000.00
			Engineering (12%)	$ 140,000.00
			Total Segment E Items:	**$ 1,306,000.00**
Drainage				
Street Drainage	L.F.	4,000	$ 60.00	$ 240,000.00
			Appurtenances (15%)	$ 36,000.00
			Contingency (25%)	$ 69,000.00
			Engineering (12%)	$ 41,000.00
			Subtotal Items:	**$ 386,000.00**
Water				
12" PVC Pipe	LF.	4,000	$ 25.00	$ 100,000.00
Fire Hydrant	EA.	8	$ 2,700.00	$ 22,000.00
12" Gate Valve	EA.	4	$ 1,000.00	$ 4,000.00
			Sub Total for Segment Water	**$ 126,000.00**
			Appurtenances (25%)	$ 32,000.00
			Contingency (25%)	$ 40,000.00
			Engineering (12%)	$ 24,000.00
			Subtotal Items:	**$ 222,000.00**
Sewer				
12" SDR-26	LF.	4,000	$ 30.00	$ 120,000.00
Sanitary Sewer Manhole (0-8')	EA.	10	$ 2,000.00	$ 20,000.00
Trench Safety Systems	LF.	4,000	$ 0.50	$ 2,000.00
			Sub Total for Segment B Sewer	**$ 142,000.00**

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment E - N Spectrum/Riley: Kirby to Almeda School Rd				
			Appurtenances (10%)	$ 14,000.00
			Contingency (15%)	$ 23,000.00
			Engineering (12%)	$ 21,000.00
			Subtotal Items:	**$ 200,000.00**
Electric				
Ductbank	LF.	4,000	$ 165.00	$ 660,000.00
Street Light	LF.	25	$ 2,700.00	$ 68,000.00
			Contingency (25%)	$ 182,000.00
			Engineering (12%)	$ 109,000.00
			Subtotal Items:	**$ 1,019,000.00**
Traffic Items				
Signalized Intersection	EA.	0	$ 200,000.00	$ -
			Contingency (25%)	$ -
			Engineering (12%)	$ -
			Subtotal Items:	**$ -**
Streetscape				
Sidewalks	SY	8,889	$ 32.00	$ 284,000.00
Street Trees	LF.	4,000	$ 29.00	$ 116,000.00
Irrigation	L.F.	4,000	$ 45.00	$ 180,000.00
			Contingency (25%)	$ 145,000.00
			Engineering (12%)	$ 87,000.00
			Subtotal Items:	**$ 812,000.00**
			Segment Total:	**$ 3,523,000.00**

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LOWER KIRBY URBAN CORE
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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment F - N. Spectrum: TXDOT to Kirby Dr.				
Total Segment Length	**1100**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**1100**	**ft**		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	3	$ 1,200.00	$ 4,000.00
Roadway Excavation	CY.	5,801	$ 3.25	$ 19,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	8,922	$ 1.75	$ 16,000.00
Lime for Stabilization (7% per dry weight)	TON	209	$ 120.00	$ 25,000.00
10-inch Reinforced Concrete Pavement (71' B-B)	SY.	8,678	$ 36.00	$ 312,000.00
6-inch Reinforced Concrete Curb	L.F,	2,200	$ 2.50	$ 6,000.00
			Sub Total	$ 380,861.75
			Sub Total for Segment Paving	**$ 381,000.00**
			Appurtenances (5%)	$ 19,000.00
			Contingency (25%)	$ 100,000.00
			Engineering (12%)	$ 60,000.00
			Total Segment F Items:	**$ 560,000.00**
Drainage				
24" RCP	LF	510	$ 50.00	$ 26,000.00
30" RCP	LF	374	$ 65.00	$ 24,000.00
Type C Inlets	EA	6	$ 3,100.00	$ 19,000.00
			Appurtenances (15%)	$ 10,000.00
			Contingency (25%)	$ 20,000.00
			Engineering (12%)	$ 12,000.00
			Subtotal Items:	**$ 111,000.00**
Water		0	$ -	$ -
Sewer		0	$ -	$ -
Electric				
Ductbank	LF.	1,099	$ 165.00	$ 181,000.00
Street Light	LF.	7	$ 2,700.00	$ 19,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Traffic Items				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment F - N. Spectrum: TXDOT to Kirby Dr.				
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	2,444	$ 32.00	$ 78,000.00
Street Trees	LF.	1,100	$ 29.00	$ 32,000.00
Irrigation	L.F.	1,100	$ 45.00	$ 50,000.00
			Contingency (25%)	$ 40,000.00
			Engineering (12%)	$ 24,000.00
			Subtotal Items:	**$ 224,000.00**
			Segment Total:	**$ 1,455,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment G - N. Spectrum: Promenade to TXDOT				
Total Segment Length	**1750**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**1750**	**ft**		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	5	$ 1,200.00	$ 6,000.00
Roadway Excavation	CY.	9,204	$ 3.25	$ 30,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	14,194	$ 1.75	$ 25,000.00
Lime for Stabilization (7% per dry weight)	TON	333	$ 120.00	$ 40,000.00
10-inch Reinforced Concrete Pavement (71' B-B)	SY.	13,806	$ 36.00	$ 497,000.00
6-inch Reinforced Concrete Curb	L.F,	3,500	$ 2.50	$ 9,000.00
			Sub Total	$ 607,000.00
			Sub Total for Segment Paving	**$ 607,000.00**
			Appurtenances (5%)	$ 30,000.00
			Contingency (25%)	$ 159,000.00
			Engineering (12%)	$ 96,000.00
			Total Segment G Items:	**$ 892,000.00**
Drainage		0	$ -	$ -
Water		0	$ -	$ -
Sewer		0	$ -	$ -
Electric				
Ductbank	LF.	1,745	$ 165.00	$ 288,000.00
Street Light	LF.	11	$ 2,700.00	$ 30,000.00
			Contingency (25%)	$ 80,000.00
			Engineering (12%)	$ 48,000.00
			Subtotal Items:	**$ 446,000.00**
Traffic Items				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	3,889	$ 32.00	$ 124,000.00
Street Trees	LF.	1,750	$ 29.00	$ 51,000.00
Irrigation	L.F.	1,750	$ 45.00	$ 79,000.00

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment G - N. Spectrum: Promenade to TXDOT				
			Contingency (25%)	$ 64,000.00
			Engineering (12%)	$ 38,000.00
			Subtotal Items:	**$ 356,000.00**
			Segment Total:	**$ 1,974,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
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DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment H - Promenade: Beltway 8 to N. Spectrum				
Total Segment Length	**1550**	**ft**		
Existing Segment Length	**470**	**ft**		
New Segment Length	**1080**	**ft**		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	3	$ 1,200.00	$ 3,000.00
Roadway Excavation	CY.	5,680	$ 3.25	$ 18,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	8,760	$ 1.75	$ 15,000.00
Lime for Stabilization (7% per dry weight)	TON	205	$ 120.00	$ 25,000.00
10-inch Reinforced Concrete Pavement (71' B-B)	SY.	8,520	$ 36.00	$ 307,000.00
6-inch Reinforced Concrete Curb	L.F,	2,160	$ 2.50	$ 5,000.00
			Sub Total	$ 373,000.00
			Sub Total for Segment Paving	**$ 373,000.00**
			Appurtenances (5%)	$ 19,000.00
			Contingency (25%)	$ 98,000.00
			Engineering (12%)	$ 59,000.00
			Total Segment I Items:	**$ 549,000.00**
Drainage		0	$ -	$ -
Water		0	$ -	$ -
Sewer		0	$ -	$ -
Electric				
Ductbank	LF.	1,000	$ 165.00	$ 165,000.00
Street Light	LF.	7	$ 2,700.00	$ 19,000.00
			Contingency (25%)	$ 46,000.00
			Engineering (12%)	$ 28,000.00
			Subtotal Items:	**$ 258,000.00**
Streetscape				
Sidewalks	SY	2,400	$ 32.00	$ 77,000.00
Street Trees	LF.	1,080	$ 29.00	$ 31,000.00
Irrigation	L.F.	1,080	$ 45.00	$ 49,000.00
			Contingency (25%)	$ 39,000.00
			Engineering (12%)	$ 24,000.00
			Subtotal Items:	**$ 220,000.00**
			Segment Total:	**$ 1,027,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment I - Promenade: N. Spectrum to S. Spectrum				
Total Segment Length	**1320**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**1320**	**ft**		
Paving				
BV-114-70				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	4	$ 1,200.00	$ 4,000.00
Roadway Excavation	CY.	6,942	$ 3.25	$ 23,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	10,707	$ 1.75	$ 19,000.00
Lime for Stabilization (7% per dry weight)	TON	251	$ 120.00	$ 30,000.00
10-inch Reinforced Concrete Pavement (71' B-B)	SY.	10,413	$ 36.00	$ 375,000.00
6-inch Reinforced Concrete Curb	L.F,	2,640	$ 2.50	$ 7,000.00
			Sub Total	$ 458,000.00
			Sub Total for Segment Paving	**$ 458,000.00**
			Appurtenances (5%)	$ 23,000.00
			Contingency (25%)	$ 120,000.00
			Engineering (12%)	$ 72,000.00
			Total Segment I Items:	**$ 673,000.00**
Drainage				
Type "C-2A"	EA.	4	$ 3,100.00	$ 12,000.00
Manholes	EA.	2	$ 3,500.00	$ 7,000.00
24-inch Leads	L.F.	140	$ 50.00	$ 7,000.00
48" X 84" RCB	L.F.	600	$ 315.00	$ 189,000.00
			Sub Total	$ 215,000.00
			Appurtenances (15%)	$ 32,000.00
			Contingency (25%)	$ 62,000.00
			Engineering (12%)	$ 37,000.00
			Subtotal Items:	**$ 346,000.00**
Water		0	$ -	$ -
Sewer		0	$ -	$ -
Electric				
Ductbank	LF.	1,315	$ 165.00	$ 217,000.00
Street Light	LF.	9	$ 2,700.00	$ 24,000.00
			Contingency (25%)	$ 60,000.00
			Engineering (12%)	$ 36,000.00
			Subtotal Items:	**$ 337,000.00**
Traffic Items				

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment I - Promenade: N. Spectrum to S. Spectrum				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	2,933	$ 32.00	$ 94,000.00
Street Trees	LF.	1,320	$ 29.00	$ 38,000.00
Irrigation	L.F.	1,320	$ 45.00	$ 59,000.00
			Contingency (25%)	$ 48,000.00
			Engineering (12%)	$ 29,000.00
			Subtotal Items:	**$ 268,000.00**
			Segment Total:	**$ 1,904,000.00**

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CONSTRUCTION COST ESTIMATE
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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment J - Fruge: Promenade to S. Spectrum Drive (Curve)				
Total Segment Length	**1580**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**1580**	**ft**		
Paving				
RD-44-22				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	$ 1,200.00	$ 2,000.00
Roadway Excavation	CY.	2,304	$ 3.25	$ 7,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	4,389	$ 1.75	$ 8,000.00
Lime for Stabilization (7% per dry weight)	TON	103	$ 120.00	$ 12,000.00
8-inch Reinforced Concrete Pavement (23' B-B)	SY.	4,038	$ 26.00	$ 105,000.00
6-inch Reinforced Concrete Curb	L.F,	3,160	$ 2.50	$ 8,000.00
			Sub Total	$ 142,000.00
			Appurtenances (5%)	$ 7,000.00
			Contingency (25%)	$ 37,000.00
			Engineering (12%)	$ 22,000.00
			Total Phase I Items:	**$ 208,000.00**
Drainage				
Type "C-2A"	EA.	2	$ 3,100.00	$ 6,000.00
Manholes	EA.	3	$ 3,500.00	$ 11,000.00
24-inch Leads	L.F.	50	$ 50.00	$ 3,000.00
48-inch Sewer RCP	L.F.	1,418	$ 130.00	$ 184,000.00
			Sub Total	$ 204,000.00
			Appurtenances (15%)	$ 31,000.00
			Contingency (25%)	$ 59,000.00
			Engineering (12%)	$ 35,000.00
			Subtotal Items:	**$ 329,000.00**
Water				
8" PVC Pipe	LF.	1,580	$ 16.00	$ 25,000.00
Fire Hydrant	EA.	4	$ 2,700.00	$ 11,000.00
8" Gate Valve	EA.	2	$ 700.00	$ 1,000.00
			Sub Total	$ 37,000.00
			Appurtenances (25%)	$ 9,000.00
			Contingency (25%)	$ 12,000.00
			Engineering (12%)	$ 7,000.00
			Subtotal Items:	**$ 65,000.00**
Sewer				
8" SDR-26	LF.	1,782	$ 22.00	$ 39,000.00
Sanitary Sewer Manhole (0-8')	EA.	7	$ 2,000.00	$ 14,000.00

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Estimate 2
Priority Phasing
Segment J

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment J - Fruge: Promenade to S. Spectrum Drive (Curve)				
Extradepth Manhole	VF.	1	$ 100.00	$ -
Trench Safety Systems	LF.	1,782	$ 0.50	$ 1,000.00
			Sub Total	$ 54,000.00
			Appurtenances (10%)	$ 5,000.00
			Contingency (15%)	$ 9,000.00
			Engineering (12%)	$ 8,000.00
			Subtotal Items:	**$ 76,000.00**
Electric				
Ductbank	LF.	1,582	$ 165.00	$ 261,000.00
Street Light	LF.	10	$ 2,700.00	$ 27,000.00
			Contingency (25%)	$ 72,000.00
			Engineering (12%)	$ 43,000.00
			Subtotal Items:	**$ 403,000.00**
Traffic Items				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	2,107	$ 32.00	$ 67,000.00
Street Trees	LF.	1,580	$ 29.00	$ 46,000.00
Irrigation	L.F.	1,580	$ 45.00	$ 71,000.00
			Contingency (25%)	$ 46,000.00
			Engineering (12%)	$ 28,000.00
			Subtotal Items:	**$ 258,000.00**
			Segment Total:	**$ 1,619,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment K - Promenade: S. Spectrum to Fruge Rd.				
Total Segment Length	**1610**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**1610**	**ft**		
Paving				
AV-94-48				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	$ 1,200.00	$ 3,000.00
Roadway Excavation	CY.	3,876	$ 3.25	$ 13,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	7,334	$ 1.75	$ 13,000.00
Lime for Stabilization (7% per dry weight)	TON	172	$ 120.00	$ 21,000.00
8-inch Reinforced Concrete Pavement (39' B-B)	SY.	6,977	$ 31.00	$ 216,000.00
6-inch Reinforced Concrete Curb	L.F,	3,220	$ 2.50	$ 8,000.00
			Sub Total	$ 274,000.00
			Appurtenances (5%)	$ 14,000.00
			Contingency (25%)	$ 72,000.00
			Engineering (12%)	$ 43,000.00
			Total Phase I Items:	**$ 403,000.00**
Drainage				
Type "C-2A"	EA.	2	$ 3,100.00	$ 6,000.00
Manholes	EA.	3	$ 3,500.00	$ 11,000.00
24-inch Leads	L.F.	50	$ 50.00	$ 3,000.00
42-inch Sewer RCP	L.F.	840	$ 100.00	$ 84,000.00
48-inch Sewer RCP	L.F.	1,464	$ 130.00	$ 190,000.00
			Sub Total	$ 294,000.00
			Appurtenances (15%)	$ 44,000.00
			Contingency (25%)	$ 85,000.00
			Engineering (12%)	$ 51,000.00
			Subtotal Items:	**$ 474,000.00**
Water				
8" PVC Pipe	LF.	1,610	$ 16.00	$ 26,000.00
Fire Hydrant	EA.	4	$ 2,700.00	$ 11,000.00
8" Gate Valve	EA.	2	$ 700.00	$ 1,000.00
			Sub Total	$ 38,000.00
			Appurtenances (25%)	$ 10,000.00
			Contingency (25%)	$ 12,000.00
			Engineering (12%)	$ 6,000.00
			Subtotal Items:	**$ 66,000.00**
Sewer				
10" SDR-26	LF.	1,069	$ 33.00	$ 35,000.00

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Estimate 2
Priority Phasing
Segment K

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment K - Promenade: S. Spectrum to Fruge Rd.				
18" SDR-26	LF.	1,142	$ 58.00	$ 66,000.00
Sanitary Sewer Manhole (0-8')	EA.	7	$ 2,000.00	$ 14,000.00
Extradepth Manhole	VF.	13	$ 100.00	$ 1,000.00
Trench Safety Systems	LF.	2,211	$ 0.50	$ 1,000.00
			Sub Total	$ 117,000.00
			Appurtenances (10%)	$ 12,000.00
			Contingency (15%)	$ 19,000.00
			Engineering (12%)	$ 18,000.00
			Subtotal Items:	**$ 166,000.00**
Electric				
Ductbank	LF.	1,607	$ 165.00	$ 265,000.00
Street Light	LF.	11	$ 2,700.00	$ 30,000.00
			Contingency (25%)	$ 74,000.00
			Engineering (12%)	$ 44,000.00
			Subtotal Items:	**$ 413,000.00**
Traffic Items				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	3,936	$ 32.00	$ 126,000.00
Street Trees	LF.	1,610	$ 29.00	$ 47,000.00
Irrigation	L.F.	1,610	$ 45.00	$ 72,000.00
			Contingency (25%)	$ 61,000.00
			Engineering (12%)	$ 37,000.00
			Subtotal Items:	**$ 343,000.00**
			Segment Total:	**$ 2,145,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment L - Fruge: Promenade to TXDOT				
Total Segment Length	**760**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**760**	**ft**		
Paving				
ST-62-38				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	1	$ 1,200.00	$ 1,000.00
Roadway Excavation	CY.	1,830	$ 3.25	$ 6,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	3,462	$ 1.75	$ 6,000.00
Lime for Stabilization (7% per dry weight)	TON	81	$ 120.00	$ 10,000.00
8-inch Reinforced Concrete Pavement (39' B-B)	SY.	3,293	$ 31.00	$ 102,000.00
6-inch Reinforced Concrete Curb	L.F,	1,520	$ 2.50	$ 4,000.00
			Sub Total	$ 129,000.00
			Appurtenances (5%)	$ 6,000.00
			Contingency (25%)	$ 34,000.00
			Engineering (12%)	$ 20,000.00
			Total Phase I Items:	**$ 189,000.00**
Drainage				
street drainage	LF	760	$ 60.00	$ 46,000.00
			Appurtenances (15%)	$ 7,000.00
			Contingency (25%)	$ 13,000.00
			Engineering (12%)	$ 8,000.00
			Subtotal Items:	**$ 74,000.00**
Water				
8" PVC Pipe	LF.	760	$ 16.00	$ 12,000.00
Fire Hydrant	EA.	2	$ 2,700.00	$ 5,000.00
8" Gate Valve	EA.	1	$ 700.00	$ 1,000.00
			Sub Total	$ 18,000.00
			Appurtenances (25%)	$ 5,000.00
			Contingency (25%)	$ 6,000.00
			Engineering (12%)	$ 3,000.00
			Subtotal Items:	**$ 32,000.00**
Sewer				
10" SDR-26	LF.	1,036	$ 33.00	$ 34,000.00
18" SDR-26	LF.	1,142	$ 58.00	$ 66,000.00
Sanitary Sewer Manhole (0-8')	EA.	5	$ 2,000.00	$ 10,000.00
Extradepth Manhole	VF.	13	$ 100.00	$ 1,000.00
Trench Safety Systems	LF.	2,178	$ 0.50	$ 1,000.00
			Sub Total	$ 112,000.00

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment L - Fruge: Promenade to TXDOT				
			Appurtenances (10%)	$ 11,000.00
			Contingency (15%)	$ 18,000.00
			Engineering (12%)	$ 17,000.00
			Subtotal Items:	**$ 158,000.00**
Electric				
Ductbank	LF.	756	$ 165.00	$ 125,000.00
Street Light	LF.	5	$ 2,700.00	$ 14,000.00
			Contingency (25%)	$ 35,000.00
			Engineering (12%)	$ 21,000.00
			Subtotal Items:	**$ 195,000.00**
Traffic Items				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	2,027	$ 32.00	$ 65,000.00
Street Trees	LF.	760	$ 29.00	$ 22,000.00
Irrigation	L.F.	760	$ 45.00	$ 34,000.00
			Contingency (25%)	$ 30,000.00
			Engineering (12%)	$ 18,000.00
			Subtotal Items:	**$ 169,000.00**
			Segment Total:	**$ 1,097,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment M - Fruge: TXDOT to Kirby				
Total Segment Length	**1150**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**1150**	**ft**		
Paving				
ST-53-29				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	$ 1,200.00	$ 2,000.00
Roadway Excavation	CY.	2,769	$ 3.25	$ 9,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	5,239	$ 1.75	$ 9,000.00
Lime for Stabilization (7% per dry weight)	TON	123	$ 120.00	$ 15,000.00
8-inch Reinforced Concrete Pavement (39' B-B)	SY.	4,983	$ 31.00	$ 154,000.00
6-inch Reinforced Concrete Curb	L.F,	2,300	$ 2.50	$ 6,000.00
			Sub Total	$ 195,000.00
			Appurtenances (5%)	$ 10,000.00
			Contingency (25%)	$ 51,000.00
			Engineering (12%)	$ 31,000.00
			Total Phase I Items:	**$ 287,000.00**
Drainage		0	$ -	$ -
Water				
8" PVC Pipe	LF.	1,150	$ 16.00	$ 18,000.00
Fire Hydrant	EA.	3	$ 2,700.00	$ 8,000.00
8" Gate Valve	EA.	2	$ 700.00	$ 1,000.00
			Sub Total	$ 27,000.00
			Appurtenances (25%)	$ 7,000.00
			Contingency (25%)	$ 9,000.00
			Engineering (12%)	$ 5,000.00
			Subtotal Items:	**$ 48,000.00**
Sewer				
18" SDR-26	LF.	1,186	$ 58.00	$ 69,000.00
Sanitary Sewer Manhole (0-8')	EA.	3	$ 2,000.00	$ 6,000.00
Extradepth Manhole	VF.	12	$ 100.00	$ 1,000.00
Trench Safety Systems	LF.	1,186	$ 0.50	$ 1,000.00
			Sub Total	$ 77,000.00
			Appurtenances (10%)	$ 8,000.00
			Contingency (15%)	$ 21,000.00
			Engineering (12%)	$ 13,000.00
			Subtotal Items:	**$ 119,000.00**
Electric				

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment M - Fruge: TXDOT to Kirby				
Ductbank	LF.	1,145	$ 165.00	$ 189,000.00
Street Light	LF.	8	$ 2,700.00	$ 22,000.00
			Contingency (25%)	$ 53,000.00
			Engineering (12%)	$ 32,000.00
			Subtotal Items:	**$ 296,000.00**
Traffic Items				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	1,533	$ 32.00	$ 49,000.00
Street Trees	LF.	1,150	$ 29.00	$ 33,000.00
Irrigation	L.F.	1,150	$ 45.00	$ 52,000.00
			Contingency (25%)	$ 34,000.00
			Engineering (12%)	$ 20,000.00
			Subtotal Items:	**$ 188,000.00**
			Segment Total:	**$ 1,218,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment N - Fruge: Kirby to Hooper				
Total Segment Length	**1200**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**1200**	**ft**		
Paving				
RD-44-22				
Site Preparation (Clearing & Grubbing)	AC.	1	$ 1,200.00	$ 1,000.00
Roadway Excavation	CY.	1,750	$ 3.25	$ 6,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	3,333	$ 1.75	$ 6,000.00
Lime for Stabilization (7% per dry weight)	TON	78	$ 120.00	$ 9,000.00
10-inch Reinforced Concrete Pavement (23' B-B)	SY.	3,067	$ 26.00	$ 80,000.00
6-inch Reinforced Concrete Curb	L.F,	2,400	$ 2.50	$ 6,000.00
			Sub Total	$ 108,000.00
			Appurtenances (5%)	$ 5,000.00
			Contingency (25%)	$ 28,000.00
			Engineering (12%)	$ 17,000.00
			Total Phase I Items:	**$ 158,000.00**
Drainage				
street drainage	LF	1,200	$ 60.00	$ 72,000.00
			Appurtenances (15%)	$ 11,000.00
			Contingency (25%)	$ 21,000.00
			Engineering (12%)	$ 12,000.00
			Subtotal Items:	**$ 116,000.00**
Water				
8" PVC Pipe	LF.	1,200	$ 16.00	$ 19,000.00
Fire Hydrant	EA.	3	$ 2,700.00	$ 8,000.00
8" Gate Valve	EA.	2	$ 700.00	$ 1,000.00
			Sub Total	$ 28,000.00
			Appurtenances (25%)	$ 7,000.00
			Contingency (25%)	$ 9,000.00
			Engineering (12%)	$ 5,000.00
			Subtotal Items:	**$ 49,000.00**
Sewer				
10" SDR-26	LF.	1,250	$ 33.00	$ 41,000.00
Sanitary Sewer Manhole (0-8')	EA.	5	$ 2,000.00	$ 10,000.00
Extradepth Manhole	VF.	13	$ 100.00	$ 1,000.00
Trench Safety Systems	LF.	1,250	$ 0.50	$ 1,000.00
			Sub Total	$ 53,000.00
			Appurtenances (10%)	$ 5,000.00

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DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment N - Fruge: Kirby to Hooper				
			Contingency (15%)	$ 15,000.00
			Engineering (12%)	$ 9,000.00
			Subtotal Items:	**$ 82,000.00**
Electric				
Ductbank	LF.	1,195	$ 165.00	$ 197,000.00
Street Light	LF.	8	$ 2,700.00	$ 22,000.00
			Contingency (25%)	$ 55,000.00
			Engineering (12%)	$ 33,000.00
			Subtotal Items:	**$ 307,000.00**
Traffic Items				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	1,600	$ 32.00	$ 51,000.00
Street Trees	LF.	1,200	$ 29.00	$ 35,000.00
Irrigation	L.F.	1,200	$ 45.00	$ 54,000.00
			Contingency (25%)	$ 35,000.00
			Engineering (12%)	$ 21,000.00
			Subtotal Items:	**$ 196,000.00**
			Segment Total:	**$ 1,030,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment O - Hooper: Beltway 8 to N. Spectrum				
Total Segment Length	**3650**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**3650**	**ft**		
RD-44-22				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	4	$ 1,200.00	$ 4,000.00
Roadway Excavation	CY.	5,322	$ 3.25	$ 17,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	10,139	$ 1.75	$ 18,000.00
Lime for Stabilization (7% per dry weight)	TON	238	$ 120.00	$ 29,000.00
10-inch Reinforced Concrete Pavement (23' B-B)	SY.	9,328	$ 26.00	$ 243,000.00
6-inch Reinforced Concrete Curb	L.F,	7,300	$ 2.50	$ 18,000.00
			Sub Total	$ 329,000.00
			Appurtenances (5%)	$ 16,000.00
			Contingency (25%)	$ 86,000.00
			Engineering (12%)	$ 52,000.00
			Total Phase I Items:	**$ 483,000.00**
Drainage				
Type "C-2A"	EA.	8	$ 3,100.00	$ 25,000.00
Manholes	EA.	5	$ 3,500.00	$ 18,000.00
24-inch Leads	L.F.	104	$ 50.00	$ 5,000.00
48-inch Sewer RCP	L.F.	3,500	$ 130.00	$ 455,000.00
54-inch Sewer RCP	L.F.	2,692	$ 175.00	$ 471,000.00
			Sub Total	$ 974,000.00
			Appurtenances (15%)	$ 146,000.00
			Contingency (25%)	$ 280,000.00
			Engineering (12%)	$ 168,000.00
			Subtotal Items:	**$ 1,568,000.00**
Water				
8" PVC Pipe	LF.	3,650	$ 16.00	$ 58,000.00
Fire Hydrant	EA.	8	$ 2,700.00	$ 22,000.00
8" Gate Valve	EA.	4	$ 700.00	$ 3,000.00
			Sub Total	$ 83,000.00
			Appurtenances (25%)	$ 21,000.00
			Contingency (25%)	$ 26,000.00
			Engineering (12%)	$ 16,000.00
			Subtotal Items:	**$ 146,000.00**
Sewer				
8" SDR-26	LF.	1,204	$ 22.00	$ 26,000.00
10" SDR-26	LF.	2,650	$ 33.00	$ 87,000.00

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Estimate 2
Priority Phasing
Segment O

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment O - Hooper: Beltway 8 to N. Spectrum				
12" SDR-26	LF.	1,307	$ 35.00	$ 46,000.00
Sanitary Sewer Manhole (0-8')	EA.	14	$ 2,000.00	$ 28,000.00
Extradepth Manhole	VF.	35	$ 100.00	$ 4,000.00
Trench Safety Systems	LF.	5,161	$ 0.50	$ 3,000.00
			Sub Total	$ 194,000.00
			Appurtenances (10%)	$ 19,000.00
			Contingency (15%)	$ 32,000.00
			Engineering (12%)	$ 29,000.00
			Subtotal Items:	**$ 274,000.00**
Electric				
Ductbank	LF.	3,645	$ 165.00	$ 601,000.00
Street Light	LF.	23	$ 2,700.00	$ 62,000.00
			Contingency (25%)	$ 166,000.00
			Engineering (12%)	$ 99,000.00
			Subtotal Items:	**$ 928,000.00**
Traffic Items				
Signalized Intersection	EA.	1	$ 200,000.00	$ 200,000.00
			Contingency (25%)	$ 50,000.00
			Engineering (12%)	$ 30,000.00
			Subtotal Items:	**$ 280,000.00**
Streetscape				
Sidewalks	SY	4,867	$ 32.00	$ 156,000.00
Street Trees	LF.	3,650	$ 29.00	$ 106,000.00
Irrigation	L.F.	3,650	$ 45.00	$ 164,000.00
			Contingency (25%)	$ 107,000.00
			Engineering (12%)	$ 64,000.00
			Subtotal Items:	**$ 597,000.00**
			Segment Total:	**$ 4,276,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment P - Hooper: N. Spectrum to Fruge Rd.				
Total Segment Length	**1540**	**ft**		
Existing Segment Length	**0**	**ft**		
New Segment Length	**1540**	**ft**		
RD-44-22				
EARTHWORK AND SITE PREPARATION ITEMS				
Site Preparation (Clearing & Grubbing)	AC.	2	$ 1,200.00	$ 2,000.00
Roadway Excavation	CY.	2,246	$ 3.25	$ 7,000.00
PAVING ITEMS				
8-inch stabilized subgrade	SY.	4,278	$ 1.75	$ 7,000.00
Lime for Stabilization (7% per dry weight)	TON	100	$ 120.00	$ 12,000.00
10-inch Reinforced Concrete Pavement (23' B-B)	SY.	3,936	$ 26.00	$ 102,000.00
6-inch Reinforced Concrete Curb	L.F,	3,080	$ 2.50	$ 8,000.00
			Sub Total	$ 138,000.00
			Appurtenances (5%)	$ 7,000.00
			Contingency (25%)	$ 36,000.00
			Engineering (12%)	$ 22,000.00
			Total Phase I Items:	**$ 203,000.00**
Drainage				
Type "C-2A"	EA.	2	$ 3,100.00	$ 6,000.00
Manholes	EA.	2	$ 3,500.00	$ 7,000.00
24-inch Leads	L.F.	36	$ 50.00	$ 2,000.00
42-inch Sewer RCP	L.F.	700	$ 100.00	$ 70,000.00
			Sub Total	$ 85,000.00
			Appurtenances (15%)	$ 13,000.00
			Contingency (25%)	$ 25,000.00
			Engineering (12%)	$ 15,000.00
			Subtotal Items:	**$ 138,000.00**
Water				
8" PVC Pipe	LF.	1,540	$ 16.00	$ 25,000.00
Fire Hydrant	EA.	4	$ 2,700.00	$ 11,000.00
8" Gate Valve	EA.	2	$ 700.00	$ 1,000.00
			Sub Total	$ 37,000.00
			Appurtenances (25%)	$ 9,000.00
			Contingency (25%)	$ 12,000.00
			Engineering (12%)	$ 7,000.00
			Subtotal Items:	**$ 65,000.00**
Sewer				
8" SDR-26	LF.	1,602	$ 22.00	$ 35,000.00
Sanitary Sewer Manhole (0-8')	EA.	4	$ 2,000.00	$ 8,000.00
Extradepth Manhole	VF.	3	$ 100.00	$ -

Pate Engineers, Inc.
13333 Northwest Freeway, Suite 300
Houston, Texas 77040
(713) 462-3178

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Segment P - Hooper: N. Spectrum to Fruge Rd.				
Trench Safety Systems	LF.	1,602	$ 0.50	$ 1,000.00
			Sub Total	$ 44,000.00
			Appurtenances (10%)	$ 4,000.00
			Contingency (15%)	$ 7,000.00
			Engineering (12%)	$ 7,000.00
			Subtotal Items:	**$ 62,000.00**
Electric				
Ductbank	LF.	1,536	$ 165.00	$ 253,000.00
Street Light	LF.	10	$ 2,700.00	$ 27,000.00
			Contingency (25%)	$ 70,000.00
			Engineering (12%)	$ 42,000.00
			Subtotal Items:	**$ 392,000.00**
Streetscape				
Sidewalks	SY	2,053	$ 32.00	$ 66,000.00
Street Trees	LF.	1,540	$ 29.00	$ 45,000.00
Irrigation	L.F.	1,540	$ 45.00	$ 69,000.00
			Contingency (25%)	$ 45,000.00
			Engineering (12%)	$ 27,000.00
			Subtotal Items:	**$ 252,000.00**
			Segment Total:	**$ 1,112,000.00**

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LOWER KIRBY URBAN CORE
CONSTRUCTION COST ESTIMATE
PATE ENGINEERS, INC.
DATE: 10/21/11

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Detention Pond 1				
Detention Pond Excavation	C.Y.	309,760	$ 5.00	$ 1,549,000.00
Outfall (15% of Excavation)	EA.	1	$ 232,000.00	$ 232,000.00
Backslope Interceptor	EA.	4	$ 5,000.00	$ 20,000.00
Backslope swale	L.F.	2,500	$ 3.50	$ 9,000.00
			Appurtenances (25%)	$ 453,000.00
			Contingency (25%)	$ 566,000.00
			Engineering (12%)	$ 339,000.00
			Subtotal Detention Pond 1 Items:	**$ 3,168,000.00**
Detention Pond 2				
Detention Pond Excavation	C.Y.	118,653	$ 5.00	$ 593,000.00
Outfall (15% of Excavation)	EA.	1	$ 89,000.00	$ 89,000.00
Backslope Interceptor	EA.	11	$ 5,000.00	$ 55,000.00
Backslope swale	L.F.	7,700	$ 3.50	$ 27,000.00
Bridge @ AV-82-44	S.F.	12,300	$ 75.00	$ 923,000.00
Bridge @ BV -114-70	S.F.	12,300	$ 75.00	$ 923,000.00
Signature Bridge	S.F.	12,300	$ 75.00	$ 923,000.00
Land Acquisition	S.F.	1,002,127	$ 2.25	$ 2,255,000.00
			Appurtenances (25%)	$ 883,000.00
			Contingency (25%)	$ 1,104,000.00
			Engineering (12%)	$ 662,000.00
			Subtotal Detention Pond 2 Items:	**$ 8,437,000.00**
Detention Pond 3				
Detention Pond Excavation	C.Y.	123,233	$ 5.00	$ 616,000.00
Outfall (15% of Excavation)	EA.	1	$ 92,000.00	$ 92,000.00
Backslope Interceptor	EA.	3	$ 5,000.00	$ 15,000.00
Backslope swale	L.F.	2,230	$ 3.50	$ 8,000.00
Land Acquisition	S.F.	615,806	$ 2.25	$ 1,386,000.00
			Appurtenances (25%)	$ 183,000.00
			Contingency (25%)	$ 229,000.00
			Engineering (12%)	$ 137,000.00
			Subtotal Detention Pond 3 Items:	**$ 2,666,000.00**
Detention Pond 4				

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Estimate 2
Priority Phasing
Detention

DESCRIPTION	UNIT	QTY	UNIT PRICE	TOTAL COST
Detention Pond Excavation	C.Y.	149,334	$ 5.00	$ 747,000.00
Outfall (5% of Excavation)	EA.	1	$ 37,000.00	$ 37,000.00
Backslope Interceptor	EA.	3	$ 5,000.00	$ 15,000.00
Backslope swale	L.F.	1,600	$ 3.50	$ 6,000.00
Land Acquisition	S.F.	651,587	$ 2.25	$ 1,466,000.00
			Appurtenances (25%)	$ 201,000.00
			Contingency (25%)	$ 252,000.00
			Engineering (12%)	$ 151,000.00
			Subtotal Detention Pond 4 Items:	**$ 2,875,000.00**

Appendix D – Proposed Form-Based Code for Lower Kirby Urban Center

Section 2.4.3.5 Lower Kirby Urban Center

Table of Contents

Part 1. Purpose and Intent:

The purpose of the Lower Kirby Urban Center Development (LKUCD) Code, hereafter known as the LKUCD Code, is to support development of the Lower Kirby Urban Center located at two major regional highways Beltway 8 and SH 288 to provide for a range of development opportunities based on the adjoining context. The Lower Kirby Urban Center is intended to be a diverse regional destination that includes significant employment uses along Kirby Drive transitioning to light industrial uses to the west, regional retail along the highway frontages, and a pedestrian-oriented, mixed-use core anchoring the District. The goal of Lower Kirby Urban Center is to promote for a range of development opportunities within an overall urban design, street network and drainage infrastructure framework.

a. Economic Development –Lower Kirby Urban Center (LKUC) and corresponding standards are created to support economic development, sustainable tax base, and job creation by establishing adjacency predictability of private development that supports and leverages investment in and around the Lower Kirby Urban Center.

b. Implement the Lower Kirby Urban Center Framework Plan– The objective of Lower Kirby Urban Center is to foster a major regional center with significant regional retail, employment, and residential uses within convenient access to regional highways and walking distance from the future transit station. Development within this area would accommodate large scale office and retail users while providing for appropriately scaled mixed use and residential uses within the district.

c. Establish Specific Development Standards – The LKUCD Code implements the vision for the Lower Kirby Urban Center as established in the Lower Kirby Urban Center Framework Plan (Appendix A) and the Lower Kirby Urban Center Regulating Plan, hereafter known as the Regulating Plan (Appendix B). The Regulating Plan shall provide guidance to property owners, developers, and the City on the form, character, and intensity of future development within the LKCU. Creation of different Character Zones within Lower Kirby Urban Center enables specific site and locational standards to be enumerated and applied. Clear graphic standards are provided for location, height, and building elements. Such standards promote sustainability, public welfare, walkable mixed use development, housing variety and transportation choice.

Part 2. Components of the Code:

a. This LKUCD Code shall apply to the Lower Kirby Urban Center as identified in the Regulating Plan unless otherwise specified in this Code. Development of property within Lower Kirby Urban Center shall comply with all applicable development standards set forth in this Code. The components of this LKUCD Code consist of:

   (1) Lower Kirby Urban Center Regulating Plan: The Lower Kirby Urban Center Regulating Plan, hereafter known as the "Regulating Plan", is its official zoning map. It identifies the applicable character zones within Lower Kirby Urban Center including:
      i. Character Zones – Lower Kirby Urban Center is divided into different "Character Zones". A Character Zone creates a distinct urban form within that Zone which is different from urban forms in other Character Zones. Each Character Zone shall establish use and development standards including height, bulk, building and parking location, and functional design. The Regulating Plan classifies all property within Lower Kirby Urban Center into one of five Character Zones.
      ii. Special Frontage Standards – The Special Frontage Standards establish exceptions and special conditions for all buildings along designated frontages. Special Frontage Standards shall apply in addition to the underlying Character Zone standards.
      iii. Street Designations by Street Type– The Street Designations illustrate the design, configurations, and development context for all new and existing streets within Lower

Kirby Urban Center. The street classification addresses vehicular lane widths, number of lanes, pedestrian accommodation, street tree requirements, on-street parking, and parkway and median standards (streetscape standards). In addition, streets are distinguished by the appropriate development context by denoting them on the Regulating Plan as Type 'A' or Type 'B' Streets.

iv. Required Street Network – The Required Street Network specifies the future streets needed to implement the Lower Kirby Urban Center Regulating Plan. The Required Streets shall be mandatory and shall generally meet the locational and connectivity goals of the Regulating Plan. Their design shall be guided by Part 9 of this Code.

v. Required Civic Space – The Required Civic Space areas shown on the Regulating Plan designate the locations of proposed civic spaces (including parks, plazas, greens, and squares). The design of civic spaces shall be guided by Part 11 of this Code.

vi. Recommended Street Network – The Recommended Street Network indicates locations of suggested, but not required streets within the Lower Kirby Urban Center Regulating Plan. These streets are not required, but at the election of the applicant and their design shall be guided by Part 9.

vii. Recommended Civic Space – The Recommended Civic Space designation indicates the locations of desired, but not required civic/open spaces (including parks, plazas, greens, and squares) to implement the Regulating Plan. Recommended Civic Spaces are not required, but at the election of the applicant. The design of civic spaces shall be guided by Part 11 of this Code.

(2) Development Standards: The LKUCD Code (the text portion of this Code) enumerates the development standards with text and graphics for Character Zones, Special Frontage, building form, civic space, private open space, landscape, building design, signage, lighting, and all related standards for all streets, public and private development.

Part 3. Administration

This part sets forth the provisions for reviewing and approving development applications within LKUC. The intent is to ensure that all development is consistent with the provisions of this Code. All portions of this Code shall be applied during the review process.

a. The development standards under the City of Pearland Unified Development Code (UDC), as amended, shall not apply to LKUC except as specifically referenced herein. Development standards not addressed in this ordinance shall be governed by the City of Pearland UDC to the extent they are not in conflict with the intent or text of the LKUCD Code. However, all development in the Lower Kirby Urban Center shall also meet the standards in the International Building Code, as adopted by the city.

b. Sign Standards under Chapter 4 Site Development, Article 2, Division 5 Signage, as amended, of the City of Pearland UDC, shall not apply to Lower Kirby Urban Center except as specifically referenced herein.

c. Using this Code:
The following basic steps should be followed to determine the uses and development standards applicable on property within LKUC:
(1) Locate the subject property on the Lower Kirby Urban Center Regulating Plan.
(2) Identify:
i. the Character Zone in which the property is located;
ii. the Street Type designation along all its street frontages; and,
iii. any Special Frontage Requirements that may be applicable to the subject property.

(3) Review the Schedule of Uses by Character Zone as listed in Table 6.1 to determine allowed uses.
(4) Examine the corresponding zone standards in the Building Form and Development Standards in Part 7 to determine the applicable development standards.
(5) Refer to Part 5 e. for Special Frontage Standards.
(6) Refer to Part 8 for Building Design Standards.
(7) Refer to Part 9 for Street Type and Streetscape Standards.
(8) Refer to Part 10 for Signage Standards
(9) Refer to Part 11 for Civic Space and Private Open Space Standards.

The information from the above listed steps explains where the building will sit on the lot, the limits on its three dimensional form, the range of uses, and the palette of materials that will cover it.

d. Development within LKUC that complies with the provisions of this Code shall be approved by the City Manager or designee (see Appendix C for flow chart of the review process). In addition to complying with applicable City regulations that are not in conflict with this Code, the applicant shall provide the information to adequately show compliance with this Code as required in Part 3 e.

e. Information Required for Development Review. The full list of required materials is included in the LKUC development application available from the City of Pearland Planning Department. In general, the following information is required, as applicable:
(i) Site Plan
(ii) Building Plans and Elevations
(iii) Landscape Plan
(iv) Material Specifications
(v) Plans and Specifications for Proposed Signs
(vi) Description of Proposed Scope of Work
(vii) Photographs of Site and Existing Conditions

f. The City Manager or designee shall be responsible for the following:
(1) Reviewing development applications for compliance with the requirements of LKUCD Code.
(2) Approving development applications that are in compliance with the requirements of the LKUCD Code.
(3) Making determinations on the applications and interpretations of standards in this Code.
(4) Approving revisions to previously approved development plans that comply with this Code and all applicable city ordinances.
(5) Approving any minor modifications to the approved Regulating Plan and Code per Part 3 h.
(6) Recommendations on any Planned Development (PD) District applications within the LKUC to the Planning and Zoning Commission (P&Z) and City Council (CC).

g. A request for a modification to any of the standards of this Code other than minor modifications permitted under Part 3 h. shall be reviewed and processed as a Planned Development (PD) District per Chapter 2, Article 2, Division 2 of the City of Pearland Unified Development Code.
(1) In evaluating a Planned Development (PD) District within the Lower Kirby Urban Center, CC and P&Z may consider the extent to which the application meets any of the following:
i. the goals and intent of Lower Kirby Urban Center Framework Plan,
ii. provides an alternative “Master Plan” approach by consolidating multiple properties to create a predictable, market responsive development for the area,
iii. fits the adjoining context by providing appropriate transitions,
iv. provides public benefits such as usable civic and open spaces, regional drainage, livable streets, structured or shared parking, and linkages to transit and adjoining opportunities, and
v. does not hinder future opportunities for higher intensity, mixed use development.

h. Minor Modifications to the LKUCD Code:
The City Manager or designee shall have the authority to approve a request for minor modifications to LKUCD Code that:
(1) Does not change the circulation and building location on the site;
(2) Does not increase the building area permitted under this Code;
(3) Does not change the relationship between the buildings and the street;
(4) Does not allow a use not otherwise authorized in this Code;
(5) Does not allow greater height of any building or reduction of any parking requirement established in this Code; or
(6) Change established street cross sections per Table 3.1 below and Part 9 of this Code.
The City Manager or designee shall also have the authority to approve minor modifications outlined in Table 3.1. Any appeals to the decisions of the City Manager on minor modifications shall be heard by the City Council. Any City Council denials of minor modifications or any changes beyond those that meet the criteria above or the thresholds established in Table 3.1, shall be processed as a Planned Development (PD) District application under the City of Pearland UDC.

Table 3.1 Minor Modifications Allowed

Standard	***Minor Modification Allowed***	***Comments***
Area/boundary of Character Zones (including any Required Civic/Open Spaces)	No more than a 20% change (increase or decrease) in the area of any Character Zone (aggregate or per block)	• Shall not eliminate any Character Zone • 20% measurement shall be based on the total area of that specific Character Zone within the entire LKUCD • For the purposes of this code, any increase in any Character Zone that results from the elimination of a Recommended street shall not count towards the 20% threshold.
Location of any Required Street	Location shall not move more than 100' in any direction	• Shall maintain the connectivity intended by the Regulating Plan
Building Form and Development Standards		
• Build to zones/setbacks	No more than a 10% change in the maximum or minimum setback.	• Changes to the build to zones and setbacks may only be due to any changes to the street cross sections, change in the width of a sidewalk, or provision of a civic space. • In no case shall the sidewalk be less than 6 feet in width
• Building Frontage	No more than a 15% reduction in the required building frontage along each block of a Type 'A' Street	• Any reduction in the required building frontage shall be to accommodate porte-cocheres for drop-off and pick-up.
• Street screen	Waiver of street screen requirement along a Type 'B' Street	• Requirement for a street screen may only be waived along a Type 'B' Street along the frontage of any interim surface parking lot (off-street) that is intended to be in-filled with a parking structure. • In no case shall any portion of the surface parking have frontage along a Type 'A' Street without a required street screen • In no case shall the (off-street) surface parking lot be located at a street intersection for a minimum depth of 30' along each street (regardless of the Street Type).
Street Cross Sections	Cross sections of new streets may be adjusted with respect to number of lanes, lane widths, on-street parking configuration, pedestrian accommodation, and street tree planting	• Any changes in the street cross sections shall be based on specific development context such as vegetation, natural features, drainage, and fire access and is subject to approval by the City.
Detention/retention areas	Location of detention/retention areas	• If the regional detention plan for the Lower Kirby Urban Center has not been implemented at the time of development, local detention may be required on site. However, such detention may only be located behind the principal building or along any Type 'B' Street or Alleys. • In no case shall any required on-site detention be located with frontage on a Type 'A' Street.

i. Non-Conforming Uses, Buildings, and Signs.

(1) Regardless of transfer of ownership, existing Non-Conforming Buildings with a Non-Conforming Use that do not conform to the provisions of this Code may continue as they are until:
   i. the building is reconstructed or substantially modified such that the collective reconstructions or modifications within any continuous three (3) year period are valued at more than either $100,000 or a total of fifty (50) % of the assessed value of the improvements in the most recently certified tax rolls, whichever is greater.

(2) Regardless of transfer of ownership, existing non-conforming buildings and sites (including all on-site improvements such as landscaping, detention, sidewalks, etc.) that do not conform to the provisions of this Code may change use within the same building, provided the new use is permitted in Table 6.1 in this Code until:
   i. the building is reconstructed or substantially modified such that the collective reconstructions or modifications within any continuous three (3) year period are valued at more than either $100,000 or a total of fifty (50) % of the assessed value of the improvements in the most recently certified tax rolls, whichever is greater.

(3) Regardless of transfer of ownership, existing Non-Conforming Signs that do not conform to the provisions of this Code may continue as they are until the sign is reconstructed or substantially modified such that the modifications are valued at more than fifty (50) % of the replacement value of the sign.

(4) Regardless of transfer of ownership, existing Non-Conforming Buildings and Non-Conforming Uses that have lost their Non-Conforming use status shall meet the standards in Chapter 2 Zoning Regulations, Section 2.7.3.6 City of Pearland Unified Development Code.

Part 4. Definitions

In addition to Definitions in Chapter 5 of the City of Pearland UDC, the following terms shall have the corresponding interpretations. The definitions in this subsection under the LKUCD code shall supersede definitions of any terms also in Chapter 5 of the UDC and shall only apply to development within the LKUC.

Arcade means a portion of the main façade of the building that is at or near the property line and a colonnade supports the upper floors of the building. Arcades are intended for buildings with ground floor commercial or retail uses and the arcade may be one or two stories.

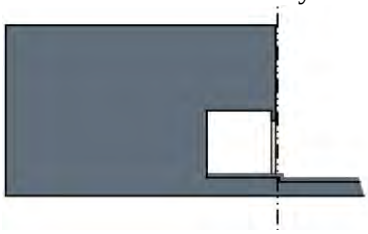


Image of an arcade

Auto-Related Sales and Service Uses means establishments that provide retail sales and services related to automobiles including, but not limited to, cars, tires, batteries, gasoline, etc.

Block Face Dimensions means the linear dimension of a block along one of its street frontages.

Block Perimeter means the aggregate dimension of a block along all of its street frontages.

Block means the aggregate of lots, pedestrian passages and rear alleys, circumscribed on all sides by streets.

Build-to Line means the line at which the principal building's front façade shall be built.

Build-to Zone (BTZ) means the area between the minimum and maximum setbacks within which the principal building's front façade (building façade line) is to be located.

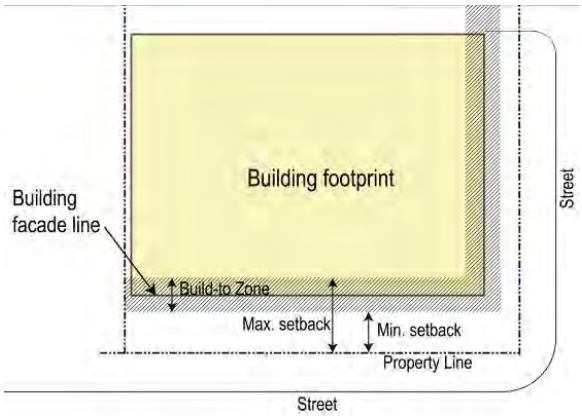
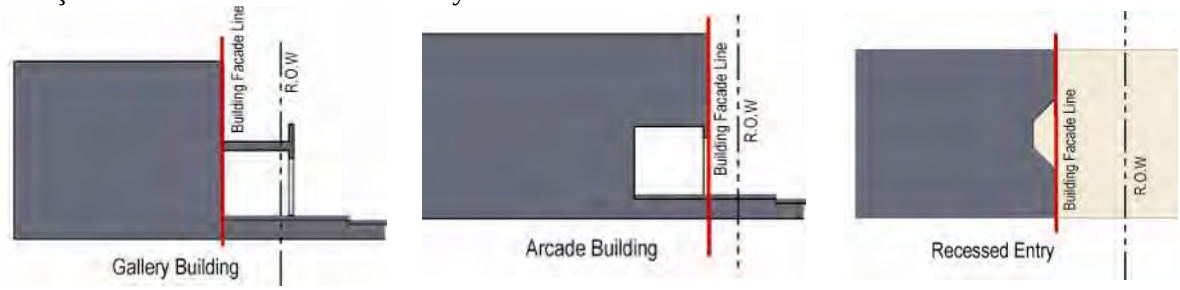


Illustration indicating the location of the build-to zone relative to the minimum and maximum setbacks and the building façade line

Building Façade Line means the vertical plane along a lot where the portion of the building's front façade closest to the street is actually located.



Building Façade Line Illustrations

Building Form Standards means the standards established for each Character Zone that specify the height, bulk, orientation, and elements for all new construction and development.

Building Frontage means the percentage of the building's front façade that is required to be located at the front Build-to Line or Zone as a proportion of the lot's frontage along that public street. Parks, plazas, squares, improved forecourts, and pedestrian breezeway frontages shall be considered as buildings for the calculation of building frontage.

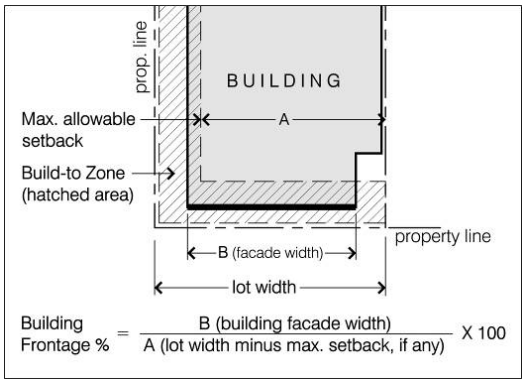


Image showing how a lot's building frontage is calculated

Character Zone means an area within the Lower Kirby Urban Center development that creates a distinct urban form different from other areas within Lower Kirby Urban Center. Character Zones are identified in the Regulating Plan.

City Manager means the City Manager of the City of Pearland or his/her designee.

Civic Space means publicly accessible open space in the form of parks, courtyards, forecourts, plazas, greens, pocket parks, playgrounds, etc. They may be privately or publicly owned. Building façades facing a Civic Space shall be treated as a Type 'A' Street frontage.

Green means a civic space intended for unstructured recreation, spatially defined by landscaping rather than building frontages.

Park means a civic space that is a preserve largely available for unstructured recreation.

Plaza means a primarily hardscaped civic space with formal landscaping, available for civic purposes and commercial activities. A plaza shall be spatially defined by buildings.

Playground is a civic/ private open space designed and equipped for children's recreation. A playground may be fenced and may include an open shelter. Playgrounds may be located within residential areas and may be placed within a block. They may be included in other civic/open spaces.

Square means a civic space designed for unstructured recreation and civic purposes, spatially defined by building frontages and consisting of paths, lawns and trees, formally arranged.

Colonnade means a row of columns extending from a building. It may either be a gallery or under a balcony or an arcade.

Commercial or Mixed Use Building means a building in which the ground floor of the building is built to commercial ready standards and any of the floors are occupied by non-residential or residential uses.

Commercial Ready means space constructed at a minimum interior height of 14 feet which may be used for noncommercial uses and can be converted into retail/commercial use. Prior to the issuance of a certificate of occupancy for a retail/commercial use in a Commercial-Ready space, the space must comply with all building and construction codes for that use. The intent of Commercial-Ready space is to provide the flexibility of occupying a space in accordance with market demand and allowing the use in such space to change to retail/commercial uses accordingly.

Comprehensive Plan means the City of Pearland Comprehensive Plan that establishes policy guidance for the long-term growth and development of the City as adopted on the effective date of this Code.

Encroachment means any structural or non-structural element such as a sign, awning, canopy, terrace, or balcony that breaks the plane of a vertical or horizontal regulatory limit, extending into a Setback, into the Public R.O.W, or above a height limit.

Façade Rhythm means the repetition of a vertical feature, bay width or architectural element on a façade at a regular interval that provides scale and massing to a building.

Gallery means an extension of the main façade of the building that is at or near the front property line and the gallery may overlap the public sidewalk.

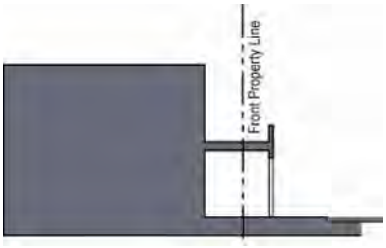


Image of a Gallery

Kiosk means a small temporary or permanent structure often open on one or more sides used for sales in civic/open spaces.

Live-Work Unit means a mixed use building type with a dwelling unit that is also used for work purposes, provided that the 'work' component is restricted to the uses of professional office, artist's workshop, studio, or other similar uses and is located on the street level and constructed as separate units under a condominium regime or as a single unit. The 'work' component is usually located on the ground floor which is built to Commercial Ready standards. The 'live' component may be located on the street level (behind the work component) or any other level of the building. Live-work unit is distinguished from a home occupation otherwise defined by this ordinance in that the work use is not required to be incidental to the dwelling unit, non-resident employees may be present on the premises and customers may be served on site.

Living Screen means a Street Screen composed of landscaping in the form of vegetation.

Main Street Frontage means the special frontage requirement along identified Type 'A' Street frontages as indicated in the Regulating Plan.

Master Sign Plan means a unique sign plan to implement a specific vision for a portion or all of the development that meets Part 10 b. of this Code.

Minor Modification means any changes to the LKUCD Code that meet the threshold criteria established in Part 3 h. and Table 3.1.

Pedestrian Easement means a grant of use of private property for pedestrian access and use.

Private Open Space means open space provided for all residential uses, privately accessible open spaces such as courtyards, porches, and balconies.

Recommended Civic Space means plaza, green, square, or park area identified on the Regulating Plan which is shown as a suggested feature within the Lower Kirby Urban Center Framework Plan. A Recommended Civic Space is not required and is at the election of an applicant or developer.

Recommended Street means a street that is identified on the Regulating Plan which is shown as a suggested street within the Lower Kirby Urban Center Framework Plan. The Recommended Street is not required and is at the election of an applicant or developer.

Regulating Plan means the Lower Kirby Urban Center Zoning Map attached hereto as Appendix B that shows the Character Zones, Civic Spaces, location of Special Frontages, Streets, and other Special Requirements applicable to the Lower Kirby Urban Center subject to the standards in this Code.

Required Civic Space means plaza, green, square, or park area identified on the Regulating Plan which is shown as a mandatory feature within the Lower Kirby Urban Center Framework Plan. A Required Civic Space shall be provided at the time of development and its design and location may be adjusted to meet the context of the development provided it meets the standards established in Part 11 of this Code.

Required Street means a street that is identified on the Regulating Plan which is shown as a mandatory street within the Lower Kirby Urban Center Framework Plan. A Required Street shall be provided at the time of development and its design and location may be adjusted to meet the context of the development provided it meets the standards established in Part 9 of this Code.

Residential Building means a building type that is built to accommodate only residential uses on all floors of the building such as townhomes, apartment buildings, duplexes, etc.

Retail Sales Retail establishments are the final step in the distribution of merchandise. They are organized to sell in small quantities to many customers. Establishments in stores operate as fixed point-of-sale locations, which are designed to attract walk-in customers. Retail establishments often have displays of merchandise and sell to the general public for personal or household consumption, though they may also serve businesses and institutions. Some establishments may further provide after-sales services, such as repair and installation. Included in, but not limited to this category, are durable consumer goods sales and service, consumer goods, other grocery, food, specialty food, beverage, dairy, etc., and health and personal services.

Service Uses means a category for limited personal service establishments which offer a range of personal services that include (but not limited to) clothing alterations, shoe repair, dry cleaners, laundry, health and beauty spas, tanning and nail salons, hair care, etc.

Sign, Building Blade means a pedestrian-oriented sign that is affixed perpendicular to the corner of a building or to the front façade of a building above the ground floor to provide identification for the whole building.

Image of a Building Blade Sign

Sign, Marquee means a sign structure placed over the entrance to a theatre or other public gathering venue. It has signage stating either the name of the establishment or the name of the event, artist, and other details of the event appearing at that venue. The marquee is often identifiable by a surrounding cache of light bulbs, usually yellow or white, that flash intermittently or as chasing lights. Marquee signs may often be combined with Building Blade signs.

Image of a Marquee sign with a Building Blade Sign

Sign, Monument means any sign which is connected to the ground and which has no clear space for the full width of the sign between the bottom of the sign and the surface of the ground. A monument sign may include a sign face and sign structure, and may also include a sign base and sign cap.

Image of a Monument Sign

Sign, Sandwich Board means a portable sign consisting of two panels of equal size, which are hinged at the top or one panel with a support and placed on the ground or pavement so as to be self-supporting.

Images of sandwich board signs.

Sign, Tenant Blade means a smaller pedestrian-oriented sign that is affixed perpendicular to the building façade under a canopy or awning or immediately over a tenant space and provides identification for individual tenants within a building.

Image of a Tenant Blade Signs

Special Frontage Requirements means standards applied to certain blocks as indicated in the Regulating Plan in order to address specific requirements and transitions based on street frontage and adjacency in addition to the underlying Character Zone standards.

Street Screen means a freestanding wall or living screen built along the BTZ or in line with the building façade line along the street. It may mask a parking lot or a loading/service area from view or provide privacy to a side yard and/or strengthen the spatial definition of the public realm.

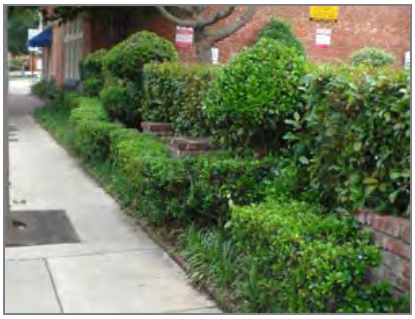


Image of a combination masonry and living street screen

Street Type means a specific designation for streets in Lower Kirby Urban Center that establishes a certain character and cross-sections to improve walkability within the development.

Street Network means the Required and Recommended network for new and existing streets within Lower Kirby Urban Center as established in the Regulating Plan.

Lower Kirby Urban Center Framework Plan means the general block level plan that provides guidance for the future development of Lower Kirby Urban Center into a mixed use destination. It indicates the location of different character areas, streets, and open spaces within the area and is adopted as Appendix A to this Code.

Tree Planting Area means the actual ground area which is disturbed for planting a tree. It shall include the root ball and backfill soil around it. The tree planting area may be larger than the tree well which is placed over the tree planting area.

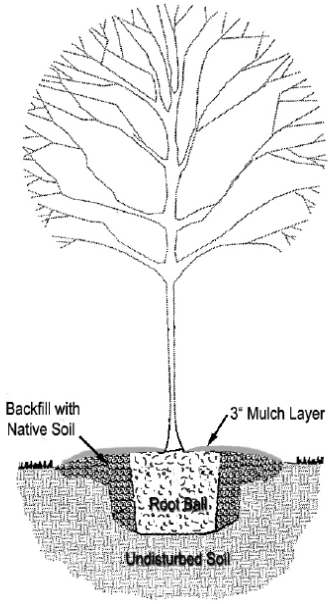


Illustration showing the Tree Planting Area

Tree Well means an unpaved area around the trunk of a tree within the sidewalk area that is either landscaped with ground cover or covered with a tree grate.

Example of a tree well with a tree grate

Example of a tree well with landscaping

Type 'A' Street means the streets identified as such on the Regulating Plan. Type 'A' Streets are the primary pedestrian streets and buildings along Type 'A' Streets shall be held to the highest standard of pedestrian-oriented design.

Type 'B' Street means the streets identified as such on the Regulating Plan. Type 'B' Streets are intended to primarily accommodate access to parking, service, and other auto-related functions.

Part 5. The Regulating Plan

a. The Regulating Plan (Appendix B) is hereby adopted as the official zoning map for the Lower Kirby Urban Center.

b. Character Zones Established – the following Character Zones are established. The boundaries of the specific Character Zones shall be established in the Regulating Plan (Appendix B).
   (1) Mixed Use Core: The Mixed Use Core provides the most opportunity for the highest intensity development. It is the area that has significant development impact and the highest pedestrian activity due to its immediate adjacency to a future transit station. The Mixed Use Core consists of the highest density and height, with the greatest variety of uses. Development within the Mixed Use Core Zone shall meet the Building Form and Development Standards in Part 7 a. of this Code.
   (2) Highway Commercial: Highway Commercial is intended to provide an appropriate transition into the Lower Kirby Urban Center from the Beltway 8 and SH 288 access roads. This area is also intended for regional office and retail development. Development within the Highway Commercial Zone shall meet the Building Form and Development Standards in Part 7 b. of this Code.
   (3) Urban Neighborhood: The Urban Neighborhood consists primarily of a residential fabric. The area is intended to have a mix of small apartments, townhomes and live-work units with commercial activity concentrated at street intersections and along the Clear Creek frontage. Development within the Urban Neighborhood Zone shall meet the Building Form and Development Standards in Part 7 c. of this Code.
   (4) Commercial Transition: The Commercial Transition is intended to provide for a range of commercial (retail, office, and live-work) and residential uses as a transition from the Mixed Use Core. Development standards will emphasize transitioning of highway-oriented, large format uses to ones more compatible with the adjoining Mixed Use Core. Development within the Commercial Transition Zone shall meet the Building Form and Development Standards in Part 7 d. of this Code
   (5) Research/Tech Campus: The Research/Tech Campus is the area along Kirby Drive intended to be the employment center of the Lower Kirby Urban Center. It is intended for campus office research park development in addition to limited residential and supporting retail and restaurant uses. Development within the Research/Tech Campus shall meet the Building Form and Development Standards in Part 7 e. of this Code.

c. Street Designations By Street Type Established – The Regulating Plan (Appendix B) shall establish the following Street Designations.
   (1) Type 'A' Streets Established – Type 'A' Streets are intended to be the primary pedestrian streets and buildings along Type 'A' Streets shall be held to the highest standard of pedestrian-oriented design. The Type 'A' Streets are as identified on the Regulating Plan.
   (2) Type 'B' Streets Established – Type 'B' Streets are intended to balance pedestrian orientation with automobile orientation. Buildings along Type 'B' Streets may be permitted to accommodate some service and auto-related functions. The Type 'B' Streets are as identified on the Regulating Plan.

d. Required and Recommended Streets by Street Type – The Street Network indicates Required and Recommended streets needed to implement the Lower Kirby Urban Center Regulating Plan (Appendix B). The Regulating Plan designates the type, classification, and location of streets. All new and improved streets in Lower Kirby Urban Center shall meet the street design standards established in Part 9 herein.

e. Special Frontage Requirements – In order to address specific requirements and transitions based on street frontage and adjacency, the following Special Frontage Requirements as established in the Regulating Plan (Appendix B) shall apply:
   (1) Main Street Frontage: Ground floors of all buildings designated as Main Street Frontage on the Regulating Plan shall not be occupied by residential units and/or lodging rooms in hotels to a

minimum depth of 30 feet as measured from the front building line. In addition, buildings on all lots with the Main Street Frontage designation shall be a minimum of 2 stories.

(2) Promenade Frontage: Ground floors of all buildings designated as Promenade Frontage along Clear Creek shall be built to Commercial Ready standards with 15' ground floor to floor height, ingress and egress, handicap access, and first floor elevation flush with the sidewalk. In addition, buildings shall be set back a minimum of 20' along the creek frontage to provide for outdoor café seating.

(3) Kirby Drive Frontage: For all lots, buildings and building sites with frontage on Kirby Drive on the Regulating Plan, the following standards shall apply:

i. A building setback of a minimum of 15 ft. shall apply along the designated frontage. Of the 15 ft. setback, 6 ft. (min.) shall be dedicated to a landscaped parkway. A maximum building setback of 85 ft. shall be required along the lots designated with the Kirby Drive Frontage.

ii. Surface parking lots no deeper than 70 feet may be permitted so long as its frontage along Kirby Drive is no more than 50% of the lot's frontage along Kirby Drive.

iii. Driveways along the Kirby Drive frontage shall be limited to a maximum of 24 ft. in width and one driveway per every 350 ft. of block frontage.

f. Civic Space – The Regulating Plan indicates Required and Recommended Civic Spaces. The specific standards for Civic Space are established in Part 11.

Part 6. Schedule of Permitted Uses

a. Generally: Due to the emphasis on urban form over land uses in Lower Kirby Urban Center, general use categories have been identified by character zones. Uses not listed in the following schedule, but are substantially similar, may be permitted upon the approval of the City Manager or designee, subject to appeal directly to the City Council.

b. Schedule of Uses:

Table 6.1

Character Zone	Mixed Use Core	Highway Commercial	Urban Neighborhood	Commercial Transition	Research/Tech Campus
Land Use					
Commercial Uses (Office, Retail, Sales & Service Uses)					
Retail Sales or Service with no drive through facility (includes alcohol sales which shall meet Chapter 4 of the City of Pearland Code of Ordinances). Excluded from this category are Auto-Retail Sales and Service Uses (see Part 4 of this Code for Definition of Retail, Service uses, and Auto-related Sales and Service)	P	P	P/C	P	P
Finance, Insurance, and Real Estate establishments including banks, credit unions, real estate, and property management services, with no drive through facility	P	P	P/C	P	P
Offices for business, professional, and technical uses such as accountants, architects, lawyers, doctors, etc.	P	P	P/C	P	P
Research laboratory headquarters, laboratories and associated facilities	P	P	NP	P	P
Food Service Uses such as full-service restaurants, cafeterias, caterers, bakeries and snack bars with no drive through facilities Included in this category is café seating within a public or private sidewalk area with no obstruction of pedestrian circulation. Also included in this category is the sale of alcoholic beverages which shall meet Chapter 4 of the City of Pearland Code of Ordinances.	P	P	P/C	P	P
Any use with a drive through facility	P/C	P/C	NP	P/C	P/C
Auto-related Service	NP	P/C	NP	P/C	NP

Character Zone	Mixed Use Core	Highway Commercial	Urban Neighborhood	Commercial Transition	Research/Tech Campus
Arts, Entertainment, and Recreation Uses					
Art galleries	P	P	P/C	P	P
Art, antique, furniture or electronics studio (retail, repair or fabrication; excludes auto electronics sales or service)	P	P	NP	P	P
Games arcade establishments	P	P	NP	P	P
Theater, cinema, dance, music or other entertainment establishment	P	P	NP	P	P
Museums and other special purpose recreational institutions	P	P	NP	P	P
Fitness, recreational sports, gym, or athletic club	P	P	NP	P	P
Parks, greens, plazas, squares, and playgrounds	P	P	P	P	P
Educational, Public Administration, Health Care and Other Institutional Uses					
Business associations and professional membership organizations	P	P	P/C	P	P
Child day care and preschools	P	P	NP	P	P
Schools, libraries, and community halls	P	P	NP	P	P
Universities and Colleges	P/C	P	NP	P	P
Hospital	P	P	NP	P	P
Civic uses	P	P	NP	P	P
Social and fraternal organizations	P	P	NP	P	P
Social services and philanthropic organizations	P	P	NP	P	P
Religious Institutions	P	P	NP	P	P
Funeral homes	P	P	NP	P	P
Residential Uses					
Home Occupations	P/A	P/A	P/A	P/A	P/A
Multi-family residential					
Ground Floor	P/C	P/C	P	P/C	P/C
Upper Floors	P	P	P	P	P
Residential Lofts	P	P	P	P	P
Single-family residential attached dwelling unit (Townhomes)	P/C	P/C	P	P/C	P/C
Live-work unit	P	NP	P	P	P
Manufacturing, Communications, and Utility Uses					
Warehouse and storage	NP	NP	NP	NP	P/A
Miscellaneous manufacturing and assembly (included in this category are jewelry, silverware, personal metal goods, flatware, dolls, toys, games, musical instruments, medical equipment, high-tech/clean manufacturing, office supplies, and signs.)	NP	NP	NP	NP	P/C
Wholesale trade establishment	NP	NP	NP	NP	P/C
Publishing (newspaper, books, periodicals, software)	NP	P	NP	P	P
Motion picture and sound recording	P	P	NP	P	P
Telecommunications and broadcasting (radio, TV, cable, wireless communications, telephone, etc.)	NP	P	NP	P	P
Information services and data processing	P	P	NP	P	P
Other Uses					
Model homes for sales and promotion**	P	P	P	P	P
Hotels	P	P	NP	P	P
Parking, surface (primary use of property)	P	P	NP	P	P
Parking, surface (accessory use of property)	P	P	P	P	P
Parking, structured	P	P	P	P	P
Private attached garage	NP	NP	P	P	NP
Private detached garage	NP	NP	P	NP	NP
Sales from kiosks	P	NP	NP	NP	P
Veterinary clinic	P	P	NP	P	P
Community garden	P	P	P	P	P
Antennas including cell, accessory, and mounted on top of buildings	P/A/C	P/A/C	NP	P/A/C	P/A/C
Solar energy equipment	P/A	P/A	P/A	P/A	P/A
Special Event	P/CUP	P/CUP	P/CUP	P/CUP	P/CUP
Rain harvesting equipment	P/A/C	P/A/C	P/A/C	P/A	P/A
Utility equipment (includes electrical transformers, gas meters, etc.)	P/A/C	P/A/C	P/A/C	P/A/C	P/A/C

** Model homes are limited to a time period until all the homes are sold in the neighborhood.

P= Permitted by right | NP= Not Permitted | P/C= Permitted with design criteria per Table 6.2 | P/CUP = Permitted with a Conditional Use Permit | P/A = Permitted Accessory Use | NA= Not applicable | P/A/C = Permitted as an Accessory Use with design criteria per Table 6.2

A = Accessory use to not exceed 25% of the primary use building square footage

c. Use Criteria: All uses listed as P/C in Table 6.1 shall also meet the following standards in Table 6.2

Table 6.2 – Use Criteria

Use	*Zone*	*Location & Design Criteria*
Non-Residential Uses		
Any permitted use with a drive through facility	Mixed Use Core, Highway Commercial, Commercial Transition, Research/Tech Campus	• All drive through access (driveways) shall be from Type 'B' Streets. • Drive through lanes and/or canopies shall not have frontage along or be located along any Type 'A' Streets. • Drive through areas shall be screened by a 4' high Street Screen.
Universities and Colleges	Mixed Use Core	• Shall be required to provide structured parking as part of the build-out for the university/college campus
Auto-related Service	Highway Commercial and Commercial Transition	• Gas pumps, canopies, and/or service bays shall not be located along any Type 'A' Street frontage. • No more than 50% of a block's frontage along a Type 'B' Street shall be occupied by gas pumps, canopies, and/or service bays. • Any buildings associated with the use shall also have a pedestrian entrance at a Type 'A' Street. • No outdoor storage of vehicles or other products sold shall be permitted. All auto-related sales display shall be inside storefronts.
Retail sales and service Finance, Insurance, and Real Estate establishments Food Service Uses such as full-service restaurants, cafeterias, bakeries and snack bars with no drive through facilities Business Associations and professional membership organizations	Urban Residential	• Shall only be permitted on corner lots in the Urban Residential Zone or along Promenade Frontage blocks as identified in the Regulating Plan • Building area shall not exceed 10,000 sq.ft.
Offices for business, professional, and technical uses Art Galleries	Urban Residential	• Shall be permitted in any live-work building where the ground floor is built to Commercial Ready standards with 15' ground floor clear height and H/C access. • All other buildings for office and art gallery uses shall be limited to 6,000 sq.ft.
Residential Uses		
Multi-family residential Ground Floor	Mixed Use Core, Highway Mixed Use, Commercial Transition, and Research/Tech Campus	• All ground floors along all Type 'A' Streets and Beltway 8 and US 288 Access Road frontages shall be built to Commercial Ready standards. Ground floors may be occupied by residential uses unless designated as Main Street Frontage or has frontage along Beltway 8 or US 288. • Ground floors of all buildings designated as Main Street Frontage on the Regulating Plan shall not be occupied by residential units and lodging rooms to a minimum depth of 30 feet as measured from the front building line.
Single-family residential attached dwelling unit (Townhomes)	Mixed Use Core, Highway Commercial, Commercial Transition, and Research/Tech Campus	• Shall be permitted along Type 'B' Streets • Frontages along street intersections shall be built to Commercial Ready standards for a minimum of 30' along each street or the width of the lot, whichever is less.
Manufacturing, Communications, and Utility Uses		
Miscellaneous manufacturing and assembly (included in this category are jewelry, silverware, personal metal goods, flatware, dolls, toys, games, musical instruments, medical equipment, high-tech/clean manufacturing, office supplies, and signs.) Wholesale trade establishment	Research/Tech Campus	• No outdoor storage areas shall be located along the Kirby Drive frontage and along all other streets, outdoor storage areas shall be screened by masonry or living fence that is at least as high as the items being screened or 6' whichever is greater. • Service, loading, unloading and truck access shall not be located along the Kirby Drive frontage.

Table 6.2 – Use Criteria		
Use	***Zone***	***Location & Design Criteria***
Other Uses		
Antennas including cell, accessory and mounted (Excluded from this category are freestanding and commercial antennas and equipment buildings)	Mixed Use Core, Highway Commercial, Commercial Transition, and Research/Tech Campus	• Antennas shall be permitted on rooftops. • Antennas shall be screened entirely with a screen of same color as the principal building. • Antennas shall not be visible from any adjacent Type 'A' Street.
Rain water harvesting equipment	All zones	• Rain water harvesting equipment may not be installed along Type 'A' Streets. • On all other frontages, they shall be screened with a Street Screen at least as high as the equipment being screened.
Utility equipment (includes electrical transformers, gas meters, etc)	All zones	• Utility equipment shall not be installed with frontage on Type 'A' Streets. • On all other frontages, they shall be screened with a Street Screen at least as high as the equipment being screened.

Part 7. Building Form and Development Standards

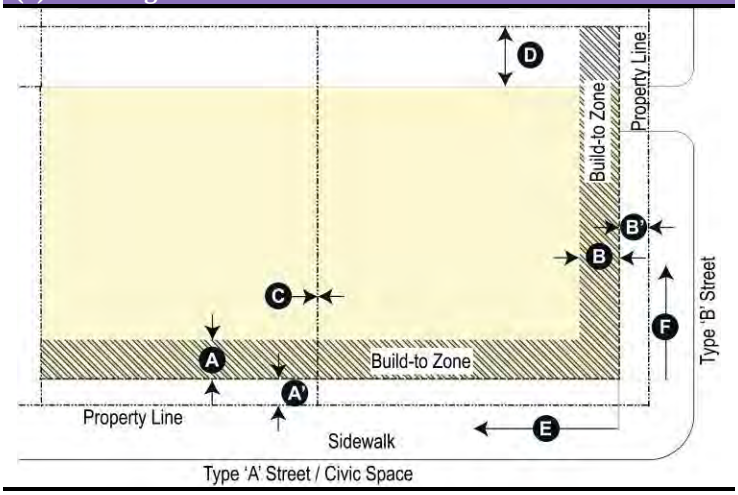
The following portion of the code establishes the Building Form and Development Standards for all Character Zones within Lower Kirby Urban Center. Diagrams and reference letters are used for illustrations purposes only. Reference letters may not be in continuous sequence.

a. Mixed Use Core Zone

Mixed Use Core Zone Location Map

Note: This map is for reference only. Refer to the Regulating Plan (Appendix B) for all requirements

(1) Building Placement



Legend

Property Line — Build-to Zone

Setback Line — Building Area

Build-To Zone (BTZ) **(Distance from property line to the edge of the BTZ)**		
Front (Type 'A' Street and Civic Space)	5 – 10 feet (see #1)	A
Front (Type 'B' Street)	5 – 10 feet (see #1)	B
Setback (distance from property line)		
Front (Type 'A' Street and Civic Space)	5 feet (min.) – 10 feet (max.)	A'
Front (Type 'B' Street)	5 feet (min.) – 10 feet (max.)	B'
Side	0 feet (see #2)	C
Rear	5 feet	D
Building Frontage		
Building Frontage required along Type 'A' Street/civic space BTZ	90% (min.) (see #3 and #7)	E
Building Frontage required along Type 'B' Street BTZ	25% (min.) (see #3 and #7)	F

(2) Block Standards

Block face dimensions	250 – 400 feet
Block perimeter	1400 feet (max.)

(3) Commercial Frontage Requirements

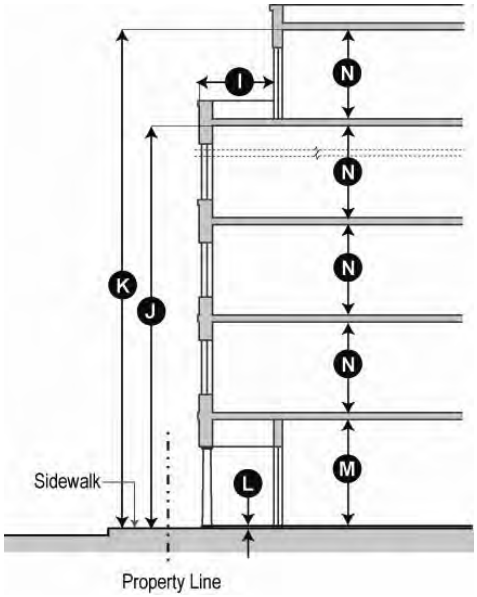
Ground floors of all buildings fronting on Type 'A' Streets and the Beltway 8 and US 288 access lanes shall be built to Commercial Ready standards including first floor-to-floor height, ingress and egress, handicap access, and first floor elevation flush with the sidewalk.

(4) Special Frontage Requirements

Requirements Specific to Main Street Frontage

Ground floors of all buildings designated as Main Street Frontage on the Regulating Plan shall not be occupied by residential units and lodging rooms to a minimum depth of 30 feet as measured from the front building line. In addition, all buildings designated as Main Street Frontage on the Regulating Plan shall be a minimum of 2 stories in height.

(5) Building Height



Principal Building Standards		
Building maximum	15 stories (see #4 and #8)	K
First floor to floor height	15 feet (min.) (see #5)	M
Ground floor finish level	12 inches max. above sidewalk (for ground floor Commercial Ready building frontages)	L
Upper floor(s) height (floor-to-floor)	10 feet min.	N
Stepback height	Maximum 6 stories then stepback	J
Stepback distance	10 feet min.	I

Notes

#1 – The area between the building and the edge of the BTZ or the edge of the public sidewalk shall be paved flush with the sidewalk. This area can have landscaping and planting within tree wells and planters but shall not have lawns or landscape islands.

#2 – Side and rear setbacks shall be based on minimum fire separation required between buildings, if applicable.

#3 – Corner building street facades shall be built to the BTZ for a minimum of 30' from the corner along both streets or the width of the corner lot, whichever is less. Recessed entrances are permitted as long as the upper floors meet the build-to zone standards.

#4 – Attics and mezzanines less than 7' (avg.) height shall not be counted as a story.

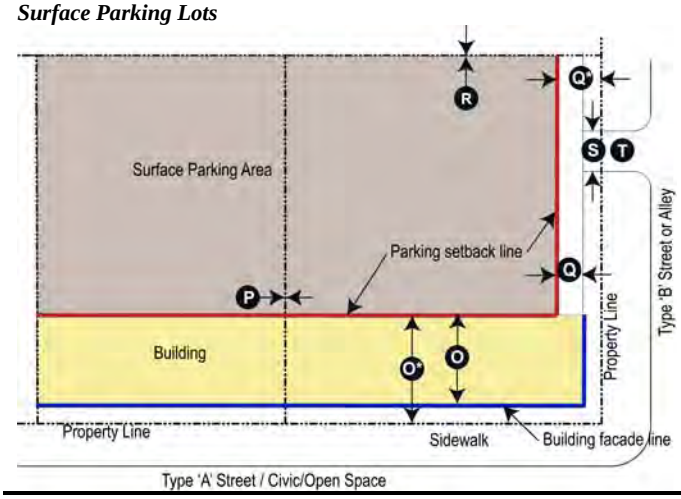
#5 – First floor heights shall not apply to parking structures.

#6 – All buildings in the Mixed Use Core Zone shall meet the Building Design Standards in Part 8.

#7 – Any frontage along all streets (except alleys) not defined by a building at the BTZ shall be defined by a 4-foot high Street Screen. Furthermore service areas shall be defined by a Street Screen that is at least as high as the service equipment being screened. The Street Screen shall be of either the same building material as the principal structure on the lot or masonry or a living screen composed of shrubs planted to be opaque at maturity. Species shall be selected from Chapter 4 Site Development Section 4.2.2.5 of the City of Pearland Unified Development Code. The required Street Screen shall be located within the BTZ along the corresponding frontage.

(6) Parking & Service Access

Surface Parking Lots

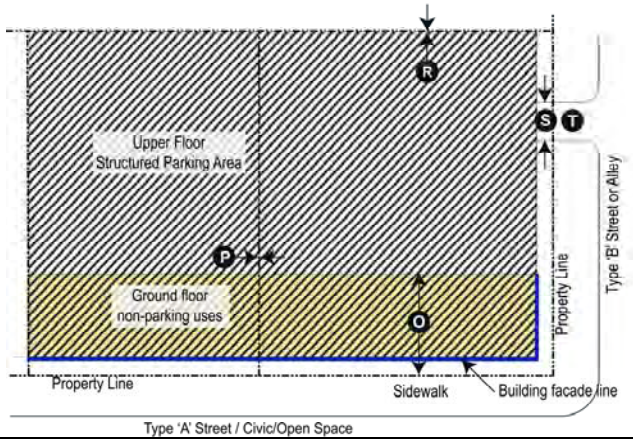


(i) Parking Location

Surface/At Grade Parking

Type 'A' Street and Civic Space setback	Shall be located behind the building or Setback a min. of 30' from the property line along that street frontage (whichever is greater)	O O*
Type 'B' Street setback	Min. of 3 feet behind the building facade line along that street or Min. 3 feet behind property line (if there is no building along the street frontage)	Q Q*
Side setback (distance from property line)	0 feet min.	P
Rear setback (distance from property line)	0 feet min.	R

Structured Parking



Above Grade Parking (distance from property line)

Ground floor setback along Type 'A' Street/Civic/Open Space	Min. 30' from the property line along that street/frontage	O
Ground floor setbacks on all other streets	May be built to the building façade line along each street	
Upper floor setbacks on all streets	May be built to the building façade line along each street	
Side and rear setbacks	0 feet min.	P R
Upper Floors	May be built up to the building line	

(ii) Required Off-Street Parking Spaces (see #11 and #12)

Non-residential uses	1 space/300 square feet (gross)
Residential uses	1.0 space/unit

(iii) Driveways and Service Access

Parking driveway width	20 feet max. (except when drives may need to be wider to address service access or fire lane standards)	S

Driveways and off-street loading and unloading shall not be located on a Type 'A' Streets. T

Porte cocheres may be permitted on Type 'A' Streets to provide drop-off and valet service.

Shared driveways and cross access easements are encouraged between lots to minimize curb cuts.

If driveway and/or off-street service loading and unloading access is provided from a Type 'A' Street, such access shall be deemed as temporary and cross access easements along the rear of the property shall be required when adjoining properties are undeveloped.

(7) Encroachments

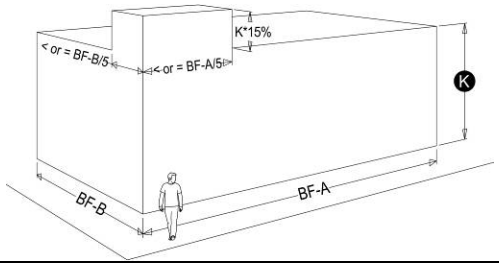
Canopies, signs, awnings and balconies may encroach over the sidewalk as long as the vertical clearance is a minimum of 8 feet. In no case shall an encroachment be located over an on-street parking or travel lane. All encroachments over public rights-of-way shall obtain a Waiver of Encroachment from the City of Pearland.

(8) Applicability

Building Form and Development Standards shall apply to all development within this Character Zone.

Notes

#8 – Corner buildings may exceed the maximum building height by 15% for 20% of the building's frontage along each corresponding street façade.



#9 - Ground and roof mounted mechanical equipment shall be screened from direct ground level view from adjoining public rights-of-way. In addition to a parapet wall no lower than 36 inches, the perimeter of any visible roof mounted mechanical equipment shall be circumscribed by a wall or permanent screen that is at least as tall as the equipment itself.

#10 – Setbacks and build-to lines on recessed entries and arcade buildings shall be measured from the building façade line.

#11 – Required parking may be provided anywhere within the Mixed Use Core Zone.

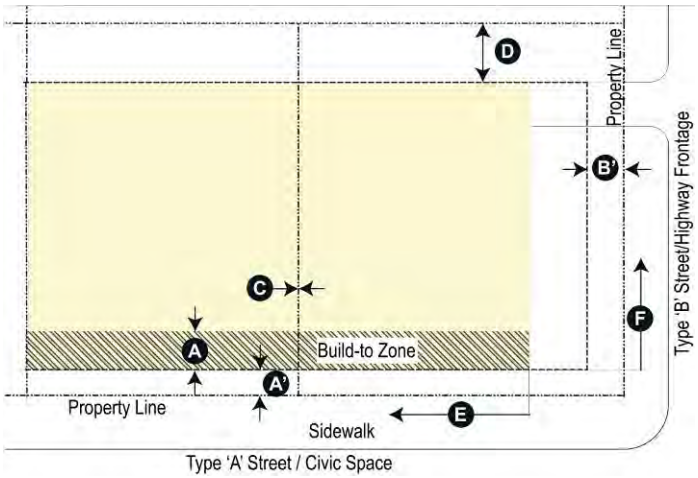
#12 - Chapter 4 Site Development Section 4.2.1.3 of the City of Pearland Unified Development Code shall apply for design of off-street parking areas.

b. Highway Commercial Zone

Highway Commercial Zone Location Map

Note: This map is for reference only. Refer to the Regulating Plan (Appendix B) for all requirements

(1) Building Placement



Legend

Property Line	Building Area
Setback Line	Build-to Zone

Build-To Zone (BTZ) (Distance from Property Line to edge of the BTZ)		
Front (Type 'A' Street/Civic Space)	5 feet – 10 feet (see #1)	A
Front (Type 'B' street or Highway Frontage)	None	
Setback (Distance from property line)		
Front (Type 'A' Street)	5 feet (min.) 10 feet (max.)	A'
Front (Type 'B' Street or Highway Frontage)	10 feet (min.) – No max.	B'
Side (distance from property line)	0 feet (see #3)	C
Rear (distance from property line)	0 feet (see #3)	D
Building Frontage		
Building Frontage required along Type 'A' Street BTZ	80% (min.) (see #3 and #7)	E
Building Frontage required Type 'B' Street/Highway Frontage BTZ	0% (min.) (see #3 and #7)	F

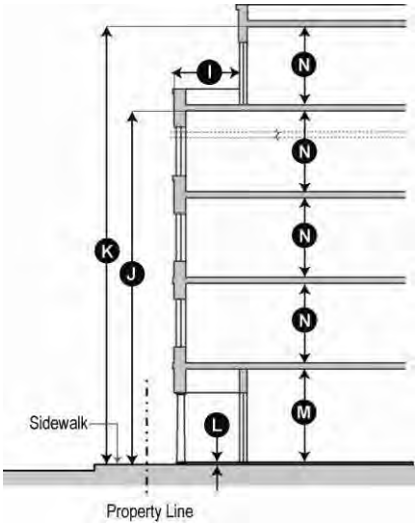
(2) Block Standards

Block face dimensions	250 (min.) – 600 feet (max.)
Block perimeter	2000 feet (max.)

(3) Commercial Frontage Requirements

Ground floors of all buildings fronting on all Type 'A' Streets, Beltway 8 and SH 288 frontage lanes shall be built to Commercial Ready standards including first floor-to-floor height, ingress and egress, handicap access, and first floor elevation flush with the sidewalk.

(4) Building Height



Principal Building Standards		
Building maximum	15 stories (see # 5 and #8)	K
First floor to floor height	15 feet min. (see #6)	M
Ground floor finish level	12 inches max. above sidewalk (for ground floor Commercial Ready buildings)	L
Upper floor(s) height (floor-to-floor)	10 feet min.	N
Stepback height	Maximum 6 stories then stepback (see # 13)	J
Stepback distance	10 feet min.	I

Notes

#1 – Along Type 'A' Streets, the area between the building and the edge of the BTZ or the edge of the public sidewalk shall be paved flush with the sidewalk. This area can have landscaping and planting within tree wells and planters but shall not have lawns or landscape islands.

#2 – Along the Highway Frontage, the area between the building and property line at the public sidewalk shall include a 6' wide (min.) landscaping strip with street trees planted at 40' on center (average). However, at street intersections, where paving is optional up to 50' along the building façade, tree wells may be used for street trees. Species of the street trees shall be selected from Chapter 4 Site Development Section 4.2.3.9 of the City of Pearland Unified Development Code.

#2 – Side and rear setbacks shall be based on minimum fire separation required between buildings, if applicable.

#3 – Corner building street facades shall be built to the BTZ for a minimum of 20 feet from the corner along both streets or the width of the corner lot, whichever is less. Recessed entrances are permitted as long as the upper floors meet the build-to zone standards.

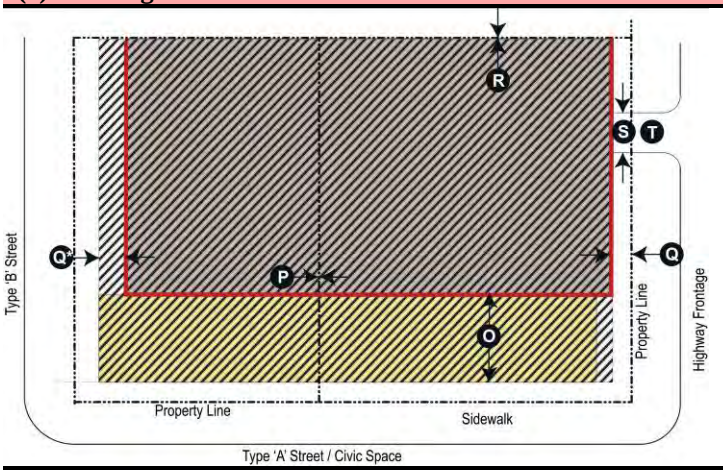
#4 – Attics and mezzanines less than 7' (avg.) height shall not be counted as a story.

#5 – First floor heights shall not apply to parking structures.

#6 – All buildings in the Highway Commercial Zone shall meet the Building Design Standards in Part 8.

#7 – Any frontage along all streets (except alleys) not defined by a building at the BTZ shall be defined by a 4-foot high Street Screen, furthermore service areas shall be defined by a Street Screen that is at least as high as the service equipment being screened. The Street Screen shall be of either the same building material as the principal structure on the lot or masonry or a living screen composed of shrubs planted to be opaque at maturity. Species shall be selected from Chapter 4 Site Development Section 4.2.2.5 of the City of Pearland Unified Development Code. The required Street Screen shall be located within the BTZ along the corresponding frontage.

(5) Parking & Service Access



Legend

Property Line
Parking Setback
Surface/At Grade Parking Area
Above Grade Parking Area
Building Footprint

(i) Parking Location

Surface/At Grade Parking		
Highway Frontage	Shall be located 10' behind the property line	Q
Type 'A' Street	Shall be located behind the principal building or Setback a min. of 30' from the property line along that street frontage (whichever is greater)	O
Type 'B' Street setback	Min. of 3 feet behind the building façade line along that street	Q
Side setback (distance from property line)	0 feet min.	P
Rear setback (distance from property line)	0 feet min.	R
Above Grade Parking		
Setback along Type 'A' Street, Type 'B' Street, Slip Road Frontage and Civic Space	At or behind the building façade line along that street	
Highway frontage, side and rear setbacks	At or behind the building façade line along that street	

(ii) Required Off-Street Parking Spaces (see #11 and #12)

Non-residential uses	1 space/300 square feet (gross)
Residential uses	1.5 space/unit

(iii) Driveways and Service Access

Parking driveway width	TXDOT standards on Highway frontage road and 24 feet max. on all Lower Kirby Urban Center Streets (except when drives may need to be wider to address service access or fire lane standards)	S

Porte cocheres may be permitted on Type 'A' Streets to provide drop-off and valet service. T

Shared driveways and cross access easements are encouraged between lots to minimize curb cuts.

If driveway and/or off-street service loading and unloading access is provided from Type 'A' Streets, such access shall be deemed as temporary and cross access easements along the rear of the property shall be required when adjoining properties are undeveloped.

(6) Encroachments

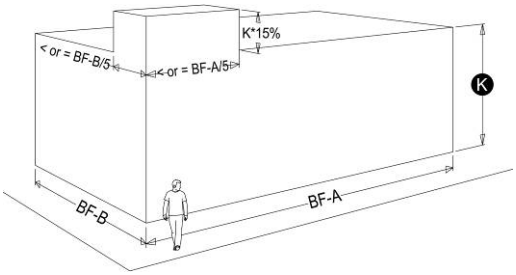
Canopies, signs, awnings and balconies may encroach over the sidewalk as long as the vertical clearance is a minimum of 8 feet. In no case shall an encroachment be located over an on-street parking or travel lane. All encroachments over public rights-of-way shall obtain a Waiver of Encroachment from the City of Pearland.

(7) Applicability

Building Form and Development Standards shall apply to all development within this Character Zone.

Notes

#8 – Corner buildings may exceed the maximum building height by 15% for 20% of the building's frontage along each corresponding street façade.



#9 – Ground and roof mounted mechanical equipment shall be screened from direct ground level view from adjoining public rights-of-way. In addition to a parapet wall no lower than 36 inches, the perimeter of any visible roof mounted mechanical equipment shall be circumscribed by a wall or permanent screen that is at least as tall as the equipment itself.

#10 – Setbacks and build-to lines on recessed entries and arcade buildings shall be measured from the building façade line.

#11 – Required parking may be provided anywhere within the Highway Commercial Zone.

#12 – Chapter 4 Site Development Section 4.2.1.3 of the City of Pearland Unified Development Code shall apply for design of off-street parking areas.

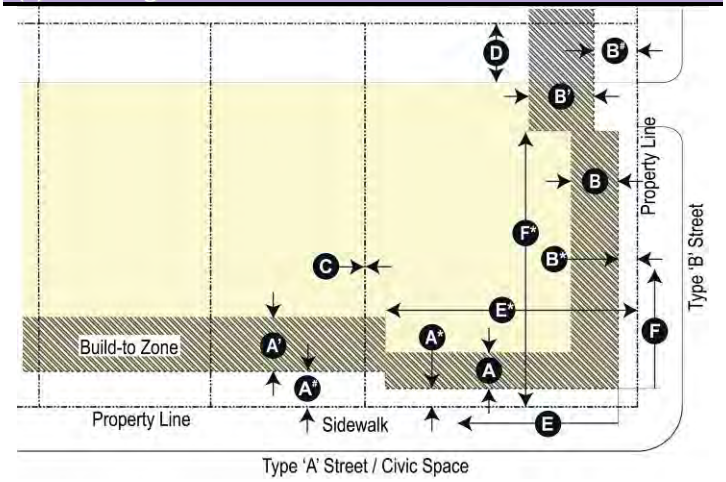
#13 - Stepback requirement shall not apply to any façade with frontage along Beltway 8 or SH 288.

c. Urban Neighborhood Zone

Urban Neighborhood Zone Location Map

Note: This map is for reference only. Refer to the Regulating Plan (Appendix B) for all requirements

(1) Building Placement



Legend

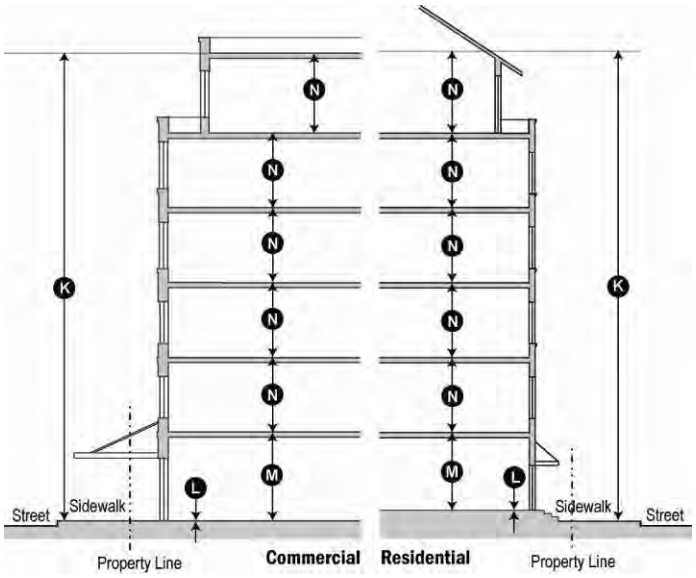
Property Line | Build-to Zone | Setback Line | Building Area

Build-To Zone (BTZ) **(Distance from property line to edge of the BTZ)**		
Corner Lots:		
Front (Type 'A' Street and Civic Space)	5 – 10 ft. (see #2)	A
Front (Type 'B' Street)	5 – 20 ft. (see #2)	B
Width of intersection (corner lot) build-to zone (both Type 'A' and 'B' Streets)	25 ft. (min.) 50 ft. (max.)	E* F*
Interior Lots:		
Front (Type 'A' Street and Civic Space)	10 – 25 ft.	A'
Front (Type 'B' Street)	10 – 25 ft.	B'
Setback (Distance from property line)		
Front (Type 'A' Street) (Corner Lots)	5 ft. (min.) – 10 ft. (max)	A*
Front (Type 'A' Street) (Interior Lots)	10 ft. (min.) – 25 ft. (max)	A#
Front (Type 'B' Street) (Corner Lots)	5 ft. (min.) – 20 ft. (max)	B*
Front (Type 'B' Street) (Interior Lots)	10 ft. (min.) – 25 ft. (max)	B#
Side	0 ft. (see #1)	C
Rear	10 ft.	D
Building Frontage		
Building Frontage required along Type "A" Street/Civic Space BTZ	60% (min.) (see #3 and #6)	E
Building Frontage required along Type "B" Street BTZ	30% (min.) (see #3 and #6)	F

(2) Block Standards

Block face dimensions	300 – 600 ft. (maximum)
Block perimeter	2000 ft. (maximum)

(3) Building Height



Principal Building Standards		
Building maximum	6 stories (see #4 and #7)	K
First floor to floor height	15 ft. min. for non-residential 10 ft. min for residential	M
Ground floor finish level	12 in. max. above finished sidewalk (for ground floor commercial uses); 18 in. min. (for residential uses)	L
Upper floor(s) height (floor-to-floor)	10 ft. min.	N
Accessory Building Standards		
Building maximum	2 stories	

(4) Commercial Frontage Requirements

Ground floors of all buildings at intersections, for a minimum of 30 ft. along each street frontage or the width of the corner lot, whichever is less, may be built to Commercial Ready standards including first floor-to-floor height, ingress and egress, handicap access, and first floor elevation flush with the sidewalk.

(5) Promenade Frontage Requirements

Ground floors of all buildings designated as Promenade Frontage shall be built to Commercial Ready standards with 15' ground floor to floor height, ingress and egress, handicap access, and first floor elevation flush with the sidewalk. In addition, buildings shall be set back a minimum of 20' along this frontage to provide for outdoor café seating.

Notes

#1 – Side and rear setbacks shall be based on minimum fire separation required between buildings, if applicable.

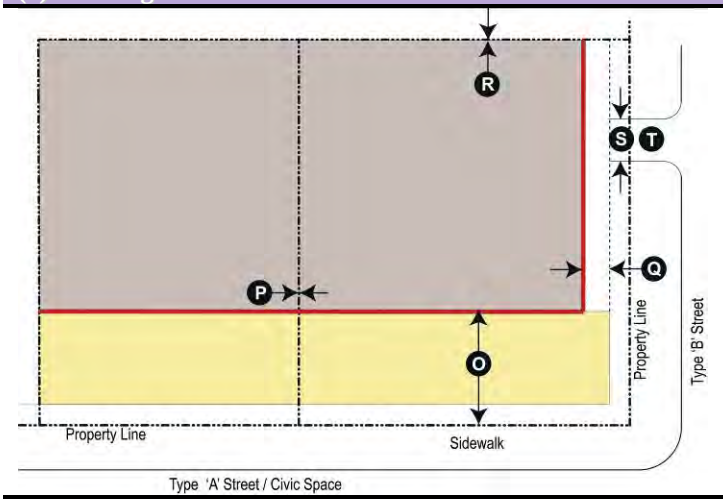
#2 - Along corner lot Type 'A' Street frontages, the area between the building and the edge of the BTZ or the edge of the public sidewalk shall be paved flush with the sidewalk. This area can have landscaping and planting within tree wells and planters but shall not have lawns or landscape islands.

#3 – Corner building street facades must be built to the BTZ for a minimum of 30' from the corner along both streets or the width of the corner lot, whichever is lesser.

#4 – Attics and mezzanines less than 7' (avg.) height shall not be counted as a story.

#5 – All buildings in the Urban Neighborhood Zone shall meet the Building Design Standards in Part 8.

(6) Parking & Service Access



Legend

Property Line	Surface/At Grade Parking Area
Parking Setback	Building Footprint

(i) Parking Location

Surface/At Grade Parking (Distance from property line)

Type 'A' Street and Civic Space setback	Shall be located behind the principal building or 25'; whichever is greater	O
Type 'B' Street setback	Min. of 3 feet behind the building façade line along that street	Q
Side setback	0 ft.	P
Rear setback	5 ft.	R

(ii) Required Off-Street Parking Spaces (see #10)

Non-residential uses	1 space/300 sq. ft. (gross)
Residential uses	1.5 space/unit

(iii) Driveways and Service Access

Parking driveway width	20 ft. max. (except when drives may need to be wider to address service access or fire lane standards)	S
Driveways and off-street loading and unloading shall not be located on a Type 'A' Streets. Shared driveways and cross access easements are encouraged between lots to minimize curb cuts.		T

(7) Encroachments

Corner Lots: Canopies, signs, awnings and balconies may encroach over the sidewalk as long as the vertical clearance is a minimum of 8 ft. In no case shall an encroachment be located over an on-street parking or travel lane. All encroachments over public rights-of-way shall obtain a Waiver of Encroachment from the City of Pearland.

Interior Lots: Porches, stoops, awnings, signs, balconies, bay windows and other architectural features may encroach into required setback areas, provided they do not encroach over the front property line.

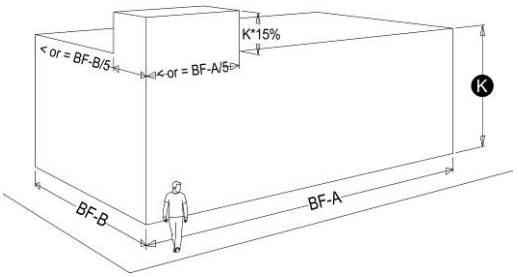
(8) Applicability

Building Form and Development Standards shall apply to all development within this Character Zone.

Notes

#6 – Any frontage along all streets (except alleys) not defined by a building at the BTZ shall be defined by a 4-foot high Street Screen, furthermore service areas shall be defined by a Street Screen that is at least as high as the service equipment being screened. The Street Screen shall be of either the same building material as the principal structure on the lot or masonry or a living screen composed of shrubs planted to be opaque at maturity. Species shall be selected from Chapter 4 Site Development Section 4.2.2.5 of the City of Pearland Unified Development Code. The required Street Screen shall be located within the BTZ along the corresponding frontage.

#7 – Corner buildings may exceed the maximum building height by 15% for 20% of the building's frontage along each corresponding street façade.



#8 - Ground and roof mounted mechanical equipment shall be screened from direct ground level view from adjoining public rights-of-way. In addition to a parapet wall no higher than 42", the perimeter of any visible roof mounted mechanical equipment shall be circumscribed by a wall or permanent screen that is at least as tall as the equipment itself.

#9 – Setbacks and build-to lines on recessed entries and arcade buildings shall be measured from the front of façade with the recessed entry or arcade.

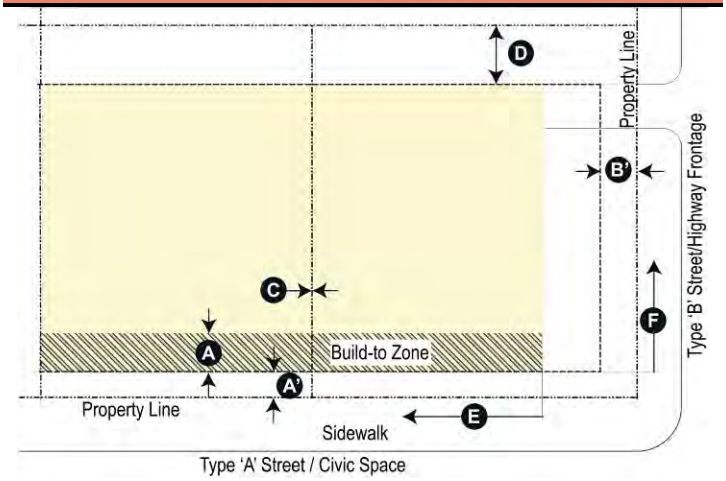
#10 – Chapter 4 Site Development Section 4.2.1.3 of the City of Pearland Unified Development Code shall apply for design of off-street parking areas.

d. Commercial Transition Zone

Commercial Transition Zone Location Map

Note: This map is for reference only. Refer to the Regulating Plan (Appendix B) for all requirements

(1) Building Placement



Legend

Property Line | Build-to Zone | Setback Line | Building Area

Build-to Zone (BTZ) **(Distance from property line to edge of the zone)**		
Front (Type 'A' Street / Civic Space)	5' – 15'	A
Front (Type 'B' Street)	None	
Setback (Distance from the property line)		
Front (Type 'A' Street / Civic Space)	5' (min.) 15' (max.)	A'
Front (Type 'B' Street)	5' (min.) No max.	B'
Side	0' (min.) (see #1)	C
Rear	5' (min.)	D
Building Frontage		
Building Frontage required along Type 'A' Street/civic space BTZ	70% (min.) (see #2 and #5)	E
Building Frontage required along Type 'B' Street BTZ	0% (min.) (see #2 and #5)	F

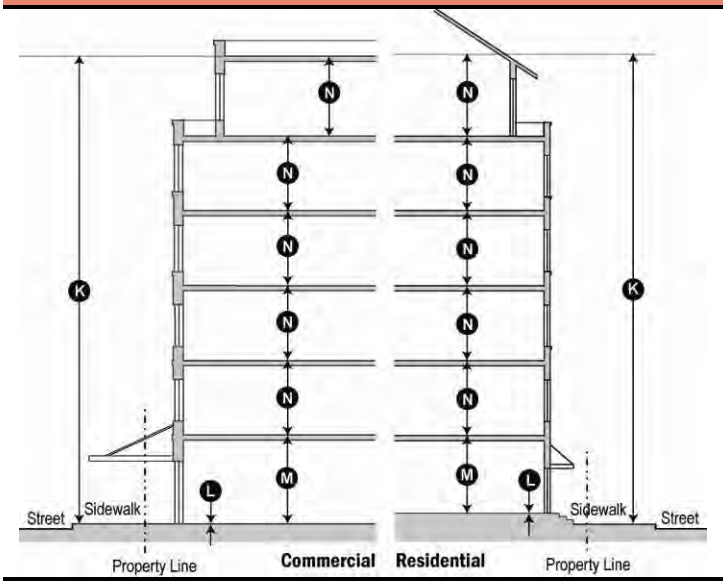
(2) Block Standards

Block face dimensions	600 ft. (maximum)
Block perimeter	2000 ft. (maximum)

(3) Commercial Frontage Requirements

Ground floors of all buildings fronting on Type 'A' Streets shall be built to Commercial Ready standards including first floor-to-floor height, ingress and egress, handicap access, and first floor elevation flush with the sidewalk.

(4) Building Height



(i) Principal Building Standards

Building maximum	6 stories (see #4 and #6)	K
First floor to floor height (along Type 'A' Streets)	15' (min.) (see #3)	M
First floor to floor height (fronting on all other streets)	10' min.	M
Ground floor finish level	12 in. max. above sidewalk (for ground floor commercial buildings and along Type 'A' Streets); 18 in. min. (for ground floor residential uses)	L
Upper floor(s) height	10' min.	N

(ii) Accessory Building Standards

Building maximum	2 stories

Notes

#1 – Side setbacks shall be based on minimum fire separation required between buildings, if applicable.

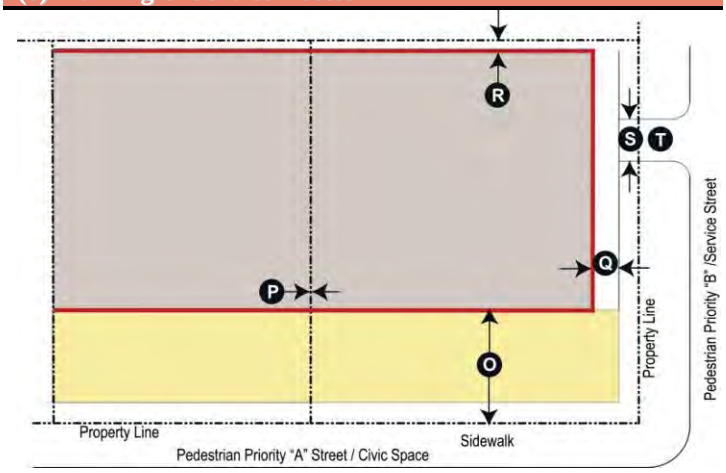
#2 – Corner building street facades must be built to the BTZ for a minimum of 25' from the corner along both streets or the width of the corner lot, whichever is less. Recessed entrances are permitted as long as the upper floors meet the build-to zone standards.

#3 – First floor heights shall not apply to parking structures.

#4 – Attics and mezzanines less than 7' (avg.) height shall not be counted as a story.

#5 – Any frontage along all streets (except alleys) not defined by a building at the BTZ shall be defined by a 4-foot high Street Screen, furthermore service areas shall be defined by a Street Screen that is at least as high as the service equipment being screened. The Street Screen shall be of either the same building material as the principal structure on the lot or masonry or a living screen composed of shrubs planted to be opaque at maturity. Species shall be selected from Chapter 4 Site Development Section 4.2.2.5 of the City of Pearland Unified Development Code. The required Street Screen shall be located within the BTZ along the corresponding frontage.

(5) Parking & Service Access



Legend

Property Line
Parking Setback
Surface Parking Area
Building Footprint

(i) Parking Location (distance from property line)

Type 'A' Street setback	Behind the principal structure on the lot or a minimum of 30' from the property line (whichever is greater)	O
Type 'B' Street setback	Min. of 3' behind the building facade line along that street	Q
Side setback	0' min.	P
Rear setback	0' min.	R

(ii) Required Parking Spaces (see #9)

Non-residential uses	1 space/300 sq. ft. (gross)
Residential uses	1.5 space/unit

(iii) Driveways and Service Access

Parking driveway width	24' max. (at the throat)	S
Driveways and off-street loading and unloading shall not be located on a Type "A" Street unless the property has no feasible access to either a vehicular alley or a Service Street.		T

(6) Encroachments

Corner Lots: Canopies, signs, awnings, galleries, and balconies may encroach over the R-O-W/sidewalk as long as the vertical clearance is a minimum of 8 ft. In no case shall an encroachment be located over an on-street parking or travel lane. All encroachments over public rights-of-way shall obtain a Waiver of Encroachment from the City of Pearland.

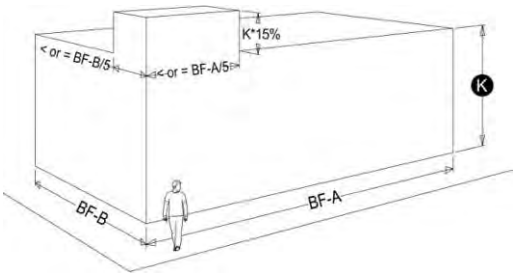
Interior lots: Porches, stoops, awnings, signs, galleries, balconies, bay windows and other architectural features may encroach into required yards, provided they do not encroach over the front property line.

(7) Applicability

Building Form and Development Standards shall apply to all development within this Character Zone.

Notes

#6 – Corner buildings may exceed the maximum building height by 15% for 20% of the building's frontage along each corresponding street façade.



#7 - Ground and roof mounted mechanical equipment shall be screened from direct ground level view from adjoining public rights-of-way. In addition to a parapet wall no higher than 42", the perimeter of any visible roof mounted mechanical equipment shall be circumscribed by a wall or permanent screen that is at least as tall as the equipment itself.

#8 – Setbacks and build-to lines on recessed entries and arcade buildings shall be measured from the front of façade with the recessed entry or arcade.

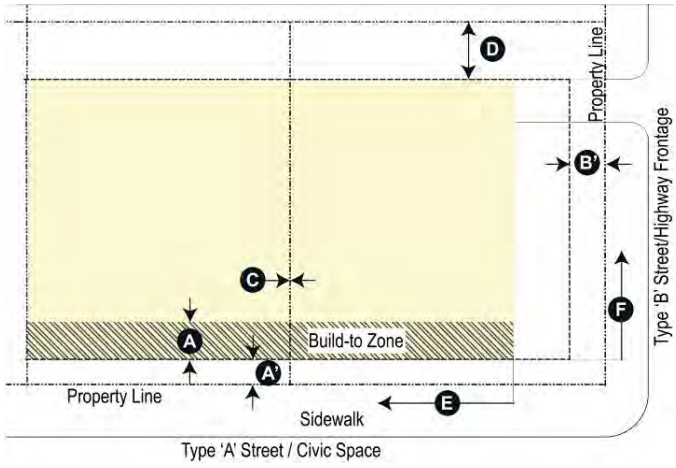
#9 – Chapter 4 Site Development Section 4.2.1.3 of the City of Pearland Unified Development Code shall apply for design of off-street parking areas.

e. Research/Tech Campus Zone

Research/Tech Campus Zone Location Map

Note: This map is for reference only. Refer to the Regulating Plan (Appendix B) for all requirements

(1) Building Placement



Legend

Property Line | Build-to Zone | Setback Line | Building Area

Build-To Zone (BTZ) (Distance from edge of the property line to the edge of the BTZ)		
Front (Type 'A' Street and Civic Space)	5 – 20 feet (see #1)	A
Front (Type 'B' Street)	None	
Front (Kirby Drive)	See (4) below	
Setback (Distance from property line)		
Front (Type 'A' Street and Civic Space)	5 feet (min.) – 20 feet (max)	A'
Front (Type 'B' Street)	5 feet (min.) No max.	B'
Front (Kirby Drive)	See (4) below	
Side	0 feet (see #2)	C
Rear	0 feet(see #2)	D
Building Frontage		
Building Frontage required along Type 'A' Street/civic space BTZ	70% (min.) (see #3 and #7)	E
Building Frontage required along Type 'B' Street BTZ	0% (min.) (see 7.2.4, #3 and #7)	F
Building Frontage required along Kirby Drive Street BTZ	50% (min.) See below (4)	

(2) Block Standards

Block face dimensions	400 – 600 feet
Block perimeter	2000 feet (maximum)

(3) Commercial Frontage Requirements

Ground floors of all buildings fronting on Type 'A' Streets and Kirby Drive shall be built to Commercial Ready standards including first floor-to-floor height, ingress and egress, handicap access, and first floor elevation flush with the sidewalk.

(4) Kirby Drive Frontage Requirements

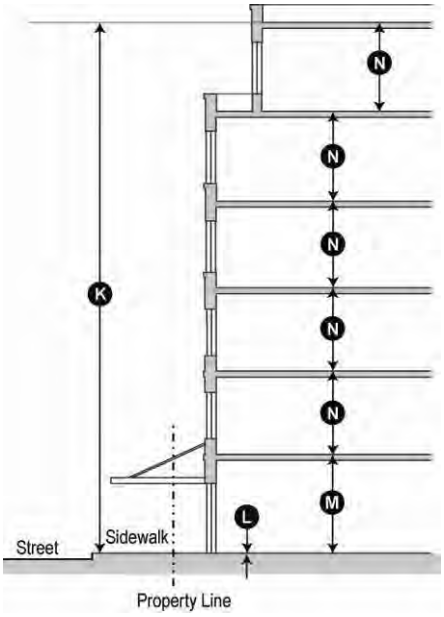
For all buildings and building sites with frontage on Kirby Drive on the Regulating Plan, the following standards shall apply:

i. A building setback of a minimum of 15 ft. shall apply along the designated frontage. Of the 15 ft. setback, 6 ft. (min.) shall be dedicated to a landscaped parkway. A maximum building setback of 85 ft. shall be required along the lots designated with the Kirby Drive Frontage.

ii. Surface parking lots no deeper than 70 ft. may be permitted so long as its frontage along Kirby Drive is no more than 50% of the lot frontage along Kirby Drive.

iii. Driveways shall be limited to a maximum of 24 ft. in width and one driveway per every 350 ft. of block frontage.

(5) Building Height



Principal Building Standards		
Building maximum	6 stories (see #4 and #7)	K
First floor to floor height	15 feet min. (see #5)	M
Ground floor finish level	12 inches max. above sidewalk	L
Upper floor(s) height (floor-to-floor)	10 feet min.	N
Accessory Building Standards		
Building maximum	2 stories (see #4)	

Notes

#1 – The area between the building and the edge of the BTZ or the edge of the public sidewalk shall be paved flush with the sidewalk along all Type 'A' Streets. This area can have landscaping and planting within tree wells and planters but shall not have lawns or landscape islands.

#2 – Side and rear setbacks shall be based on minimum fire separation required between buildings, if applicable.

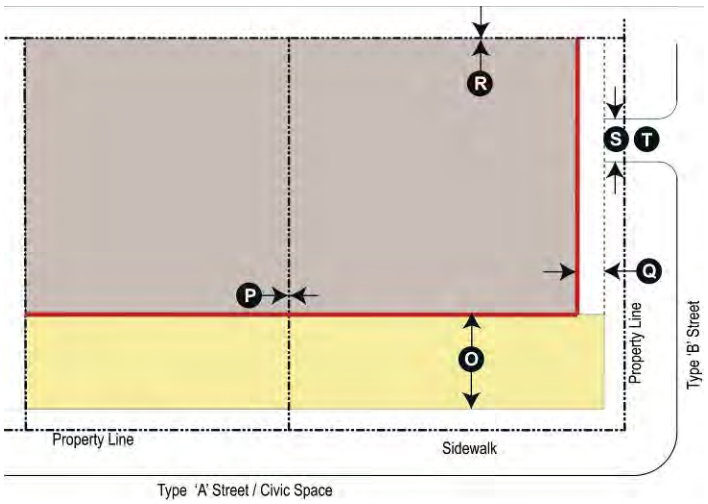
#3 – Corner building street facades shall be built to the BTZ for a minimum of 30 feet from the corner along both streets or the width of the corner lot, whichever is less. Recessed entrances are permitted as long as the upper floors meet the build-to zone standards.

#4 – Attics and mezzanines less than 7' (avg.) height shall not be counted as a story.

#5 – All buildings in the Research/Tech Campus Zone shall meet the Building Design Standards in Part 8.

#6 – Any frontage along all streets (except alleys) not defined by a building at the BTZ shall be defined by a 4-foot high Street Screen, furthermore service areas shall be defined by a Street Screen that is at least as high as the service equipment being screened. The Street Screen shall be of either the same building material as the principal structure on the lot or masonry or a living screen composed of shrubs planted to be opaque at maturity. Species shall be selected from Chapter 4 Site Development Section 4.2.2.5 of the City of Pearland Unified Development Code. The required Street Screen shall be located within the BTZ along the corresponding frontage.

(6) Parking & Service Access



Legend

Property Line
Parking Setback
Surface/At Grade Parking Area
Building Footprint

(i) Parking Location

Surface/At Grade Parking

Type 'A' Street, Slip Road Frontage and Civic Space setback	Shall be located behind the principal building or a minimum of 30' from the property line (whichever is greater)	O
Type 'B' Street setback	Min. of 3 feet behind the building facade line along that street	Q
Side setback (distance from property line)	0 feet min.	P
Rear setback (distance from property line)	0 feet min.	R

(ii) Required Off-Street Parking Spaces (see #10)

Non-residential uses	1 space/400 square feet (gross)
Residential uses	1.5 space/unit

(iii) Driveways and Service Access

Parking driveway width	24 feet max. (except when drives may need to be wider to address service access or fire lane standards)	S

Driveways and off-street loading and unloading shall <u>not</u> be located on a Type 'A' Streets. T

Off-street loading and unloading shall <u>not</u> be located along the Kirby Drive frontage.

Porte cocheres may be permitted on Type 'A' Streets to provide drop-off and valet service.

Shared driveways and cross access easements are encouraged between lots to minimize curb cuts.

If driveway and/or off-street service loading and unloading access is provided from a Type 'A' Street, such access shall be deemed as temporary and cross access easements along the rear of the property shall be required when adjoining properties are undeveloped.

(7) Encroachments

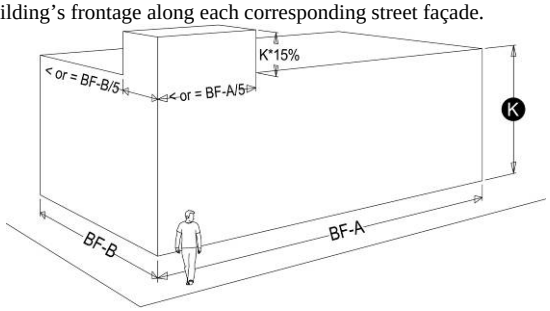
Canopies, signs, awnings and balconies may encroach over the sidewalk as long as the vertical clearance is a minimum of 8 feet. In no case shall an encroachment be located over an on-street parking or travel lane. All encroachments over public rights-of-way shall obtain a Waiver of Encroachment from the City of Pearland.

(8) Applicability

Building Form and Development Standards shall apply to all development within this Character Zone.

Notes

#7 – Corner buildings may exceed the maximum building height by 15% for 20% of the building's frontage along each corresponding street façade.



#8 - Ground and roof mounted mechanical equipment shall be screened from direct ground level view from adjoining public rights-of-way. In addition to a parapet wall no lower than 36 inches, the perimeter of any visible roof mounted mechanical equipment shall be circumscribed by a wall or permanent screen that is at least as tall as the equipment itself.

#9 – Setbacks and build-to lines on recessed entries and arcade buildings shall be measured from the building façade line.

#10 – Chapter 4 Site Development Section 4.2.1.3 of the City of Pearland Unified Development Code shall apply for design of off-street parking areas.

Part 8. Building Design Standards

The Building Design Standards for Lower Kirby Urban Center shall establish a coherent urban character and encourage enduring and attractive development. Development plans or site plans shall be reviewed by the City Manager or designee for compliance with the standards below.

The key design principles establish essential goals for development in Lower Kirby Urban Center to ensure the preservation, sustainability, and visual quality of this unique environment. Buildings shall be located and designed so that they provide visual interest and create enjoyable, human-scaled spaces. The key design principles are:

i. New buildings shall utilize building elements and details to achieve a pedestrian-oriented public realm.
ii. Compatibility is not meant to be achieved through uniformity, but through the use of variations in building elements to achieve individual building identity.
iii. Building facades shall include appropriate architectural details and ornament to create variety and interest.
iv. Open space(s) shall be incorporated to provide usable public areas integral to the urban environment.

a. General to all Character Zones

(1) Building Orientation
i. Buildings shall be oriented towards Type 'A' Streets, where the lot has frontage along Type 'A' Streets. All other buildings shall be oriented towards Type 'B' Streets or Civic Spaces.
ii. Primary entrance to buildings shall be located on the street along which the building is oriented. At intersections, corner buildings may have their primary entrances oriented at an angle to the intersection.
iii. All primary entrances shall be oriented to the public sidewalk for ease of pedestrian access. Secondary and service entrances may be located from internal parking areas or alleys.

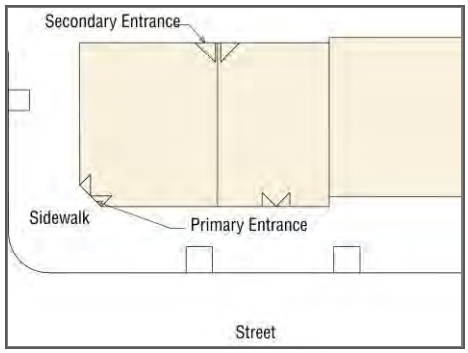


Figure showing required building orientation and location of primary entrances

(2) Design of Parking Structures
i. All frontages of parking structures located on Type 'A' Streets shall not have parking uses on the ground floor to a minimum depth of 30 feet along the Type 'A' Street frontage. If the frontage is along a designated Main Street Frontage, then the Main Street Frontage requirement shall supersede.

ii. The amount of Type 'A' Street frontage devoted to a parking structure shall be minimized by placing the shortest dimension(s) of the parking structure along the Type 'A' Street edge(s).
iii. Parking structure facades on all Type 'A' Streets shall be designed with both vertical (façade rhythm of 20 feet to 30 feet) and horizontal (aligning with horizontal elements along the block) articulation.
iv. Where above ground structured parking is located at the perimeter of a building with frontage along a Type 'A' Street, it shall be screened in such a way that cars on all parking levels are completely hidden from view from all adjacent public streets. Parking garage ramps shall not be visible from any public street. Ramps shall not be located along the perimeter of the parking structure. Architectural screens shall be used to articulate the façade, hide parked vehicles, and shield lighting. In addition, the ground floor façade treatment (building materials, windows, and architectural detailing) shall be continued to the second floor of a parking structure along all Type 'A' Streets.
v. When parking structures are located at street intersections, corner architectural elements shall be incorporated such as corner entrance, signage and glazing.
vi. Parking structures and adjacent sidewalks shall be designed so pedestrians and bicyclists are clearly visible to entering and exiting automobiles.

Images showing appropriate design of Parking Structures

(3) Design of Automobile Related Building Site Elements
i. Drive-through lanes for commercial uses shall not be located along any Type 'A' Street. Drive-through lanes shall be hidden behind a Street Screen along the Type 'B' Street frontage.
ii. All off-street loading, unloading, and trash pick-up areas shall be located along alleys or Type 'B' Streets only unless permitted in the specific building form and development standards in Part 7. All off-street loading, unloading, or trash pick-up areas shall be screened using a Street Screen that is at least as tall as the trash containers and/or service equipment it is screening at the BTZ. The Street Screen shall be made up of (i) the same material as the principal building or (ii) a living screen or (iii) a combination of the two.

(4) Roof Form
i. Buildings shall have simple, flat fronts with minimal articulations with flat or low pitched roofs with parapets. Corner hip roof elements and gable accents at the parapet may be permitted.
ii. The following standards shall apply for all buildings with mansard roofs in Lower Kirby Urban Center:
- Mansard roofs shall only be used on buildings that are three stories or higher.
- The mansard roof shall project no more than 18" forward of the building façade line.
- The lower slope of the roof should be inclined at no greater than 75 degrees to the horizontal.

Images of appropriate building and roof forms in the Lower Kirby Urban Center

(5) Façade Composition

i. Buildings shall maintain a façade rhythm between 20 feet and 30 feet along all Type 'A' Streets.

ii. This rhythm may be expressed by changing materials, or color, or by using design elements such as fenestration, columns and pilasters, or by varying the setback of portions of the façade.

iii. Buildings shall be designed and built in tri-partite architecture so that they have a distinct Base, Middle and Cap.

Image of Tri-Partite Architecture

iv. An expression line or equivalent architectural element shall delineate the Base and Cap of all buildings. A cornice shall delineate the caps of facades that do not utilize a pitched roof.

v. For retail storefront buildings, a transom, display window area, and bulkhead at the base shall be utilized.

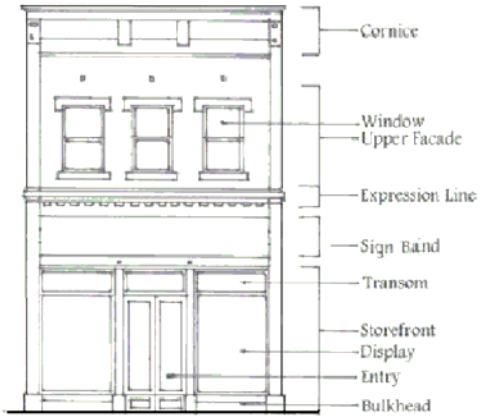


Image of a typical storefront

vi. Storefronts on facades that span multiple tenants shall use architecturally compatible materials, colors, details, awnings, signage, and lighting fixtures.
vii. Building entrances may be defined and articulated by architectural elements such as lintels, pediments, pilasters, columns, porticos, porches, overhangs, railings, balustrades, and others as appropriate. All building elements should be compatible with the architectural style, materials, colors, and details of the building as a whole. Entrances to upper level uses may be defined and integrated into the design of the overall building facade.
viii. Buildings shall generally maintain the alignment of horizontal elements along the block.
ix. Corner emphasizing architectural features, pedimented gabled parapets, cornices, awnings, blade signs, arcades, colonnades and balconies may be used along commercial storefronts to add pedestrian interest.

Buildings with architectural features and storefront elements that add interest along the street.

x. Buildings which are located on axis with a terminating street or at the intersection of streets shall be considered as feature buildings. Such buildings shall be designed with features which take advantage of that location, such as an accentuated entry and a unique building articulation which is off-set from the front wall planes and goes above the main building eave or parapet line.

(6) Windows and Doors

i. Windows and doors on street (except alleys) fronting facades shall be designed to be proportional and appropriate to the specific architectural style of the building. First floor windows shall NOT be opaque, tinted or mirrored glass.
ii. All ground floor front facades of buildings along Type 'A' Streets or Civic/Open Space shall have transparent storefront windows covering no less than 50% of the façade area. Each upper floor of the same building facades facing a Type 'A' Street or Civic/Open Space shall contain transparent windows covering at least 25% of the façade area. All other street facing facades (except alleys) shall have transparent windows covering at least 20% of the façade area for all floors.

Images showing appropriate storefront display and transparency

b. Standards Specific to Development in the Mixed Use Core, Highway Commercial, and Commercial Transition Character Zones
   (1) Commercial or Mixed Use Building Materials
      i. At least 80% of each building's façade (excluding doors and windows) fronting along any Type 'A' Street, Kirby Drive, Beltway 8, and SH 288 shall be finished in one of the following materials:
         - Masonry (brick, stone, stucco utilizing a three-step process, curtain glass, or glass block)
      ii. No more than 20% of each façade along any Type 'A' Street, Kirby Drive, Beltway 8, and SH 288 shall use accent materials such as wood, architectural metal panel, split-face concrete block, tile, or pre-cast concrete panels. EIFS shall only be limited to moldings and architectural detailing on building frontages along any Type 'A' Streets, Kirby Drive, Beltway 8, and SH 288.

Images showing appropriate building materials for Commercial or Mixed Use Buildings within the Mixed Use Core, Highway Commercial, and Commercial Transition Character Zones.

      iii. All facades along Type 'B' Streets or alleys shall be of a similar finished quality and color that blend with the front of the building. Building materials for these facades may be any of the primary and accent façade materials listed above. EIFS shall not be permitted along any ground floor facades along Type 'B' Streets and ground floor facades of alleys. Cementitious-fiber clapboard (not sheet) with at least a 50-year warranty may only be used on the upper floors only.
      iv. Roofing materials visible from any public right-of-way shall be copper, factory finished standing seam metal, slate, synthetic slate, or similar materials.

c. Standards Specific to Development in the Research/Tech Campus Character Zone:
   (1) Commercial or Mixed Use Building Materials
      i. The following shall be permitted finishes for all street fronting facades (except service streets or alleys) of all buildings. No more than three different materials shall be used on any single facade:
         - Masonry (brick; stone; man-made stone, or stucco utilizing a three-step process);
         - Tilt-up concrete panels that have a grid like appearance;
         - Split face concrete block or pre-cast, or poured in place concrete; and
         - Architectural metal panels.

Images showing appropriate building materials within Research/Tech Campus Character Zone.

ii. Other materials will be considered as primary building materials on a case-by-case basis and may only be approved by the City Manager subject to appeal to City Council.
iii. The following may only be allowed up to 40% as an accent material:
- Exterior Insulating Finishing System (EIFS), or similar material over a cementitious base, rock, glass block and tile.
- Other metal finishes

iv. Side and rear (non-street fronting) facades shall be of finished quality and of the same color and materials that blend with the front of the building.

d. Standards Specific to Development in the Urban Neighborhood Character Zone:

(1) Building Orientation

i. Garages for Residential Buildings shall be located on alleys at the rear of residential buildings; pull-through garages are allowed if the garage door is set back behind the rear façade of the main structure. If front-loaded garages or carports are utilized on residential uses, the garages and carports shall be no greater than 12 feet wide and set back at least 20 feet measured from the face of the main structure closest to the garage/carport or rotated 90 degrees with windows on the wall facing the street. On corner lots, the garage may be rotated with windows facing the primary street with driveway access from the secondary street.
ii. All garage doors shall be divided into single bays separated by at least a 16-inch pier or column. Front-loaded garages on residential lots less than 40 feet wide shall not be allowed. Town homes and courtyard apartments shall utilize rear-loaded garages.

(2) Building Massing and Scale

i. Residential buildings shall have few, if any, articulations and simple roofs (gable, hip, combination) with most building wing articulations set at the rear of the structure. Window projections, bay windows, stoops, porches, balconies, and similar extensions shall be exempt from this standard.
ii. Gable roofs, if provided for residential buildings, shall have a minimum pitch of 5/12. When hipped roofs are used, the minimum pitch shall be 5/12. Other roof types shall be appropriate to the architectural style of the building. Porch roofs may be a minimum pitch of 3/12.
iii. The following standards shall apply for all buildings with mansard roofs in Lower Kirby Urban Center:
- Mansard roof shall only be used on buildings that are three stories or higher.
- The mansard roof shall project no more than 18" forward of the building façade line.
- The lower slope of the roof should be inclined at no greater than 75 degrees to the horizontal.

Images showing appropriate massing and scale for Residential Buildings

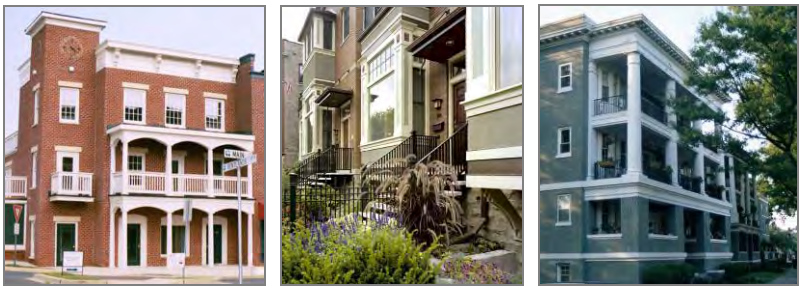
(3) Façade Composition

i. Buildings shall maintain a façade rhythm between 20 feet and 30 feet along Type 'A' Streets. This rhythm may be expressed by changing materials, or color, or by using design elements such as columns and pilasters, or by varying the setback of portions of the building façade.

ii. At least one of the following -- porches, bay windows, stoops, eaves or balconies -- shall be added along the front residential facades to add pedestrian interest along the street.

iii. For residential buildings the grade of the slab or first floor elevation shall be elevated at least 18 inches above the grade of the sidewalk.

iv. Alley and/or Type 'B' Street facing facades shall be of finished quality and of the same color that blend with the front of the building.



Residential buildings with porches, balconies, and stoops to add interest along the street.

(4) Windows and Doors

i. Windows and doors shall be designed to be proportional and appropriate to the architectural style of the building.

ii. Windows may have jack arch, keystone arch, flat arch, or ornamental arches.

iii. All building facades of residential buildings fronting on all Type 'A' Streets or civic spaces, except alleys, shall have transparent windows covering at least 30% of each façade.

Images showing appropriate window designs and proportions.

(5) Residential Building Materials

i. At least 80% of the Type 'A' Street facing facades of all buildings (excluding doors and windows) shall be finished in one or more of the following materials. No more than three different materials shall be used on any single residential façade:

- Cementitious-fiber clapboard (not sheet) with at least a 50-year warranty.
- Masonry (brick; stone; man-made stone, or stucco utilizing a three-step process).

ii. The following may only be allowed up to 20% as an accent material:

- Architectural metal panels or similar material over a cementitious base, glass block and tile.

iii. EIFS shall not be permitted along any Type 'A' Street facades.

iv. Side and rear facades shall be of finished quality and of the same color that blend with the front of the building. Ground floor side and rear facades shall not be EIFS.
v. Roofing materials (visible from any public right-of-way): copper, factory finished painted metal, slate, synthetic slate, terra cotta, and asphalt shingles (laminated and classified as being at least 300 pounds/100 sf.).
vi. Accessory buildings, enclosed garages or carports shall be designed and constructed of the same material as the primary building.

Part 9. Street & Streetscape Design Standards

a. Generally: Streets in Lower Kirby Urban Center need to support the overall goal of a mixed use, compact, pedestrian oriented district. They should balance all forms of mobility while maximizing convenience for residents and visitors.

The Regulating Plan designates the required and recommended street network within the Lower Kirby Urban Center. This portion of the code specifies the typical configuration of streets within the Lower Kirby Urban Center. The specifications address vehicular lane width, parkway widths, right-of-way (R.O.W) widths, number of travel lanes, on-street parking, and pedestrian and bicycle accommodation. The character of streets in the Lower Kirby Urban Center will vary based on the location. The service roads of the Beltway 8 and SH 288 are under the purview of TxDOT while the remaining streets are city streets.

b. New Streets: This portion of the code specifies standards for all new streets in the Lower Kirby Urban Center. New streets shall be based on the Required or Recommended designation on the Regulating Plan.

c. Street Classification Established: Table 9.1 and associated cross sections shall establish the cross sections for each street type. The cross sections may be adjusted to fit existing contexts with the approval of the City Engineer. In addition, the proposed cross sections may be adjusted to meet the needs of the Uniform Fire Code as adopted by the City.

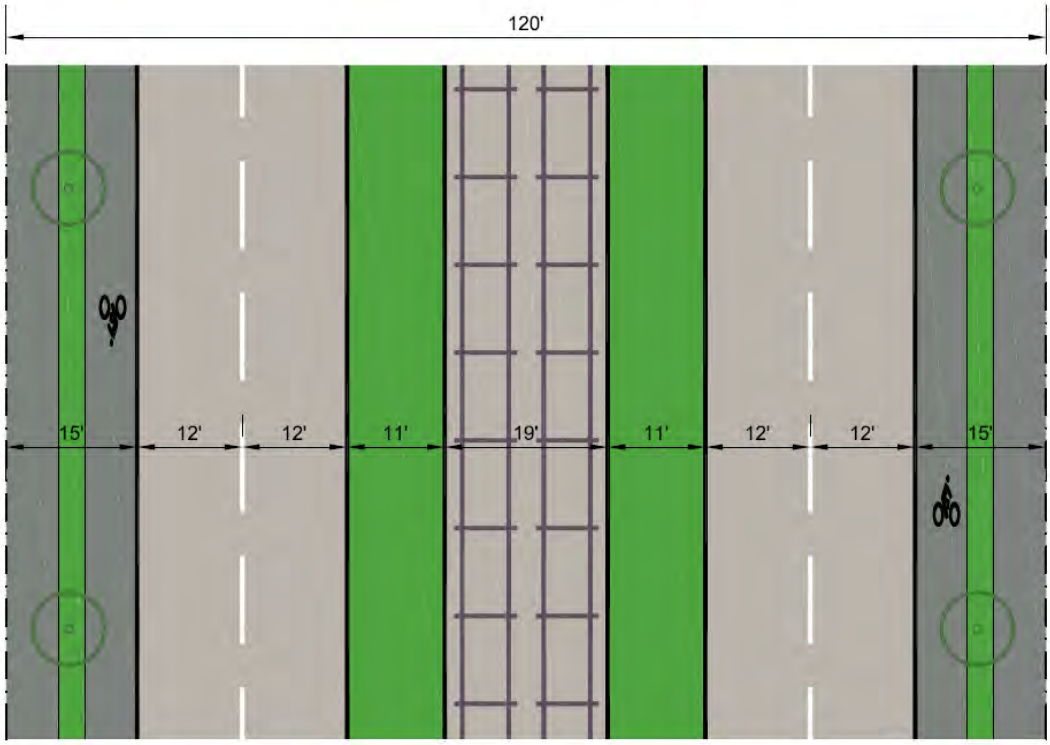
Table 9.1

Elements Street Classification	Street Width (Recommended min. R.O.W)	Number of Vehicular Lanes	Vehicular Lane Widths	Number of Bike Lanes	Bike Lane Widths	Turn Radius (max.)	Median	On-Street Parking	Pedestrian Sidewalk Width (min.)	Parkway/ Tree Well
Kirby Drive	120 feet	4	12 feet	2	5 feet	30 feet	Yes, 41 feet	No	6 feet	5 feet wide
BV-114-70 Urban Boulevard	114 feet	4	11 feet	2	5 feet	25 feet	Yes, 14 feet	Yes, both sides, parallel	10 feet (clear)	Tree Well, 5 X 5 feet min.
AV-94-48 2-Lane Avenue	94 feet	2	11 feet	2	5 feet	20 feet	Yes, 14 feet	Yes, both sides, parallel	11 feet (clear)	Tree Well, 5 X 5 feet min.
Neighborhood Tributary Street	Varies	2 (max.)	11 feet	None	NA	15 feet	Yes, 24 feet (min.)	Yes, parallel	5 feet	Optional (5' min.)
AV-82-44 Avenue	82 feet	4	11 feet	None	NA	20 feet	Median, 14 feet	None	12 feet	Tree Well, 5 X 5 feet min. or Parkway (6' min.)
ST-61-29 Urban Greenway Street	61 feet	2	10 feet	None	NA	15 feet	None	Yes, one side, parallel	16 feet	Tree Well, 5 X 5 feet min. or Parkway (6' min.)
ST-53-29 Neighborhood Greenway Street	53 feet	2	10 feet	None	NA	15 feet	None	Yes, one side, parallel	6 feet	Parkway, 6 feet min. width
ST-62-38 Urban	62 feet	2	10 feet	None	NA	15 feet	None	Yes, both sides,	12 feet	Tree Well, 5X5 feet

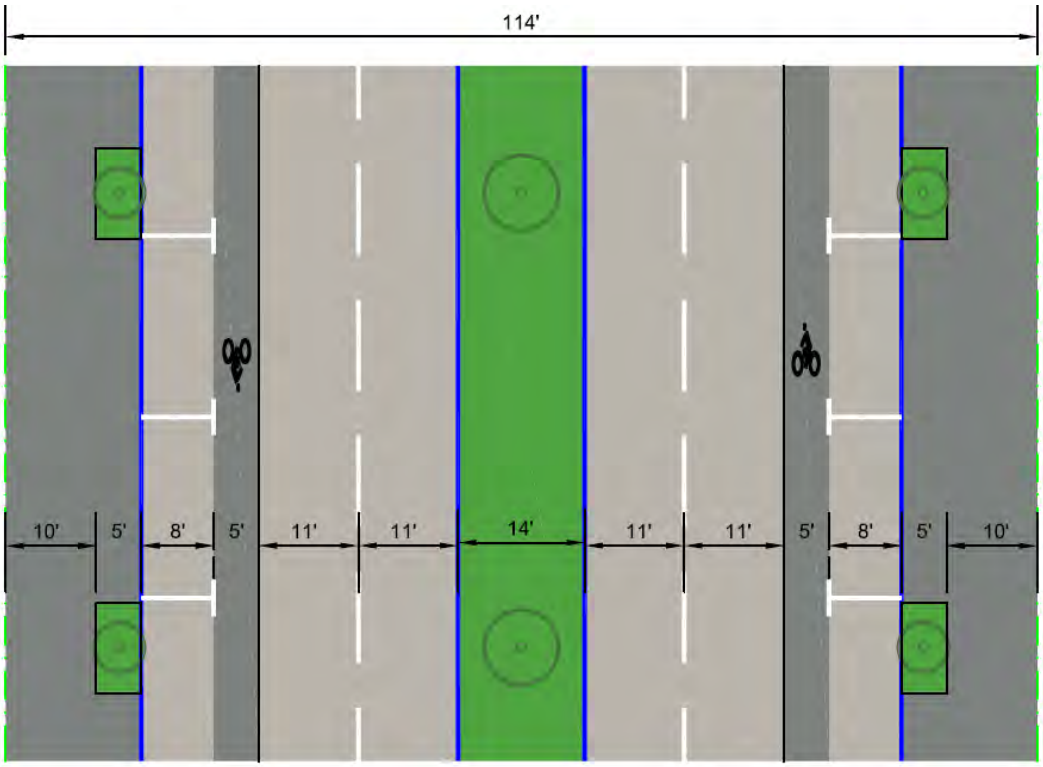
Elements Street Classification	Street Width (Recommended min. R.O.W)	Number of Vehicular Lanes	Vehicular Lane Widths	Number of Bike Lanes	Bike Lane Widths	Turn Radius (max.)	Median	On-Street Parking	Pedestrian Sidewalk Width (min.)	Parkway/ Tree Well
Neighborhood Street A and B								parallel		
RD-44-22 (Service/Access Road)	44 feet	2	11 feet	None	NA	20 feet	None	None	6 feet	Parkway, 6 feet min. width
Commercial Alley	26 feet (16 feet of paving)	NA	NA	None	NA	20 feet	None	None	None	None
Residential Alley	16 feet (paving and R.O.W)	NA	NA	None	NA	15 feet	None	None	None	None
Waterfront Promenade	Varies	Varies (optional)	11 feet	None	NA	15 feet	None	Optional	20 feet	None
Pedestrian Paseo	15’ (min.) – 40’ (max.)	None	NA	None	NA	NA	None	None	15 feet	Optional

d. Street Cross Sections

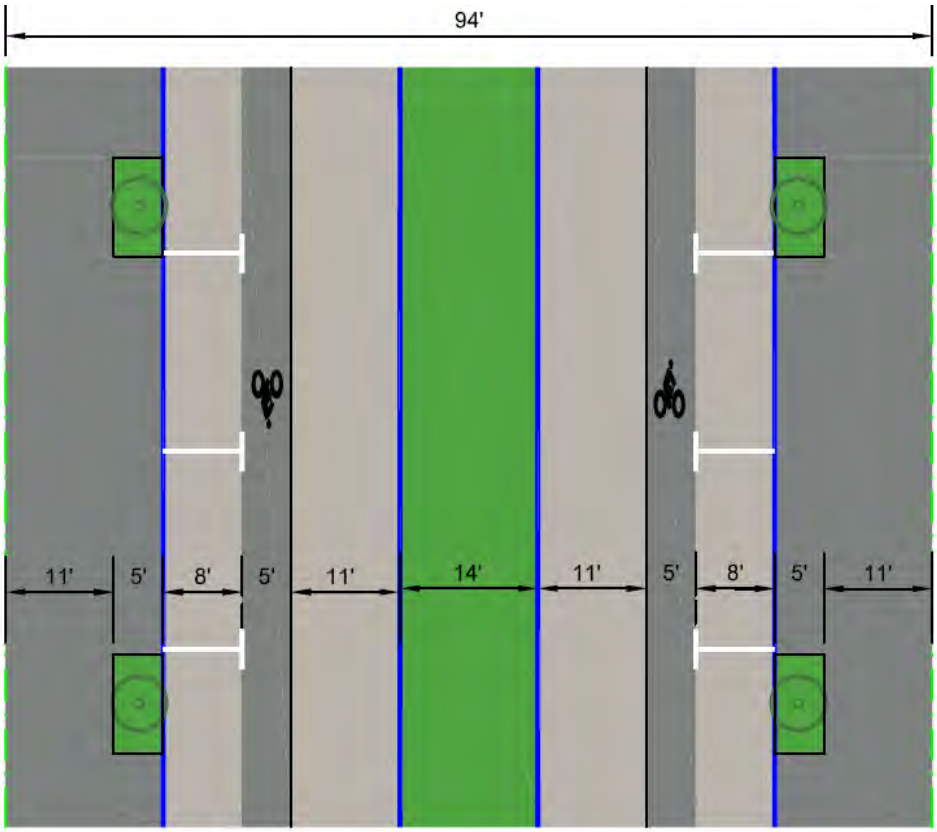
(1) Kirby Drive



(2) BV 114-70 Urban Boulevard

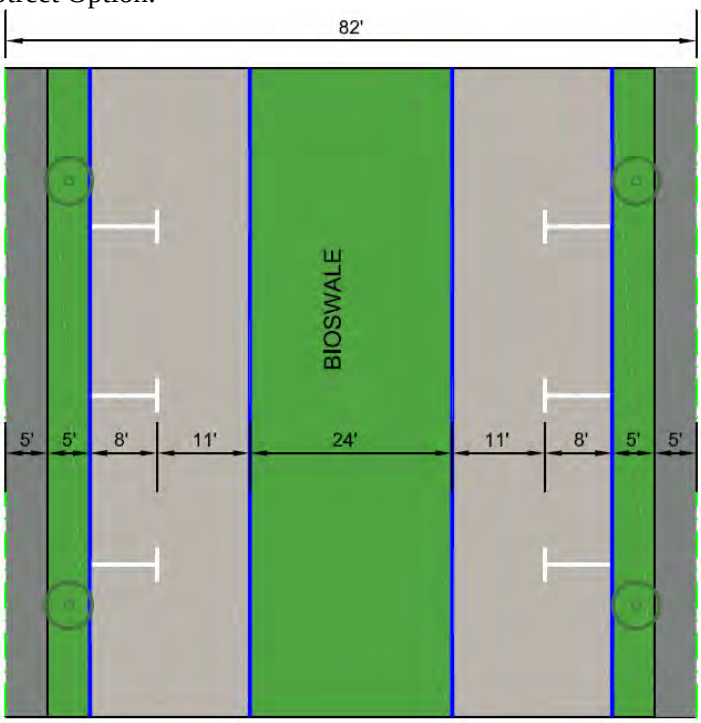


(3) AV- 94-48 Two-Lane Avenue

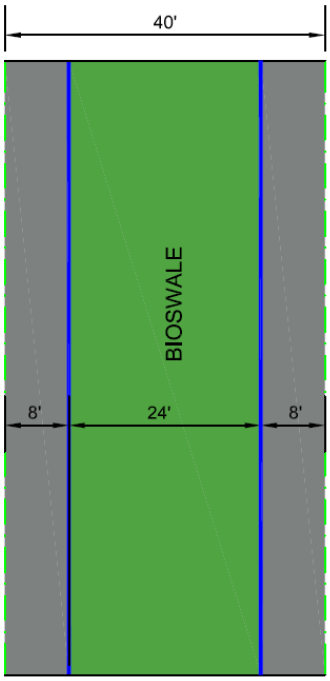


(4) Neighborhood Tributary Street

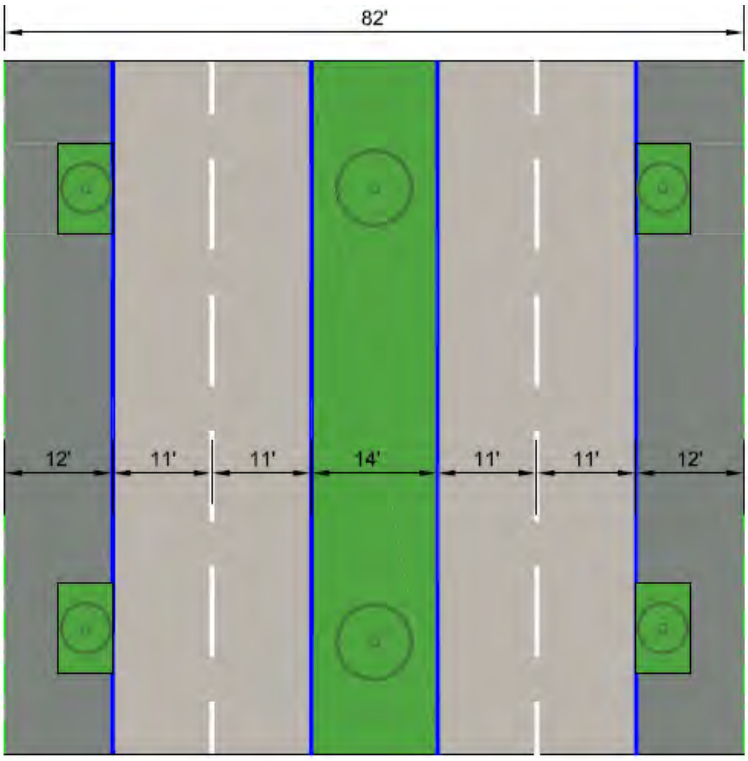
Street Option:



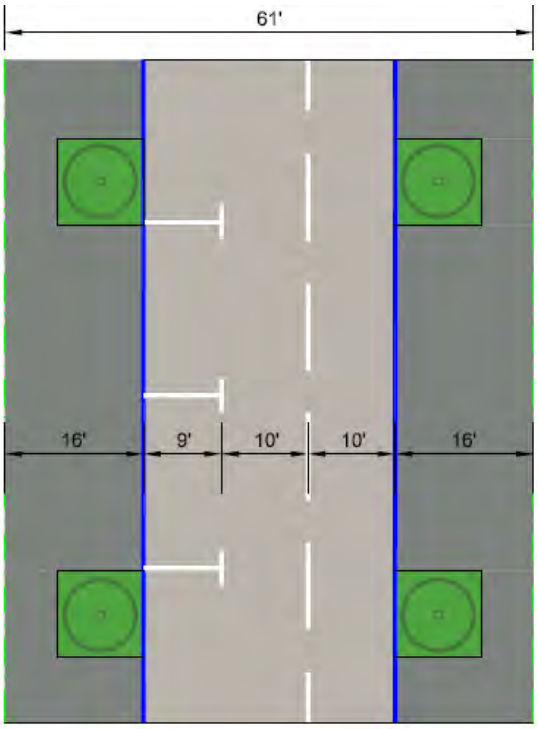
Pedestrian Way Option: may be used only when development adjoining the Pedestrian Way is served by alleys or a Type 'B' Street for automobile access.



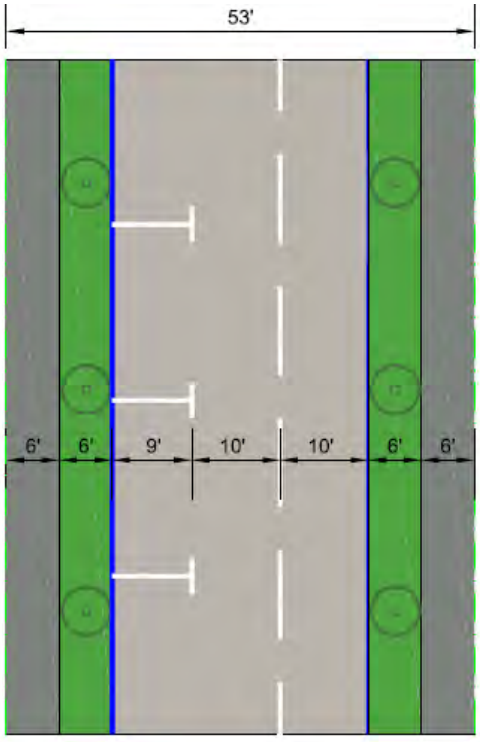
(5) AV-82-44 Avenue



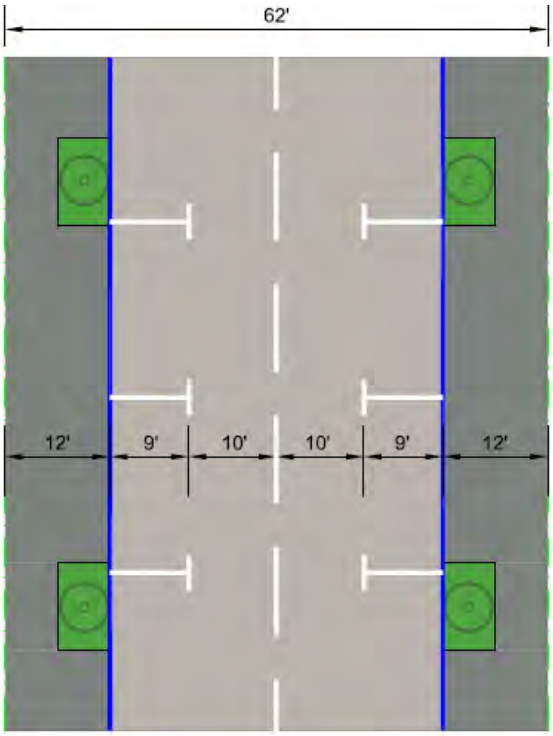
(6) ST-61-29 Urban Greenway Street



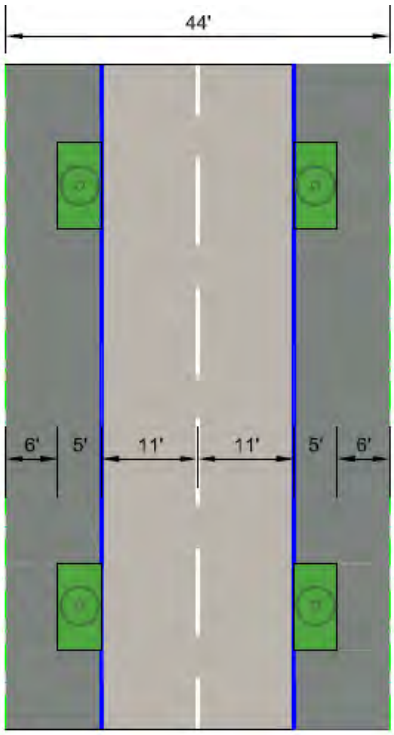
(7) ST-53-29 Neighborhood Greenway Street



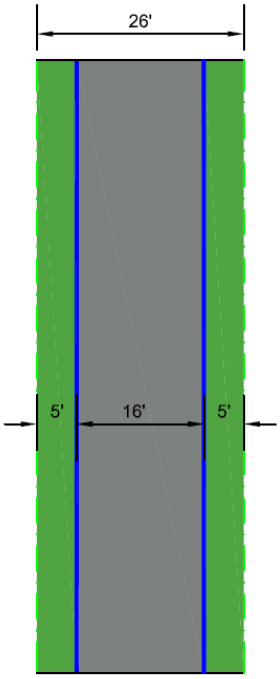
(8) ST-62-38 Urban Neighborhood Street



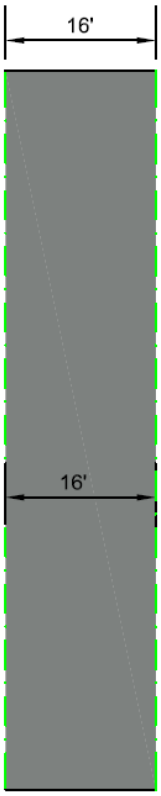
(9) RD-44-22 Service Road/Access Road



(10) Commercial Alley

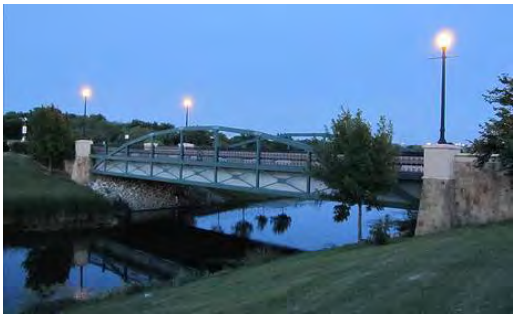


(11) Residential Alley



(12) Special Bridge Design

Design of bridges in the Lower Kirby Urban Center should take the urban context into consideration. The inclusion of vertical elements the ends of the bridges, pedestrian amenities, architectural detailing, railings, and appropriate masonry materials. The images in this section are intended to provide the city and developers design direction on the design of bridges. The incorporation of public art is also encouraged to provide a unique sense of place and identity to the Urban Center.



(13) Waterfront Promenade



The Waterfront Promenade along Clear Creek is intended to provide an active edge along Clear Creek at the southern edge of the Urban Center. The intent is to create a vibrant and active edge along the creek/regional detention with commercial activity. The Waterfront Promenade provides a casual place for pedestrians to stroll. The Waterfront Promenade shall be defined by building edges with commercial activity on the ground floor with the creek side being defined by a 3'-6" high rail or low wall. The Waterfront Promenade should consist primarily of hardscape with benches and areas for casual seating.

Typical Characteristics
General Character
Provide an active and publicly accessible edge along the bay.
Primarily hardscape
Rail or low wall along the bay
Buildings fronting on the other side with active commercial uses including café seating for restaurants.
Location and Size
Location shall be as shown on the Regulating Plan (Appendix A). The minimum width shall be 20 feet wide.
Typical Uses
Commercial activity including restaurants with café seating and entertainment
Passive recreation
Casual seating, walking and strolling

(12) Pedestrian Paseo



A **Paseo or Pedestrian Passage** is an intimate street level passage way for pedestrians through blocks at identified locations on the Regulating Plan. These paths provide direct pedestrian access to key destinations such as the future rail stop and the Waterfront Promenade and create unique spaces for frontages to engage and enter off of. A pedestrian passage may be used to visually reduce the impact of a large development block. Building edges may accommodate active uses such as shops and restaurants. Pedestrian passages should consist of a hardscape pathway activated by frequent entries and exterior stairways. The edges my simply be landscaped with minimal planting and potted plants. Arcades may line Paseos to provide shade and a more attractive edge. Paseos may allow access to emergency and maintenance vehicles.

Typical Characteristics
General Character
Hardscape pathway
Pedestrian friendly frontages
Small-scale commercial uses
Frequent entries
Location and Size
Location shall be as shown on the Regulating Plan (Appendix A). The minimum width shall be 15'. The maximum width shall be 50'.
Typical Uses
Small scale commercial uses
Residential uses
Casual seating

e. Streetscape & Landscape Standards: Streetscape standards shall apply to all streets within Lower Kirby Urban Center. Streetscape standards shall address all elements between the building face and edge of the curb. Typical streetscape elements addressed are street trees, lighting, street furniture and pedestrian amenities, and materials..

f. Street Trees and Landscaping:
   (1) Street trees shall be required on all Type 'A" Streets in the Lower Kirby Urban Center streets (except on alleys).
   (2) Street trees shall be planted approximately 3 feet behind the curb line.
   (3) Spacing shall be an average of 40 feet on center (measured per block face) along all streets.
   (4) The minimum caliper size[1] for each tree shall be 3 in. and shall be a minimum of 12 feet in height at planting. Each tree shall be planted in a planting area no less than 36 sq. feet. However, the tree well area may be no smaller than 25 sq.ft.
   (5) Along BV-124-70, AV-116-70, AV-82-44, trees shall be required in the median and spacing and species shall be the same as the trees in the parkway.
   (6) Turf and groundcover: When clearly visible from the street and alleys, all unpaved ground areas shall be planted with low growing shrubs or ground cover, ornamental grasses, or a combination thereof. Turf grass must be installed as solid sod and not seeded on.
   (7) Species shall be selected from the approved list of ground cover, vines, perennials, shrubs, and xeriscape plant list in Chapter 4 Site Development Section 4.2.2.5 and the Replacement Tree List in Chapter 4 Site Development Section 4.2.3.9 of the City of Pearland Unified Development Code. .
   (8) Maintenance of all landscape materials shall meet the requirements of Chapter 4, Article 2, Division 2 Landscaping of the City of Pearland Unified Development Code.
   (9) Along arterials and highway access roads, street trees shall be planted within the required landscape parkway as per the requirements of Chapter 4, Article 2, Division 2 Landscaping of the City of Pearland Unified Development Code.

g. Street Furniture, Lighting, and Materials:
   (1) Pedestrian scale lighting, with the top of fixture being no more than 20 feet from the ground, shall be provided along all streets except alleyways.
   (2) Street lights shall be placed at 50 feet (min.) on center, approximately 3 feet behind the curb line.
   (3) The light standard selected shall be compatible with the design of the street and buildings.
   (4) Trash receptacles and bike racks shall be required along Type 'A' Streets. A minimum of one each per block face shall be required.
   (5) Street furniture and pedestrian amenities such as benches are recommended along all Type 'A' Streets.
   (6) All street furniture shall be located in such a manner as to allow a clear sidewalk passageway of a minimum of 6 feet.
   (7) Materials selected for paving and street furniture shall be of durable quality and require minimal maintenance.

h. All utility service lines shall be located underground along Type 'A' Streets. Above-ground lines may be located along Type 'B' Street, alleys or in the rear or other areas of the property as necessary, however such lines must not prominent from the front view of the property or from the view of

[1] Caliper size for a multi trunk tree shall be the total of the diameter of the largest trunk and one half (½) of the diameter of each additional trunk, measured at a height of 4 ½ feet above the ground.

roadways (the visibility of the poles must be partially or wholly obscured). Any determination on whether utilities are prominent shall be made by the Planning Director.

Part 10. Signage

Except as specifically listed below, all other signage and sign standards must comply with Chapter 4 Site Development, Article 2, Division 5 Signage, as amended, of the City of Pearland UDC as amended.

a. For new signs, the standards in Table 10.1 shall apply and sign permits shall be approved administratively by the City of Pearland Planning Director or designee unless specifically noted in this section.

Table 10.1

Character Zone / Sign Type	Mixed Use Core	Highway Commercial	Urban Neighborhood	Commercial Transition	Research/Tech Campus	Standard
Wall (Building or Attached) Signs	P	P	P (commercial and live-work uses only)	P	P	• For all ground floor commercial uses (retail, office, and restaurant): One sign per tenant space; area to be calculated at 1.5 sq. feet per linear foot of public street frontage for the tenant space with a maximum of 100 sq. ft per tenant. • Second and upper floor commercial uses may also be permitted one second floor wall sign per tenant space per public street frontage; area to be calculated at 1.5 sq. feet per linear foot of second or upper floor frontage along that public street with a maximum of 125 sq. feet. • Institutional uses (non-profits and churches): One sign per tenant space; area to be calculated at 1.5 sq. feet per linear foot of public street frontage with a maximum of 100 sq. feet. • Live-Work and Home occupations: One sign limited to an area of 20 sq. feet max. • Building sign may encroach a maximum of 12" on to a sidewalk while maintaining a vertical clearance of 8 feet from the finished sidewalk. • Building signs may be internally or externally lit. • Marquee signs as only permitted as specified below.
Monument Signs	NP	P	NP	P (along Type 'B' Streets only)	P	One monument sign per lot per lot street frontage (no more than 2 per lot separated by at least 100 feet) limited to a maximum of 60 sq. feet per sign face and 6 feet in height. Monument signs shall not be placed within any sight triangle areas as required by the City.
Window Signs	P	P	P (commercial and live-work uses only)	P	P	Limited to 20% of the window area. The following shall be exempt from this limitation: • Addresses, closed/open signs, hours of operation, credit card logos, real estate signs, and now hiring signs; • Mannequins and storefront displays of merchandise sold; and • Interior directory signage identifying shopping aisles and merchandise display areas.
Building Blade Signs	P	NP	P (commercial and live-work uses only)	P (along Type 'A' Streets only)	NP	• One per building (commercial and mixed use buildings only). • Area = 30 sq. feet maximum per sign face. • May encroach a maximum of 6 feet over a sidewalk, but shall not encroach over any parking or travel lane. • Building blade signs may be attached to the building at the corners of building or along any street facing façade above the first floor facade.
Tenant Blade Signs	P	NP	P (commer	P (along	NP	• One per commercial tenant space (retail, office, or restaurant use).

Character Zone / Sign Type	Mixed Use Core	Highway Commercial	Urban Neighborhood	Commercial Transition	Research/Tech Campus	Standard
			cial and live-work uses only)	Type 'A' Streets only)		• Area = 16 sq. feet maximum per sign face. • May encroach a maximum of 4 feet over a public sidewalk, but shall not encroach over any parking or travel lane. • Tenant blade signs shall be oriented perpendicular to the building façade and hung under the soffit of an arcade or under a canopy/awning or attached to the building façade immediately over the ground floor tenant space while maintaining a vertical clearance of 8 feet from the finished sidewalk.
Marquee Signs	P	NP	NP	P (along Type 'A' Streets only)	NP	• Permitted for theatres, auditoriums, and other public gathering venues of 100 persons or more. • Marquee signs shall be attached to the building or located above or below a canopy only. • Area = 100 sq. feet maximum. • Message board may be changeable copy (electronic and non-electronic) and shall be limited to 50% of the sign area. Electronic message boards shall be non-flashing.
For sale/for lease signs	P	P	P	P	P	Same as City of Pearland Sign Regulations.
Address signs	P	P	P	P	P	Same as City of Pearland Sign Regulations.
Temporary construction signs	P	P	P	P	P	Same as City of Pearland Sign Regulations.
Banners	P	P	P	P	P	Same as City of Pearland Sign Regulations.
Sandwich board signs	P	NP	P (commercial and live-work uses only)	P (along Type 'A' Streets only)	NP	• Permitted only for retail, service, or restaurant uses. • Limited to 12 sq. feet per sign face per storefront. • Sign may not exceed 4 feet in height. • A minimum of 6 feet of sidewalk shall remain clear. • Chalkboards may be used for daily changing of messages. • Readerboards (electronic and non-electronic) shall be prohibited. • Sign shall be removed every day after the business is closed.
Light Pole Banners	P	P	P	P	P	• Permitted only with approval of the City. • Max. 10 sq. feet per sign face. • Limited to one per light pole. • All light pole banners shall be approved by the appropriate utility company prior to consideration by the City. • Light pole banners shall be limited to publicize community-wide events, holiday celebrations, public art, and other city sponsored events.
Directory signs	P	P	P (commercial and live-work uses only)	P	P	• Shall be allowed for all multi-tenant commercial and mixed use buildings only. • One directory sign per multi-tenant building limited to 12 sq. feet in area. • Design of the sign shall be integral to the façade on which the sign is to be affixed.
Pole signs	NP	NP	NP	NP	NP	May only be permitted as part of a Master Sign Plan.
LED Signs	NP	P	NP	NP	P	• Shall be permitted as a means of illumination only. • Or, may only be permitted as part of a Master Sign Plan.

b. An applicant has the option to establish unique sign standards including size, color, type, design, and location. Such applications shall be reviewed as "Master Sign Plans" by the City Manager and are subject to approval of the City Council. In evaluating a Master Sign Plan, the City Council shall consider the extent to which the application meets the following:

(1) Promotes consistency among signs within a development thus creating visual harmony between signs, buildings, and other components of the property;

(2) Enhances the compatibility of signs with the architectural and site design features within a development;
(3) Encourages signage that is in character with planned and existing uses thus creating a unique sense of place; and
(4) Encourages multi-tenant commercial uses to develop a unique set of sign regulations in conjunction with development standards.

Part 11. Civic Space and Private Open Space Standards

a. This chapter establishes the public Civic Space and private Open Space Standards for Lower Kirby Urban Center. The Regulating Plan designates several areas for different designated and recommended public Civic Space Types within Lower Kirby Urban Center. The detailed Civic Space Standards for each type are included in this portion of the code. These standards include general character, typical size, frontage requirements, and typical uses. These standards shall apply in lieu of the park dedication requirements in Chapter 3, Subdivision Regulations, Division 10, Section 3.2.10.1 of the City of Pearland Unified Development Code.

b. Private Open Space Standards: Given the mixed use nature of the Lower Kirby Urban Center, all residential development within Lower Kirby Urban Center shall meet the private open space standards established in this portion of the code. Table 11.1 establishes the types of private open space permitted and Table 11.2 establishes the private open space requirement based on the proposed intensity of residential development.

Table 11.1 Private Open Space Types

Private Open Space Type	***Description and Image***	***Standards and criteria***
Balconies	**Balcony** is a platform projecting from a second or higher story interior or exterior wall of a building, usually enclosed for privacy and protection by a rail. A balcony usually has French or sliding glass doors leading out to it, and can be entered from a living room or bedroom.  	Balconies that are not flush shall be a minimum of 5 feet clear in depth and a minimum of 8 feet in width Balconies may be semi-recessed or recessed. Projecting metal or slab balconies are only permitted if they have some means of visible support.
Patios	A **Patio** is an outdoor space for dining or recreation that adjoins a residence and is often paved. It may also be a roofless inner courtyard within a residence, typically found in Spanish and Spanish-style dwellings. 	Patios shall be a minimum of 150 sq.ft. Patios shall have a clear sense of enclosure and separation from the public realm.
Courtyard	A **Courtyard** is a landscaped open space in the center of the block with no street frontage, surrounded by walls or buildings on all sides. It shall be large enough to allow for public activities and have sunlight during midday. It should be designed to connect to adjacent buildings or to the public sidewalk through a pedestrian passage.	Courtyards shall be surrounded on all sides by buildings with at least one pedestrian connection to an adjoining building or public sidewalk. The courtyard shall be a minimum of 200 square feet.

Private Open Space Type	*Description and Image*	*Standards and criteria*
		Courtyard may be landscaped or a combination of landscape and hardscape. However, they shall contain amenities for residents such as seating, water features, etc.
	 	
Forecourt	A **Forecourt** is similar to a Courtyard, however, it is located in the front of a building such that the forecourt is surrounded on two or three sides by wings of the building.	A Forecourt shall be surrounded on at least two sides by buildings. A Forecourt shall be a minimum of 150 square feet.
	 	
Pedestrian Passage	A **Pedestrian Passage** is an intimate street level passage way for pedestrians from the interior of one block or building to a public sidewalk. These paths provide direct pedestrian access to residential addresses and create unique spaces for frontages to engage and enter off of. A pedestrian passage may be used to visually reduce the impact of a large development block. Building edges may accommodate active uses such as shops and restaurants. Pedestrian passages should consist of a hardscape pathway activated by frequent entries and exterior stairways. The edges my simply be landscaped with minimal planting and potted plants.	The minimum width shall be 15 feet wide.
	 	
Playground	**Playgrounds** shall be permitted in parks and greens to provide open space designed and equipped for the recreation of children. These playgrounds should serve as quiet, safe places -- protected from the street and typically located where children do not have to cross major to access. Playgrounds may be fenced. An open shelter, play structures or interactive art and fountains may be included with landscaping between. Shaded areas and seating shall be provided. Playground equipment and design must be reviewed and approved by the City prior to installation. A larger playground may be incorporated into the park, whereas a more intimate playground may be incorporated into the green.	Paygrounds shall be a minimum of 400 sq.ft.

Private Open Space Type	*Description and Image*	*Standards and criteria*
	 	
Community Garden	A **Community Garden** is a small to medium size garden cultivated by members of an area for small scale agricultural uses for the benefit of the same people. It may consist of individually tended plots on a shared parcel or may be communal (everyone shares a single plot).	Maximum size shall be 1 acre Gardens shall be enclosed by a fence on all open sides. Fences should be installed straight and plumb, with vertical supports at a minimum of 8' on center. Chicken wire, if used, should be continuously supported along all edges. Fencing Materials: Permitted: pressure treated wood (must be painted or stained medium to dark color), chicken wire, wrought iron, painted galvanized steel Not permitted: chain link, bobbed wire, vinyl, un-painted/stained pressure treated wood, plywood
	 	
Roof terraces	Roof terraces are flat areas on top of a building which are accessible for use as a recreation space for the residents and users of the building.	A Roof Terrace shall at least be 50% of the building footprint area. A Roof Terrace shall provide landscaping in the form of potted plants, seating, and other amenities for the users of the building. A Roof Terrace may also include a portion of the roof as a green roof which may or may not have public access.
	 	
Other (pool, play courts, picnic area, etc.)	Other private open space could include a pool (swimming, lap pool, spa area), play courts (basket ball), or picnic areas with shade structures.	Such private open space may be incorporated with roof terraces or courtyards based on the appropriateness of the design and accommodation of privacy.

Table 11.2 Private Open Space Standard

Number of Residential Units proposed	*Private Open Space Standard Proposed*
1 – 12	The development shall provide: • At least 50% of all residential units fronting on a street, public civic space, fore court, or courtyard shall provide one balcony or patio; or • One playground or other private open space amenity All other private open spaces are optional.
13 – 30	The development shall provide: • At least 50% of all residential units fronting on a street, civic space, fore court, or courtyard shall provide one balcony or patio; and • One playground area or other private open space amenity All other private open spaces are optional
31 – 50	Any 3 of the private open spaces in the list above
Over 50 units	Shall provide at least one public civic space such as a park, plaza, square or green

c. Public Civic Space Standards. The design of public Civic Space shall be regulated by the Civic Space standards herein which shall create a network of open spaces that recognizes the natural qualities of the area while providing a range of both passive and active recreational opportunities. These opportunities may be accommodated in a variety of spaces ranging from larger parks to neighborhood-scaled greens to urban squares and plazas. The open space network will be serviced by an interconnected network of trails and paths for pedestrians and bicyclists alike. The standards established here are not intended to be strict, rather they are intended to be guidelines within which city staff can work with individual applicants to meet the intended goals of this section of the code. All proposed public Civic Space proposed within the Lower Kirby Urban Center shall be reviewed by the city staff for compliance with the following.

(1) **Park Standards**

The park, as recommended on the Regulating Plan, will create an important public space that connects the community within Lower Kirby Urban Center and allows for passive recreation in addition to providing for regional detention. Parks shall primarily be naturally landscaped with many places to sit on benches or low walls. Passive recreation activities in parks may include grassy lawns for unstructured and informal active recreational activities. Appropriate civic elements, fountains or open shelters may be included.

Typical Characteristics
General Character
Large, open space
Spatially defined by landscaping and building frontages
Detention and retention, paths, trails, open shelters, lawns, trees and shrubs naturally disposed
May be lineal, following the trajectories of natural corridors
Location and Size
Location and size shall be as shown on the Regulating Plan (Appendix B).
Typical Uses
Unstructured and passive recreation
Casual seating/picnicking

(2) **Linear Greenway/Clear Creek Greenway/ Regional Stormwater Detention Standards**

A significant element of the Lower Kirby Urban Center Plan is the regional detention strategy that takes advantage of the Clear Creek Floodway, TxDOT drainage channels, and development opportunities. The two major elements of this strategy are (1) the linear greenway along the TxDOT channel and (2) the Clear Creek Floodway. The linear greenway and the Clear Creek Floodway, as required on the Regulating Plan, will create important public spaces that connect the community within Lower Kirby Urban Center and allows for passive recreation in addition to providing for regional detention. Passive recreation activities in parks may include grassy lawns for unstructured and informal active recreational activities. Appropriate civic elements, trails, fountains or open shelters may be included at key locations along the greenway.

Typical Characteristics
General Character
Linear open space
Spatially defined by landscaping, streets, and building frontages
Detention and retention, paths, trails, open shelters, lawns, trees and shrubs naturally disposed
May be lineal, following the trajectories of natural corridors. Width shall generally be 300’
Location and Size
Location and size shall be as shown on the Regulating Plan (Appendix B).
Typical Uses
Unstructured and passive recreation
Casual seating/picnicking

(3) **Green Standards**

Greens shall be appropriate where civic spaces are recommended on the Regulating Plan and will serve as important public spaces for Lower Kirby Urban Center. Greens will be available for civic purposes, commercial activity, unstructured recreation and other passive uses. Greens shall primarily be naturally landscaped with many shaded places to sit. Appropriate paths, civic elements, fountains or open shelters may be included and shall be formally placed within the green. Greens are appropriate in the Mixed Use Core, Urban Residential, Research/Tech Campus, and Commercial Transition Character Zones.

Typical Characteristics
General Character
Open space
Spatially defined by landscaping and building frontages
Lawns, trees and shrubs naturally disposed
Open shelters and paths formally disposed
Location and Size
Location shall be as shown on the Regulating Plan (Appendix B). Size may range from 0.5 – 5 acres.
Typical Uses
Unstructured and passive recreation
Casual seating
Commercial and civic uses
Residential address

(4) **Square Standards**

Square serve as an open space available for civic purposes, commercial activity, unstructured recreation and other passive uses. The square should have a more urban, formal character and be defined by the surrounding building frontages and adjacent tree-lined streets. All buildings adjacent to the square shall front onto the square. Adjacent streets shall be lined with appropriately scaled trees that help to define the square. The landscape shall consist of lawns, trees, and shrubs planted in formal patterns and furnished with paths and benches. Shaded areas for seating should be provided. A civic element or small structure such as an open shelter, pergola, or fountain may be provided within the square. Squares are appropriate in the Mixed Use Core, Commercial Transition, and Urban Residential Character Zones.

Typical Characteristics
General Character
Formal open space
Spatially defined by buildings and tree-lined streets.
Open shelters, paths, lawns, and trees formally arranged
Walkways and plantings at all edges
Located at important intersection
Location and Size
Location and size shall be as shown on the Regulating Plan (Appendix B). Size shall range from 0.5 to 2 acres.
Typical Uses
Unstructured and passive recreation
Casual seating
Commercial and civic uses

(5) **Plaza Standards**

Plazas add to the vibrancy of streets within the more urban zones and create formal open spaces available for civic purposes and commercial activity. Building frontages shall define these spaces. The landscape should consist primarily of hardscape. If trees are included, they should be formally arranged and of appropriate scale. Casual seating, along with tables and chairs, should be provided. Plazas typically should be located at the intersection of important streets. Plazas are appropriate in the Mixed Use Core Character Zone.

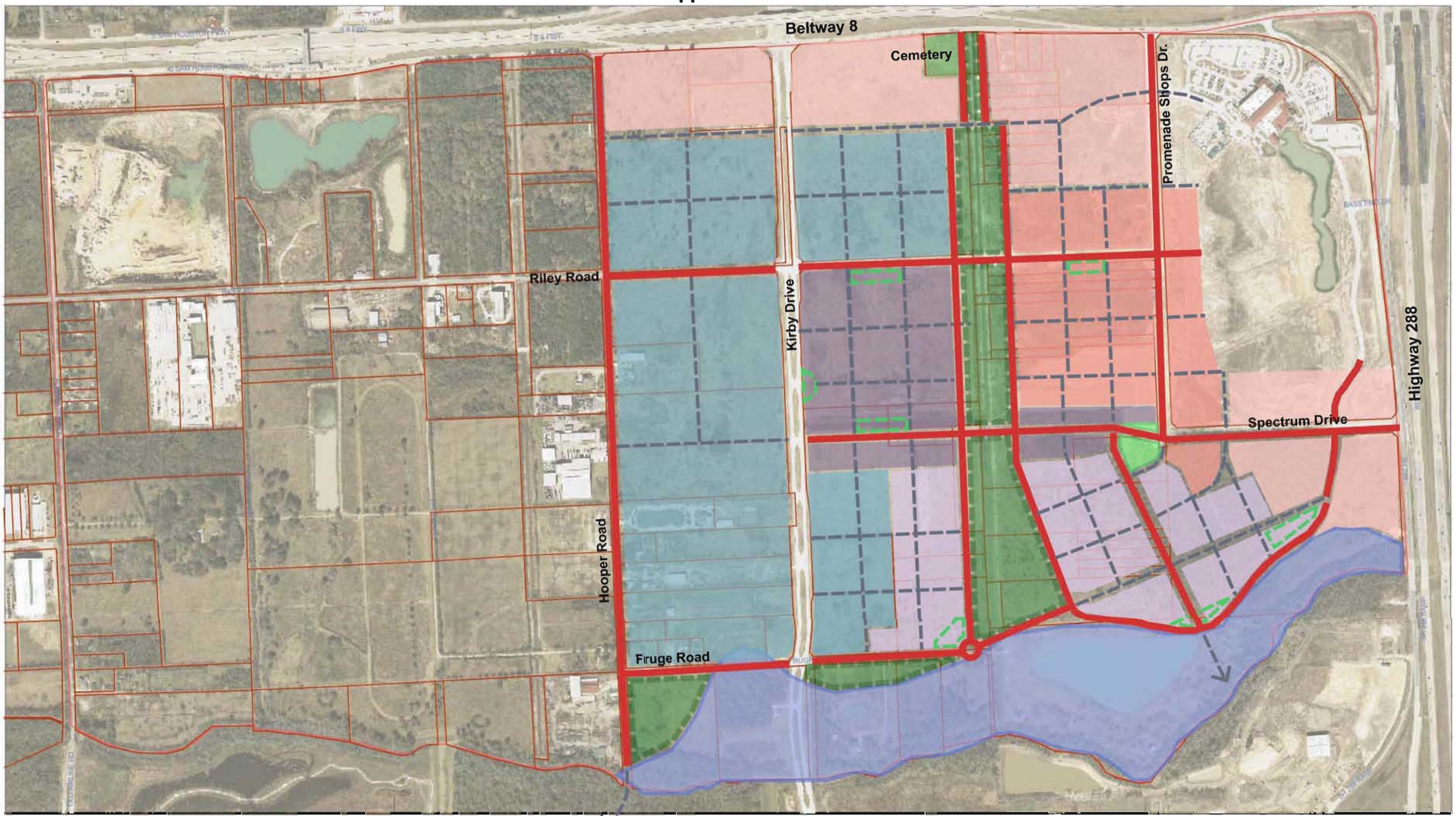
Typical Characteristics
General Character
Formal open space
Primarily hardscape surfaces
Trees and shrubs optional
Spatially defined by building frontages
Location and Size
Location shall be as shown on the Regulating Plan (Appendix B). Size shall range from 0.25 acre to 1 acre.
Shall front on at least one (1) street.
Typical Uses
Commercial and civic uses
Casual seating
Tables and chairs for outdoor dining
Retail and food kiosks

(6) Ancillary Structure Standards

Ancillary structures within public civic spaces should be formal in character and generally related to but clearly subordinate to surrounding buildings. Each individual structure should keep in character with the style of nearby buildings. Typically, these structures are located at prominent locations within an appropriate civic space. Ancillary structures located in more urban zones may have minor commercial uses, such as small food or news vendors, but may also serve as civic elements for general public use with more passive activities.

Typical Characteristics	
General Character	
Formal character	
Relating to style of surrounding buildings	
One or more open sides	
Covered or providing shade	
Small, stand alone structure	
Located within Park, Green, Square or Plaza	
Standards	
Min. Size	N/A
Max. Size	N/A
Typical Uses	
Civic purposes	
Minor commercial uses	
Casual seating/picnicking	

Appendix A

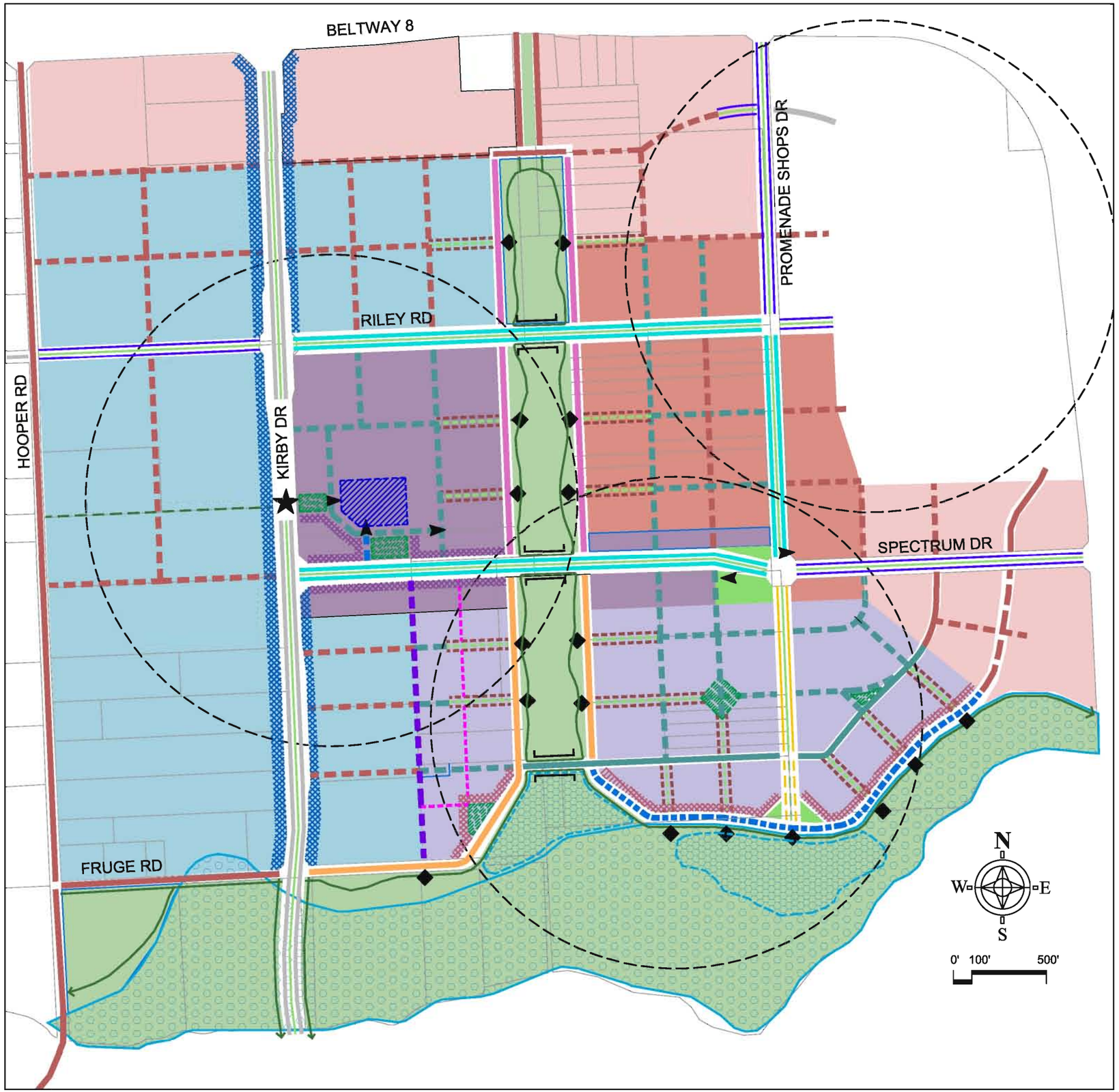


Framework Plan
Lower Kirby Urban Center

October 13, 2010

Gateway Planning Group
bxp
PATE ENGINEERS

Appendix B



LEGEND

CHARACTER ZONES

- Mixed Use Core
- Urban Neighborhood
- Commercial Transition
- Highway Commercial
- Research/Tech Campus

FRONTAGE TYPES

- Kirby Drive Frontage
- "Main Street" Frontage
- "Promenade" Frontage

TYPE 'A' STREETS

- Kirby Drive
- BV-114-70 (Urban Boulevard)
- AV-94-48 (2-Lane Avenue)
- "Neighborhood Tributary" - ROW varies - refer to street sections
- ST-61-29 (Urban Greenway St)
- ST-53-29 (Neighborhood Greenway St)
- ST-62-38 (Urban Neighborhood Street - Type A)
- Waterfront Promenade
- Pedestrian Paseo

TYPE 'B' STREETS

- AV-82-44 (Avenue)
- ST-62-38 (Urban Neighborhood Street - Type B)
- RD-44-22 (Service/Access Road)
- Existing Street

NOTE: For all street types, a dashed line denotes a recommended street; a solid line denotes a required street

OPEN SPACE

- Required Regional Detention / Floodway
- Designated Floodway
- Recommended water feature
- Recommended Regional Detention
- Required Open Space
- Recommended Open Space

SPECIAL CONDITIONS

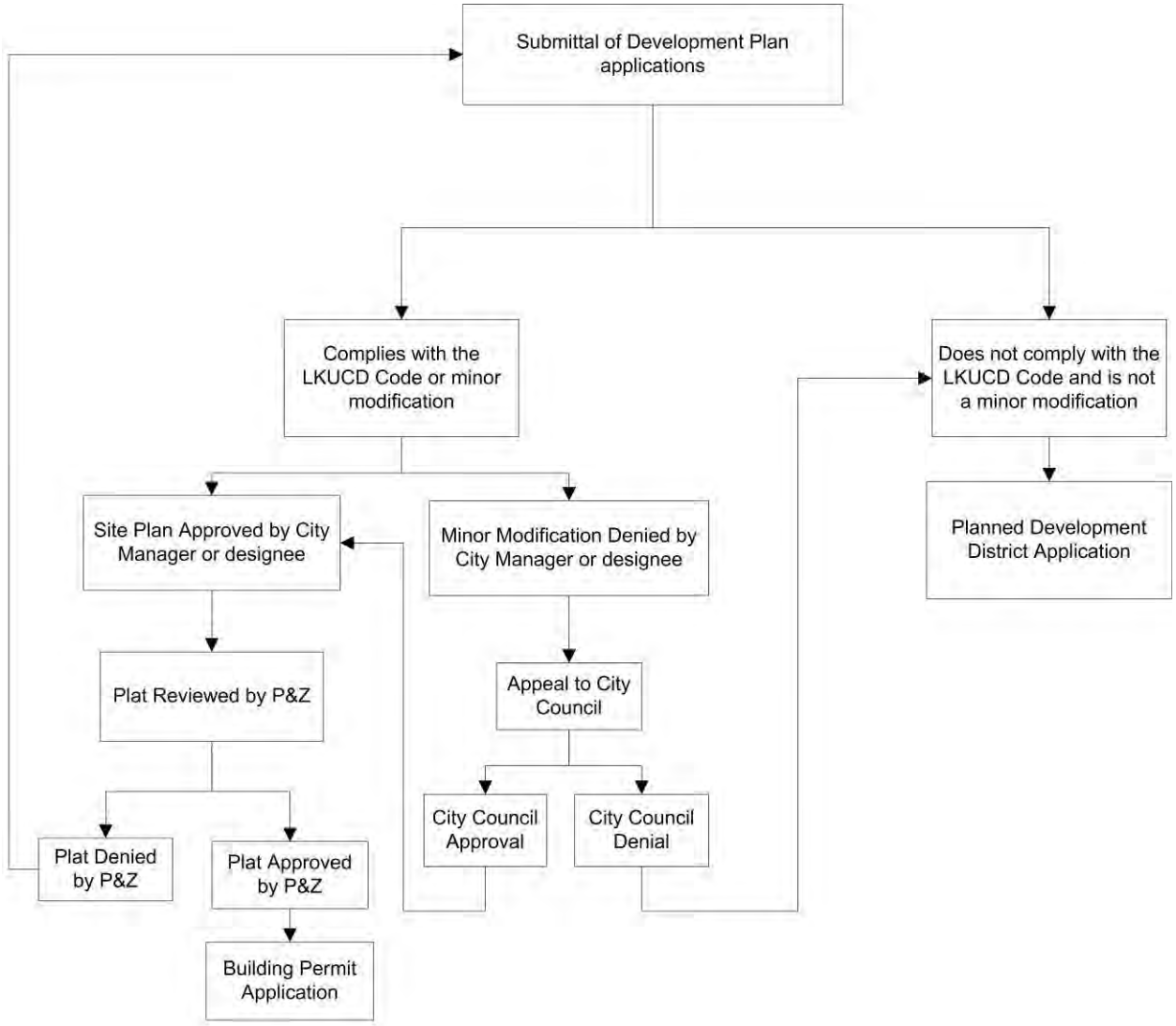
- Recommended Civic Use
- Proposed Light Rail stop
- Required Vista Terminus
- Recommended access point to Greenway
- Special Bridge Design
- Approximate parcel line
- ¼ Mile Radius Pedestrian Shed
- Bike/ped-way

LOWER KIRBY URBAN CENTER REGULATING PLAN

City of Pearland, Texas FINAL DRAFT - June 24, 2011

Appendix C

Lower Kirby Urban Center
Development Review Process



LKUCD Code: Lower Kirby Urban Center Development Code
P&Z: Planning and Zoning Commission
CC: City Council