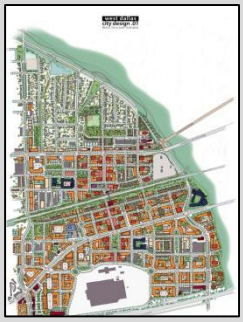
City of Dallas

North Central Texas Council of Governments

West Dallas Signature Point Project



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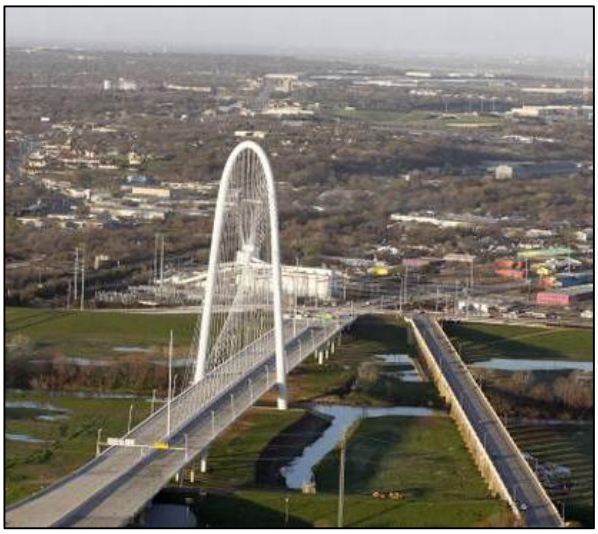
Executive Summary

Study Purpose

The West Dallas Signature Point Project is a continuation of past planning efforts conducted by the City of Dallas, in particular those completed by the Dallas Design Studio. The West Dallas Urban Structure and Guidelines report, completed by the Dallas Design Studio in 2011, set the framework and parameters for future growth in West Dallas. The study included extensive public participation and outreach and set the stage for future growth and development in West Dallas.

As growth within Dallas' core continues to occur, attention has shifted to the potential that exists within West Dallas, in particular. Unobstructed views of Downtown Dallas, access to the Trinity River Greenbelt, available land and proximity to several distinctive neighborhoods has encouraged investment in West Dallas. As growth continues to occur, infrastructure investments to encourage, facilitate and support growth will be essential.

The primary purpose of the West Dallas Signature Point Project is the identification and prioritization of water, wastewater and roadway improvements that will be needed to support growth established in the West Dallas Urban Structure and Guidelines development framework. This study sets a coordinated set of phased capital improvement projects and establishes costs related to each of the individual and phased improvements in order to maximize the use of limited funding sources, including bond, tax increment financing (TIF) and Municipal Management District (MMD) funding. It should be used by the special financing districts, and the City of Dallas, as a basis for needed capital projects and associated costs during infrastructure improvement planning.



The West Dallas Signature Point Project is directly tied to assumptions within the West Dallas Urban Structure and Guidelines and is intended to be used as a framework from which future infrastructure decisions and investments are made by the various entities that have interests in West Dallas.

Executive Summary

Overview of the Study Area

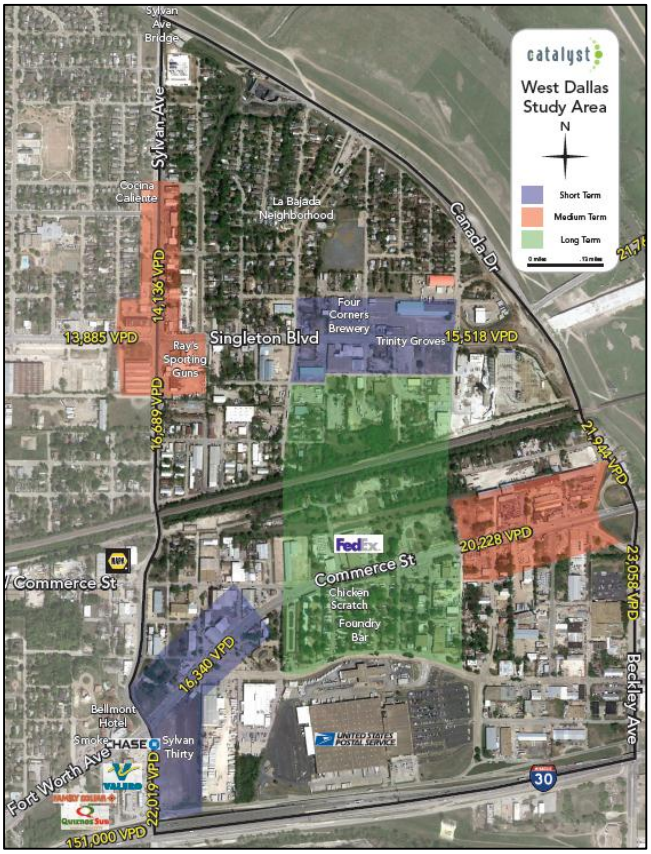
The West Dallas Signature Point Project study area contains the same boundaries established in the West Dallas Urban Structure and Guidelines. It is framed by the Trinity River to the north and east, by Sylvan Avenue to the west and Interstate 30 to the south. Currently, the majority of operations taking place in the study area are commercial or industrial in nature. The La Bajada neighborhood defines the northwestern portion of the study area.

As of the time of this report, a significant amount of investment is occurring within West Dallas. Trinity Groves, located at the base of the Margaret Hunt Hill suspension bridge, is a major attraction in the area. Its restaurant incubator concept provides a variety of different eating options and has received local and national attention. Upon its completion, Sylvan I Thirty, located at Interstate 30 and Sylvan Avenue, will include apartments, restaurants, shopping and a grocery store. The Foundry, Chicken Scratch, Dead White Zombies Theater and other unique ventures also serve as attractions to the area. Several residential project announcements have also been made. When combined, over 1,000 new residential units could potentially be built within or directly adjacent to the study area over the course of the next two to three years.

While commercial and residential development within West Dallas has increased, a number of challenges to development within the area remain. Interviews with regional developers at the onset of the process indicated that, while development in West Dallas was gaining momentum, the most significant factor impeding development in the area was concern over existing infrastructure, particularly its capabilities to support new growth. Developers often play a key role in upgrading infrastructure as new development, or redevelopment, occurs. Developers indicated that the current risks associated with developing in West Dallas, combined with overall infrastructure unknowns, would likely necessitate that the majority of infrastructure improvements be performed by the public sector to encourage private sector investment.

Market Scan

Catalyst Commercial conducted a market scan to assess the existing market conditions in West Dallas, particularly those pertaining to retail and commercial activity. The market scan examined a number of different factors, including traffic volumes, and honed in on potential catalyst sites. These catalyst areas are prioritized by short, medium and long-term potential.



Short-term catalyst sites include the Trinity Groves area and Sylvan Avenue/Fort Worth Avenue intersection. Development is currently occurring at both of these locations as they capitalize on accessibility and visibility.

Medium-term catalyst sites for development include the intersection of Sylvan Avenue and Singleton Boulevard as well as West Commerce Street at Beckley Avenue. Both of these are primary intersections in the area. The Sylvan Avenue and Singleton Boulevard intersection will likely capitalize on traffic volumes and pass-by trips by those utilizing Sylvan Avenue to access Interstate 35-E to the north. This will be aided by the completion of the new Sylvan Avenue Bridge. Additionally, areas along West Commerce Street will benefit from a reconfigured intersection as well as visibility and access to Downtown.

The long-term catalyst site identified is the central portion of the West Dallas study area. This would include areas served by the construction of the voter-approved Union Pacific underpasses. A large multifamily development could, however, occur along West Commerce Street in the near future.

Capital Projects and Cost Estimates

Much of the infrastructure in place in West Dallas is over fifty years old, nearing or exceeding typical construction-life design. The aging infrastructure will not support the next generation of development in the area, particularly the type of development depicted in the West Dallas Urban Structure and Guidelines. Future development in West Dallas will be more urban, compact and intense in nature, particularly when compared to the existing low-density industrial and commercial activity. An increase in employment and population density will require new infrastructure if development is to continue to occur.

In order to identify infrastructure needs within the study area, an overall assessment of the water, wastewater, stormwater and roadway network was performed. Infrastructure assessment assumptions relied upon the West Dallas Urban Structure and Guidelines including its neighborhood districts and ultimate population projections for the area.

Executive Summary

Roadway

The system of arterials in West Dallas is set—West Commerce Street, Fort Worth Avenue, Sylvan Avenue and Singleton Boulevard serve as the primary arterials through the area. West Dallas' future as a more urban, compact and walkable neighborhood necessitate that considerations beyond automobile accommodation be made. Many of the cross-sections contained within the Urban Structure and Guidelines contain bicycle and transit accommodations in addition to vehicular lanes. This project, in keeping with being an extension of the Urban Structure and Guidelines, did not recommend any thoroughfare cross-section changes. It did, however, consider a thoroughfare plan amendment that reduced Singleton Boulevard from 100' right-of-way (ROW) to an 88'ROW with a cycletrack. Cost estimates prepared reflected these City of Dallas thoroughfare plan changes.

A costing of roadway improvements was conducted based upon the cross-sections included in the Urban Structure and Guidelines. Only roadways reflected on the City of Dallas Thoroughfare Plan were assessed. Three different phases were developed for roadway improvements and are intended to coincide with the Urban Structure and Guideline phases of 10 years, 15 years and 17+ Years.

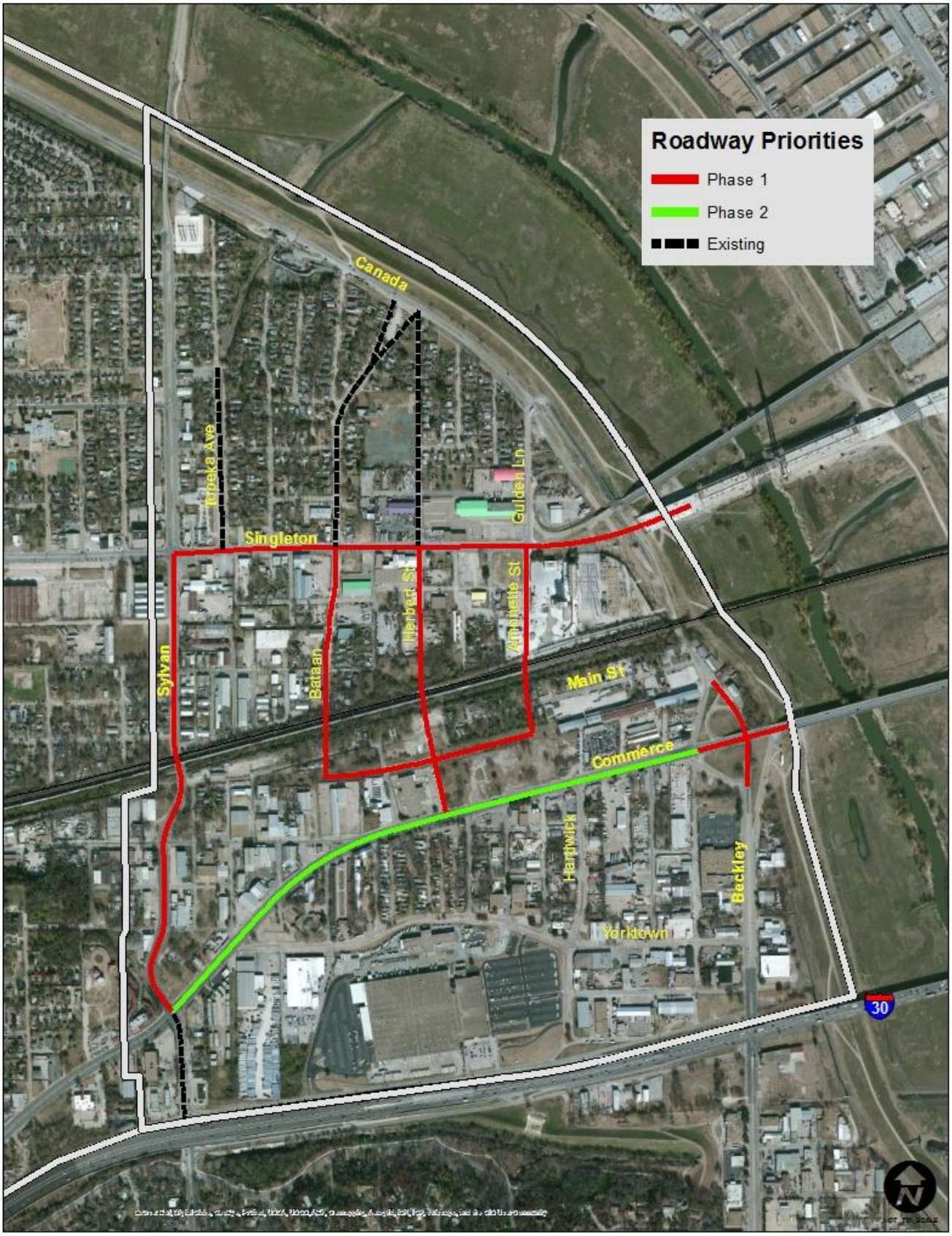
In 2012, City of Dallas voters approved funding of three new underpasses located at Bataan, Herbert and Amonette Streets. The approved funding provides resources to construct underpasses beneath the Union Pacific Railroad and will help to improve north-south mobility and connectivity. Recommended roadway improvements are initially focused on connecting the underpasses to Main Street and Singleton Boulevard. Herbert Street, as a central spine for development, is recommended to extend from Singleton Boulevard to Commerce Street. These three roadways are seen as initial projects or Phase I improvements. Additional Phase I improvements include those already programmed to take place by the City, including improvements to Singleton Boulevard, Sylvan Boulevard and the West Commerce Street/Beckley Avenue Interchange.

West Commerce Street/Fort Worth Avenue reconstruction is seen as a mid-term project. While development interest is increasing along the corridor, immediate funding resources will likely be dedicated to planned improvements along Sylvan Avenue, Singleton Boulevard and the three underpasses at Bataan, Herbert and Amonette Streets. Additional roadways in the area, those not shown on the City of Dallas Thoroughfare Plan, will likely be constructed as development occurs either by the developer or through a mixture of funding options, such as TIF participation.

The following table contains the cost estimates associated with improvements to roadways identified by the City of Dallas Thoroughfare Plan in West Dallas.

Segment Name	*From*	*To*	*Type*	*Within ROW Cost*	*Outside ROW Cost*	*Total Cost*
Singleton Ave.	Beckley	Sylvan	Roadway	$5,252,207	$456,194	$5,708,401
Amonette St.	Singleton	Main	Roadway	$1,087,279	$117,901	$1,205,180
Bataan St.	Singleton	Main	Roadway	$1,308,653	$243,135	$1,551,788
Herbert St.	Singleton	Commerce	Roadway	$1,912,554	$344,344	$2,256,898
West Commerce Street/ Fort Worth Avenue	Sylvan	Beckley	Roadway	$5,141,173	$716,412	$5,857,585
Roadway Total	-	-	-	**$14,701,866**	**$1,877,986**	**$16,579,852**

**Red—Phase I Projects; Blue—Phase II Projects*


Roadway Priorities
Phase 1
Phase 2
Existing
Canada
Topeka Ave
Singleton
Gulden Ln
Sylvan
Bataan
Herbert St
Annette St
Main St
Commerce
Hardwick
Beckley
Yorktown
30

Executive Summary

Water

West Dallas is located in the Central Low Pressure Zone which is supplied by four pump stations and two ground storage reservoirs that provide pressure for peak hour distribution. Water system improvements, such as increases in pipe sizing, were developed based upon the ultimate capacity projections for the area. The ultimate capacity of the area, approximately 28,000, was derived from the Urban Structure and Guidelines.

Water system improvements were coordinated with roadway phasing projects, as both should be done simultaneously for cost efficiency. Water line expansions along Bataan, Herbert and Amonette streets should be initial water improvement priorities. Additionally, the existing line along West Main Street should be expanded to Beckley Avenue for water pressure redundancy and looping. No expansion needs were identified along Singleton Boulevard where a primary distribution line is located.

Secondary water system improvements are recommended along West Commerce Street/Fort Worth Avenue in conjunction with roadway reconstruction. Upgrades to a 20" line are recommended. Additionally, upgrades to a 16" line are recommended along West Main Street tying into water lines along Sylvan Avenue. Both of these projects are recommended as phase two improvements.

Finally, long-term needs are those in the southern portion of the study area, primarily in areas depicted in the Urban Structure and Guidelines as long-term development areas. Upgrades along Yorktown are recommended and a new 16" water line along Interstate 30 will facilitate redevelopment at the existing U.S. Post Office, if such redevelopment occurs in the future.

The conditions of all other minor distribution lines not depicted as capital program projects will need to be assessed as development occurs.

The following table contains the project segments and cost estimates associated with each of the identified capital water improvements.

Segment Name	*From*	*To*	*Type*	*Cost*
Amonette	Singleton	Main	Water	$211,208
Bataan	Singleton	Main	Water	$321,462
Herbert	Singleton	Commerce	Water	$396,981
Main Street	Bataan	Beckley	Water	$1,094,207
Commerce Street/ Fort Worth Ave	Sylvan	Beckley	Water	$4,461,912
Main Street	Sylvan	Bataan	Water	$1,091,763
Famous Drive	Commerce	Yorktown	Water	$237,600
Interstate 30	Beckley	Sylvan	Water	$1,669,615
Yorktown	Eastus	Fort Worth Ave	Water	$169,137
Water Total	-	-	-	**$9,653,885**

**Red—Phase I Projects; Blue—Phase II Projects; Green—Phase III Projects*


Proposed Water Line Improvements
Phase 1
Phase 2
Phase 3
Existing Water Lines
Canada
Singleton
Sylvan
Bataan
Commerce
Hardwick
Beckley
Yorktown
30
Note:
Blue pipe dimensions (12") are existing
Black pipe dimensions (12") are proposed.
NOT TO SCALE

Executive Summary

Wastewater

Wastewater projects differ from water projects in that they cannot be completed incrementally as roadway improvements occur. Due to the lack of topography within the area, and lack of data regarding the wastewater infrastructure that currently exists in the study area, more detailed work efforts will be required to determine the exact thresholds that would trigger wastewater improvements. Three major projects, however, are recommended.

The first project lies to the north of the Union Pacific Railroad. Due to the growth in the Trinity Groves area, and the expected addition of new residential projects, sewer system upgrades will be required. These are reflected as Phase 1 projects and will support growth in Trinity Groves. A 21" sewer line, running underneath Fabrication Street, will connect these improvements to the main line along Sylvan Avenue.

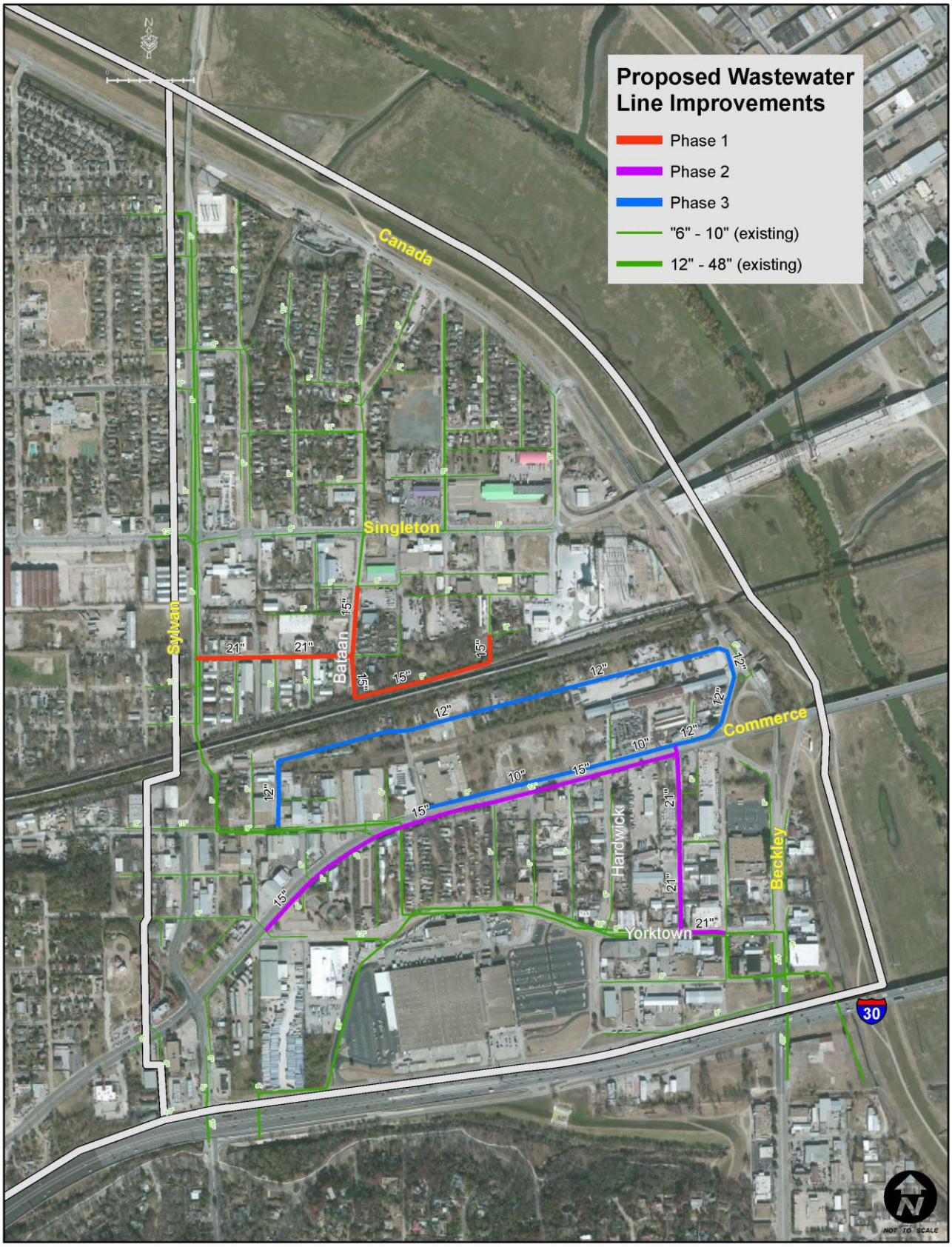
The second identified wastewater improvements are those along West Commerce Street and Fort Worth Avenue. These upgrades should be made as roadway reconstruction is performed along the corridor. These improvements will support growth between West Commerce Street/Fort Worth Avenue and Interstate 30.

The final wastewater improvements are those located between West Commerce Street and Main Street. These improvements may, however, be completed incrementally as roadway improvements are made, in contrast with Phase 1 and Phase 2 needs.

The following table contains the project segments and cost estimates associated with each of the identified capital wastewater improvements.

Segment Name	*From*	*To*	*Type*	*Cost*
Fabrication	Sylvan	Poe	Wastewater	$798,268
Commerce/ Langford	Yorktown	Yorktown	Wastewater	$1,389,042
Main Street	Main	Commerce	Wastewater	$1,438,627
Wastewater Total	-	-	-	**$3,625,937**

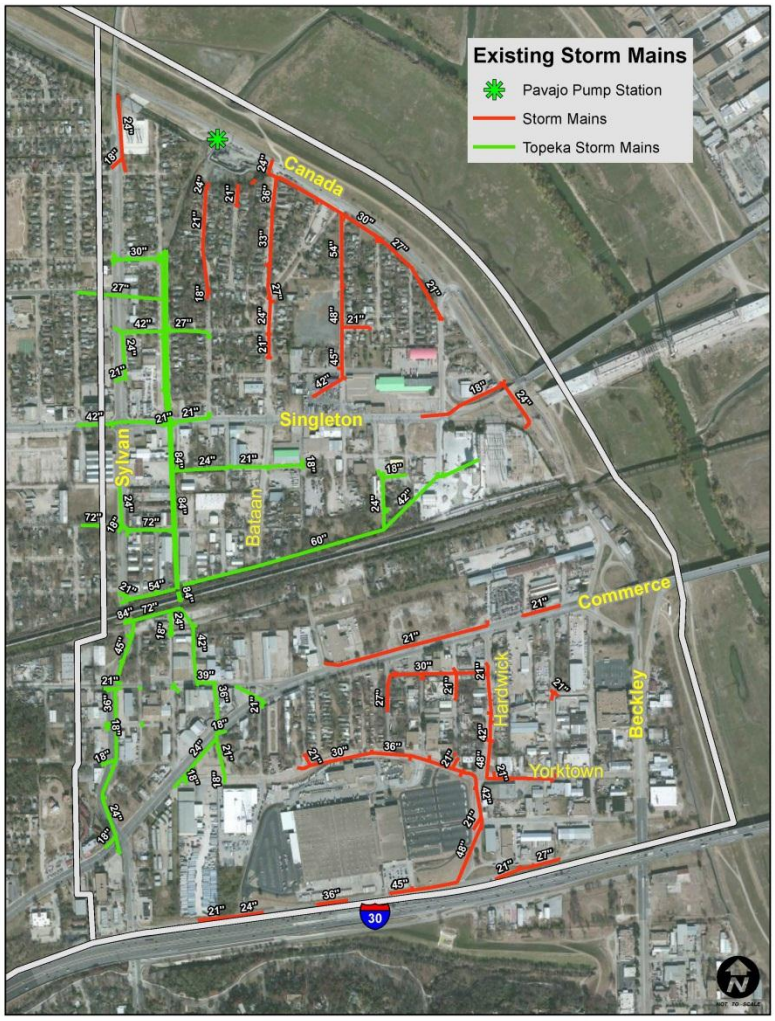
**Red—Phase I Projects; Blue—Phase II Projects; Green—Phase III Projects*


Proposed Wastewater Line Improvements
Phase 1
Phase 2
Phase 3
"6" - 10" (existing)
12" - 48" (existing)
Canada
Singleton
Sylvan
Bataan
Commerce
Hardwick
Beckley
Yorktown
30
21"
15"
12"
10"
NOT TO SCALE

Executive Summary

Stormwater

Due to the lack of existing data pertaining to stormwater infrastructure in the area, a stormwater drainage assessment will need to be performed. The stormwater drainage assessment will provide detailed recommendations pertaining to stormwater needs and concerns and will assess the ability of the existing pumping system to accommodate future runoff within the area. The stormwater drainage assessment should be a priority and is therefore included as a Phase I improvement. The estimated cost of conducting a detailed stormwater drainage assessment is approximately $250,000.



A high-level assessment of stormwater needs does indicate, however, that an extensive expansion of the stormwater lines running along Topeka Avenue will require upgrades. The Topeka stormwater line drains a significant portion of the study area, and is shown in green on the map to the right. As development occurs within Trinity Groves, and as additional impervious areas are created, additional stormwater capacity will likely be needed. Initial assessments indicate that the capacity of the Topeka lines will likely need to be doubled from two existing 84” lines to four 84” lines.

Low Impact Development (LID) helps to contain some of the stormwater drainage on-site through special designs. LID not only reduces stormwater quantity but also helps to enhance stormwater quality by removing pollutants before they enter the natural system. LID should be strongly encouraged in West Dallas to help mitigate future quantities generated by redevelopment.

Overview and Phasing

The capital improvement plan for West Dallas includes a listing of water, wastewater and roadway projects. The stormwater drainage study is recommended to detail stormwater capacity and needs within the area. Further, identified projects have been phased to coincide with planned development, voter-approved railroad underpass construction and the market assessment's catalyst development areas.

The three phased approach coincides with the Urban Structure and Guidelines 10, 15 and 17+ year development vision.

Phase I projects, which address roadway, water, wastewater and stormwater needs, total approximately $13.8 million. While this is the most costly phase of improvements, it is also extended over a 10-year period. Phase II improvements total approximately $12.8 million with the most significant expenditure being the reconstruction of West Commerce Street and Fort Worth Avenue and their associated water line improvements. Finally, Phase III improvements total approximately $3.5 million and are anticipated to be long-range needs.

The total of recommended capital projects in West Dallas is approximately $30.1 million. The majority of the total cost is for improvements within the existing or planned public right-of-way. Some roadways, however, contain cross-sections to the build-to line, typical of urban environments. In these areas, expanded sidewalks, for example, may be required but are located outside of the public right-of-way. These types of costs are estimated at $1.9 million.

This capital improvement plan may be utilized by special financing districts and city bond program planning as a basis for infrastructure need and cost planning.

Summary of West Dallas Infrastructure Priorities Cost						
	Phase I	Phase II	Phase III	Inside ROW Cost	Outside ROW Cost	Total
Roadway	$10,722,267	$5,857,585	$0	$14,701,866	$1,877,986	$16,579,852
Water	$2,023,858	$5,553,675	$2,076,352	$9,653,885	$0	$9,653,885
Wastewater	$798,268	$1,389,042	$1,438,627	$3,625,937	$0	$3,625,937
Stormwater	$250,000	$0	$0	$250,000	$0	$250,000
Total	$13,794,393	$12,800,302	$3,514,979	$28,231,688	$1,877,986	$30,109,674

Executive Summary

Introduction

The Dallas-Fort Worth Metropolitan Area is currently the 4th largest metropolitan area in the United States. Regional population projections indicate that nearly one million people will be added to the DFW Metroplex each decade. While suburban growth continues to dominate, there have been significant efforts to make the central city attractive as a place to not only work, but also to live.

Spectacular growth of Dallas' uptown area over the past two decades has begun to spill over into adjacent neighborhoods. Downtown Dallas is experiencing rapid residential growth as vacant buildings are converted into residential apartments and condos. The Design District is becoming not only an attractive area for high-end furniture and art galleries, but also as a place to live and dine. Victory Park is amidst a resurgence in residential construction and is on the verge of becoming a major entertainment district in the central city. The resurgence of central Dallas only continues to gain momentum with the addition of thousands of new residents, businesses, entertainment establishments, parks, trails and transit.

West Dallas, located directly across the Trinity River from Downtown Dallas, has received attention in recent years as its future redevelopment potential was assessed. West Dallas has many attributes that will only continue to enhance its attractiveness to future investors. West Dallas is in close proximity to Downtown Dallas, Uptown, the Design District, North Oak Cliff, Deep Ellum and Riverfront Boulevard. West Dallas is directly adjacent to the Trinity River Corridor which, when completed, will be one of the largest urban parks in the United States. West Dallas is situated at the end of Dallas' new signature landmark; the Santiago Calatrava designed Margaret Hunt Hill Suspension Bridge. West Dallas has distinctive neighborhoods that add to the unique fabric of the area. All of these attributes, among others, have raised the area's profile considerably over the past several years.

West Dallas is currently experiencing a tremendous amount of new development activity. Sylvan 30, at Sylvan and Interstate 30, is under construction and, when completed, will add a number of apartments, shops and a grocery store. Trinity Groves, located just across the Margaret Hunt Hill Bridge from Downtown Dallas, has received national attention for its innovative restaurant incubator concept. A number of additional establishments, including Four Corners Brewery, Bab's Brothers BBQ and Dead White Zombies Theater have all contributed to the renewal that is taking place in West Dallas.

In 2009, the City of Dallas Design Studio conducted a series of visioning efforts. These efforts brought together stakeholders, businesses and residents of West Dallas and, over a series of public meetings, created the West Dallas Urban Structure and Guidelines plan. The Urban Structure and Guidelines provided a framework for future development, including land use and transportation strategies, and set goals for the area as development occurs. The plan set population and square footage goals for the area in 10, 15 and 17+ year time frames.

The land use aspect of the plan was a significant step forward as it defined development objectives. The next logical step to continue the process was an examination of the infrastructure capacities and needs to meet the identified development objectives. The North Central Texas Council of Governments provided funding for the City of Dallas to conduct this assessment.

The West Dallas Signature Point Project is a continuation and an extension of the West Dallas Urban Structure and Guidelines. The land use scenarios, transportation cross-sections and population

estimates contained within the Urban Structure and Guidelines were used to assess future infrastructure needs and served as the basis and rationale for infrastructure assumptions.

The West Dallas Signature Point Project was divided into several different phases:

- Prior Studies: This component of the project examined the factors influencing development in West Dallas. These included regional plans and City of Dallas plans. They involved the Trinity River Project, roadway reconstruction projects and financing districts within the study area.

- Existing Conditions: This component examined the existing physical environment in West Dallas. This included an assessment of existing land uses, the existing transportation network and the existing infrastructure network that supports West Dallas.

- Market Scan: Catalyst provided a market assessment of the study area in order to establish what the existing and future market for retail development may be. The market assessment looked at the demographics of the study area and assessed existing and future deficiencies and needs within West Dallas. A summary of the market scan is contained within the report and the full market scan is included in Appendix D.

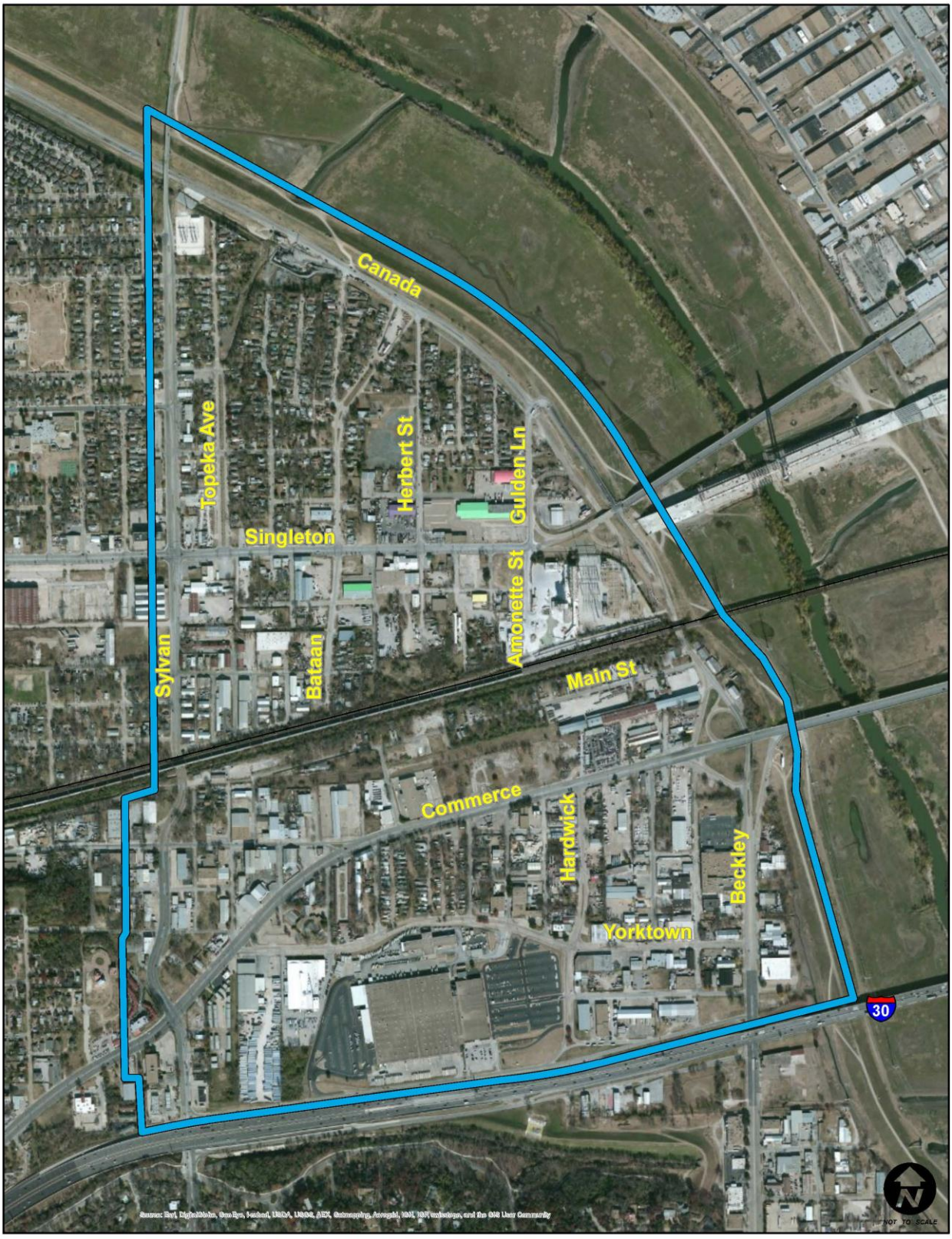
- Assessment Methodology: Before an assessment of the infrastructure could be performed, a methodology on how the assessment should best be conducted was established.

- Infrastructure Assessment: An assessment of roadway, water, wastewater and stormwater infrastructure was conducted. Engineers used population and employment data from the West Dallas Urban Structure and Guidelines report to assess future need and to identify infrastructure phasing. The Infrastructure assessment prioritized projects based upon the 10, 15 and 17+ year framework established within the Urban Structure and Guidelines report. Finally, cost estimates for each of the needed improvements was performed and is included in Appendices A, B and C.

- Funding Entities: This section highlights the responsible parties for overseeing the provision of infrastructure improvements in West Dallas.

The following report is intended to be used as a reference and a guide for infrastructure improvements in West Dallas. As future infrastructure projects are prioritized and examined, this document should help frame the discussion in terms of the relationship between development expectations, development phasing and needed improvements.

Figure 1: West Dallas Study Area Boundary



Introduction

Existing Plans

The City of Dallas, understanding the potential that exists in West Dallas, has undertaken a number of study efforts. The studies conducted in West Dallas have primarily focused on the land use and urban form as well as the necessary infrastructure needed to support identified land uses. In addition to studies examining land use and infrastructure, West Dallas has several financing districts in place to encourage and aid potential private investment within the area. Finally, several catalyst projects are currently planned and under construction in West Dallas. The following sections examine the planning studies, infrastructure studies, financing mechanisms and development projects applicable to the West Dallas Signature Point study.

Studies Examined Include:

- West Dallas Dream Session
- West Dallas Urban Structure and Guidelines
- Trinity River Corridor Project
- Forward Dallas
- Downtown Dallas 360 Plan
- West Dallas Phase III: Conceptual Estimate
- Urban Streetcar Study (Dallas 360)
- Mobility 2035
- DART Transit Service Plan
- 2011 Dallas Bike Plan
- Dallas Complete Streets Initiative
- Water and Wastewater Utility Needs: Trinity Developments Part I
- City of Dallas Needs Inventory
- Fort Worth Avenue TIF
- Sports Area TIF
- West Dallas Municipal Management District

Planning Studies

Every plan begins with a vision. Due to West Dallas' proximity to the Trinity River Corridor Project, a significant amount of planning has taken place over the past several years. In fact, West Dallas became one of the primary projects for the Dallas Design Studio upon its creation. The planning undertaken for West Dallas heavily involved local residents and existing stakeholders and is a true testament to the unrealized opportunity that exists within the area. The following are some of the more significant planning efforts undertaken in West Dallas.

West Dallas Dream Session (2009)

In 2009, the Dallas Design Studio conducted a visioning session called "West Dallas: A Time to Dream." The purpose of the visioning session was to pull together La Bajada residents, potential developers, local business people, non-profit organizations, City politicians and other area interests to identify potential elements and ideas that should be considered for the future of West Dallas. This visioning session was the first large-scale visioning effort undertaken in West Dallas and set in motion future planning efforts, specifically the *West Dallas Urban Structure & Guidelines* document.

The West Dallas Dream Session document highlights several goals and objectives that should be considered as future development and infrastructure improvements occur. The goals derived from the visioning session call for the area to be:

- An Incremental Community
- A Sustainable Community
- A Learning Community
- A Living Community
- A Unique Community
- A Destination Community
- A Connective Community

Among these goals, a number of related objectives were established. Objectives directly related to this Signature Study Project include:

Prior Studies

- Infrastructure for success: eyes and ears on the street through human presence;
- Prioritizing the public pedestrian realm: addressing a human scale in new development that preserves the resident connection to the street;
- Connection to the greater Dallas area: to bridge the physical and implied gaps between neighborhoods, to promote new development;
- Address all modes of transportation to provide safety, comfort and functionality for all, create a neighborhood fabric respective of its residents' needs and promote growth through connectivity; and
- Enhance the quality of infrastructure to support new development, become part of the Trinity River Corridor and to create a habitable community.

West Dallas Urban Structure & Guidelines (2011)

As a result of the West Dallas Dream Session, and several public forums conducted over a year-long period, the *West Dallas Urban Structure and Guidelines* were created. The West Dallas Dream Session identified various goals and objectives for West Dallas while the Urban Structure & Guidelines provided visual guidelines towards the implementation of the defined vision. Visual elements of the document include an overall conceptual plan, nine neighborhood areas, street configurations and cross-sections, identifying public spaces and general architectural characteristics. The document concludes with a 10, 15 and 17+ year phasing plan.

Figure 2: Urban Structure and Guidelines 17+ Year Scenario

While many of the illustrations outlined in the document are for illustrative purposes only and are intended to serve as general form and character guidelines, three fundamental objectives were identified and include:

- Enhancing and protecting La Bajada;
- Allowing for incremental development; and
- Focusing high density development along the Herbert Street corridor south of Singleton and foster key development nodes.

Future development and infrastructure enhancements should be partially evaluated in how such development or improvements ultimately promote these three primary objectives.

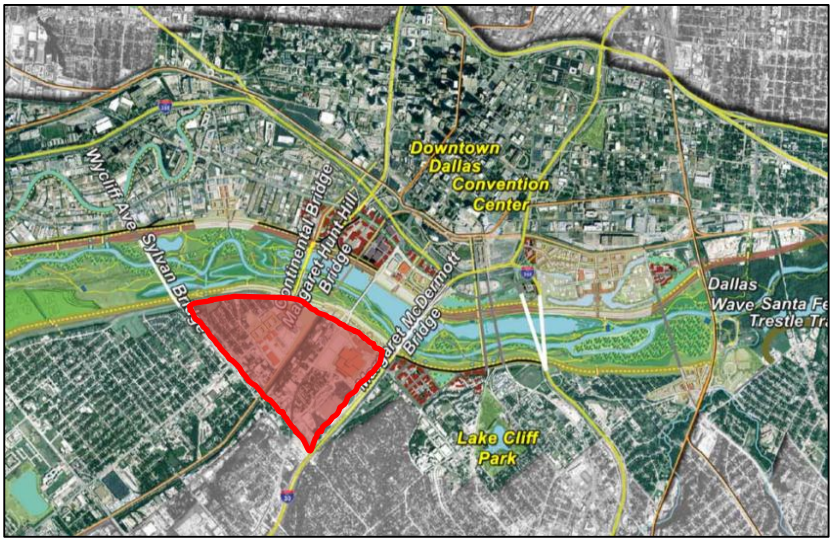
In terms of the West Dallas Signature Project, the *West Dallas Urban Structure & Guidelines* provides 16 different street characteristics that should be considered. The plan outlines key design characteristics that are critical to promoting the envisioned urban forum and include:

- A pattern of small-scale interconnected streets in a grid system;
- Wide sidewalks with shade trees and street furniture;
- Parallel and head-in parking to shield pedestrians from traffic movement;
- Narrow street crossing sections and curb extensions at crosswalks; and
- Enhanced crosswalk demarcation at street intersections.

Trinity River Corridor Project

The Trinity River Corridor is a vast expanse of land approximately 20 miles long covering over 10,000 acres located along the Trinity River in Downtown Dallas. The initial ideas for the project began decades ago as residents and public officials began to identify the vast opportunity and potential that existed along the Trinity River. In 1998 and again in 2006 voters approved bond packages that dedicated funding for implementation. The importance and impact of the Trinity River Corridor Project, and the associated Master Plan, on West Dallas cannot be overstated. There is a direct relationship between corridor projects and the attractiveness of West Dallas to investors, developers, businesses and future residents.

Figure 3: Trinity River Corridor Ultimate Scenario



The most visible infrastructure enhancements associated with the Trinity River Corridor Project include the Margaret Hunt Hill Bridge and the Margaret McDermott Bridge. Both of these bridges are Santiago Calatrava designed bridges designed to be dramatic visual additions to the corridor. Additionally, a new Sylvan Avenue Bridge is being constructed to be functional during periods of flooding. The Sylvan Avenue Bridge will also provide a connection to the Trinity River below, providing pedestrian and bicycle access to future Trinity River amenities. All three of these bridges will further facilitate connectivity between West Dallas and other portions of Central Dallas.

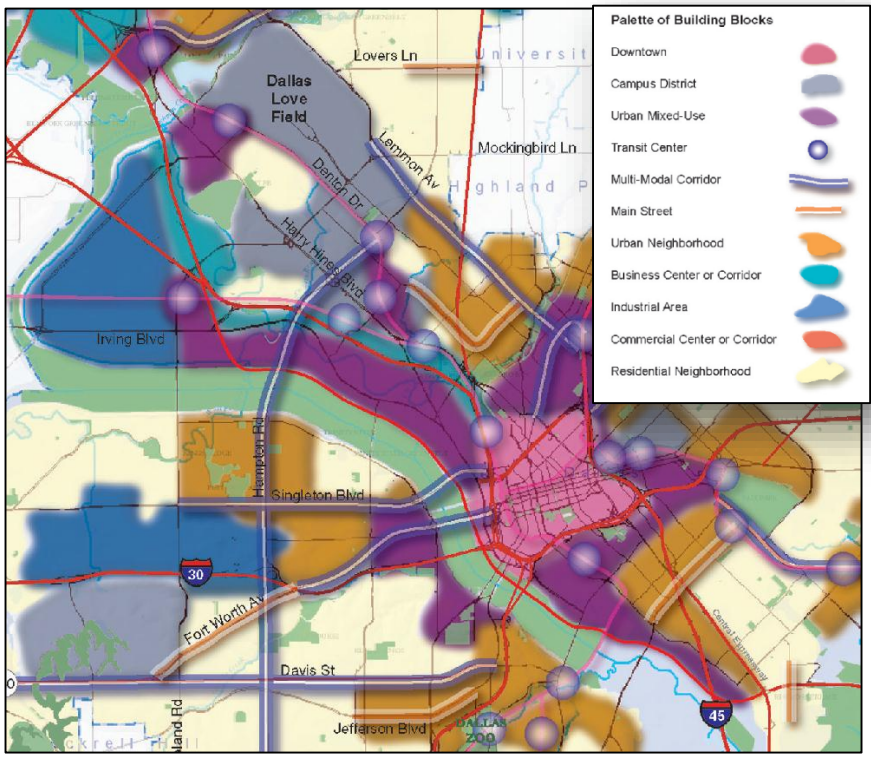
The Continental Bridge reconstruction is another project identified by the Trinity River Corridor Plan that may have a dramatic impact on the visibility and attractiveness of West Dallas. With the opening of the Margaret Hunt Hill Bridge, the Continental Bridge will be closed to automobile traffic and will be reconstructed as a pedestrian and bicycle facility with landscaping, plazas, playgrounds and other amenities.

Prior Studies

Forward Dallas (2006)

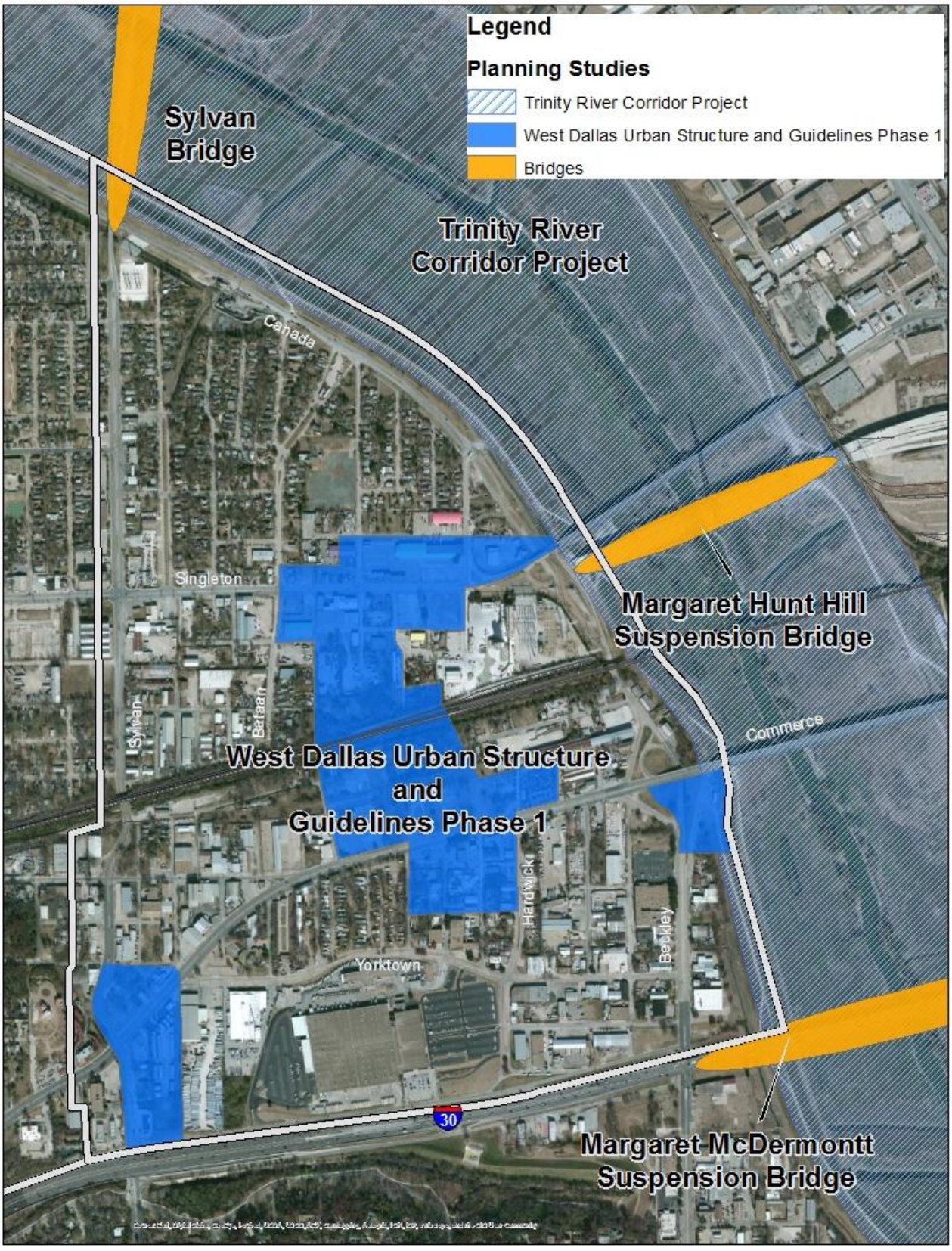
Forward Dallas is the Comprehensive Plan for the City of Dallas. The Comprehensive Plan was adopted by the City in 2006 and is utilized to guide land use and character decisions for development and redevelopment. Forward Dallas identifies three land use types within West Dallas. Urban Mixed Use is envisioned between Interstate 30 and Singleton Boulevard. To the north of Singleton, the far eastern sides near the Trinity River are envisioned to be an Urban Neighborhood. Finally, the La Bajada neighborhood is described as a Residential Neighborhood, an area with single-family residential dwelling units.

Figure 4: Forward Dallas Comprehensive Plan



The recommendations contained within *Forward Dallas* are precisely consistent with the *West Dallas Urban Structure & Guidelines* scenario and therefore very little conflict between development plans and the future land use plan for the City of Dallas currently exist. Ultimately, more urban characteristics are envisioned for West Dallas with the exception of La Bajada neighborhood where single-family residential is preserved.

Figure 5: West Dallas Urban Structure & Guidelines Phase I



Prior Studies

Transportation Studies

The following are brief descriptions of planning efforts related to transportation and connectivity.

West Dallas Phase III: Conceptual Cost Estimate (2012)

Freese and Nichols, Inc. prepared a Conceptual Cost Estimate memo for the City of Dallas in January, 2012. The purpose of this memo was to develop a cost estimate for the three potential crossings along the Union Pacific Railroad in West Dallas and to construct a temporary "shoo fly" on the southern side of the existing railroad tracks. Bridge locations were identified at Bataan, Herbert and Amonette Streets.

The total cost for the three bridges was estimated to be as follows:

- Bataan Street: $4,856,858
- Herbert Street: $4,209,167
- Amonette Street: $3,829,990

The total construction cost estimate for the UPRR Shoo Fly was estimated at $15,093,565. The combined construction estimates for the entire project was approximated at $27,989,577. This cost estimate was utilized by the City of Dallas for the 2012 Capital Improvement Program.

Figure 6: West Dallas Railroad Crossing Conceptual

Urban Streetcar Studies

Downtown Dallas 360, the comprehensive planning document for Downtown Dallas, has identified a number of Streetcar Boulevards within central Dallas. These identified boulevards are intended to provide connectivity between Downtown Dallas and its adjacent neighborhoods, including West Dallas. One of the Streetcar Boulevards identified within the Plan is Commerce Street. Planning efforts indicate that the Commerce Streetcar Boulevard could extend across the Commerce Street Bridge into West Dallas, but no routing information is provided beyond an extension across the Trinity River.

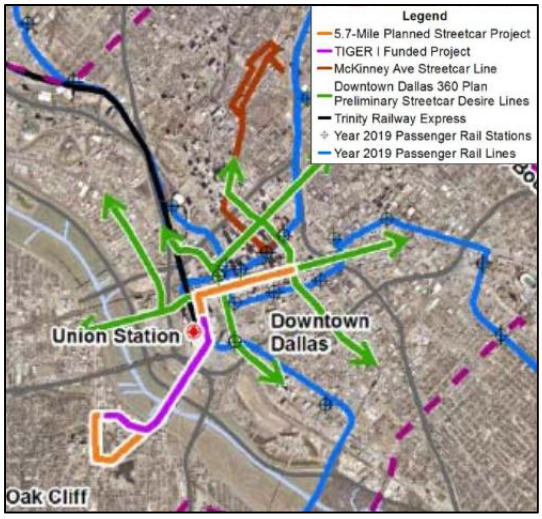


Figure 7: Streetcar Proposals

Most recent streetcar study efforts have been concentrated within Downtown Dallas, referred to as the Downtown Streetcar Plan. No potential alignments identified extend a streetcar line into West Dallas.

Finally, the Houston Street Viaduct streetcar project, extending between Union Station and the Bishop Arts district will have no immediate impact on West Dallas itself.

2030 DART Transit Service Plan (2006)

The DART 2030 Transit System Plan identifies two long-term service strategies extending through West Dallas and includes:

- Enhanced Bus Corridors: Enhanced service in core transit corridors created from the consolidation of multiple lines into one strong route and the restructuring of local service to act as feeders/circulators to the enhanced corridor.

- Rapid Rail: Rail service that operates at higher speed than normal rail and has 10/20 minute peak/off peak headways. Such service would be in the form of light rail or street cars and not heavier commuter rail equipment.

Prior Studies

Enhanced bus service has been identified on Singleton Boulevard and Commerce/Ft. Worth Avenue. Both routes would extend from Downtown Dallas and connect with other transit centers or park-and-ride locations. The Singleton Blvd. corridor is 6-miles with an estimated capital cost of $6.8M. This corridor has been identified as an initial implementation priority although no date has been identified. The Commerce/Ft. Worth corridor (5.6 miles, $6.3M) has been identified as a Phase 2 priority.

The 2030 Transit System Plan identifies Singleton Boulevard as potential rapid rail corridor extending through West Dallas. The Plan cites the growth opportunity as a result of the Margaret Hunt Hill Bridge connection and planning for a mixed-use urban core. However, further study is needed to determine long-term viability of a rail transit investment. The Singleton corridor is identified as a 6-mile light rail line ($400M) extending from Downtown Dallas to the Loop 12 area.

Figure 8: Rapid Transit Planning

2011 Dallas Bike Plan (2011)

The City of Dallas recently completed an extensive process that culminated with the creation of the 2011 Bike Plan. The Bike Plan contains various route recommendations, configurations and design criteria to improve bicycle connectivity within the City of Dallas. The central area of the City has been defined as an area of "near term" priority, encouraging recommendations to be completed within the 2013-2014 time frame. This near term priority area includes West Dallas.

Within West Dallas, the 2011 Dallas Bike Plan calls for a cycletrack or buffered bike lane along West Commerce Street, Fort Worth Avenue, Beckley Avenue and Sylvan Avenue. Additionally, the Bike Plan recommends a shared bicycle lane across the new Sylvan Avenue Bridge currently under construction and identifies the Continental Bridge as a shared use pathway for bicyclists and pedestrians. Singleton Avenue itself is defined as an area in need of further study.

Complete Streets Initiative (2012)

The City of Dallas is currently in the process of drafting the 2012 Complete Streets Design Manual. The manual was developed in response to recommendations contained within the *Forward Dallas* Comprehensive Plan. The Complete Streets Design Manual recommends design criteria for the following street typologies:

- Mixed-use streets
- Commercial streets
- Residential streets
- Industrial streets
- Parkways

Within each category, various design elements are described, based upon the available right-of-way and number of needed lanes for traffic. Ideas and recommendations pertaining to traffic calming, pedestrian design and bicycle and transit accommodation are identified within the Design Manual.

The Complete Streets Design Manual specifically identifies Beckley Avenue and Singleton Avenue as "Transit Streets" and numerous local roadways within West Dallas, including Herbert Street, as "Bike Network Streets." These two prototypes are defined by the following criteria:

- **Bike Network Streets:** Bike Network Streets are designated in the bike network plan. The 2011 Bike Plan provides proposed cross sections for retrofit projects and should be consulted for all minor projects and resurfacing. During new construction, the cross section will be considered to provide a high level of accommodation for bicycles, if needed.
- **Transit Streets:** Transit streets are streets that serve high levels of transit activity such as fixed rail, streetcars, and bus rapid transit. This category is not intended to compass all streets where transit exists-rather the more transit-intensive streets.

Prior Studies

Mobility 2035 Projects (2013)

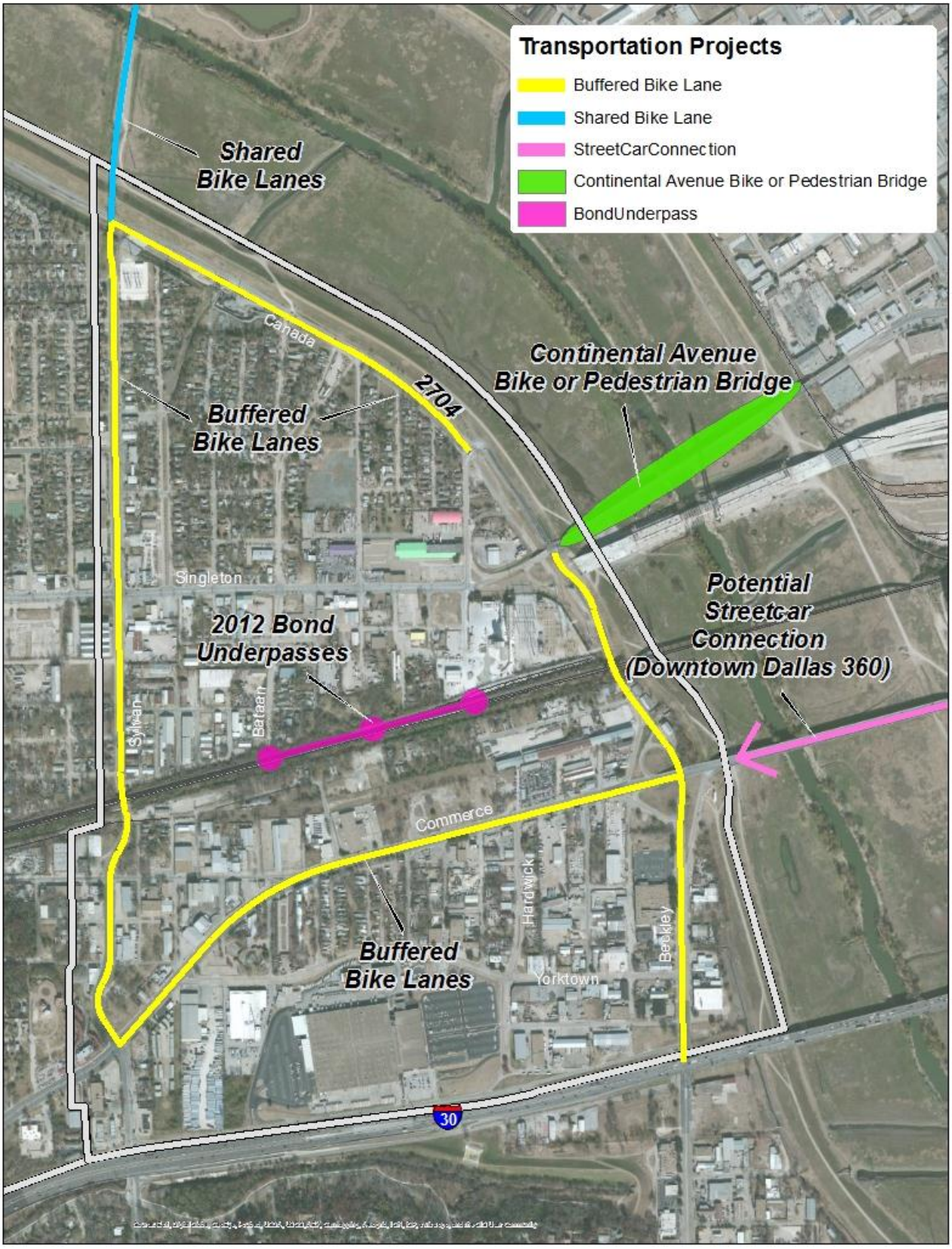
Mobility 2035 has identified the Union Pacific Railroad through West Dallas as a future local regional rail corridor and high-speed rail corridor. Transit Corridor 16 will be 44.6 miles in length and connects downtown Dallas with downtown Fort Worth. The line will run through Dallas, Grand Prairie, Arlington and Fort Worth. The line currently includes 12 stations at an average spacing of one station every 3.7 miles. No high-speed rail station is currently planned in West Dallas.

The Veloweb Network represents the regional bicycle network in the DFW area. Mobility 2035 has identified the Trinity River Levy trails as part of the regional network, indicating that the areas bicycle network will also be linked to a larger scale recreational network.

Mobility 2035 identifies many arterial roadways that are important on a regional level. Currently, the only regional arterial located in West Dallas is West Commerce Street/Fort Worth Avenue. No improvements have been identified by Mobility 2035 along this corridor in the near future. While Singleton Avenue and Sylvan Avenue may provide significant connectivity to adjacent neighborhoods, these roadways have not been classified as regional arterials.

Finally, Mobility 2035 identifies a potential streetcar network for the Dallas Central Business District. Currently, no streetcar network is proposed through West Dallas in Mobility 2035. A streetcar reference, however, is contained the within Downtown Dallas 360 Plan. A streetcar expansion is currently being implemented from Union Station across the Houston Street Viaduct to Methodist Hospital and the Bishop Arts District at Davis Street. This streetcar extension is outside of the West Dallas study area.

Figure 7: Transportation Studies Map



Prior Studies

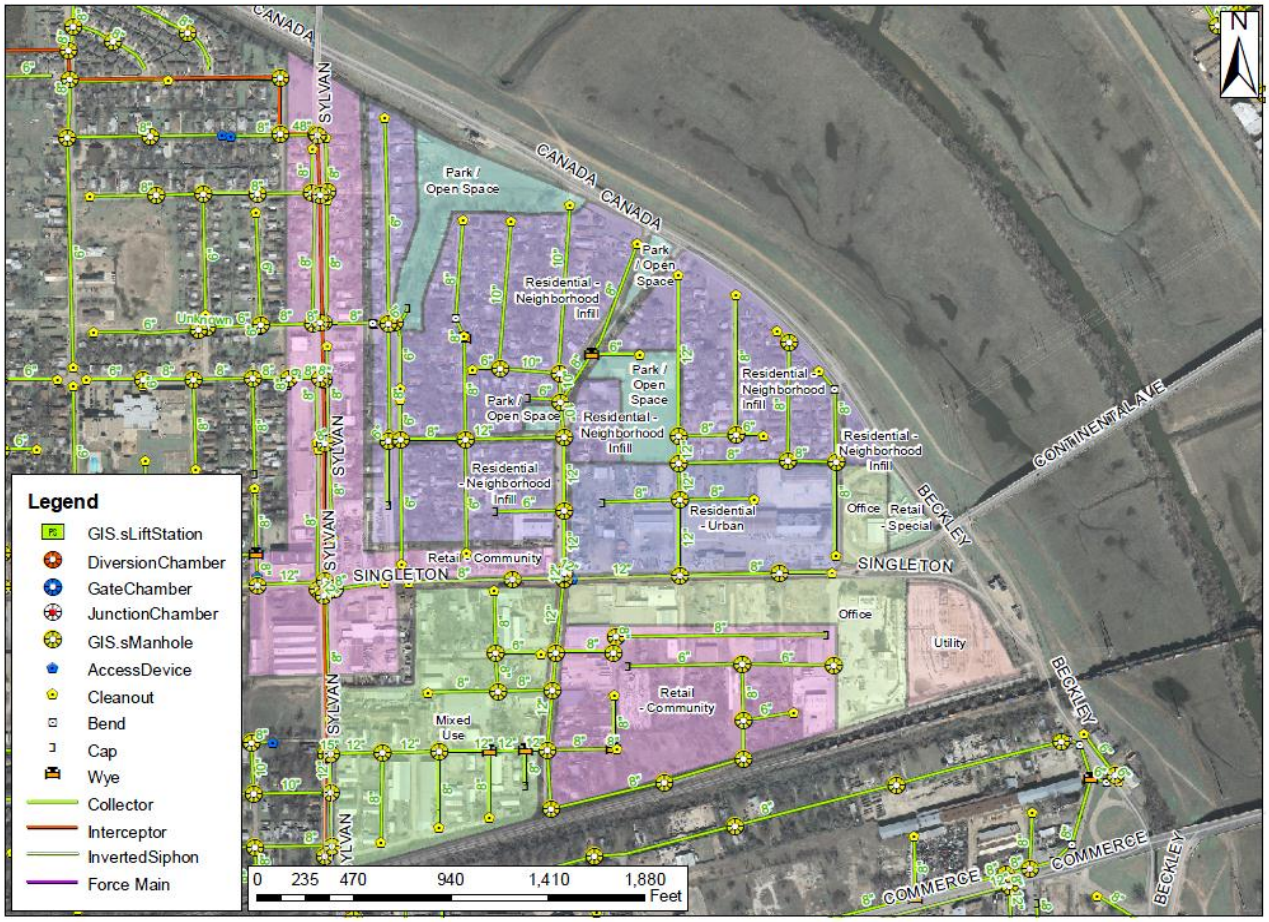
Infrastructure Planning

The planning and visioning projects undertaken in West Dallas have helped to set the vision for the area and have defined the areas potential urban framework. In order to accommodate anticipated higher density development, a number of infrastructure improvements will be necessary in West Dallas. The following studies developed by the City of Dallas outline some of the primary infrastructure improvements, and estimated costs, associated with necessary water, wastewater and roadway improvements.

Water & Wastewater Utility Needs: Trinity Developments Part I (2008)

In 2005, the Trinity River Corridor Comprehensive Land Use Plan was created to identify potential land use configurations within the Trinity River corridor. Ultimately, these land use recommendations were needed to begin to identify required infrastructure improvements. In 2008, Dallas Water Utilities (DWU) developed the *Water and Wastewater Utility Needs: Trinity Developments* to identify infrastructure improvements that would be needed based upon the 2005 Land Use Plan and to calculate the estimated costs associated with such improvements. DWU divided the 2005 study area into five districts including: Cedars West, Mixmaster Riverfront, Oak Cliff Gateway, La Bajada-Los Altos and Old Trinity Industrial. The La Bajada/Los Altos District encompasses the northern half of West Dallas. The district lies between Sylvan, the Union Pacific Railroad and the Trinity River levees.

Figure 8: La Bajada/Los Altos Existing Wastewater Infrastructure



In terms of wastewater, La Bajada lies in the West Bank sewer shed. Currently, 6.5 miles of wastewater pipes exist within the area. DWU is currently scheduled to replace 1.2 miles of mains in the area through the Relocations Program or the Pipeline Program. The remaining improvements are currently unfunded. DWU estimates that the total cost for unfunded wastewater projects would be approximately $4.7 million.

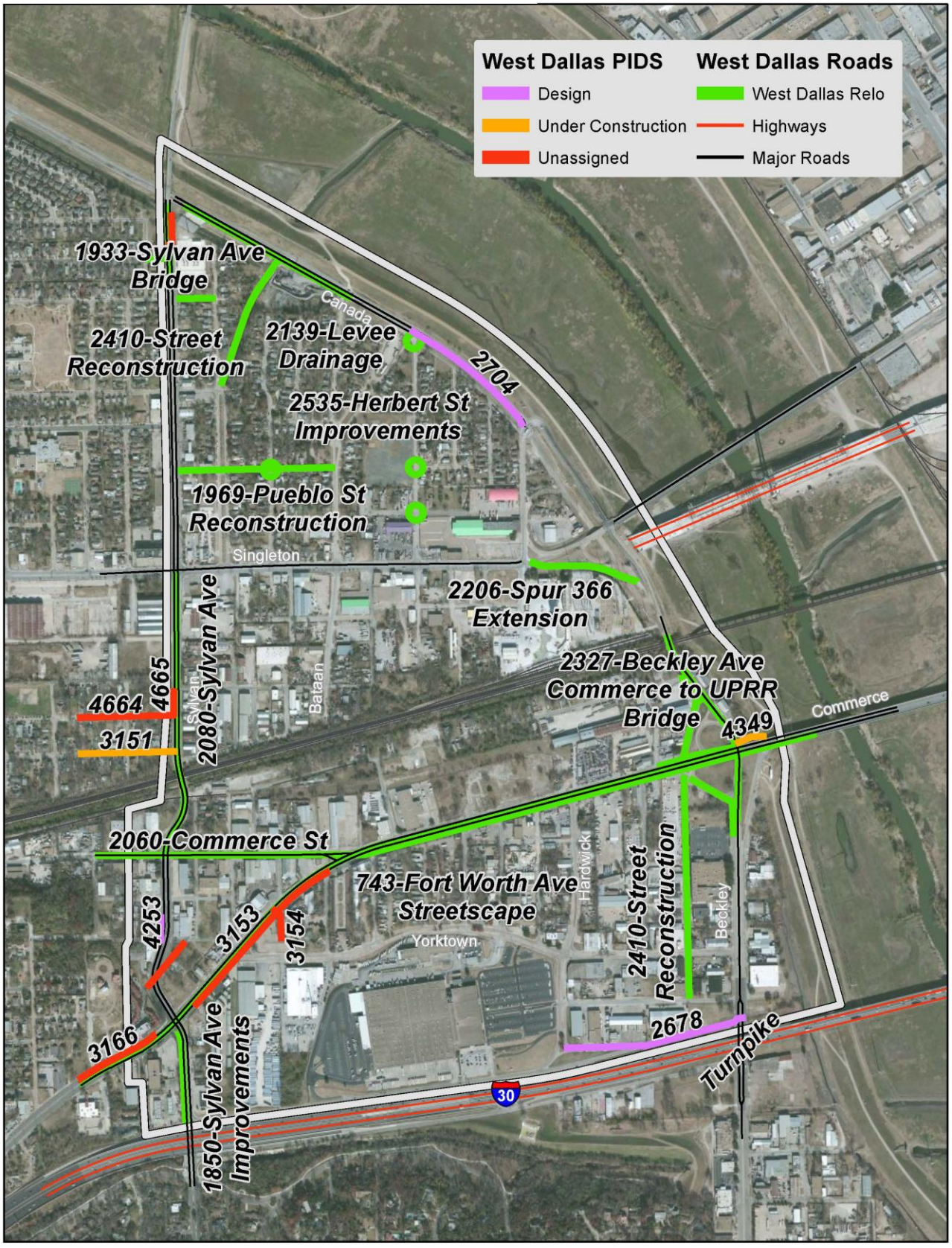
Currently, 6.3 miles of water pipes exist within La Bajada. DWU is scheduled to replace 2.1 miles of mains in the area through the Relocations Program or the Pipeline Program. The remaining improvements are currently unfunded. DWU estimates that the total cost for unfunded water replacements is approximately $4.3 million.

City of Dallas Needs Inventory (2010)

The City of Dallas maintains a list of infrastructure and facility project needs that are derived from several sources including master plans, studies, citizen input, Council input, staff input and other inventories. The Needs Inventory is an extensive listing of projects organized by Council District and filtered by project type.

Prior Studies

Figure 9: Infrastructure Improvements Map



Planned Developments & Improvements

While much of the infrastructure improvements have yet to be solidified, several developments and connectivity improvements will not only serve as catalyst projects within West Dallas, but will also help to enhance the visibility and identity of the area as a whole. The following are some of the more significant improvements currently being undertaken in West Dallas.

Sylvan | Thirty

Sylvan | Thirty is a highly anticipated catalyst project within West Dallas. Sylvan | Thirty is approximately 6.3 acres in size and is located along the eastern side of Sylvan Avenue between Interstate 30 and Fort Worth Avenue. The project is located within the Fort Worth Avenue TIF District. Sylvan | Thirty is designed to be a mixed-use center containing retail, restaurants, office and residential apartments. The proposed development is anticipated to contain approximately 150,000 square feet of residential space and 50,000 square feet of restaurant, retail and/or live-work space. The total estimated cost of the proposed development is $47.6 million. 20 percent of residential units will be allocated for affordable housing.

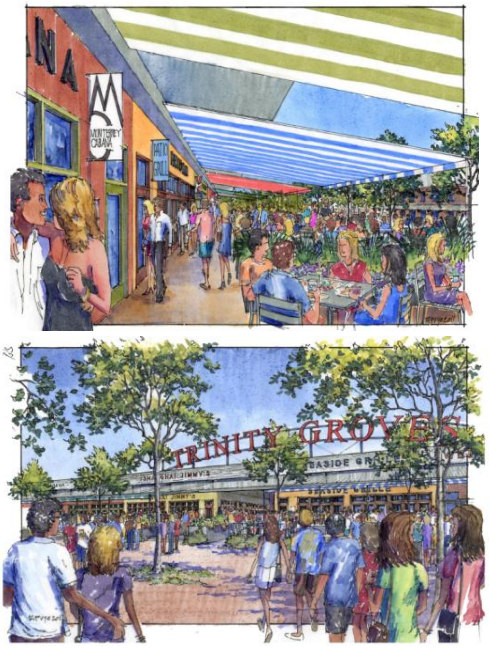
Figure 10: Sylvan 30 Conceptual

Design features for Sylvan | Thirty include a central plaza, wide pedestrian sidewalks, buildings fronted along the street, flex parking, sustainable building practices, business incubator space and incorporating bicycle parking to tie in with the proposed bicycle lanes along Fort Worth Avenue, as proposed by the 2011 Dallas Bicycle Plan.

Project began in late 2012 and is targeted for completion in fall, 2014.

Trinity Groves

Figure 11: Trinity Groves Conceptual



West Dallas Investments, the largest property holder within the study area, has set aside approximately 15 acres of land directly at the foot of the Margaret Hunt Hill Bridge for its restaurant incubator concept—Trinity Groves. This new project, which opened in 2013, is the first catalyst project on the northern side of the study area. In addition to its location at the base of the Margaret Hunt Hill Bridge, Trinity Groves is located near the Continental Avenue bicycle and pedestrian bridge and future West Dallas Gateway Plaza.

Trinity Groves provides incubator space for new restaurant concepts and is envisioned to contain a microbrewery, creamery, coffee roaster, wine wholesaler, baker, fish market and meat market. Additionally, Trinity Groves will eventually provide entertainment space such as a park, art museum, “off-Broadway” theater, bowling alley, art studio and concert space.
An identifying feature of Trinity Groves is the retrofitting and reuse of existing industrial buildings. As market conditions warrant, additional development within Trinity Groves, such as retail and housing, will be added.

Prior Studies

Continental Bridge

Prior to the opening of the Margaret Hunt Hill Bridge, Continental Avenue Bridge served as the primary vehicular crossing point between the northern side of West Dallas and Downtown. With the opening of the Margaret Hunt Hill Bridge, the Continental Avenue Bridge is now slated to be retrofitted as a bicycle and pedestrian bridge providing non-motorized connectivity between Downtown and West Dallas.

Plans indicate that, in addition to bicycle and pedestrian accommodations, the Continental Bridge will include a number of different amenities including a stage area, outdoor eating space, a labyrinth, fountain, children's play area, outdoor chess and vending areas. These amenities, along with the unobstructed views of the Margaret Hunt Hill Bridge and Downtown Dallas, have the opportunity to significantly enhance the visibility of West Dallas.

The Continental Bridge is 100 percent funded and is slated to open in May, 2014.

Figure 12: Continental Bridge Conceptual

West Dallas Gateway Plaza

Somewhat connected to the Continental Bridge project, the West Dallas Gateway Plaza is being designed to serve as the primary bicycle and pedestrian connection into West Dallas. This project is designed to be a highly visible and comprehensive plaza at the western terminus of the Continental Bridge.

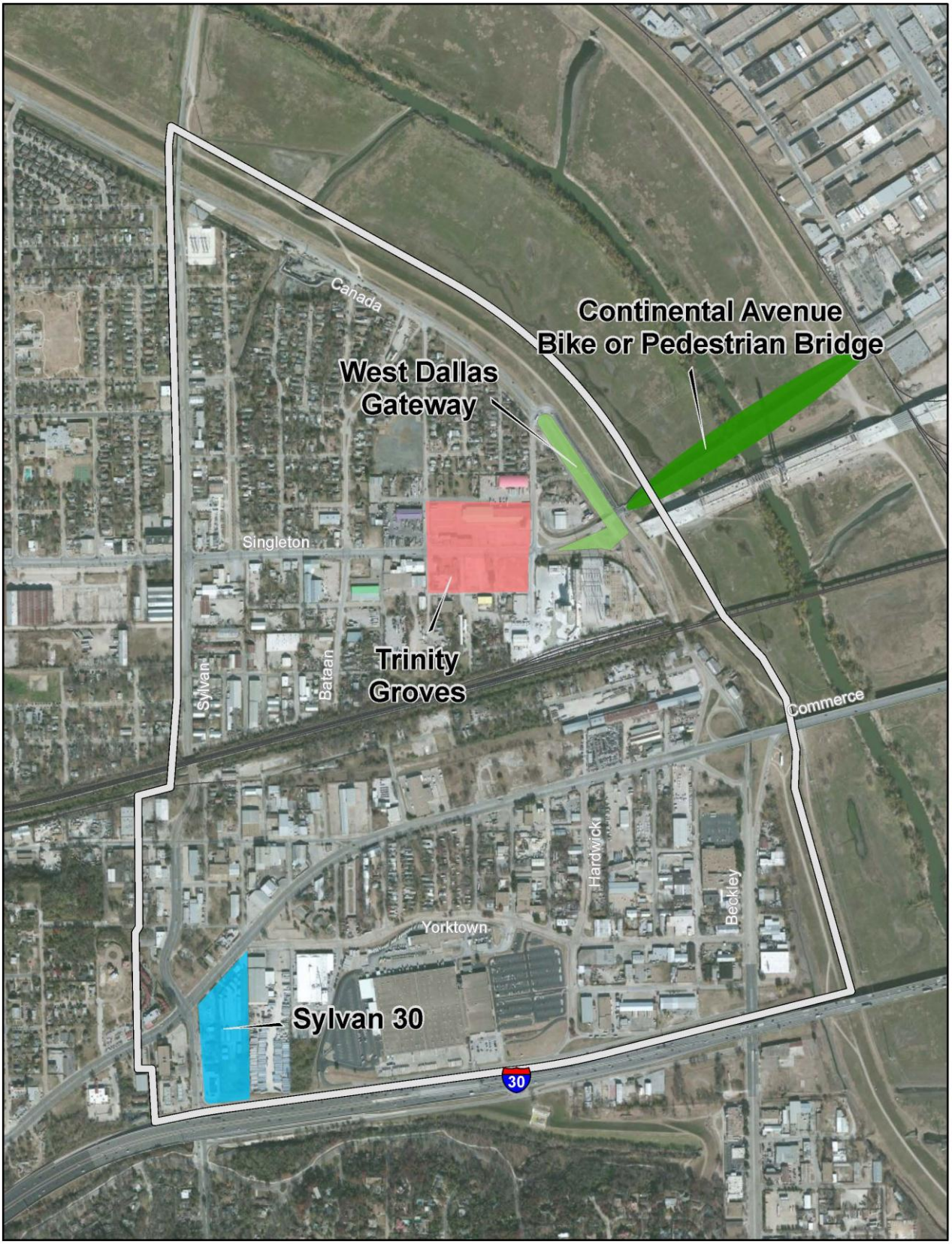
Project design features will include a large plaza/gathering space, picnic area, concessions and restrooms, areas for future street markets and an area for a future stage. West Dallas Gateway Plaza is being designed to provide strong pedestrian and bicycle connections to potential developments within close proximity of the plaza, such as Trinity Groves.

Figure 13: West Dallas Gateway Plaza Conceptual

Continental Bridge & West Dallas Gateway, WRT 2012

The West Dallas Gateway Plaza is 100 percent funded and will be constructed during the same time period as the Continental Bridge enhancements. This project is scheduled to be completed in May, 2014.

Figure 14: Planned Developments & Projects



Prior Studies

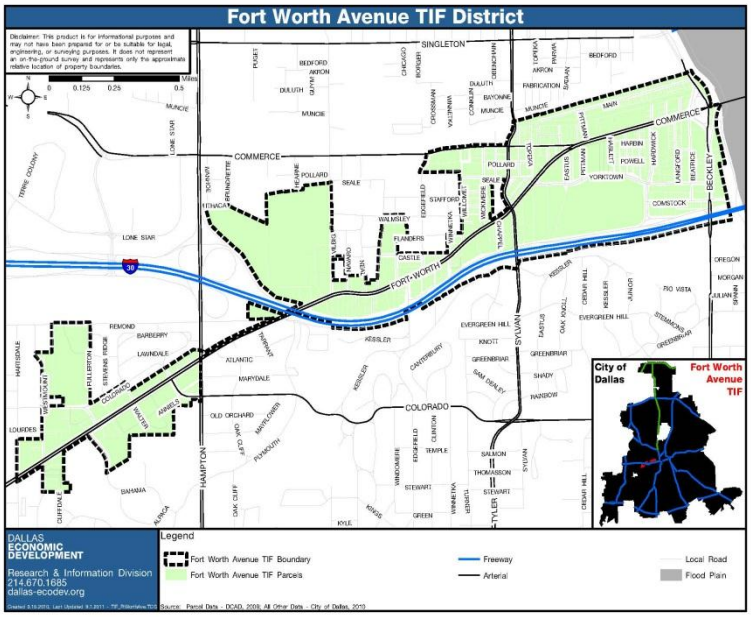
Financing Mechanisms

Financial strategies and incentives have the potential to dramatically alter the attractiveness of a location for future development and investment. Financing mechanisms can help to mitigate investment concerns, particularly in areas where a lack of comparable properties exist. Additionally, tax districts and CIP programs can enable the City to construct infrastructure projects which provide the necessary capacity to accommodate future development. The following outlines the financing districts available in West Dallas, as well as the initiatives included on the City of Dallas' 2012 Bond Program pertaining to West Dallas.

Fort Worth Avenue TIF

On June 13, 2007, the City of Dallas authorized the Fort Worth Avenue TIF District in order to assist in the revitalization of the Fort Worth Avenue Corridor and to create a more sustainable mix of rental and for-sale residential property. Primary objectives of the district included the creation of more owner-occupied residential units and mixed-use development, the removal and redevelopment of structurally obsolete apartment complexes and retail centers, environmental remediation, redevelopment of property near the Trinity River and Downtown Dallas and the creation of better trail and recreational connections. The proposed duration of the TIF district was 22 years, terminating on December 31, 2029. The City's highest degree of participation will occur between 2014 and 2020 with 85 percent participation.

Figure 15: Fort Worth Avenue TIF Boundary

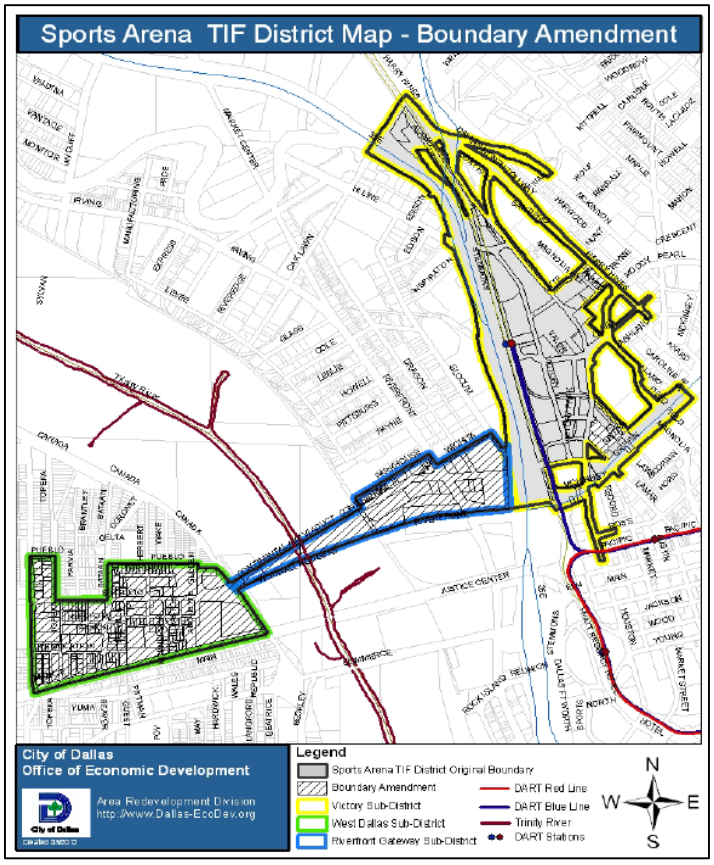


At of the end of 2013, the TIF board has approved funding for two projects: Metro Paws Animal Clinic and Sylvan | Thirty. In addition, ten other projects have been completed or are under construction for a total of $58 million in additional taxable value when complete. With the completion of Sylvan | Thirty in 2014, the district will see an additional $30 million in taxable value. These projects, in addition to others in early planning stages, will contribute significantly to the funding available for infrastructure in the TIF district, including the portion of the district in West Dallas.

Sports Arena TIF

In October 1998, the Sports Arena TIF District was created to leverage funds for infrastructure improvements in Victory Park, the area surrounding the American Airlines Center. When created in 1998, the TIF district had a budget of approximately $25 million and had an initial term of 20 years, expiring in 2018. Due to the investment in infrastructure, approximately $543 million in private investment was added between 2001 and 2009.

Figure 16: Sports Area TIF Boundary



On May 12, 2012, the City amended the plan for the Sports Arena TIF District to create two new sub-districts and to extend the term of the district. The Victory Sub-District (the original boundary of the Sports Arena TIF District) was extended for an additional 10 year period, expiring December 31, 2028. This term extension will provide funding for structured parking near the American Airlines Center. Structured parking would enable planned developments to break ground by freeing up surface parking lots currently committed to American Airlines Center events.

The addition of the Riverfront Gateway Sub-District will provide a needed connection from the Victory Park area to West Dallas via the Margaret Hunt Hill Bridge and the Continental Pedestrian Bridge. The Riverfront Gateway Sub-District terminates on December 31, 2042.

The West Dallas Sub-District took effect on December 31, 2012 and will expire on December 31, 2042. The inclusion of West Dallas Sub-District allows the TIF district to assist in funding infrastructure improvements and accelerates private development in West Dallas. The amended plan allocates 10% of the increment generated by the Victory Sub-District to West Dallas, in addition to the revenue generated within the West Dallas Sub-District itself.

Trinity West Municipal Management District

West Dallas Investments is the primary landholder in West Dallas. In 2009, the State of Texas created the Trinity West Municipal Management District (MMD) in order to provide the option for additional taxation or issuance of bonds to facilitate infrastructure enhancements within the MMD boundary. The Trinity West MMD is comprised of approximately 342 acres and is partially located within the Fort Worth Avenue TIF.

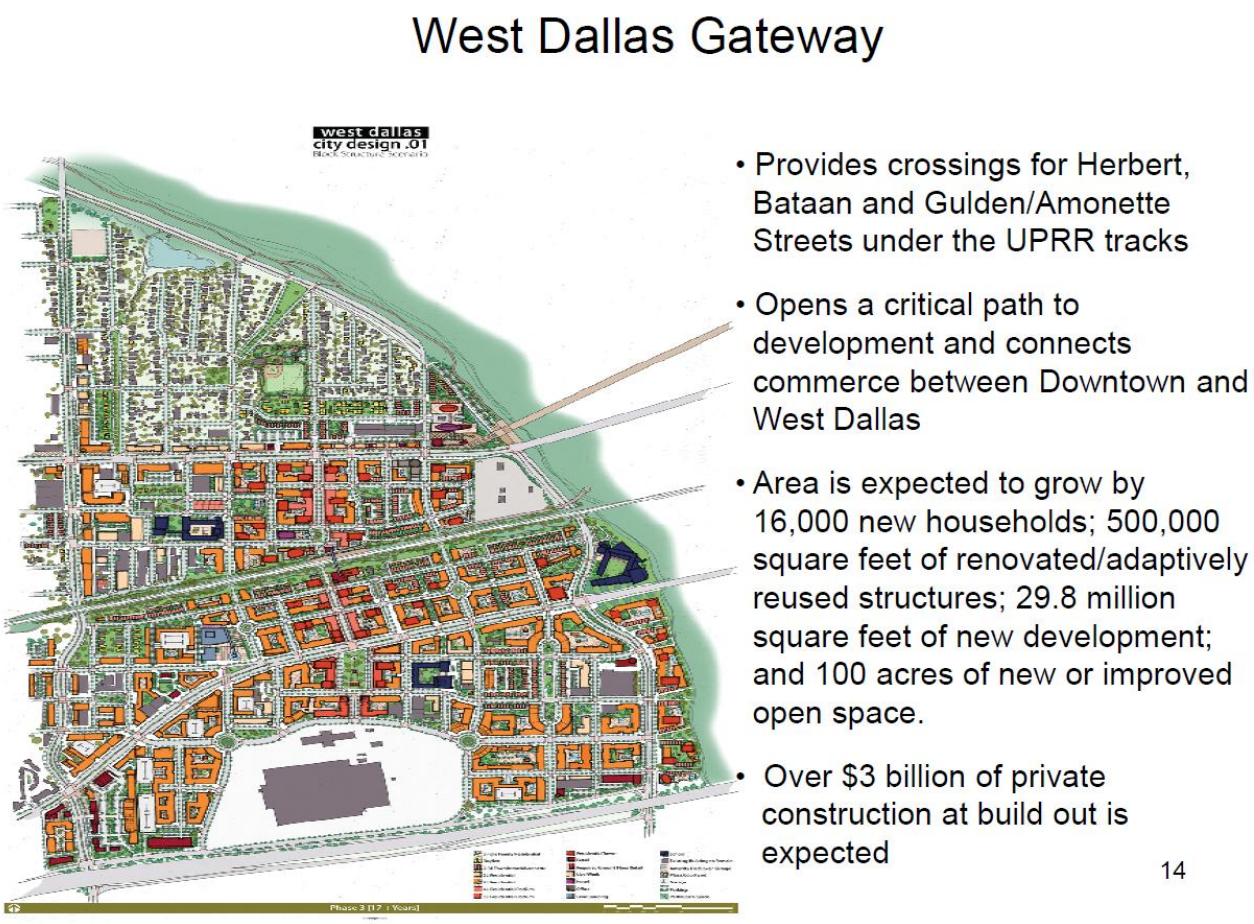
The Trinity West MMD has identified a list of needed project improvements called the West Dallas Infrastructure Plan. The Plan outlines approximately $11 million in local street improvements, $5 million in water main improvements, $5.7 million in sanitary sewer improvements, $8.9 million in overhead

Prior Studies

utility line burial and $29 million in railroad underpass crossings. Total needed infrastructure improvements identified in the Plan amount to approximately $64 million. Funding for the identified railroad underpass crossings is included in the City of Dallas's 2012 Bond Program recommendations.

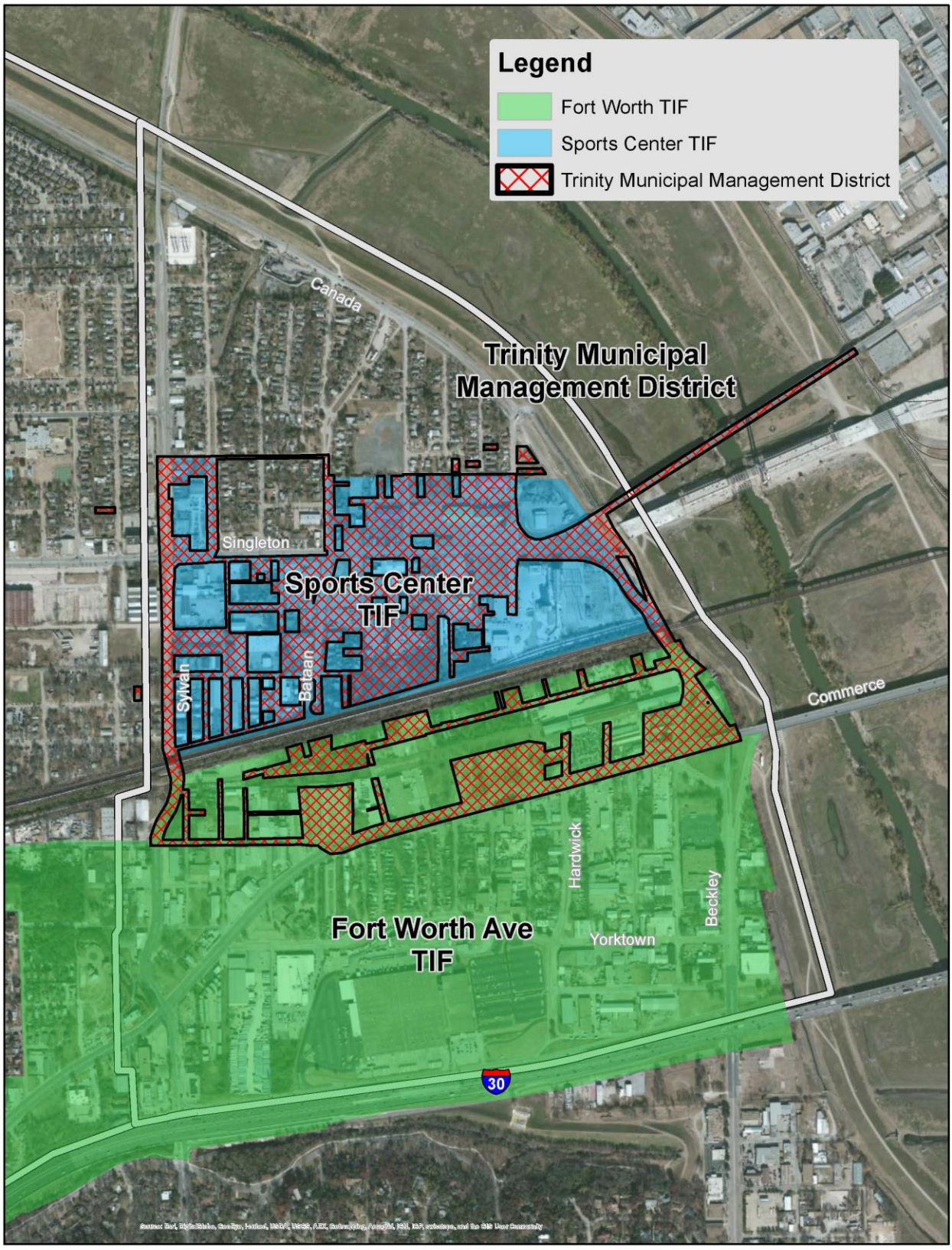
2012 Bond Program

The City of Dallas' 2012 Bond Program has identified and allocated significant funding for capital improvements in West Dallas, referred to in the Bond Package as the "West Dallas Gateway." The Bond Program Manager's Recommendations Report has allocated approximately $34.3 million in funding for three new railroad crossings under the Union Pacific Railroad tracks at Herbert, Bataan and Gulden/Amonette Streets. These three crossings are critical to the West Dallas Vision Plan and will help to create a connected street grid between the northern and southern sides of the railroad in West Dallas. These enhancements will facilitate better vehicular, pedestrian and bicycle connections and will significantly enhance the potential urban framework of West Dallas. These capital investments by the City are identified as critical citywide economic development needs.



West Dallas Urban Structure and Guidelines, 2011

Figure 17: Funding Mechanisms



Prior Studies

Impacts of Prior Studies

The significance of past studies is realized through the amount of effort put forth to foster implementation in West Dallas. Grass root efforts from local residents, business owners and stakeholders have been fundamental towards establishing a long-term vision for the area and increasing the awareness on the potential development opportunity in West Dallas.

The planning efforts that have taken place thus far have been significant and started the momentum that lead to the development of this project itself. It will be important to consider past planning efforts and, when possible, to make connections between the various efforts in order to ensure that this study effort is comprehensive in nature, truly considering and acknowledging the dedicated efforts of those involved with past studies.

Overall, the primary objectives of the previous planning and study efforts are to capitalize on the area's proximity to the Trinity River and Downtown and to facilitate the development of a more urban, organic, walkable, vibrant and sustainable neighborhood supported by multi-modal connections to adjacent neighborhood areas.

Existing Conditions

In preparation for infrastructure prioritization, it is important to examine the existing land use and the existing conditions of development in West Dallas. As part of this process, the Team conducted a Windshield Tour on August 23, 2012. Team members were joined by representatives from the City of Dallas for a tour of the study area in order to gain a first-hand understanding of the area's existing conditions. The following memo summarizes some of the key developments, catalyst projects, public facilities, existing retail, transit network and roadway conditions in West Dallas. Additionally, information related to existing land use data in West Dallas is provided.

Existing Market Conditions

The following is information related to existing development along the major corridors in West Dallas. Existing businesses along each corridor were analyzed and opportunities for development along corridors, particularly in relation to catalyst projects and roadway enhancements are discussed.

Sylvan Avenue

Sylvan Avenue Bridge spanning the Trinity River is expected to be completed in 2014 and it is anticipated that the opening of this bridge will cause a dramatic increase in vehicular traffic through West Dallas. The opening of this new bridge will create natural traffic flow from I-30 to I-35 versus the existing route which traverses the area via I-30 to/from downtown Dallas. This increased traffic volume will create new retail opportunities along Sylvan Avenue. In addition the bridge can be a catalyst as an unconventional anchor/gateway for the area due to increased traffic through West Dallas and the access to the Trinity River that the new bridge will provide.

Figure 18: New Sylvan Avenue Bridge

Sylvan Avenue is a four lane divided major north-south thoroughfare that serves as the western boundary of West Dallas and for this discussion has been divided into three separate corridors (north, central and south corridors). Presently, the entire length of the Sylvan Avenue corridor is developed with single family residential dwellings, scattered local retail businesses, local restaurants, vacant lots, automobile related uses, and industrial uses.

Existing Conditions

The northern Sylvan Avenue corridor has a diversity of structures that are occupied with a variety of businesses; however, a notable land use along Sylvan Avenue is the Los Barrios Community Clinic that consists of a two-building campus located at and near the Sylvan Avenue/Singleton Boulevard intersection. The Los Barrios Clinic campus appears well maintained and has a good appearance from the street. Northern Sylvan Avenue has a few new restaurant developments but it does not have an attractive identity; there are few trees or attractive existing buildings.

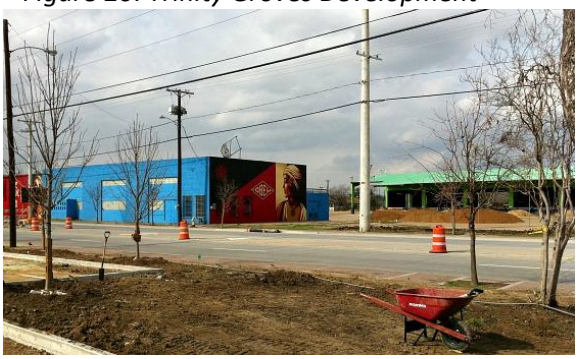
Figure 19: Los Barrios Neighborhood Clinic

The central corridor of Sylvan Avenue, situated between Singleton Boulevard and West Commerce Street, is dominated by local industrial uses and scattered retail businesses and vacant lots.
The southern Sylvan Avenue corridor, specifically the Sylvan Avenue/West Commerce Street intersection, is probably one of the two best retail opportunities within the West Dallas area. The northwest and southwest corners of this intersection are developed with The Belmont Hotel/Smoke Restaurant and a large Chase Bank, respectively. The southeast corner of this intersection is the proposed Sylvan | Thirty multi-use development project that is approximately 6.3 acres in size. The Sylvan | Thirty property has the advantage of fronting I-30 and is close in proximity to the Kessler Park neighborhoods. Sylvan | Thirty can be a major development catalyst for West Dallas.

Singleton Boulevard

The Singleton Boulevard/Sylvan Avenue intersection is the westernmost boundary of this trade area. The northeast corner is developed with auto sales and service related businesses. The northwest corner includes the Los Barrios Community Clinic. Development in the southeast corner includes Ray's Sporting Gun Shop and Gun Range, while the southwest corner is home to Atlas Metals. This is an important intersection that has favorable commercial factors.

Figure 20: Trinity Groves Development



Singleton Boulevard east of Sylvan Avenue has been receiving a lot of attention due to it being an extension of the Margaret Hunt Hill Bridge. The distance from Sylvan Avenue to the Margaret Hunt Hill Bridge is approximately 0.6 miles, so the distance is not great in length but several changes have already occurred here. Approximately halfway down Singleton Boulevard, several existing buildings have been converted and are utilized for modern uses, including the Dead White Zombies Theater that specializes in showcasing local Dallas artists. New building development includes Four Corners Brewery which opened in October 2012, and nearby is the 15 acre Trinity Groves restaurant and entertainment area currently under construction.

West Commerce Street

Beginning at the Sylvan Avenue intersection and traveling east you pass the above mentioned Sylvan | Thirty development along with some local restaurants and automobile and industrial related businesses. A manufactured home park is also located along West Commerce Street and a local developer is pursuing a "retail trailer park" for small businesses and restaurants. A developer has recently purchased the trailer park area and alternative plans for a multifamily development are being explored. Located near this same trailer park is the closed former Mission Motel that has a unique art deco style southwestern style façade that could possibly be expanded upon in future development. Some other existing restaurants and businesses in the immediate area include the Chicken Scratch Restaurant and The Foundry. All include unique buildings that should be preserved so that they can influence the style for future development. Finally, there exist several larger parcels of land located midway to the Commerce Street Bridge that are vacant or abandoned. This area will also benefit from nearby I-30 and the affluent Kessler Park neighborhood south of I-30.

Figure 21: Destinations along West Commerce: The Foundry and Chicken Scratch Restaurant:

Existing Catalyst Developments

Two existing land development projects are underway within West Dallas and are considered to be the first "catalyst" developments. Sylvan | Thirty is located at the southeast corner of the Fort Worth Avenue and Sylvan Avenue intersection and has frontage along adjoining I-30 and its huge volume of traffic. Sylvan | Thirty is a proposed multi-use project that will include multi-family, office and retail businesses and is scheduled to break ground in 2013. Several retail businesses have already committed to this development, including a Japanese steakhouse, a yoga studio and a 10,000 square foot grocery store. The nearby existing businesses and proposed trailer park retail development will all benefit greatly from the attention and success of Sylvan | Thirty

Trinity Groves is the second "catalyst" development within West Dallas and is located in the north-central portion of West Dallas at the junction of Singleton Boulevard and the Margaret Hunt Hill Bridge. Trinity Groves is a proposed entertainment and restaurant district comprising of 15 acres of land. Specifically, Trinity Groves seeks to provide incubator space for new restaurants and chefs and other food related businesses (i.e., spices, meats, dairy). Four Corners Brewery, located within Trinity Groves, which opened in 2012, supplies locally brewed beer throughout Dallas and North Texas.

In addition to these two large-scale projects, the retail trailer park along West Commerce is intended to serve as an attraction in West Dallas. Retailers and food trucks will be located along the West Commerce Street frontage providing an organic retail center. This project, along with nearby Sylvan | Thirty, will provide a significant amount of activity along West Commerce Street/Fort Worth Avenue.

Existing Conditions

Existing Land Use

The predominant land use currently in West Dallas is commercial, accounting for 29 percent of the total land use acreage. Approximately 26 percent of the existing land is right-of-way, or existing transportation facilities, such as roadways. The third most prevalent land use is single-family, reflective of La Bajada neighborhood. Additionally, institutional land uses represent 8 percent of the total acreage. This number is significant due to the large U.S. Postal Service facility located along Interstate 30 in West Dallas.

Figure 22: Existing Land Use

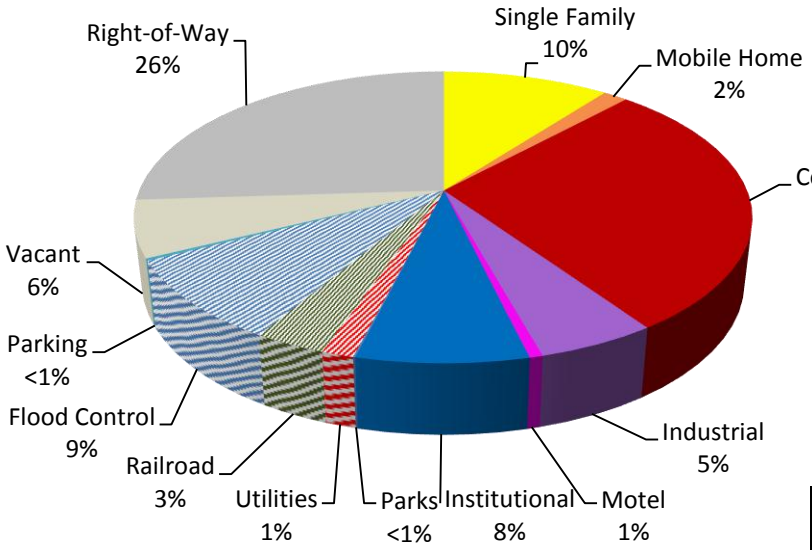


Table 1: 2010 Land Use

Existing Land Use	Acres	Percent
Single Family	55	10%
Mobile Home	8	2%
Commercial	151	29%
Industrial	28	5%
Motel	3	1%
Institutional	40	8%
Parks	1	0.1%
Utilities	8	1%
Railroad	17	3%
Flood Control	48	9%
Parking	1	0.2%
Vacant	33	6%
Right-of-Way	138	26%
Total Acres	**531**	**100%**

Source: NCTCOG

Developed Land Use

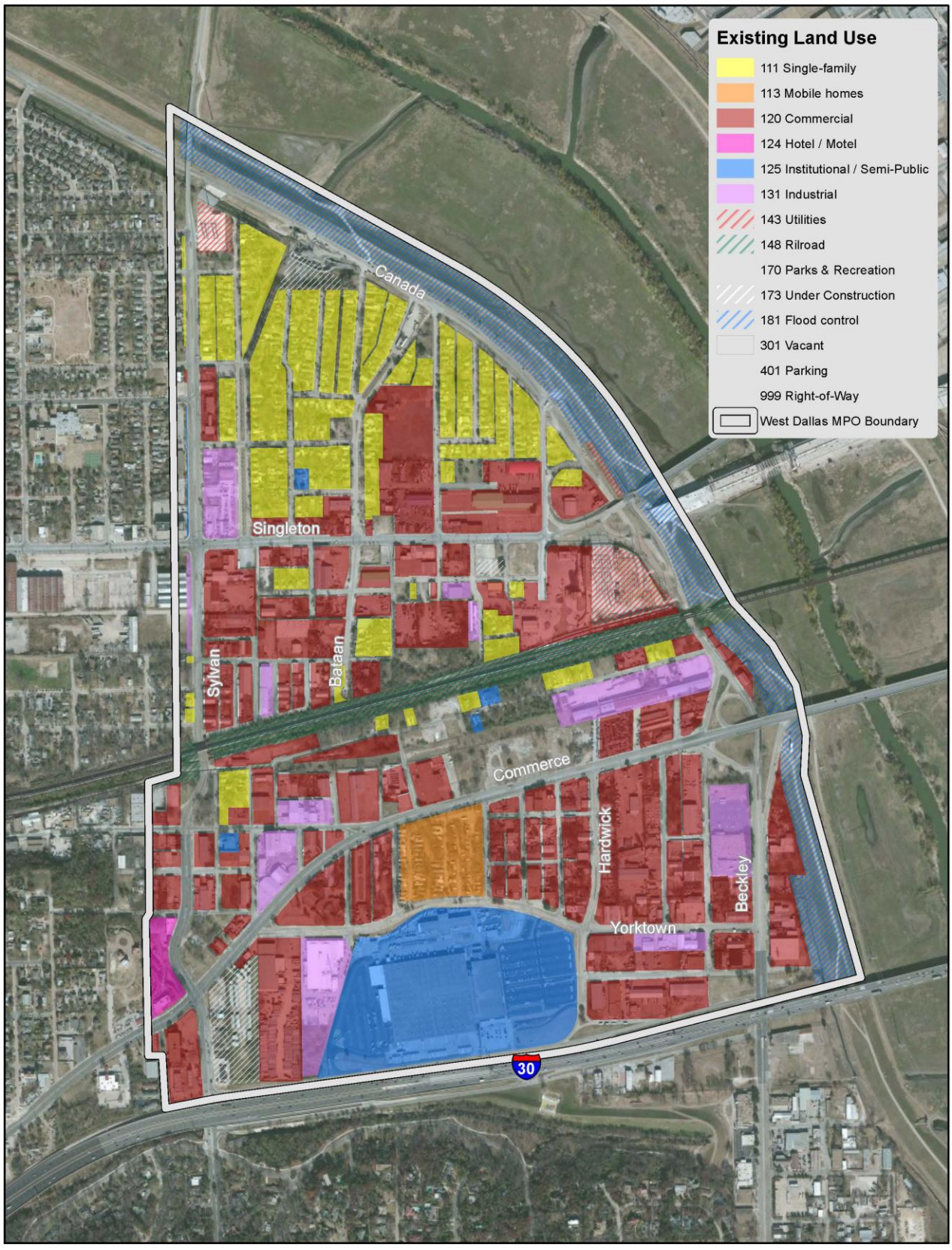
In most study areas, right-of-way can consume a significant portion of the land use due to the presence of roadways and easements. When right-of-way and vacant acreage is removed, the total developed acreage can be examined. In West Dallas, commercial acreage accounts for 42 percent of the developed land acreage followed by single-family at 15 percent. Flood control accounts for 13 percent of the land acreage, indicative of the presence of the pump stations and drainage facilities near the Trinity River levees.

Table 2: 2010 Developed Land Use

Developed Land Use	Acres	Percent
Single Family	55	15%
Mobile Home	8	2%
Commercial	151	42%
Industrial	28	8%
Motel	3	1%
Institutional	40	11%
Parks	1	0.1%
Utilities	8	2%
Railroad	17	5%
Flood Control	48	13%
Parking	1	0.4%
Total Acres	**359**	**100.0%**

Source: NCTCOG

Figure 23: Existing Land Use Map



Existing Conditions

Existing Transportation Network

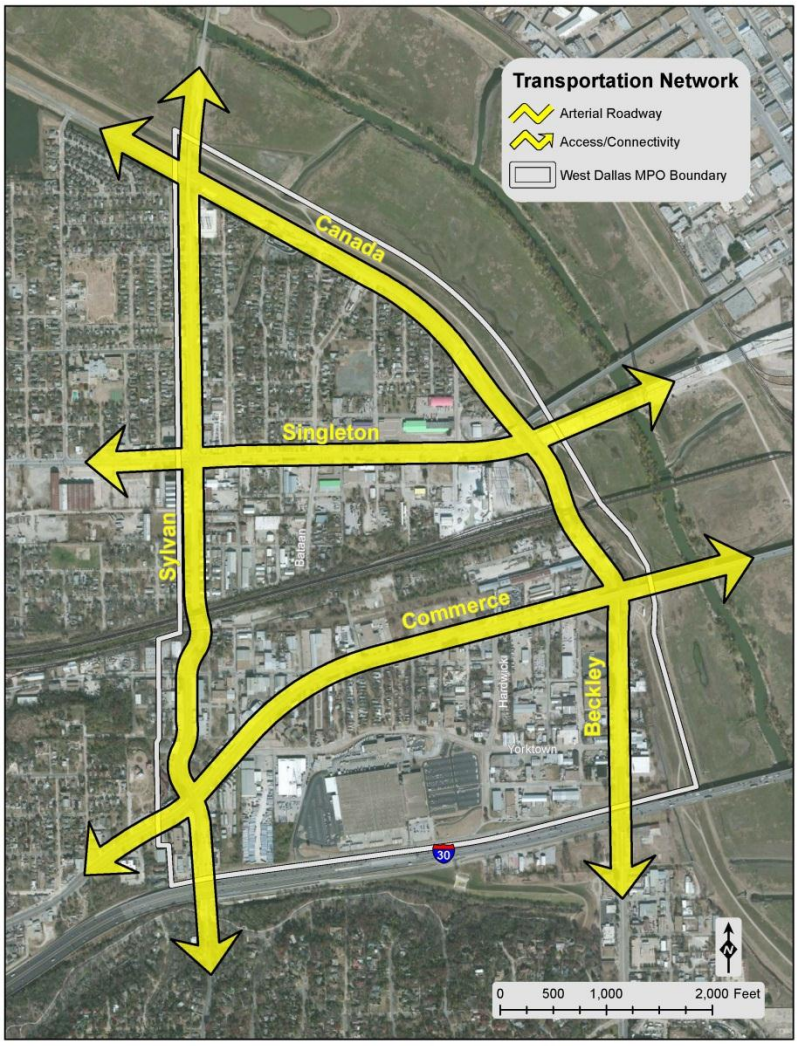
West Dallas is served by a network of arterials. These arterials include Singleton Avenue, West Commerce Street/Fort Worth Avenue, Sylvan Avenue, Beckley Avenue and Canada Drive. These primary arterials provide connectivity between West Dallas and adjacent neighborhoods, such as Downtown Dallas, North Oak Cliff and Kessler Park.

Roadway Network

Singleton Avenue serves as the extension of the Margaret Hunt Hill Bridge. It is currently a five lane roadway containing a center continuous turn lane. The roadway itself is in excellent condition and includes design features, such as brick crosswalks, sidewalks and street trees.

West Commerce Street/Fort Worth Avenue is currently a six lane divided roadway with very few aesthetic enhancements. Upcoming plans for sections of this corridor include lane reductions and the addition of bicycle facilities.

Figure 24: West Dallas Transportation Network



Sylvan Avenue, a six lane divided roadway, is a significant corridor traversing West Dallas. The roadway is in excellent condition north of Singleton Boulevard. The Sylvan Avenue Bridge construction will ensure a reliable connection between Interstate 30 and Interstate 35-E. This connection is expected to increase local traffic volumes, particularly once construction on the Margaret McDermott Bridge (Interstate 30) begins.

Beckley Avenue provides an important connection to North Oak Cliff. The roadway contains six traffic lanes and a continuous center turn lane south of Commerce. A significant issue with Beckley Avenue is the bottleneck that occurs at the Union Pacific Railroad underpass. This has been an issue identified by key stakeholders within West Dallas.

Canada Drive is the northern extension of Beckley Avenue; however, the West Dallas Gateway Plaza will inhibit continuous traffic flow between Beckley Avenue and Canada Drive. The roadway is currently a four lane divided roadway and is generally in very poor condition. The roadway, however, contains relatively low traffic volumes.

Pedestrian Network

In order to assess the pedestrian network in West Dallas, a sidewalk inventory was conducted. The sidewalk inventory was divided into three categories:

- **Sidewalk:** A concrete sidewalk, regardless of condition, is present;
- **No Sidewalk:** No sidewalk is present; and
- **Pedestrian Path No Sidewalk:** No sidewalk is present but signs of pedestrian traffic are visible.

Figure 25: West Dallas Pedestrian Network

For the purpose of this inventory, only arterial roadways and the three major internal roadways of Bataan, Herbert and Amonette Streets were assessed.

Singleton Road has the most complete set of sidewalks as new 4' sidewalks were constructed in conjunction with recent street improvements. West Commerce Street also contained a generally complete set of sidewalks. Along Commerce numerous business driveways interrupt sidewalk segments fairly regularly decreasing the overall pedestrian friendly attributes of sidewalks along West Commerce Street.

Sylvan Avenue contains a very sporadic sidewalk network. Along Sylvan Avenue, numerous pedestrian traffic trails were identified in areas with no sidewalks, indicating the prevalence of pedestrian traffic along the roadway despite the presence of sidewalks.

No sidewalks are present on Bataan, Herbert and Amonette Streets south of Singleton Boulevard. Sidewalks and pedestrian amenities will likely be constructed in conjunction with future roadway improvements along these key north-south roadway connections.

Existing Conditions

Bicycle Network

Discussions with City Staff indicated that a number of bicycle connectivity improvements are planned for West Dallas. Residents and stakeholders within the area have indicated that bicycle facilities and connectivity enhancements are a high priority. Identified bicycle improvements include:

- Sylvan Avenue Complete Street: reducing the roadway from six to four lanes and adding outside bicycle lanes. Project design contract currently being negotiated.
- Beckley Avenue: bicycle Lane connecting to Coombs Street Trail and the cycle track planned for the Jefferson Street Bridge.
- Fort Worth Avenue: reducing the roadway from six to four lanes and adding outside bicycle lanes. Bicycle lanes eventually replaced with a separate cycle track.

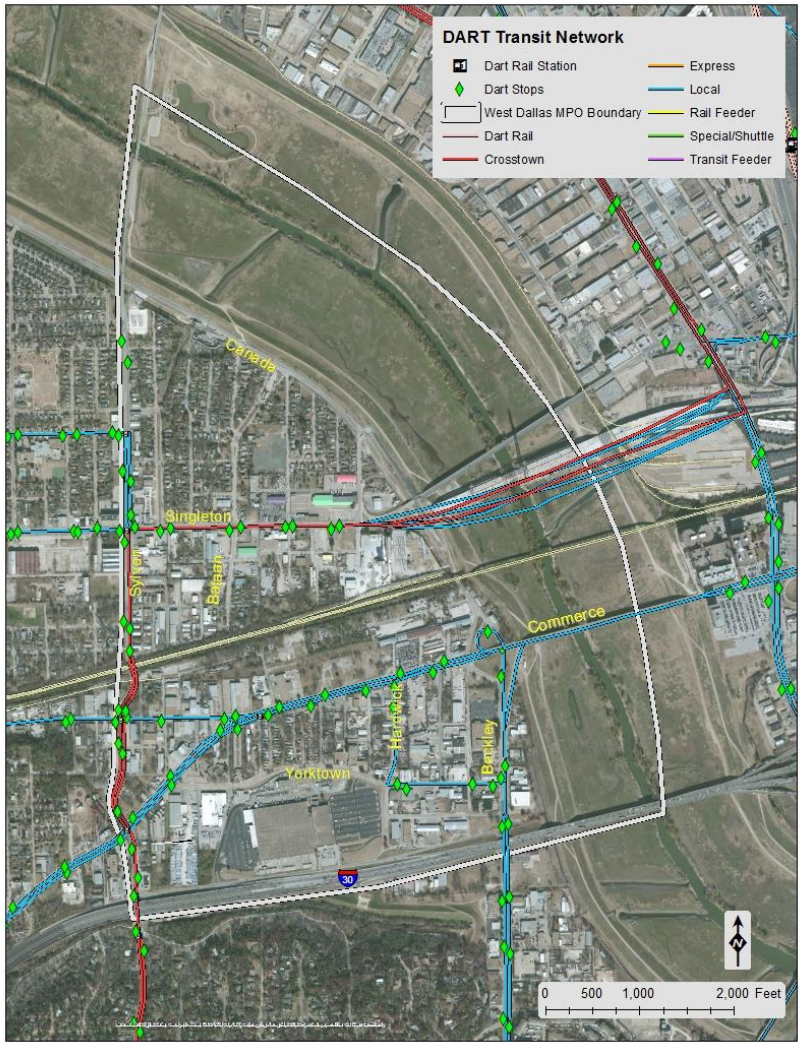
Transit Network

DART currently operates a number of bus routes within the West Dallas. Currently bus routes extend along Singleton Avenue, West Commerce Street, Fort Worth Avenue, Sylvan Avenue and portions of Beckley.

The majority of bus routes within West Dallas are local routes. One crosstown bus route extends through the area. This crosstown route crosses the Margaret Hunt Hill Bridge, continues along Singleton and then runs south along Sylvan. This crosstown bus route will traverse the two primary catalyst projects—Trinity Groves and Sylvan | Thirty .

Because no DART light rail service currently exists in West Dallas, local bus routes provide direct service to Victory Park and Union Stations which are within close proximity to the study area.

Figure 26: DART Bus Network in West



A total of 58 bus stops are located within West Dallas and, generally speaking, all points within West Dallas are within a 1/4 mile walking radius of a bus stop indicating that sufficient transit coverage currently exists

Parking

At the present time, no formal or structured public parking exists in West Dallas. Parking is provided by private lots and some on-street parking. Parking is currently sufficient to meet existing business activity; however, as development intensities and overall activity increases, structured parking or designated public parking may be necessary.

On-street parking will be incorporated along Bataan, Herbert and Amonette Streets and will likely be included along local urban streets. Currently chicanes are being constructed along Herbert Street north of Singleton Boulevard. Chicanes and bulb-outs will help to clearly delineate where on-street parking is available.

Transportation Network Improvements

Herbert Street Chicanes

In anticipation of increased traffic volumes along Herbert Street, particularly due to its role as the key north-south roadway within the area, chicanes are currently being added to the north of Singleton Avenue. These chicanes will serve as traffic calming devices and will help to make pedestrians more visible to traffic. This is particularly important with the presence of children at the Bataan Center and increased activity once the soccer field is rehabilitated.

Existing Conditions

Existing Water and Wastewater Utilities

In the 2005 Trinity River Corridor Comprehensive Land Use plan report, twenty-three areas were identified for rezoning and future development. In 2008, DWU analyzed and calculated the estimated building utility requirements based on the properties existing conditions and future proposed conditions for the first five areas, one of which was the La Bajada-Los Altos area. In the DWU assessment, the La Bajada-Los Altos area, north of the railroad, was viewed as converting from primarily Light Industrial uses to a mixed use of commercial and residential.

The DWU utility needs assessment report was only a snapshot of the needs based on information available in the spring of 2008. Proposed pipe sizes were evaluated based on the size required for the new, higher densities similar to pipeline sizes expected in the Dallas Central Business District. There are several instances where pipe materials, date of installation, or size were unknown. Condition checks were not made on nearly six hundred segments of pipelines evaluated during this DWU assessment. Future checks would prove to show which mains are more in need of replacement over others and could show older mains that don't need replacement and younger mains that do. The following are the DWU findings:

Water

The water infrastructure, from the 2008 DWU assessment, and the land use assumptions from the 2005 Plan, are shown in Figure 27. There are currently 6.3 miles of water pipes in this area. By DWU's replacement philosophy, 4.7 miles of main qualify for replacement. DWU was scheduled to replace 2.1 miles of mains in this area through the Relocations Program or the Pipeline Program. The remaining 3.9 miles of pipe are unassigned. DWU estimated the cost of the unfunded replacements is approximately $4.3 million.

Wastewater

The waste water infrastructure, from the 2008 DWU assessment, and the land use assumptions from the 2005 Plan, are shown in Figure 27. The La Bajada-Los Altos area is in the West Bank sewer shed. There are 6.5 miles of wastewater pipes in this area. By the DWU replacement philosophy, 5.4 miles of main qualify for replacement. DWU has already scheduled to replace 1.2 miles of mains in this area through the Relocations or Pipeline program. The remaining 4.49 miles of pipe are unassigned. DWU estimated the cost of the unfunded replacements is approximately $4.7 Million.

Figure 27: La Bajada/Los Altos Existing Water and Wastewater Infrastructure

La Bajada / Los Altos Development - Existing Wastewater Infrastructure

Existing Conditions

This assessment by DWU includes all mains DWU may replace in the area, but not necessarily the mains that need replacement by the DWU replacement philosophy. DWU currently has three different, but somewhat overlapping pipeline replacement philosophies: Relocations Philosophy, Pipeline Program Philosophy, and Private Development Philosophy. Each philosophy has its own reason for being implemented. Which one is enacted depends on what or who is driving the project. These questions are difficult to answer because they will be decided by the time, operations, land owners and their respective development companies.

DWU's current philosophy in the Central Business District (CBD) is to construct 12" water mains as a minimum in the public ROW. There are no requirements for wastewater mains in the CBD but DWU requiring a minimum 10" main will minimize the need for future over-sizing. The 12" minimum water and 10" minimum sewer is recommended by DWU for the first Five Trinity Developments along the east and west levees, which includes the La Bajada-Los Altos area. In the water distribution system, DWU is concerned with redundancy (looping) as well as volume and minimum pressures during the extreme situation of a fire. In the wastewater collection system, DWU is concerned with local and downstream impacts on flows in its system.

Pavajo Pump Station

Navajo Pump station, located along Canada Drive at the northern end of the La Bajada neighborhood, is a significant infrastructure improvement in West Dallas. This $27 million dollar project is approaching completion after nearly two years of construction. This project was seen as one of the key infrastructure projects associated with the Trinity River Corridor Vision. Its primary purpose is to alleviate and mitigate flooding in West Dallas during periods of heavy rain. The mitigation of chronic flooding will make development in West Dallas more attractive. The pump capacity will allow the removal of approximately 375,000 gallons of water per minute. Funding for the project was derived from the 2006 City of Dallas Bond Program.

Pavajo Pump Station on Canada Drive

Summary

The West Dallas project area is presently developed with a mixture of older residential, retail and industrial uses. A commitment by the local residents, land owners and City of Dallas officials can create an opportunity for West Dallas to become a new retail destination for the surrounding population. Recent developments, such as The Foundry, Chicken Scratch, Four Corners Brewery, Trinity Groves and Sylvan 30 are a testament to the opportunity and excitement that exists in West Dallas.

The City of Dallas, through the TIFs, bond packages, management districts and updated development guidelines has or will soon provide some key requirements and incentives that will both attract outside retail development and assist this same retail development with lower entry into the market upfront costs.

Overall, the presence of a large amount of aging commercial and industrial activity provides immense opportunity for redevelopment. Commercial and industrial uses comprise nearly fifty percent of the developed uses in West Dallas. Typically, commercial and industrial parcels are more easily assembled an incentive for development. As property values continue to rise in West Dallas, commercial and industrial operations will generally be replaced with retail and residential uses.

DART currently provides excellent service to West Dallas in the form of bus service. Fifty eight bus stops exist in West Dallas and both local and regional routes serve the study area and provide access to light rail connections at Victory Park and Union Station.

Finally, the existing roadway network provides opportunities for improvement. These arterials currently serve as the framework for connectivity in West Dallas and provide significant connections between the area and adjacent neighborhoods. The potential addition of the Herbert Street, Amonnette Street and Bataan Street crossings at the Union Pacific Railroad will only further enhance the overall connectivity within West Dallas.

The existing conditions in West Dallas present some challenges, but the amount of activity occurring within the area presents a bright picture on the potential that exists. Providing coordinated and prioritized infrastructure improvements that build upon the existing conditions will support the viability of existing businesses and will help to facilitate major catalyst projects.

Market Scan

A retail market scan was conducted by Catalyst in the West Dallas neighborhood to identify the retail market needs and demands, absorption rates in projected growth corridors for the location and implementation of retail catalyst projects. Detailed specifics related to the performed Market Scan are contained in Appendix D. The goal of this market scan is to identify market conditions that could yield catalyst development projects within specified time frames of short, medium and long term opportunities and then project where the future retail clusters may be located so that future infrastructure and financial gaps, if any, can be identified. This Market Scan represents the current existing retail conditions of the West Dallas area.

Existing West Dallas Demand Generators

Typically, there are four major demand drivers that support retail/commercial establishments, these include: 1) residential demand; 2) commuter demand; 3) visitor demand; and, 4) firmographic demand. Residential demand is comprised of the West Dallas population where the retail businesses are likely to obtain the majority of their customer base from.

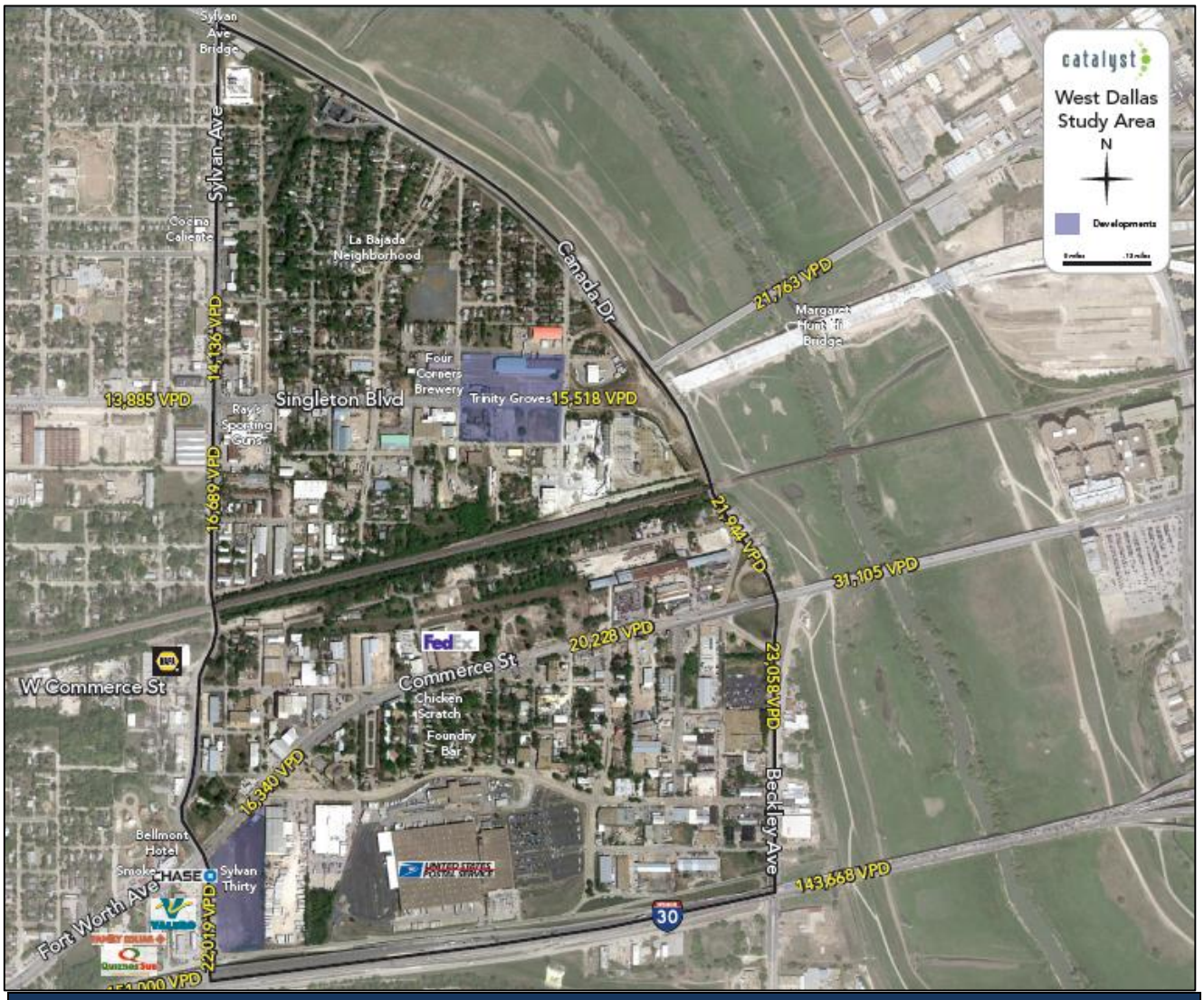
Commuter demand is another demand driver for retail and describes the demand generated by commuters traveling to a local destination on a regular basis. Commuter demand is heavily dependent upon daily traffic volumes along roadways, and the major thoroughfare roadways of importance to West Dallas are Singleton Boulevard, West Commerce Boulevard, Sylvan Avenue and Interstate-30.

The enormous documented traffic volumes associated with the Interstate-30 corridor along West Dallas' southern boundary create the largest firmographic retail opportunity within the West Dallas neighborhood. The documented traffic volumes of West Commerce Street and Singleton Boulevard illustrates the importance of traffic originating within the downtown Dallas and Uptown areas and traveling westward into the West Dallas neighborhood. Finally, the Sylvan Avenue traffic counts highlight the importance of traffic originating outside of West Dallas, specifically to the north and south. The southern Sylvan Avenue traffic count reveals the existing importance of this roadway's connection into Interstate-30 and the Kessler Park neighborhood to the south of Interstate-30.

Updated traffic counts along Singleton Boulevard since the opening of the new Margaret Hunt Hill Bridge have not been conducted, but this new Bridge now allows for freeway access into West Dallas via Interstate-35 and the Woodall Rodgers Freeway as it spans the Trinity River. This Bridge's completion and opening now grants easy access to the employees and residents living and working in downtown Dallas, Uptown, the Central Expressway corridor and the Interstate-35 corridor. Additionally, a new bridge is under construction for Sylvan Avenue to span the Trinity River north of the West Dallas neighborhood and will also provide easy access to Interstate-35 near the Dallas World Trade Center, Anatole Hotel and Southwestern/Parkland Medical complex and the employees and residents of these areas. The new Sylvan Avenue Bridge is scheduled for completion in 2014, but the new Bridge is anticipated to attract a significantly higher daily traffic count to Sylvan Avenue in West Dallas.

Market Scan

Figure 28: West Dallas Traffic Counts



Location	24 Hour Traffic Counts	Data Source
Sylvan Ave. North of Singleton Blvd.	14,186	NCTCOG
Singleton Blvd. West of Canada Rd.	14,404	NCTCOG
Singleton Blvd. West of Sylvan Ave.	13,311	NCTCOG
W. Commerce St. West of Sylvan Ave.	18,688	NCTCOG
W. Commerce St. West of Canada Rd.	19,294	NCTCOG
Sylvan Ave. North of I-30	17,334	NCTCOG
I-30 East of Sylvan Ave.	151,000	TxDOT
I-30 West of Beckley Ave.	143,668	NCTCOG

Previous studies performed by Catalyst reflect that a business or retail shopping center may capture approximately 3-4% of total vehicular traffic once per day with a frequency of 4.2 times per week. Using this described customer capture rate a business or center located at the north intersection of Sylvan Avenue and Interstate-30 could generate new additional retail sales of over $13 million.

Visitor demand describes the retail demand generated by visitors to an area (i.e.: amusement parks, shopping malls). At this time there is few "existing" visitor demand generators located within West Dallas, and thus there is no sizeable visitor demand in West Dallas.

Firmographic demand describes the characteristics of an organization or attraction when used in market research. Commonly used examples include company headquarters or plant (US Post Office) employee size, hospital employment and patient size, and traffic volumes on major thoroughfares. As mentioned previously, West Dallas is comprised of many industrial and distribution businesses with the largest employer being the United States Post Office complex. Daytime estimated employment figures for the West Dallas area for 2011 were 3,374 employees.

Current West Dallas Development Projects

SylvanThirty is a seven acre mixed use development located at the northeast corner of the Sylvan Avenue and Interstate-30 intersection. This development will include apartments, offices, a grocery store, and several unique food businesses (fish monger store, butcher store, yoga studio) that will attract customers into West Dallas. The developers of SylvanThirty have acknowledged the importance of the documented high traffic volumes along Interstate-30 and the nearby upscale neighborhoods associated with Kessler Park located south of Interstate-30. Total retail space build out for this development is estimated at 65,000 square feet with a project completion estimated date is spring of 2014.

Trinity Groves Entertainment Area is a 15 acre multi-use district that opened in the fall of 2012, and focuses on creating incubator space/small business and restaurant spaces for local entrepreneur food businesses. Four Corners Beer Brewery was another 2013 addition to the Trinity Groves development. Total estimated retail space build out for this development is over 150,000 square feet.

Potential Catalyst Areas

Residential Demand

Presently, the previously described SylvanThirty and Trinity Groves developments are both proposing multi-family residential dwellings for their respective projects. SylvanThirty is proposing 200 loft apartments, while Trinity Groves has stated they want to develop an initial residential complex of approximately 400 apartment units. If and when these proposed 600 combined residential units are developed the residential demand purchasing power for retail goods will increase by approximately $14,100 per household. Assuming 600 new households in these two projects this would equate to approximately $8.6 million in new retail demand. As the overall proposed West Dallas development plan is realized, it is anticipated that approximately 15,000 new multi-family residential units and 100 single-family dwellings will be constructed, which will add an estimated 18,500 new residents to this neighborhood. Based upon the 2010 average retail spending amount of $11,800 per Dallas County resident, these new residents will increase the estimated residential purchasing power to over $218 million.

Market Scan

Commuter Demand

Short term commuter demand will increase due to the recent opening of the Margaret Hunt Hill Bridge and the soon to be opened Sylvan Avenue Bridge. Interstate-30 will soon undergo major construction and re-development to increase the traffic flow of this high volume major thoroughfare. As the existing major thoroughfares located within West Dallas are improved, including Interstate-30, the commuter demand generated within West Dallas will increase dramatically. A 10% increase in traffic within the West Dallas major thoroughfares could yield more than $2.5 million in additional retail sales assuming a 3% constant capture rate of net new commuters.

Visitor Demand

Short, medium and long term visitor demand is dependent upon the success of both the SylvanThirty and Trinity Groves multi-use developments presently under construction. Both of these developments are intended to be both neighborhood and destination retail clusters. As the overall West Dallas development plan comes to fruition and more specialized and unique retail developments are realized then the visitor demand will grow larger with every successful residential, entertainment and retail business venture. Visitor demand may be difficult to attract, as Dallas affords many competitive entertainment options.

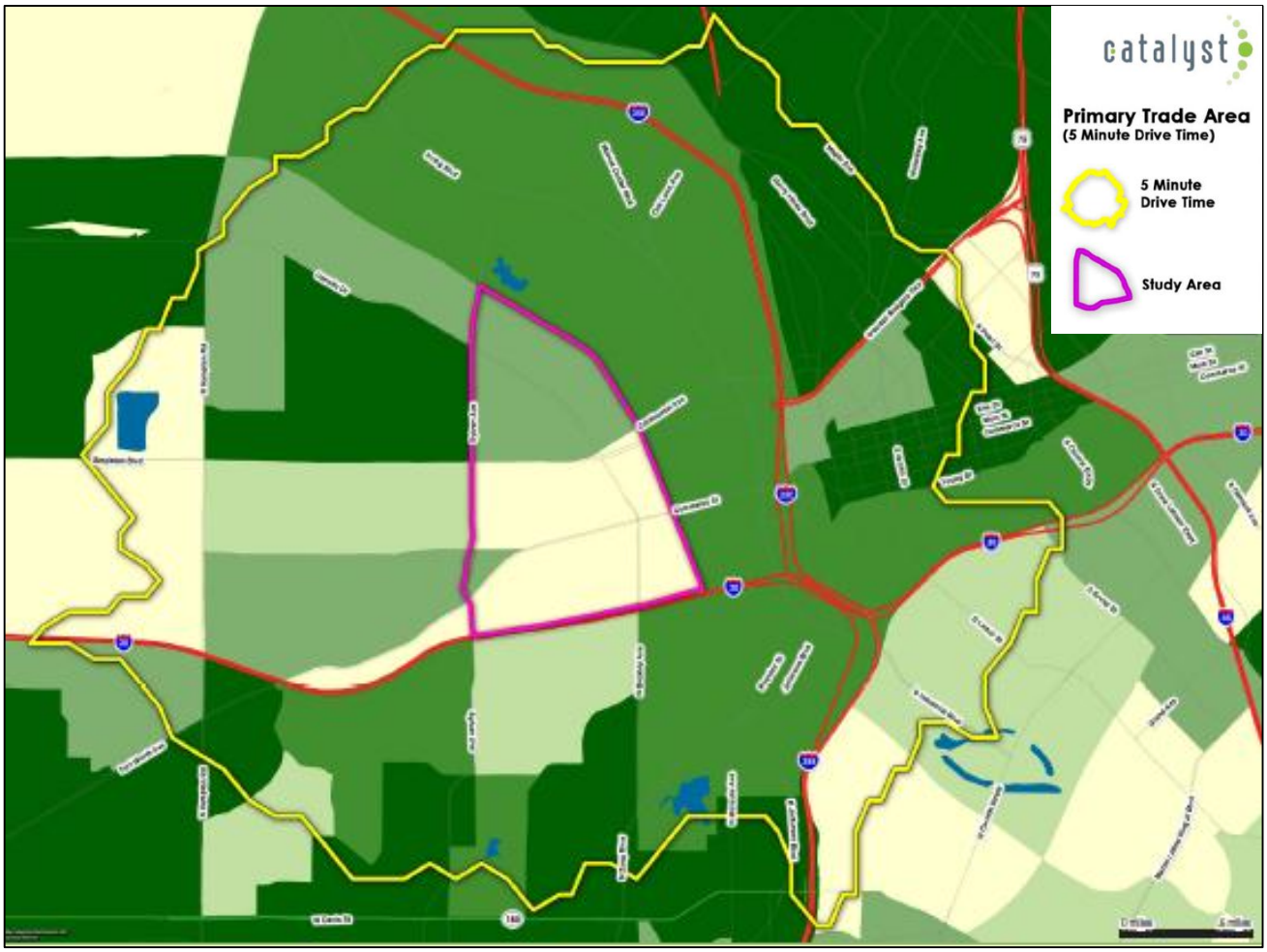
Firmographic Demand

This demand segment is highly dependent upon the future employment generators that will be located within West Dallas. The West Dallas development plan specifies that light industrial and manufacturing uses and facilities will remain an important aspect of this neighborhood, but it is unknown this time what the ultimate land use make-up of the neighborhood will actually be. Presently, the overall firmographic demand for West Dallas is minimal. As residential activity increases, there will be future demand for office and other businesses.

Primary Trade Area

Understanding where your target customers originate from is a crucial step in a retail recruitment initiative. The primary trade area (PTA) for West Dallas was delineated based upon reasonable assumptions of where West Dallas retail businesses will derive 65% to 75% of its customer base from. Based upon the geography, natural and man-made barriers, existing retail alternatives and existing roadway, it is reasonable to delineate the PTA of West Dallas as a seven minute drive time from a centroid position located within the middle of the West Dallas neighborhood along Singleton Boulevard. This five minute drive time is considered to be a conservative estimate, but as additional roadway improvements are made and new residential and retail developments are opened within West Dallas this PTA is expected to expand in size and retail potential.

Figure 29: West Dallas Primary Trade Area



Market Scan

Market Potential Analysis by Category

Supply estimates are sales to consumer by establishment and exclude business to business sales. Demand estimates reflect the expected amount spent by consumers at retail outlets. A positive (+) value represent "leakage" and a negative (-) represents "over supply". Data for this section is provided by ESRI, MediaMark Research and InfoUSA.

The primary trade area (PTA) for West Dallas was determined by studying existing traffic patterns and future roadway and infrastructure improvements. Generally, the PTA of West Dallas corresponds to a seven minute drive time from a centroid position located along Singleton Boulevard. This delineated PTA is both reasonable and conservative and takes into consideration existing physical and customer mental boundaries. The physical boundaries of this PTA are: a) the Trinity River to the north; b) Davis Street to the south; c) Interstate-35 to the east; and, d) Hampton Road to the west. Downtown Dallas and the Uptown district are both included within this PTA based upon the new convenient access into the neighborhood provided by the Margaret Hunt Hill Bridge.

Also, the existing Cockrell Hill Road Walmart Supercenter anchored shopping center was not included within this leakage report as it is located outside of the seven minute drive time delineated trade area. A retail leakage data report was completed for the West Dallas PTA and a retail leakage gap of nearly $70 million was identified. However, it is not realistic to believe that a majority of the identified retail leakage demand will be satisfied by new development occurring within West Dallas, but it is reasonable to assume that some amount of this overall documented retail leakage could be satisfied by retail establishments located within West Dallas.

Retail categories were reviewed and discounted separately based upon existing and planned conditions within West Dallas and the larger delineated trade area. Short term, medium term and long term projected retail growth rates are discussed below.

Short Term (1–3 years) It has been estimated that there is a short term unmet retail demand of approximately $18 million which equates to nearly 60,000 square feet of retail space based upon a conservative $300/per foot average retail sales volume. The categories with the most opportunities include:

- Grocery - $8 million or 26,600 square feet;
- General merchandise - $7.6 million or 25,300 square feet;
- Health & personal care - $1.5 million or 5,000 square feet; and,
- Clothing & accessories - $1 million or 3,300 square feet.

Medium Term (4-6 years) The medium term unmet retail needs for West Dallas is estimated at additional $22 million in retail sales or 73,300 square feet of retail space. This conservative estimate is based upon the completion and business success of SylvanThirty's 65,000 square feet of retail space being leased within the short term. Additionally, the success of the Trinity Groves retail development is assumed to take place in the short and medium term based upon the proposed growth trends of the West Dallas area's residential, commuter, visitor and firmographic demands.

Long Term (8-10 years) The long term retail needs for West Dallas is based upon this area succeeding as a retail destination, and it is estimated that an additional $27 million in retail sales, or approximately 90,000 square feet of retail space. Again, as West Dallas experiences residential, commuter and visitor demand growth and retail success this area will become a residential, retail and entertainment destination within the Dallas-Fort Worth metroplex's population for who are interested in shopping and/or living in a unique neighborhood setting close to downtown Dallas.

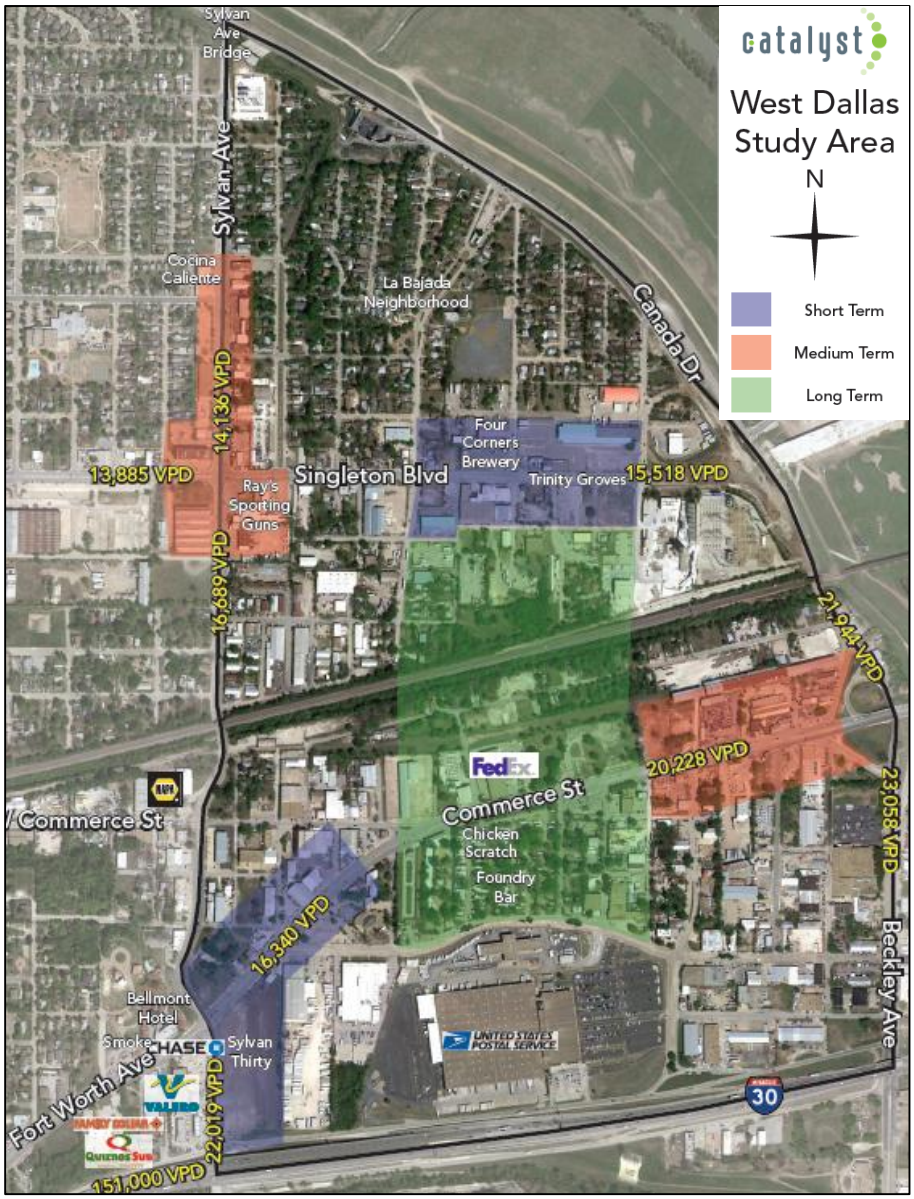
Retail Growth Corridors

Short Term Short term retail growth will be focused along Sylvan Avenue near the West Commerce Street and Interstate-30 intersections and along Singleton Boulevard (near the SylvanThirty and Trinity Groves developments, respectively), as this is where the existing commuter traffic is focused and new infrastructure improvements (Margaret Hunt Hill Bridge) allow convenient access to new neighborhoods and districts outside of West Dallas.

Medium Term Sylvan Avenue north of Singleton Boulevard and West Commerce Street east of Sylvan Avenue is expected to be the new retail focus for the medium term. North Sylvan Avenue will benefit from the new Sylvan Avenue Bridge opening in 2014 that will allow for convenient access to the Interstate-35 corridor and large daytime employment centers. West Commerce Street will benefit from the existing success of the Sylvan Avenue/West Commerce Street intersection developments.

Long Term The long term growth corridors will likely be centered along Herbert Street, as once this new Street is completed past the railroad tracks this will likely become the center of the residential activities.

Figure 30: Retail Growth Corridors



Market Scan

Market Scan Summary

Existing residential, visitor and firmographic retail demand for West Dallas is not significant at this time. However, the large traffic volumes associated with Interstate-30 is a significantly large commuter generator that will assist in West Dallas' new development plan. Presently, the commuter demand generated by the 150,000 daily vehicles on Interstate-30 near the Sylvan Avenue intersection can generate approximately $13 million in retail sales.

Based on dwelling unit projections for Dallas County, the West Dallas Study Area will add approximately 310 single family units and 375 multifamily units every five years. If the overall proposed West Dallas development plan is realized, an estimated 18,500 new residents will move to the West Dallas Area, increasing the estimated residential purchasing power to over $218 million.

There is a short term (1-3 years) unmet retail needs of approximately $18 million or roughly 60,000 square feet of retail space (does not include the SylvanThirty development) based upon the estimated retail needs of the primary trade area (PTA).

The medium term (5-7 years) unmet needs are estimated to be $22 million or 73,000 square feet of retail space based upon the needs of the increased residential population of West Dallas.

The long term (8-10 years) estimated unmet retail needs is $27 million or 90,000 square feet of retail space based upon the residential needs and destination entertainment needs of West Dallas.

The combined commuter demand and overall short, medium and long term retail demand as discussed above is estimated at $80 million or 266,000 square feet of retail space.

Assessment Methodology

The following details the methodological approach to the identification and prioritization of infrastructure needs for the West Dallas Study area. Infrastructure programming will be predicated on the development scenario identified in the adopted West Dallas Plan. The approval of the 2012 Bond Program that includes $34M in infrastructure improvements to the study area underscores the City's intention to shape development to this historically underutilized area of the community. The following steps will be taken for the programming of infrastructure as part of this study effort.

Existing Public Infrastructure Inventory

An inventory of existing roadway, water, sewer, and stormwater facilities was conducted to determine the basis from which future development can be accommodated. In addition to assessing current study area issues, the inventory will be used for assessing its current ability to accommodate phased development. Also obtained as part of the inventory were the Master Plans for streets, water/wastewater and storm-water as well as their respective capital improvements programming. In the case of roads, a field reconnaissance provided information relative to the number of lanes present within the study area. A comparison of the existing sections to the Thoroughfare Plan, as well as the Street Character Guidelines from the West Dallas Plan will identify the ultimate desired configuration of the street network.

Projected Demand

In order to assess the infrastructure capacity needs in the future, thereby establishing the projected demand, it is important to estimate the development capacity and objectives for West Dallas along with potential rates of growth. The first step of this process will be establishing a population and commercial growth rate projection. This will largely be based upon the Market Scan as well as City of Dallas projections for the area. From these growth projections, population projections can be established that will estimate the future population of West Dallas at five year intervals. Finally future total infrastructure demand can be calculated based upon per capita usage and projected population figures.

Study Area Growth

The West Dallas Plan set a vision for significant mixed use development to the study area. Overall, the Plan envisions an additional population of 26,800 persons (17,870 dwelling units) and over 6.6 million square feet of development (employment estimate of 16,100 persons). The West Dallas Plan further details phasing of growth over 10 (Phase 1), 15 (Phase II) and 17-plus (Phase III) year timeframes. Detail of phased development and cumulative growth for the study area are shown below. The Demographic Forecast Comparison Memorandum issued February 1, 2013, provides additional detail of study area net growth by phase and cumulative building space by phase.

Assessment Methodology

Table 3: Demographic Comparison

DEMOGRAPHIC COMPARISON	NCTCOG		WEST DALLAS PLAN			MARKET SCAN		
	2012 CURRENT	2035 (23 YR)	PHASE I (10 YR)	PHASE II (15 YR)	PHASE III (17+ YRS)	5 YR	10 YR	15 YR
HHOLD (DU)	646	1,374	5,393	13,256	17,870	1,331	2,040	2,774
POPULATION	1,803	3,863	8,090	19,884	26,805	3,468*	5,191*	6,975*
TOTAL EMPLOYEES	5,583	7,032	6,652	11,896	16,089	3,934	4,583	5,355
BASIC EMP	1,895	1,853	155	765	1,208	N/A	N/A	N/A
RETAIL EMP	481	836	630	1,150	1,500	529	649	772
SERVICE EMP	3,207	4,343	5,867	9,981	13,381	3,404	N/A	N/A

**Market Scan Persons Per Household (PPH) of 2.43*

The City of Dallas derived its population and employment projections from the ultimate development scenario. Based upon the density goals and objectives contained within the development scenario, corresponding population and employment goals were created for the area. Density goals and objectives were derived during the planning process which included input from local residents, stakeholders and political leaders.

In contrast, demographic growth projections from NCTCOG's Mobility 2035 forecasts much lower growth of the study area by year 2035. An analysis of socio-demographics by traffic survey zone (the zonal structure that serves as a basis for the regional travel forecast model) reveal population and employment at only 10% and 44% of that envisioned as part of the West Dallas Plan, respectively. NCTCOG demographic projections are based on area growth trends and correlated with population projections of communities within the region. It is important to identify this comparison as Mobility 2035 serves as the regional plan for transportation investments, which in turn is tied to federal and state funding of investments.

The Market Scan assessment identifies a similar lower growth scenario akin to NCTCOG data however through a different methodological approach that was more market driven for both population and employment estimates. For population, the overall single-family and multi-family construction projections for Dallas County were reviewed. Based upon a capture rate for West Dallas (0.69%, indicative of the area's physical size and existing market conditions compared to the County as a whole), an estimated 62 single-family dwelling units and 75 multi-family dwelling units could be constructed in West Dallas annually. This would create an initial 5-year residential demand of approximately 685 residential units.

In terms of commercial projections, the number of households derived by the anticipated residential capture in West Dallas are combined with average household income and percentage of income spent on retail to create potential retail expenditures by residents in West Dallas. Using an estimate of cost per square foot, an estimate of potential retail square footage needs were calculated. This residential based driven (retail) projection was combined with Commuter Demand, Visitor Demand and Firmographic Demand projections to estimate the total square footage of retail that could potentially be accommodated in West Dallas. Refer to Appendix D for details on the assessment for the study area.

Estimates of both population and employment are important for the assessment of total residential and non-residential infrastructure demand. For population, the number of dwelling units serves as the basis for projecting long-term need and is derived through persons per dwelling unit factors. While occupancy factors affect the number of persons in an area at any given time, full occupancy must be

considered for infrastructure planning. Employment is equally important as this provides insight to the amount of non-residential development anticipated to occur within the study area. For West Dallas, the Vision Plan identifies the square footage amount of non-residential development anticipated for the area. In contrast, NCTCOG travel forecasts are based on the number of employees by basic (generally industrial), service (office) and retail components. To correlate employment to square footage, conversion factors of employees per square foot will be applied. Data from NCTCOG for each employment category will be use and generally consist of the following; 1 employee/1000 square foot for industrial (basic), 1 employee/350 square foot for office (service), and 1 employee/500 square foot for commercial (retail).

For infrastructure planning, population and employment projections will use a varying range of factors to convert to needs. For example, roadways will use trip generation factors to determine traffic demand which can then be used to compare to carrying capacity of roadways for facility sizing (or mitigation). For roads, output from the regional travel forecast model would be used to assess roadway needs. For the added level of development, volume demand would be factored up to account for the increased development activity of West Dallas over and above that programmed in the NCTCOG travel forecast model.

For water, daily consumption per person or per square foot of development activity are used to determine water demand, which in turn translates to pipe size needed to serve an area of development. A comparison of water demand to capacity provided would determine the ability of the system to serve the same area of development. Current Master Plans for water, wastewater and stormwater would be used as a basis for comparing study area need to programmed capacity per each individual plan.

Growth Distribution

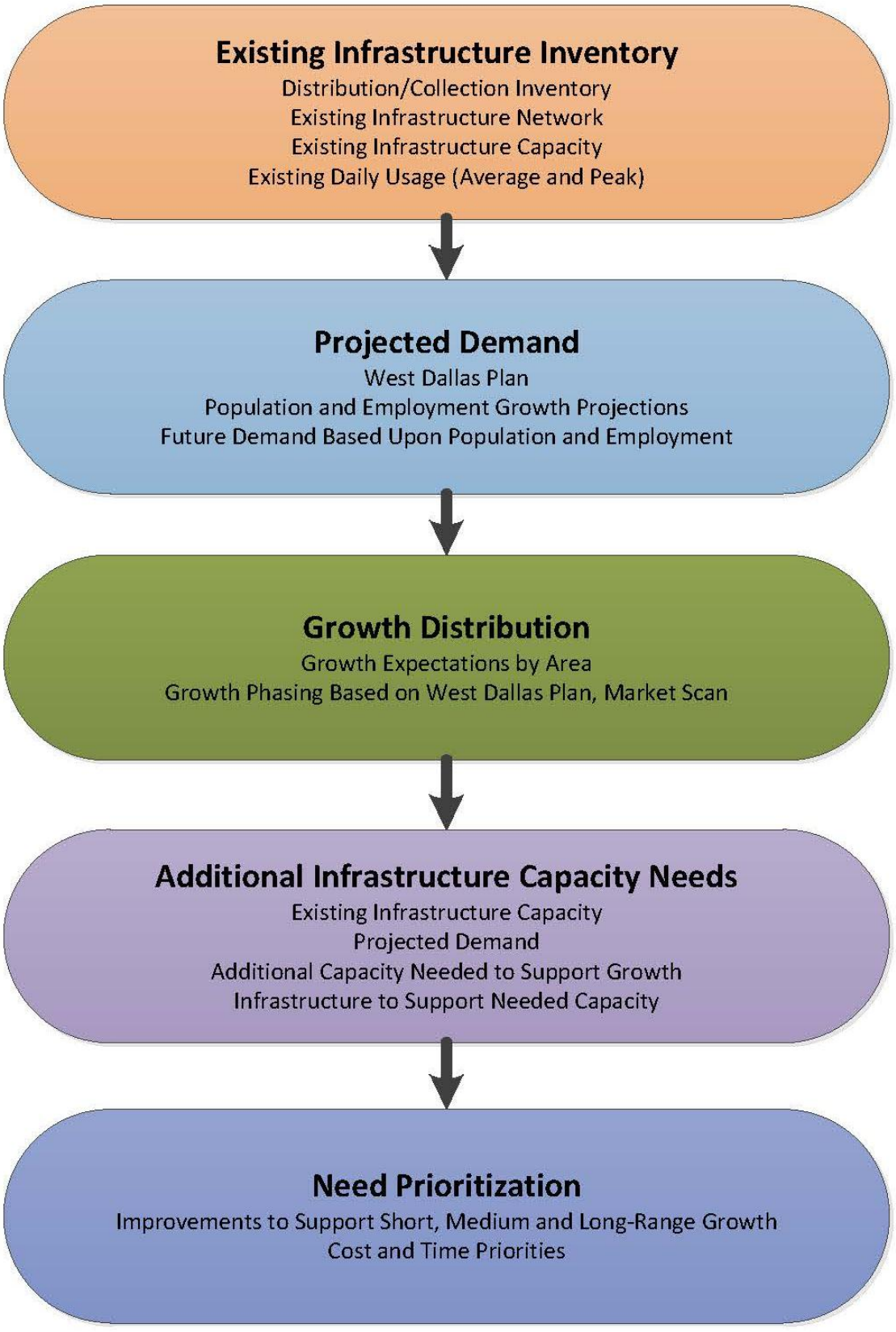
Once ultimate growth in West Dallas is established, the growth can be allocated to specific areas within the Study Area. The neighborhoods depicted in the West Dallas Urban Structure and Guidelines will be utilized for this phase. The growth allocation will be largely based upon the Market Scan's identification of short, medium and long-range growth and supplemented with the West Dallas Vision. While the Market Scan presents a differing growth rate from the West Dallas Plan (plan phasing of 10, 15 and 17+ years), it must be recognized that strategies developed as part of this study will be aimed at inducing development to the area and therefore may accelerate area growth. This allocation of population growth and timing will be critical in prioritizing the phasing of infrastructure needs, ultimately utilizing limited public funds and financing district funds in a more efficient manner.

Additional Capacity Needs

At this point, the existing capacity and the future infrastructure demand will be established. The difference between the existing capacity and future demand will identify the critical infrastructure needs for the area needed to accommodate and support future growth and development. The type of infrastructure, as well as the infrastructure network, will be established to support the future demand. It will also be important to consider how infrastructure is established. For example, roadway projects can be phased to coordinate with future growth by adding additional capacity. Water and Wastewater infrastructure, on the other hand, is generally designed to accommodate an ultimate area growth projection and therefore "ultimate" line sizing initially installed with intermittent development accessing capacity as needed. This approach reduces the need (and cost) for pipeline expansion as growth occurs. It is essential to appropriately design for ultimate needs.

Assessment Methodology

Figure 31: Infrastructure Assessment Evaluation Process



Infrastructure Assessment Approach

Roadways

For roads, output from the regional travel forecast model would be used to serve as a basis for assessing roadway need. To accommodate the added level of development for the West Dallas Plan, traffic volume demand would be factored to account for the increased development activity of the Plan over and above that programmed in the NCTCOG travel forecast model. The assessment would be performed at the TSZ level and the increase in demographics over those already in the model would serve as the factor to increase 2035 volumes. Thresholds for carrying capacity would be limited to the roadway sizing identified as part of the Urban Guidelines Structure. If capacities are exceeded, presumptions may be required as to trip orientations to/from the study area. In other words, as certain corridors reach capacity, traffic would filter to other key corridors to access nearby employment centers (i.e., the Dallas CBD). Other modes of travel may also be considered if corridors far exceed capacity constraints such as increased transit usage over and above that considered today, non-motorized travel, etc.

Water/Wastewater

Programmed population and employment would serve as the basis for assessing the ability of the current water and wastewater master plans to accommodate projected growth of the area. Based on timing and location of sub-area development (i.e. Trinity Groves, etc.), appropriate line improvements would be recommended to accommodate area development. Consumption factors for residential and non-residential land uses would be based on daily and peak flow rates from DWU. These rates would be used to assess general demand needs to capacity provided by the system. If there are system deficiencies, high level needs would be identified.

Stormwater

Two general levels of assessment will be undertaken to generally determine storm water needs for the study area; a hydrology and hydraulics assessment. As the area is generally built out from an impervious standpoint, it is anticipated that only relatively minor differences might occur. For hydrology, general drainage areas were delineated. A comparison of existing to future development (review of West Dallas Plan) would be undertaken to see where differences would occur and what the implications would be on existing stormwater lines and facilities. A Rational Method calculation would be used to determine peak runoffs for the drainage areas. The West Dallas Plan and/or current zoning would be used to determine runoff coefficients, or "C" values, and would use iSWM USGS rainfall data for Dallas County. For hydraulics, pipe hydraulics would be based on Manning's Equation calculations and would roughly look at the existing pipe capacity versus the 100-year storm event runoff. If necessary, inlet capacity assumptions could be made based on capture rates of 0.5 cubic feet per second per foot of on-grade inlet or 1 cubic feet per second per foot of sag inlet.

Need Prioritization

The final step of the process will be the prioritization of infrastructure improvements. The prioritization will be primarily based upon the calculated infrastructure and network needs as well as the short, medium and long-range growth areas. This infrastructure prioritization will also consider cost and time priorities. For example, critical infrastructure that would support growth and development along the Herbert Street corridor would take a high priority, particularly due to the catalyst development occurring in that area and the proposed railroad undercrossing(s). The age and condition of existing infrastructure within priority areas will be utilized as a basis for determining which improvements should be given priority within that particular area. Additionally, prioritization of infrastructure projects will

need to consider "synergistic opportunities" by coordinating the timing of water and wastewater infrastructure improvements with roadway projects.

Based upon the Market Scan and the West Dallas Urban Structure and Guidelines, several short term development areas were highlighted. The first is the Trinity Groves project along Singleton. This area has seen significant activity over the past year as Four Corners Brewery and various restaurants have opened for business. Several events have been held at Trinity Groves increasing the visibility of West Dallas and the project itself. It is anticipated that Trinity Groves will be a significant catalyst project and that new residential and non-residential development will occur within and in close proximity to Trinity Groves. Infrastructure improvements that support and encourage development within this key area will be given higher priority.

Additionally, the recently approved Bond Program for the City of Dallas allocated $34 million for three new underpasses at Battan, Herbert and Amonette. Herbert Street is planned to be the focal point of the Trinity Groves area and therefore the redesign and connection of Herbert Street from Singleton to Main or West Commerce Street, and the opportunity to extend water and sewer utilities under the railroad, will also receive higher priority.

Along West Commerce Street, two catalyst development areas are planned. The first, located at Sylvan and Fort Worth Avenue, is Sylvan 30. This project is a mixed-use development containing residential loft apartments and a mixture of retail. This is anticipated to be a highly visible project, particularly due to its location and visibility from Interstate 30. The second development currently includes the Chicken Scratch and The Foundry. Additional investments are planned within this area. It will be important to ensure that infrastructure investments support growth and development in these two areas as well.

During the reconstruction of Interstate 30 over the next few years, arterial streets in West Dallas will need to accommodate significant displaced traffic. Any lane modifications to incorporate planned Complete Streets initiatives on Singleton and Commerce may need to wait several years until the interstate reconstruction is complete. An assessment will be made of what can be implemented prior to completion and what should be initiated after completion to establish desired travel patterns.

Market Strategy Approach

The Market Scan identified a growth trend that points to slower growth than desired in the West Dallas Plan. Strategic investments however may change the timing of growth in the West Dallas. While the West Dallas Plan presents a development scenario that may or may not be achieved in the planned timeframe, development strategies over and above those listed in current planning initiatives, such as Mobility 2035, should be identified in order to identify phased project needs that is essential to inducing development within the study area.

Infrastructure Assessment

In order to assess the ability for existing infrastructure to meet anticipated demand, an assessment of water, wastewater, stormwater and roadway systems was conducted. As described in the West Dallas Infrastructure Assessment Memorandum, dated March 22, 2013, the main assumptions used for the infrastructure assessment were population and employment numbers derived in conjunction with the West Dallas Urban Structure and Guidelines 10, 15 and 17+ year visions. The employment and population numbers provided by the City of Dallas were distributed by neighborhoods described within the plan. These numbers were utilized by FNI staff to derive phased general needs for the study area.

In terms of overall water capacities, the assessment indicated that the water distribution system meets the needs of current development and that ample capacity exists to meet future demand. Water infrastructure upgrades and improvements should be implemented in conjunction with roadway improvements to reduce project expenditures. No critical water needs or improvements were identified and therefore no current hindrances to immediate development exist.

The wastewater analysis revealed that two major projects are needed to accommodate future demand in West Dallas. The first project is directly related to development north of the railroad, specifically within the Trinity Groves area. This first project is a short-term upgrade that will be needed to support future residential development. The second project involves the improvement of the wastewater lines in the southern portion of the study area. Project is a mid-term need. Due to the lack of topography in the southern portion of the study area, wastewater improvements may occur in an incremental fashion as water and roadway improvements are made.

The stormwater assessment indicated that the stormwater lines along Topeka Avenue will require significant upgrades due to the drainage area served by these lines. Right-of-way available along Topeka Avenue may not be sufficient to accommodate the anticipated stormwater infrastructure needs; therefore, alternative routes, such as along Bataan Street or Herbert Street, may need to be considered. Ultimately, a stormwater master drainage study will be required to determine stormwater runoff generated by various storm events, the area's capacity to accommodate storm events and the ability of the Pavajo Pump Station to accommodate additional drainage. Low Impact Design should be encouraged within West Dallas to lessen infrastructure needs.

Finally, the roadway assessment is intended to support recommendations within the West Dallas Urban Structure and Guidelines plan. The roadway assessment is prioritized based upon the phasing described within that plan. Only roadways contained within the City of Dallas Thoroughfare Plan were examined. Local streets in West Dallas will likely be built through development initiatives. The following sections detail each of these assessment areas..

Infrastructure Assessment

Water

West Dallas is located in the Central Low Pressure Zone. The Central Low Zone is supplied by the Elm Fork, Bachman, Jim Miller and Lake June Pump Stations. Two ground storage reservoirs with overflow elevations of 627 feet establish the static hydraulic gradient for the Central Low Pressure Zone.

A water utility must be able to supply water at rates that fluctuate over a wide range. Yearly, monthly, daily, and hourly variations in water use occur, with higher use during dry years and in hot months. Also, water use typically follows a diurnal pattern, being low at night and peaking in the early morning and late afternoon. Rates most important to the hydraulic design and operation of pump stations and distribution system are average day (AD), maximum day (MD), and peak hour (PH).

Average day use is the total annual water use divided by the number of days in the year. The average day rate is used primarily as a basis for estimating maximum day and maximum hour demands. The average day rate is also used to estimate future revenues and operating costs.

Maximum day use is the maximum quantity of water used on any one day of the year. The maximum day rate is used to size water supply hydraulics, treatment facilities, and pump stations. The raw water facilities must be adequate to supply water at the maximum day rate, and the treatment facilities must be capable of processing this quantity of water.

Peak hour use is the peak rate at which water is required during any one hour of the year. Since minimum distribution pressures are usually experienced during peak hour demand conditions, the sizes and locations of distribution facilities are generally determined on the basis of this condition. Peak hour water requirements are partially met through the use of strategically located elevated storage. The use of elevated storage minimizes the required capacity of transmission mains and permits a more uniform and economical operation of the water supply, treatment, and pumping facilities.

Table 4: West Dallas Existing and Ultimate Water System Needs

	NCTCOG 2012	West Dallas Plan (17+ YRS)	NCTCOG 2035 (Est.)	Average Daily Demand per Capita (gpcd)[1]	Existing System			Ultimate System (17+years)		
					Average Day Demand (MGD)	Maximum Day Demand (MGD)[2]	Peak Hour Demand (MGD)[2]	Average Day Demand (MGD)	Maximum Day Demand (MGD)[2]	Peak Hour Demand (MGD)[2]
Population	1,803	26,805	41,708	180	0.3	0.6	0.8	4.8	8.4	11.8
Total Employees	5,583	16,089	78,788	35	0.2	0.3	0.5	0.6	1.0	1.4
Total	-	-	-	-	**0.5**	**0.9**	**1.3**	**5.4**	**9.4**	**13.2**

[1]*Design criteria based on Tables 2.4.3.1 of the DWU Water and Wastewater Procedures and Design Manual*
[2]*MD/AD peaking factor of 1.75 and PH/MD peaking factor of 1.4 based on DWU - Water Capital Infrastructure Assessment & Hydraulic Modeling performed by Black & Veatch in 2007*

Utilizing the build-out population projection derived from the West Dallas Plan, described in more detail in the March 22, 2013 methodology memorandum, future Average Day Demand, Maximum Day Demand and Peak Hour Demand water needs for the area were estimated and are shown in Table 1. The projected population increase from approximately 1,800 residents in 2012 to a build-out of 26,805 will cause a significant increase in water demand within the area—the Peak Hour Demand is expected to increase from approximately 0.8 MGD to 11.8 MGD.

Based upon build-out population projections from the West Dallas Plan, it is not anticipated that any major water supply deficiencies will be present at build-out. The primary 24" water service line along Singleton will accommodate future water needs within West Dallas and beyond. The second water transmission line along Commerce Street/Fort Worth Avenue is recommended to be upgraded from a 12" line to a 20" line to maintain water pressure and supply within the southern portion of the study area. This project is recommended as a Phase II (15+ Year) Improvement.

The remaining improvements that resulted from the water analysis are not immediate needs but are recommended to replace aging infrastructure, improve water capacity to accommodate the projected build-out population and improve overall system looping in West Dallas. System looping, the practice of reducing "dead-end lines," increases water pressure for fire emergencies and allows water service to be provided from a number of different directions.

Water line phasing has been designed to correspond with other infrastructure improvements since no immediate needs were identified. Phase I improvements were designed to coincide with development in the Trinity Groves area, specifically the railroad underpasses at Bataan, Herbert and Amonette Streets. In Phase I, water line improvements along Bataan, Herbert and Amonette streets should connect to the 24" line that runs along Beckley. Main Street provides the most readily available connection. Phase II projects were also chosen to coincide with other infrastructure recommendations and would connect expanded lines along Fort Worth Avenue and Main Street to existing lines along Sylvan. Phase II Improvements also include expanding the 12" water line along West Commerce Street/Fort Worth Avenue to a 20" line.

Phase III projects are those occurring in the southeastern areas of West Dallas. Since the water line improvements will likely coincide with development actions, and the southeastern area of West Dallas is anticipated to develop long-range, water line improvements in this area are seen to be long-term needs. No immediate improvements are required at the present time.

Figure 32 illustrates proposed water line improvements and recommended phasing.

Infrastructure Assessment

Figure 32: Proposed Water Line Improvements

Wastewater

From a timing perspective, no major impediments to short-term development are present. In the long-term, three major areas of wastewater improvements were identified and these improvements correspond with the three phasing timeframes (10, 15 and 17+ years).

The most critical need identified during the wastewater analysis included improvements to the area between the Union Pacific Railroad and Singleton Boulevard. The wastewater system within this area is currently able to accommodate approximately 400 additional units (about 900 people) before wastewater capacity becomes an issue. The recommended upgrades to wastewater infrastructure within this area include upgrading collector lines along Bataan Street and the Union Pacific Railroad to 15" lines, and upgrading the primary line along Fabrication to a 21" line. This entire project must be constructed in a single phase and is considered the Phase I wastewater project for the area.

Phase II involves wastewater improvements in the southern part of West Dallas. This project, while not considered an immediate need, is one that will need to be constructed to support future development initiatives and population growth. This project involves the upsizing of the Fort Worth Avenue/West Commerce Street line to a 15" line to Langford Street and the upgrading of the Langford Street line to a 21" line connecting with the existing 48" line that runs along Yorktown. Similar to Phase I, this entire project should be constructed simultaneously.

Phase III wastewater improvements include a line along Main Street and along the northern side of West Commerce Street. The line along Main Street is recommended to be upgraded to a 12" line and the line along the north side of West Commerce Street is recommended to be upgraded to a 10" line. The difference between Phase III wastewater improvements and Phase I and II wastewater improvements is that the Main Street and West Commerce Street improvements do not need to be completed simultaneously; therefore, as roadway segments are reconstructed, the coinciding wastewater pipeline upsizing may also be constructed.

In Phase I, assessments indicated that approximately 400 additional units are able to be accommodated by the existing wastewater infrastructure before improvements are needed. In Phases II and III, the assessment was unable to derive an estimated number of additional units that could be supported by the existing infrastructure before improvements would be needed. There are two primary reasons why this was unable to be performed. First, there is a lack of data on existing infrastructure sizing and conditions in the area south of the UPRR. Various information sources were used to compile the existing infrastructure in this area. This differs from areas north of the UPRR where infrastructure information was available for analysis. Secondly, the area south of the UPRR has very little topography. In order to assess the system capabilities to accommodate additional growth, more detailed information on infrastructure sizing, conditions and topographic sloping would be needed.

Figure 33 illustrates the proposed wastewater improvements for the study area.

Infrastructure Assessment

Figure 33: Proposed Wastewater Line Improvements

Stormwater

A general stormwater assessment was performed within the study area. Due to the lack of topography within the study area, there are general concerns regarding the ability to move stormwater runoff. Stormwater drainage has a problematic history in West Dallas and the construction of the Pavajo pump station significantly increased the stormwater removal capacity thereby reducing chronic flooding in the area. West Dallas contains a significant amount of impervious area, primarily due to the pre-developed nature of the area. Initial phases of the Integrated Stormwater Management Program (iSWM) adopted by the City of Dallas permit development to occur as long as site conditions are not made worse (i.e., the impervious surface area of a development site is not increased). This would likely allow immediate and short-term development to occur within West Dallas without significant stormwater infrastructure improvements. However, as long-term development occurs, a drainage study is needed to determine drainage implications under the newer adopted drainage standards.

High-level stormwater capacities for existing and future development are difficult to calculate because a variety of factors must be considered. In order to more accurately assess the condition and capabilities of the stormwater system in West Dallas, a short-term recommendation is the preparation of a stormwater drainage study. This study would allow a more in-depth look at the existing system and can analyze the existing and future impervious coverage, the amount of runoff that could be generated by various storm events, and the infrastructure capacity that would be needed to move water in various storm events, particularly the 100-year flood.

While the first stormwater priority is the preparation of a drainage assessment, the general analysis indicates that a primary stormwater need in West Dallas is the upgrading of the lines that lie underneath Topeka Avenue, which transport stormwater to the Pavajo Pump Station. Currently, two 84" lines lie underneath Topeka Avenue. These lines are served by three drainage basins, shown in Table 5. Using the rational method, a general estimate for stormwater generated by a 100-year flood was calculated. The stormwater generated by the drainage basins during the 100-year flood would be approximately 3,614 cubic feet per second.

Table 5: Stormwater Runoff Impacting the Topeka Avenue Stormwater Mains

	C	I (in/hr)	Drainage Area (Acre)	Stormwater Runoff (cfs)*
Drainage Area 1	0.8	5.77	353	1,629.45
Drainage Area 2	0.8	5.77	38	175.41
Drainage Area 3	0.8	5.77	392	1,809.47
Total	-	-	783	3,614.33

C: Land Use Type/Pervious Surface
I: 100-Year Storm Event for Dallas County from USGS (Inches per Hour)
**Rational Method Used to Calculate Estimated Stormwater Runoff During 100-Year Storm Event*

A calculation of the estimated capacity of the existing infrastructure in the three Drainage Areas was conducted and is reflected in Table 6. This calculation utilized Manning's Equation and made several assumptions regarding pipe materials (n), slope (s) and Hydraulic radius (Hr). Using Manning's Equation, the existing capacities of the stormwater lines in the three drainage areas would be approximately 2,070 cubic feet per second. This is approximately 1,544 cubic feet per second under the required 100-year storm needs.

Infrastructure Assessment

Table 6: Existing Stormwater Capacity of Topeka Avenue Stormwater Lines

	XS Area (ft^2)	WP	H_R	K	n	S	Capacity (cfs)
Drainage Area 1	140	68	2.0588235	1.4859	0.015	0.005	1,587.05
Drainage Area 2	19.63495408	15.70796327	1.25	1.4859	0.013	0.005	184.15
Drainage Area 3	28.27433388	18.84955592	1.5	1.4859	0.013	0.005	299.45
Existing Pipeline Capacity							2,070.64

The final component of the Topeka Avenue stormwater line assessment involved a calculation of the needed infrastructure improvements to support the 100-year flood event. Using Manning's Equation to calculate ultimate capacity, six 84" lines along Topeka Avenue would have a capacity of approximately 4,172 cubic feet per second. This would accommodate the estimated 100 year storm need of 3,614 cubic feet per second calculated in Table 7. This would be an addition of four 84" storm mains from what presently exists.

Table 7: Capacity of Proposed Stormwater Improvements

	XS Area (ft^2)	WP	H_R	K	n	S	Capacity (cfs)
Drainage Area 1	420	204	2.0588235	1.4859	0.015	0.003	3,687.97
Drainage Area 2	19.63495408	15.70796327	1.25	1.4859	0.013	0.005	184.15
Drainage Area 3	28.27433388	18.84955592	1.5	1.4859	0.013	0.005	299.45
Total Capacity of Proposed Improvements							4,171.57

The existing right-of-way along Topeka Avenue will likely not be able to accommodate the four additional 84" lines and therefore alternative routes, whether that be along Bataan Street or Herbert Street, will likely need to be considered. Herbert Street currently contains a 45" to 48" to 54" line. Bataan Street currently contains a 24" to 30" to 33" to 36" line. Given the two stormwater segment capacities, an upgrade of the system along Bataan Street may be more advantageous. This also assumes that stormwater runoff could be delivered to the Bataan line and Pavajo Pump Station in the first place.

It is important to note that the above calculations were high-level in nature and were performed to generally assess the existing capacities and future needs of the Topeka Avenue stormwater lines, due to the lines serving as the primary stormwater collection infrastructure to the Pavajo Pump Station. The general assessment concludes that additional capacity will be needed to transport stormwater to the Pavajo Pump Station during the 100-year flood event.

Figure 34 illustrates the existing stormwater collection system within the study area. Storm mains in green are those supported by the 84" storm mains along Topeka Street.

Figure 34: Existing Storm Mains

Infrastructure Assessment

Low Impact Design (LID)

Stormwater management in North Texas has traditionally been an afterthought. Plans are laid out and designed with flood control being the only emphasis. This has led to underground pipes, concrete-lined channels and detention ponds. While this philosophy aided a rapidly developing community some of the consequences to these common practices are now becoming evident.

West Dallas, in particular, should be a focus area for low impact development (LID) due to the existing stormwater drainage issues that exist within the area. The goal of low impact development is to treat stormwater as a resource rather than a problem. LID aims to manage stormwater as close to the source as possible in an effort to protect natural features and mimic natural hydrology. This is accomplished through site planning that emphasizes conserving natural resources and reducing impervious area as well as the installation of water quality infrastructure such as bioretention ponds and rain harvesting systems. In addition to the water quality benefits of LID there are benefits such as mitigation of the urban heat island effect, absorption of air pollutants, and muffled urban noise.

The stormwater management infrastructure for sites in West Dallas should be designed to integrate flood control, water quality protection and downstream streambank protection. Site design should be done in unison with the design and layout of stormwater infrastructure to better attain stormwater management goals. Together, the combination of LID site design practices and effective infrastructure layout and design can mitigate the stormwater impacts of most urban developments while preserving stream integrity and aesthetic attractiveness.

Operationally, economically, and aesthetically, stormwater sensitive site design and the use of natural techniques offer significant benefits over structural stormwater controls. Therefore, all opportunities for utilizing these methods should be explored in West Dallas.

Photos are examples of low impact development (LID) methods that may be appropriate in West Dallas.

These images depict various ways of containing and treating stormwater runoff in more urban environments, all of which help with reducing stormwater quantities entering the pipeline network and also use natural purification methods to treat stormwater runoff.

Infrastructure Assessment

Roadways

Roadway projects in West Dallas considered a number of different factors including planned catalyst developments, traffic volumes, access needs and infrastructure phasing. As West Dallas redevelops, and as construction on the I-30 Bridge commences, a significant rise in traffic volumes through West Dallas is expected as travelers seek alternative options to access the central business district via Sylvan and Beckley to the Margaret Hunt Hill Bridge. This rise in traffic, however, is only expected to be a temporary occurrence. The more permanent increases in traffic will be due to growth and redevelopment within West Dallas, as well as the attractiveness of the Sylvan Avenue Corridor between Interstate 35-E and Interstate 30.

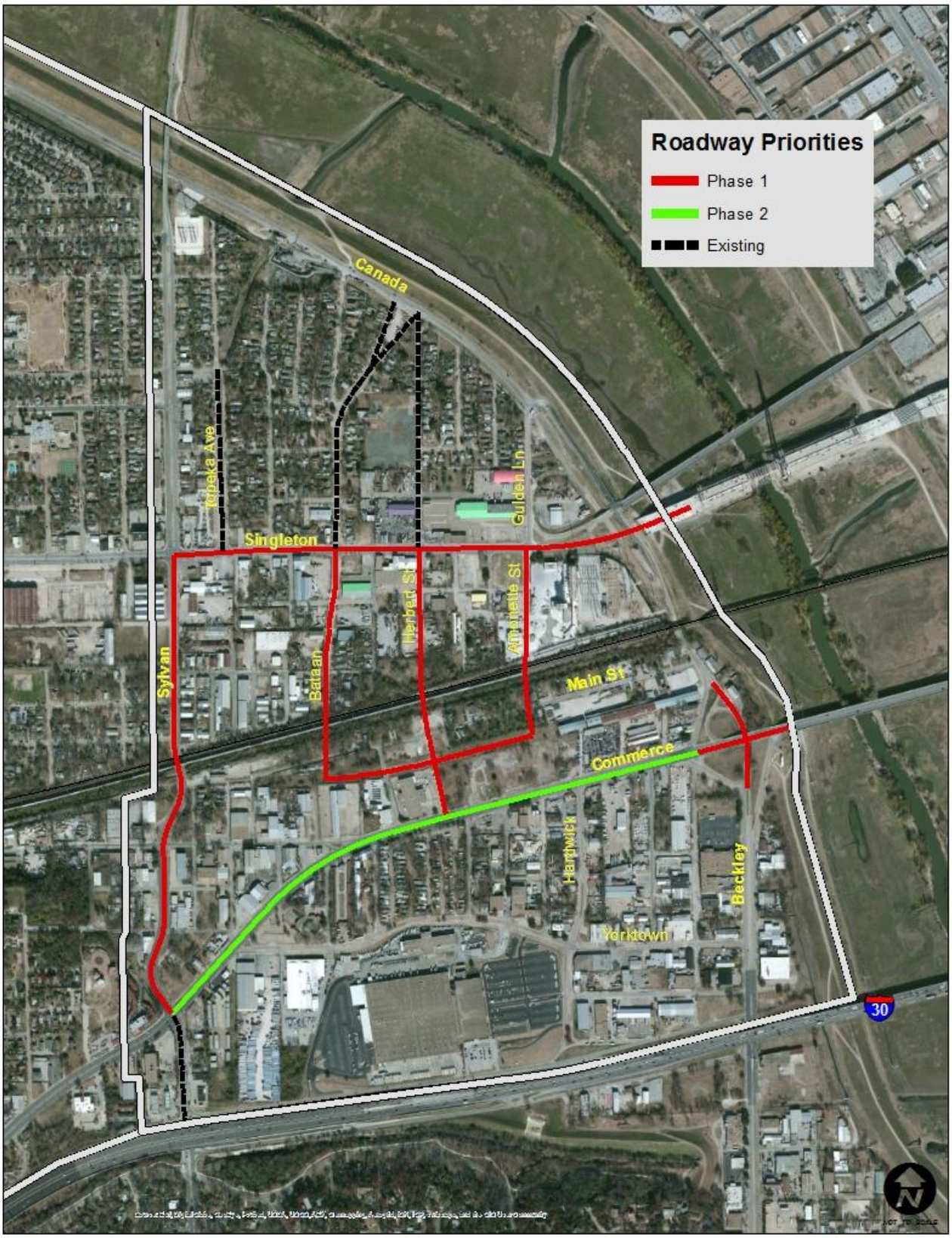
Phase I roadway improvements are primarily those associated with the three railroad underpasses at Bataan, Herbert and Amonette Streets. Bataan and Amonette Street improvements are initially intended to extend between Singleton Boulevard and Main Street. Herbert Street, due to its function as the spine through West Dallas, is intended to extend from Singleton to West Commerce Street, providing a full north-south connection through the heart of the district.

Recent Thoroughfare Plan amendments call for a cycletrack along the northern side of Singleton Boulevard. This is consistent with the cross-section provided in the West Dallas Plan. Additionally, Sylvan Avenue will be reduced from a six-lane divided roadway to a four-lane divided roadway with bicycle lanes. Finally, the Commerce Street/Beckley Avenue Bridge Intersection is also on track for reconstruction beginning in 2014.

Fort Worth Avenue improvements are depicted as Phase II improvements. Fort Worth Avenue's inclusion in Phase II is due to the connectivity that the roadway provides between Sylvan 30, the food and retail park development and Trinity Groves. Roadway reconstruction will not require additional right-of-way acquisition but enhancements to the pedestrian realm will be advantageous in order to connect the three distinct activity centers with a safe pedestrian framework, as depicted in the West Dallas Urban Structure and Guidelines cross-sections.

No public phase III Roadway Improvements are expected; however, local roadways will continue to be enhanced and reconstructed in conjunction with water and wastewater projects and as private development occurs during Phase III.

Figure 35: Roadway Improvements



Infrastructure Assessment

Cost Estimates

Cost estimates were prepared coinciding with each roadway, water and wastewater segment. A number of different factors were considered during cost estimate preparation. These estimates utilized existing City of Dallas constructions cost estimates and construction standards.

Adopted cross-sections from the City of Dallas Thoroughfare Plan as well as the design standards from the West Dallas Urban Structure and Guidelines report were utilized. Roadway cost estimates, therefore include the cost of roadway construction and all enhancements, including street furniture, street trees, landscaping, pedestrian lighting fixtures, stormwater pollution prevention measures and traffic control. The inclusion of design features beyond basic roadway reconstruction ensures that cost estimates prepared for roadway segments are comprehensive in nature and are reflective of the area's desired urban characteristics.

Several cross-sections contained within the West Dallas Urban Structure and Guidelines report have both public and private components. The public component includes all areas within the public right-of-way and is reflected as "Within ROW" on Tables 8-12. The private component includes any additional dedications or easements required within the building setback, such as wider sidewalks. This is indicated as "Outside ROW" on Tables 8-12.

Detailed project sheets from Phase I, Phase II and Phase III projects are included within the appendix. The detailed project sheets include itemized construction materials, aesthetic enhancements, design and contingency. All numbers provided are in 2013 dollars and have not been adjusted for future inflation.

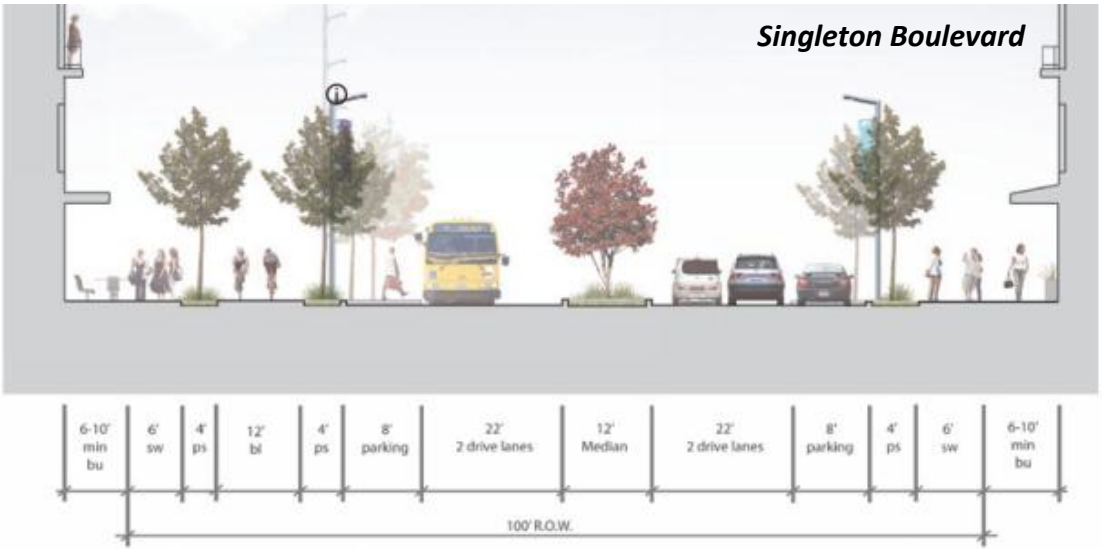
Cost Estimate Roadway Cross-Sections

Roadway cost estimates were prepared for roadways included within the City of Dallas Thoroughfare Plan. In June, 2013, Dallas City Council approved a Thoroughfare Plan amendment for Singleton Avenue. The amendment reduced the right-of-way from 100' to 88' and added a cycletrack along the northern side of Singleton. Additionally, in June, 2013 Dallas City Council approved the addition of Bataan, Herbert and Amonette Streets to the Thoroughfare Plan. These additions coincide with voter approval of the bond package to construct underpasses beneath the Union Pacific Railroad along each of these three streets. The Thoroughfare Plan amendments approved by City Council coincide with the right's-of-way depicted in the West Dallas Urban Structure and Guidelines report.

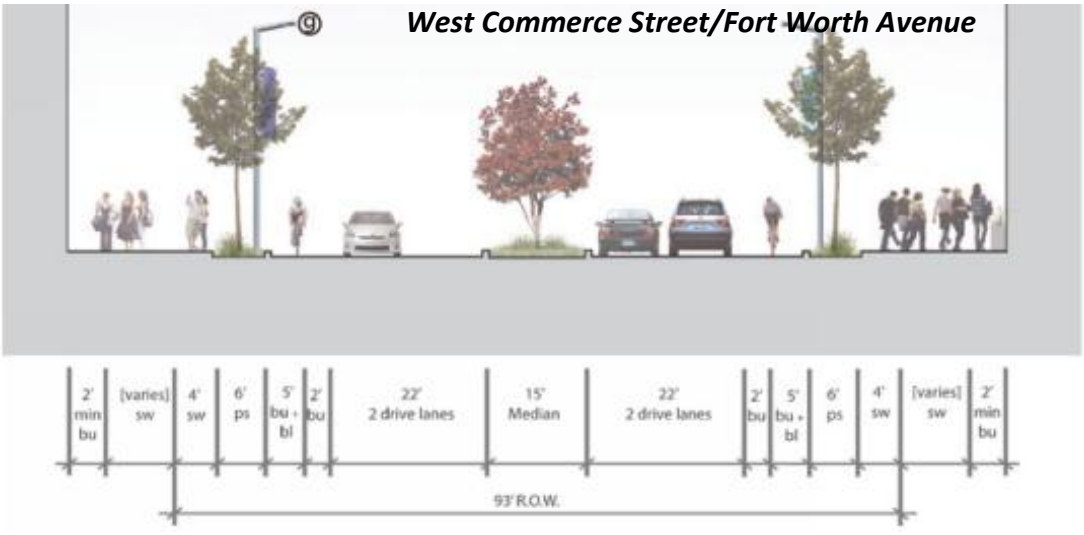
Cost estimates prepared for roadways include aesthetic enhancements. Considerations for sidewalk construction, pedestrian lighting fixtures, street furniture, street trees and bulb-outs were made. Cross-sections from the West Dallas Urban Structure and Guidelines report were utilized for cost estimates along Bataan, Herbert and Amonette Streets as well as for West Commerce Street/Fort Worth Avenue and Singleton Boulevard.

The following are the cross-sections utilized for cost estimates.

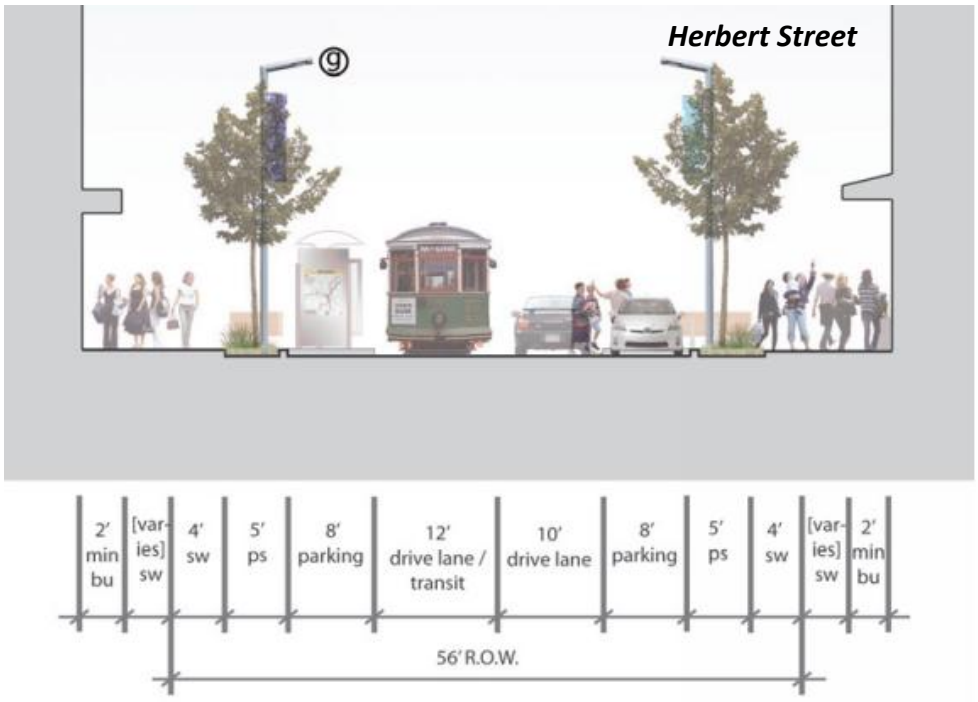
Singleton Boulevard

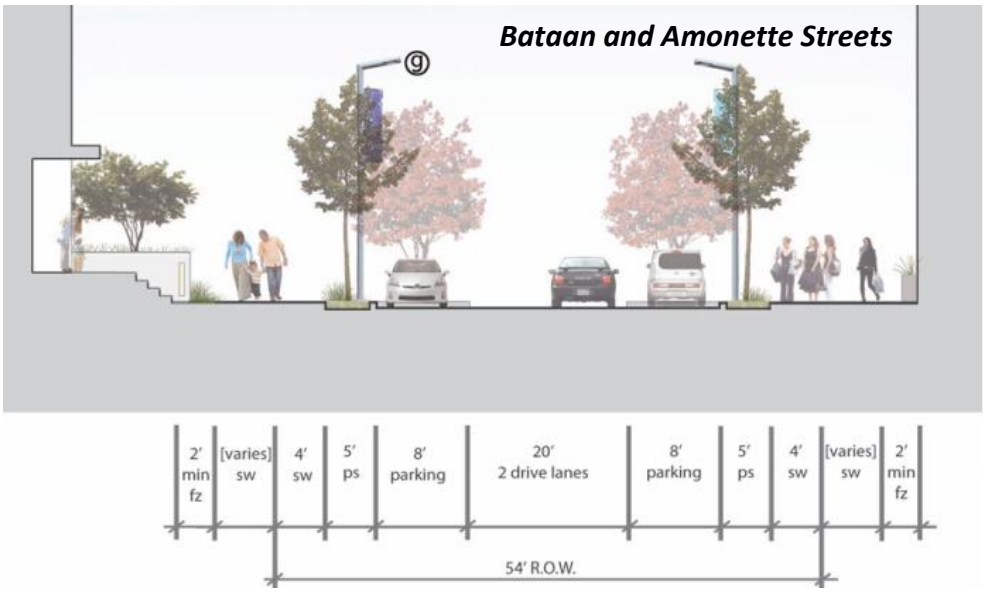


West Commerce Street/Fort Worth Avenue



Infrastructure Assessment





Phase I

Table 8 below includes the cost for the suggested Phase I improvements. Phase I coincides with the 10-year development goals outlined in the West Dallas Urban Structure and Guidelines report. The following listing includes roadway, water and wastewater improvements. Additionally, the Stormwater Drainage Study described previously should also be conducted during Phase I in order to assess area-wide drainage patterns, capacities and needs.

Table 8: Phase I Improvements (10 Years)

Segment Name	From	To	Type	Within ROW Cost	Outside ROW Cost	Total Cost
Singleton	Beckley	Sylvan	Roadway	$5,252,207	$456,194	$5,708,401
Amonette	Singleton	Main	Water	$211,208	None	$211,208
Amonette	Singleton	Main	Roadway	$1,087,279	$117,901	$1,205,180
Bataan	Singleton	Main	Water	$321,462	None	$321,462
Bataan	Singleton	Main	Roadway	$1,308,653	$243,135	$1,551,788
Fabrication	Sylvan	Poe	Wastewater	$798,268	None	$798,268
Herbert	Singleton	Commerce	Water	$396,981	None	$396,981
Herbert	Singleton	Commerce	Roadway	$1,912,554	$344,344	$2,256,898
Main Street	Bataan	Beckley	Water	$1,094,207	None	$1,094,207
Stormwater Drainage Study	-	-	-	$250,000	-	$250,000
Phase I Total	**-**	**-**	**-**	**$12,632,819**	**$1,161,574**	**$13,794,393**

The following is a general description of the anticipated projects recommended for Phase I. Detailed project descriptions, including the itemized factors influencing overall project costs, are included within the appendix.

- Singleton: Reconstruction of Singleton Boulevard between Beckley and Sylvan according to the Thoroughfare Plan amendment standard of a four lane divided boulevard with a separated cycletrack within an 88’ right-of-way. The Within ROW cost of roadway resurfacing and reconstruction is approximately 5.3 million. Outside ROW costs, those contained within the roadway cross-section but outside the public right-of-way, is approximately $450,000. No utility upgrades are anticipated along Singleton Boulevard.

- Bataan: Bataan Street construction from Singleton to Main, including aesthetic enhancements such as street trees, bulb-outs and street furniture, is estimated at $1.3 million. Outside ROW costs, those contained within the roadway cross-section but outside the public right-of-way, are approximately $240,000. The cost of upgrading water infrastructure to a 12” line is approximately $320,000. Cost does not include roadway underpass construction at the Union Pacific Railroad. The Bond Package approved for the railroad underpass construction totaled $34 million.

- Herbert: Herbert Street construction from Singleton to Commerce, including aesthetic enhancements such as street trees, bulb-outs and street furniture, is estimated at $1.9 million. Outside ROW costs, those contained within the roadway cross-section but outside

the public right-of-way, are approximately $340,000. The cost of upgrading water infrastructure to a 12" line is approximately $400,000. Cost does not include roadway underpass construction at the Union Pacific Railroad.

- Amonette: Amonette Street construction from Singleton Boulevard to Main Street, including aesthetic enhancements such as street trees, bulb-outs and street furniture, is estimated at $1.2 million. Outside ROW costs, those contained within the roadway cross-section but outside the public right-of-way, are approximately $120,000. The cost of upgrading water infrastructure to a 12" line is approximately $210,000. Cost does not include roadway underpass construction at the Union Pacific Railroad.

- Fabrication: Construction of a 15" and 21" wastewater line running along Fabrication, portions of Bataan and the Union Pacific Railroad is approximately $800,000. This project should be constructed prior to, or in conjunction with, the Bataan Street improvements for cost efficiency and to reduce roadway repairs once Bataan Street is reconstructed.

- Stormwater Drainage Study: Discussed previously, a detailed storm drainage study is needed in order to assess current stormwater demand, capacities and needs, particularly as they impact the Topeka line and the Pavajo Pump Station. An estimated cost for a detailed storm drainage study for an area the size of the project study area is approximately $250,000.

The estimated cost for recommended Phase I public infrastructure projects within the public ROW is approximately $12.6 million. The estimated costs for improvements outside the public ROW is approximately $1.2 million. When combined, the total estimated cost for roadway construction and utility construction is approximately $13.8 million.

Table 9: Combined Roadway & Water Costs

Project	*Roadway*	*Water*	*Within ROW Cost*	*Outisde ROW Cost*	*Total Cost*
Amonette	$5,252,207	$1,308,653	$6,560,860	$456,194	$7,017,054
Bataan	$211,208	$1,094,207	$1,305,415	None	$1,305,415
Commerce/Fort Worth Ave (Phase II Project)	$5,141,173	$4,461,912	$9,603,085	$716,412	$10,319,497
Herbert	$321,462	$396,981	$718,443	None	$718,443
Singleton	$1,308,653	-	$1,308,653	$243,135	$1,551,788
Total	$12,234,703	$5,953,100	$19,496,456	$1,415,741	$20,912,197

Roadway and water improvements should be coordinated for cost efficiency. The water assessment indicated no immediate water needs within the study area. Therefore, water infrastructure upgrades are recommended to be performed in conjunction with phased roadway improvements. Roadway and utility coordination is proactive engineering and should be encouraged to avoid repetitive roadway repairs and patching which diminishes the overall roadway lifespan.

The following table reflects the total construction cost estimates for each roadway section when roadways and utilities are considered collectively. It should be noted that the Commerce/Fort Worth Avenue Segment is associated with Phase II. Since this is the only roadway project in Phase II it has been included within this roadway/utility total cost estimate.

Phase II

Phase II projects coincide with the Dallas Urban Structure and Guidelines 15+ year development vision, as shown in Table 3. The most significant project contained within Phase II is the reconstruction of Commerce Street/Fort Worth Avenue, including upgrading the water and wastewater utilities along the corridor.

Table 10: Phase II Improvements (15+ Years)

Segment Name	From	To	Type	Within ROW Cost	Outside ROW Cost	Total Cost
Commerce Street/ Fort Worth Ave	Sylvan	Beckley	Roadway	$5,141,173	$716,412	$5,857,585
Commerce Street/ Fort Worth Ave	Sylvan	Beckley	Water	$4,461,912		$4,461,912
Commerce/ Langford	Yorktown	Yorktown	Wastewater	$1,389,042		$1,389,042
Main Street	Sylvan	Bataan	Water	$1,091,763		$1,091,763
Phase II Total	-	-	-	$12,083,890	$716,412	$12,800,302

The following is a general description of the anticipated projects recommended for Phase II. Detailed project descriptions, including the itemized factors influencing overall project costs, are included within the appendix.

- Commerce Street/Fort Worth Avenue: Reconstruction of the Commerce Street/Fort Worth Avenue corridor from a six-lane divided roadway to a four-lane divided roadway with a bicycle cycletrack between Sylvan and Beckley. The estimated Within ROW costs, including street reconstruction and aesthetic enhancements are approximately $5.1 million. The estimated Outside ROW construction costs, areas within the cross-section but outside the public right-of-way, are approximately $720,000. The cost of upgrading water infrastructure along Commerce Street/Fort Worth Avenue to a 20” water line is approximately $4.5 million.

- Main Street: This segment consists of improving the water infrastructure along Main Street and West Commerce Street. This improvement will continue the 16” water line constructed in Phase I providing a continuous 16” water line between the 24” water line along Beckley and the 15” line along Sylvan, aiding in water pressure and system looping. These improvements are estimated at approximately $1.1 million.

- Commerce Street/Langford: This segment consists of upgrading the wastewater utilities to 15” and 21” lines. This project should be constructed simultaneously. Wastewater improvements should be constructed prior to, or in conjunction with, roadway and water improvements to Commerce Street/Fort Worth Avenue for cost efficiency and to reduce roadway repairs once Commerce Street/Fort Worth Avenue is reconstructed. These improvements are estimated at approximately $1.3 million.

The estimated total public cost of implementing Phase II improvements is approximately $12.1 million. The estimated cost of improvements outside the public right-of-way is approximately $715,000. The total estimated cost for implementing Phase II projects is $12.8 million.

Infrastructure Assessment

Phase III

Phase III coincides with improvements needed to accommodate development in the 17+ Year timeframe, as reflected in the West Dallas Urban Structure and Guidelines report. Phase III improvements include water and wastewater projects. Reconstruction of local roadways will primarily be performed during developer initiatives. The largest utility improvement in Phase III is the construction of the 16" waterline along Interstate 30, providing a loop in the water system between the 20" Sylvan water line and the 16" Beckley water line.

Table 11: Phase III Improvements (17+ Years)

Segment Name	From	To	Type	Within ROW Cost	Outside ROW Cost	Total Cost
Famous Drive	Commerce	Yorktown	Water	237,600		$237,600
Interstate 30	Beckley	Sylvan	Water	$1,669,615		$1,669,615
Main Street	Main	Commerce	Wastewater	$1,438,627		$1,438,627
Yorktown	Eastus	Fort Worth Ave	Water	$169,137		$169,137
Phase III Total	-	-	-	$3,514,979		$3,514,979

The following is a general description of the anticipated projects recommended for Phase III. Detailed project descriptions, including the itemized factors influencing overall project costs, are included within the appendix.

- Yorktown: Cost of upgrading existing 8" water line to a 12" water line is approximately $170,000.

- Interstate 30: Construction of a 16" water line along Interstate 30 between Beckley and Sylvan. This project will not only help to loop the West Dallas water infrastructure system, but it will potentially serve future development along Interstate 30 if the United States Postal Service relocates in the future. The cost of this improvement is estimated at $1.7 million.

- Famous Drive: Cost of upgrading existing 6" water line to a 12" inch water line is approximately $240,000. This upgrade will provide a 12" water line through the heart of West Dallas between Singleton Boulevard and Yorktown.

- Main Street: Cost of upgrading existing wastewater system to 12" and 10" lines is approximately $1.4 million. This project extends the full length of Main Street in West Dallas and traverses the northern side of Commerce Street. This project is a long-term need and unlike other wastewater segment recommendations may be implemented incrementally. If funding is available, segments of this project may be implemented incrementally in conjunction with Phase I and Phase II roadway improvements.

The estimated total Within ROW cost of implementing Phase III improvements is approximately $3.5 million. There are no Outside ROW costs, those outside of the right-of-way but within the roadway cross-section, in Phase III.

Summary

The infrastructure improvements described in Tables 8, 10 and 11 are related to the information and phasing depicted in Figures 32, 33 and 34. These cost estimates were prepared according to the West Dallas Urban Structures and Guidelines report and are intended to help guide decision-making related to infrastructure needs and budgeting.

The overall estimated funding needs for primary infrastructure projects in West Dallas is approximately $30.1 million. The majority of funding is currently allocated to roadway improvements. Roadway improvements in West Dallas, however, go beyond street resurfacing. Roadway improvements in West Dallas are multi-modal in nature—they focus on facilities for vehicles, pedestrians and bicyclists. These costs were estimated at $16.5 million. Water improvements amount to approximately $9.7 million. The majority of water infrastructure upgrades are phased to occur as roadway improvements are made. Wastewater improvements amount to approximately $3.6 million of the overall infrastructure costs. Finally, stormwater recommendations amount to $250,000 of the total cost. This is reflective of the Stormwater Drainage Study and does not include any stormwater infrastructure implementation costs.

The total estimated funding for Phase I infrastructure is approximately $13.8 million and is primarily focused around the reconstruction of Bataan, Herbert and Amonette Streets, as well as their associated water infrastructure upgrades. Phase I also includes the reconstruction and addition of a cycletrack along Singleton Boulevard. Phase II improvements are estimated at $12.8 million. The primary project in Phase II is the reconstruction of Commerce Street/Fort Worth Avenue and its associated water and wastewater upgrades. Phase III is estimated to have a cost of approximately $3.5 million and is primarily focused on smaller water and wastewater upgrades.

Table 12: Cost Summary for Infrastructure Projects

Summary of West Dallas Infrastructure Priorities Cost						
	Phase I	Phase II	Phase III	Public Cost	Private Cost	Total
Roadway	$10,722,267	$5,857,585	$0	$14,701,866	$1,877,986	$16,579,852
Water	$2,023,858	$5,553,675	$2,076,352	$9,653,885	$0	$9,653,885
Wastewater	$798,268	$1,389,042	$1,438,627	$3,625,937	$0	$3,625,937
Stormwater	$250,000	$0	$0	$250,000	$0	$250,000
Total	$13,794,393	$12,800,302	$3,514,979	$28,231,688	$1,877,986	$30,109,674

Infrastructure Assessment

Funding Entities

The West Dallas Signature Point Project should be used by public entities to coordinate infrastructure improvements with overall development objectives. Any successful planning project involves coordinated decision-making between land use, transportation and infrastructure objectives. The West Dallas Urban Structure and Guidelines report outlined land use and transportation strategies for West Dallas. The West Dallas Signature Point Project took the assumptions within the Urban Structure and Guidelines and estimated future infrastructure needs for the area. This continuation of the original work conducted by the Dallas Urban Design Studio will help form a basis for rational and coordinated decision-making.

Implementation of projects identified within this report will require a combination of funding sources. The following are the entities that should ultimately utilize this report as a reference as decisions regarding infrastructure construction and funding are made.

City of Dallas Bond Programming

The City of Dallas will be one source of funding for completing identified projects. Due to the resurgence of Central Dallas, however, there is considerable competition between various districts and neighborhoods for infrastructure funding. The competition for infrastructure funding is only exacerbated by limited available funding. It is likely that a significant amount of sub-surface infrastructure will be constructed by other entities, such as municipal management districts and tax increment financing zones. The City of Dallas will be constructing significant roadway improvements, however, with the Sylvan Street reconstruction, the Beckley/Commerce intersection reconstruction and the Herbert Street, Amonette Street and Battan Street railroad underpasses.

The City of Dallas Needs Inventory is a listing of capital projects by City Council district. Projects contained within this report should be added to the Needs Inventory. Inclusion of these projects in the City's Needs Inventory will enable the projects to compete for funding if and when funding becomes available through bond programs. The addition of identified projects in the Needs Inventory will give West Dallas leverage when advocating for improvements that support development objectives and will ensure that projects qualify and are considered for future bond programming.

Funding

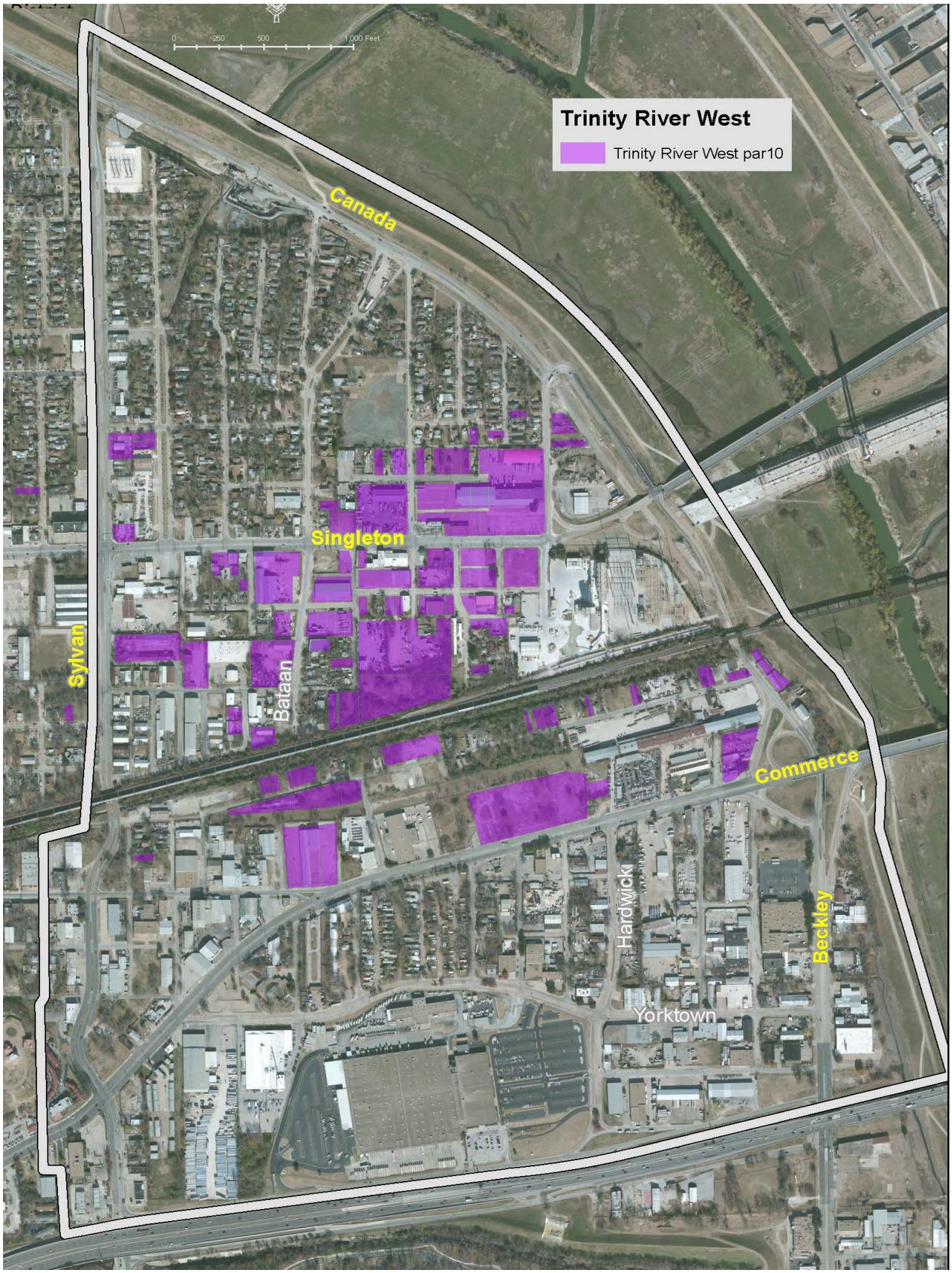
Trinity River West Municipal Management District

Municipal Management Districts (MMD's) are entities created to leverage an additional tax assessment on participating properties and are voted into creation by property owners within the proposed district. The purpose of the additional tax assessment is to provide a funding source for infrastructure improvements, particularly when limited municipal funds are available or expected.

The Trinity River West MMD was the second MMD created within the City of Dallas, the first being the North Oak Cliff MMD. The Trinity River West MMD is primarily comprised of properties assembled and owned by West Dallas Investments, Inc. Properties within the Trinity River West MMD are located primarily north of the Union Pacific Railroad and concentrated around the Trinity Groves development.

West Dallas Investments has conducted a private infrastructure assessment of areas within West Dallas. As property valuations continue to increase, and the revenue generated by the additional tax assessment continues to increase and compile, larger infrastructure projects that support development needs will be more realistic. The Trinity River MMD should utilize the West Dallas Urban Structure and Guidelines report and the West Dallas Signature Point Project as a part of their infrastructure considerations. Land use and transportation objectives, and associated infrastructure needs identified within this report, should help to guide future needs and to identify primary projects that should be constructed once funding becomes available. Additionally, cost estimates of projects prepared in this plan may be utilized to estimate funding needs by the MMD.

Figure 36: Trinity River West Municipal Management

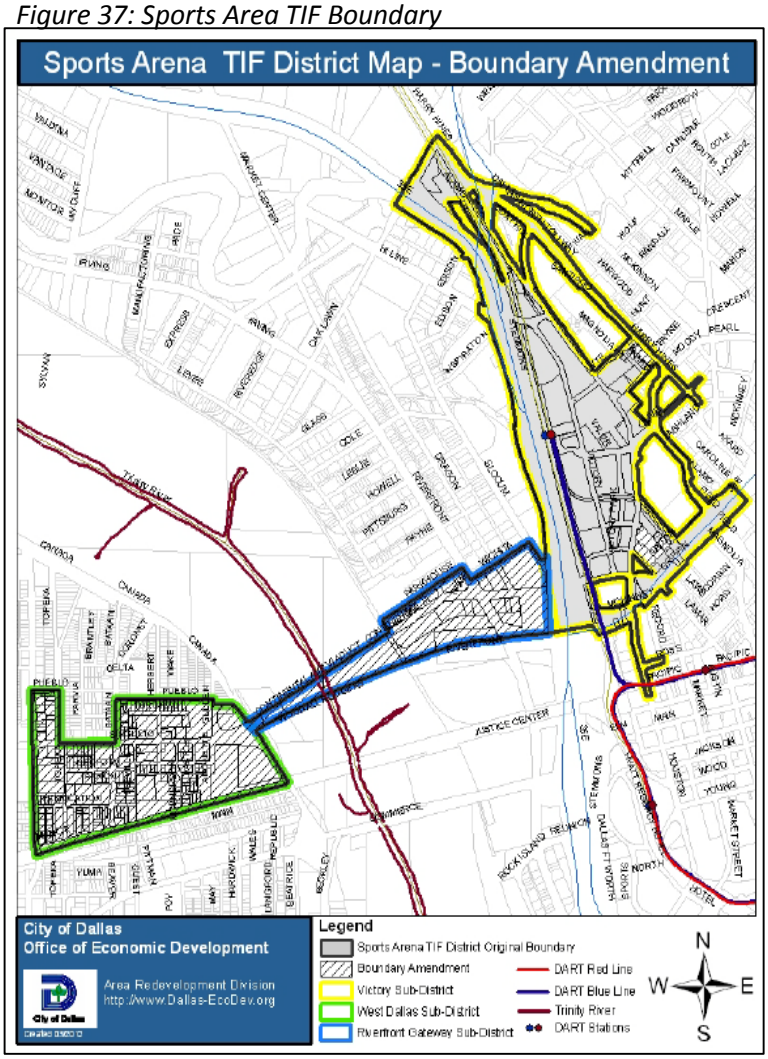


Funding

Sports Area TIF District

The Sports Arena TIF District is directly northwest of downtown Dallas and home to the American Airlines Center and the W Dallas Hotel, next door to the House of Blues and the Dallas Museum of Nature and Science. The City of Dallas created the Sports Area TIF in 1998 to support Victory Park, a new entertainment and residential district surrounding American Airlines Center. In 2012, the City extended the district to create the West Dallas sub-district, which included the area of West Dallas north of the Union Pacific Railroad, and the Riverfront Gateway sub-district, which includes the land west of Victory and east of West Dallas adjacent to the Margaret Hunt Hill Bridge. The City simultaneously increased the budget to support additional development.

Figure 37: Sports Area TIF Boundary



In May 2012, the City approved TIF funding to study circulation, parking, urban neighborhood design, and retail strategies in the district. The City began implementation of the recommendations in October 2013. Additionally, over 1,300 residential units were built in or adjacent to the district between 1997 and 2006. As of the end of 2013, an additional 1,341 were under construction, including the 24-story SkyHouse Dallas.

The northern half of the Signature Point study area is now eligible to receive ten percent of the tax increment created from the Victory sub-district, in addition to the increment created within the West Dallas sub-district. As development continues to increase in Victory Park and in West Dallas, the additional tax increment will be a significant funding source for infrastructure improvements tied to private development. The projects identified within this report, and their associated cost estimates and phasing, can help to inform funding allocation decisions made by the Sports Arena TIF District.

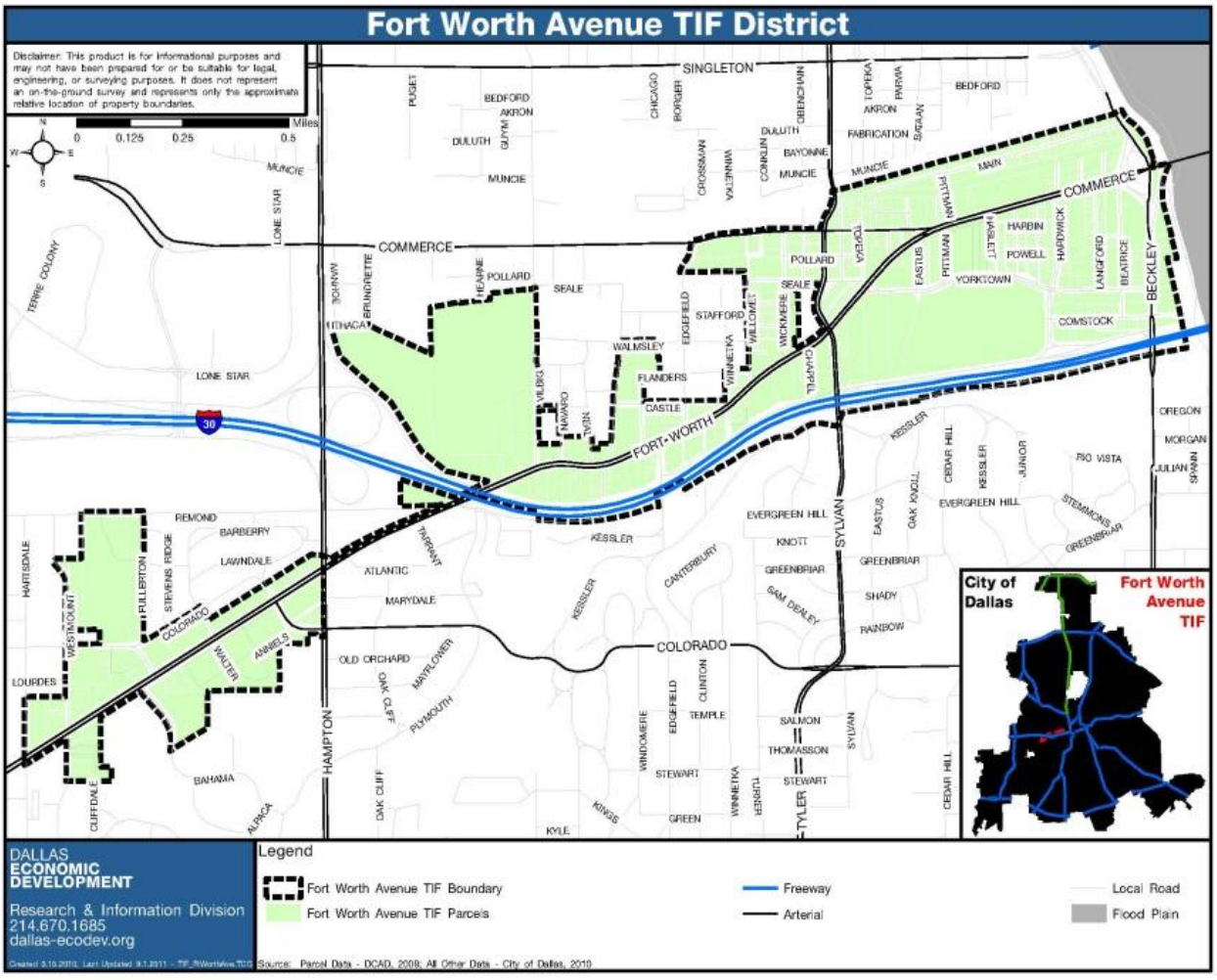
Fort Worth Avenue TIF District

Fort Worth Avenue TIF District is located in north Oak Cliff and West Dallas, directly across the Trinity from downtown Dallas. The district was created in 2007 to enhance the real estate market and to encourage new investment by providing a source of funding for public amenities and infrastructure improvements. The district extends from West Commerce Street at the Trinity River to near Westmoreland Road in North Oak Cliff, and a significant portion of the total land lies within the West Dallas study area, including the entire portion of the study area south of the Union Pacific Railroad. While some originally anticipated development has not occurred, new development and increasing valuation of the area has begun to create usable tax increment.

Similar to the Sports Arena TIF District strategy, the projects, cost estimates, and phasing in this report should help to inform funding allocation decisions made by the Fort Worth Avenue TIF District.

Fort Worth Avenue TIF funding can help to make the West Dallas vision a reality.

Figure 38: Fort Worth Avenue TIF Boundary



Funding

Summary

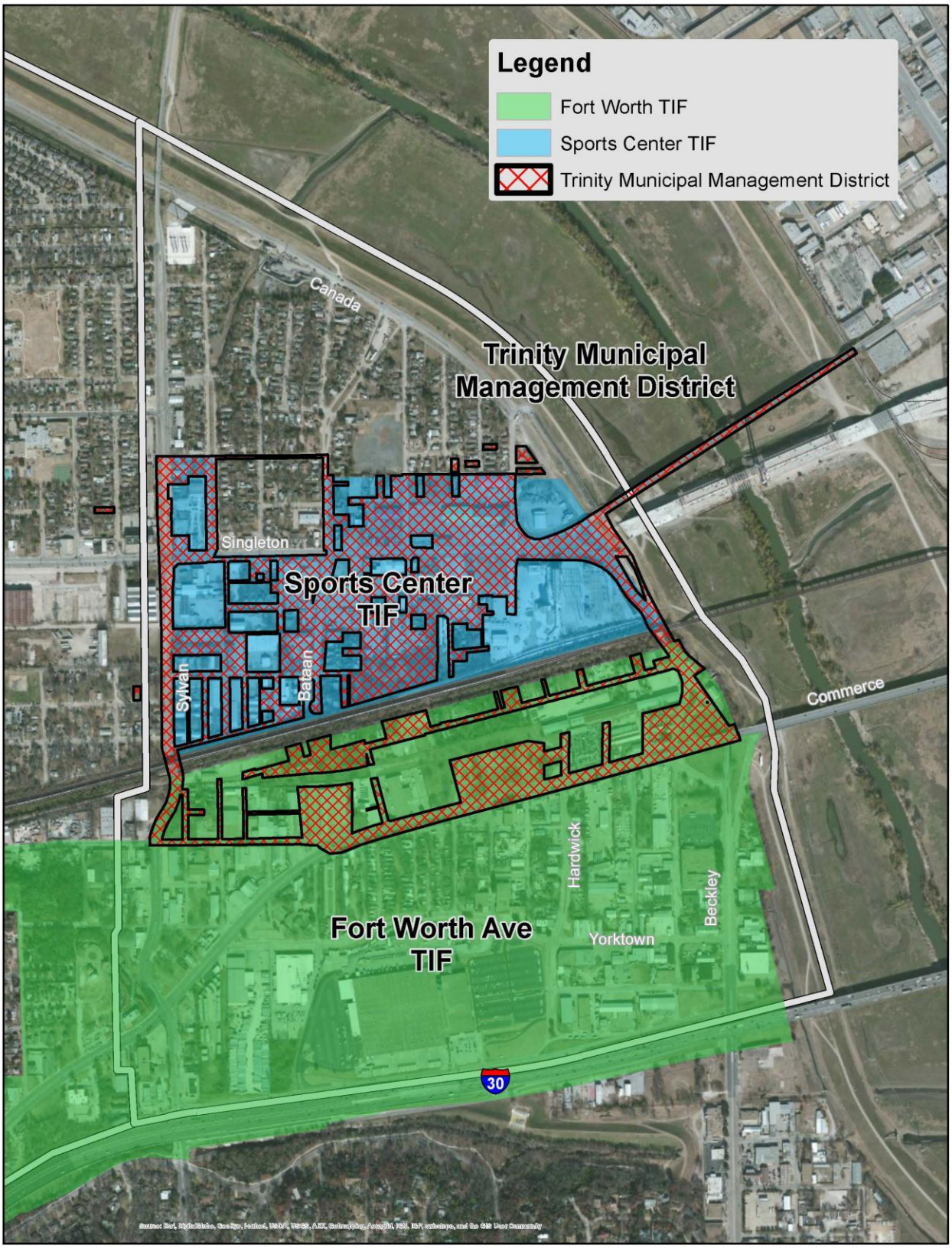
In an era of limited public funding and resources, a variety of unique and innovative partnerships will be looked to as the primary source of infrastructure funding. The City of Dallas is currently in the process of performing significant roadway infrastructure improvements in West Dallas. Additionally, the City is creating public space in West Dallas through the Continental Bridge conversion and the West Dallas Gateway Plaza. As development occurs in West Dallas, Public/Private Partnerships and private taxing entities will be necessary.

The Trinity Municipal Management District will continue to provide infrastructure to support its private development plans, primarily around Trinity Groves. Future residential and non-residential projects will likely require the contributions of funding from the Trinity Municipal Management District in order to ensure that infrastructure capacities can support development.

The Sports Arena TIF District may provide significant funding for infrastructure improvements in West Dallas. As Victory Park continues to add significant value, ten percent of the Victory sub-district increment may be used in the portion of West Dallas within the Sports Arena TIF District. West Dallas must collectively advocate for the best use of these funds and realize the potential that this funding source creates within the northern half of the study area. This report will serve as a vital resource as the Sports Arena TIF District reviews requests for infrastructure funding related to new private development projects.

Finally, the Fort Worth Avenue TIF provides funding sources within the southern half of the study area. Development occurring within the TIF district, including Sylvan | Thirty, will continue to raise the valuation of the district and will continue to add additional revenues for infrastructure improvements. The TIF board should use catalyst areas identified within this plan, and their supporting infrastructure needs, to assess which projects should receive priority. The project listing, phasing and cost estimates contained within this report will help to serve as a basis for coordinating limited TIF funds.

Figure 39: Combined Financing Entities



Funding

Appendix A

West Dallas Signature Point Project

Phase I Roadway, Water and Wastewater Cost Estimates

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (PAVING)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**
Project Description: Amonette Street - Singleton to Main (Phase 1) — *Date:* **7/30/2013**
Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
102	1,896	CY	Unclassified Street Excavation	$17.00	$32,232.00
107	948	CY	Select Borrow Material for Subgrade	$28.00	$26,544.00
201	2,920	SY	Remove Concrete Drive and Apron	$10.00	$29,200.00
202	830	LF	Remove Concrete Curb and Gutter	$9.00	$7,470.00
203	1,500	SF	Remove Concrete Sidewalk	$2.00	$3,000.00
203A	475	SF	Remove Concrete Sidewalk (Brick Pavers)	$2.00	$950.00
210	150	LF	Remove and Reset Fence	$15.00	$2,250.00
355	1,167	SF	4-inch Thick Reinforced Concrete Walk	$5.00	$5,835.00
407	2,624	LF	6-inch Reinforced Concrete Curb w/ 12" Gutter	$22.00	$57,728.00
454	482	SY	9-inch Reinforced Concrete Pvmt. (Intersections only)	$63.00	$30,366.00
454A	480	SY	9-inch Thick Reinf. Conc. Crosswalks (Stamped & stained)	$76.00	$36,480.00
454B	5,495	SY	9-inch Thick Reinforced Concrete (Intersection Pavement Excluded)	$63.00	$346,185.00
457	760	SY	6-inch Thick Reinforced Concrete Driveway	$50.00	$38,000.00
514	7,872	SY	Lime Stabilization Base Course (Bus lanes & conc. Pvmt.)	$5.00	$39,360.00
515	3	TN	Hydrated Lime (35 lbs./SY)	$163.00	$489.00
521	94	TN	Material for Temp. Maintenance of Traffic	$28.00	$2,632.00
607A	6,107	SY	Bermuda Grass Block Sodding	$6.00	$36,642.00
618	1,000	SF	6-inch Reinforced Concrete Barrier Free Ramp	$9.00	$9,000.00
625	4	EA	Remove and Reset Mail Boxes	$182.00	$728.00
626A	10	EA	Remove and Reset Traffic Control Sign	$220.00	$2,200.00
639	40	EA	Tree Removal	$540.00	$21,600.00
645	2,130	LF	Geotextile Silt Fencing	$3.00	$6,390.00
722	5,248	LF	4-inch Thermoplastic Lane Markers	$2.00	$10,496.00
900	70	EA	Tree	$417.00	$29,190.00
901A	4	EA	Furnish & Install Decorative Bench	$2,250.00	$9,000.00
901B	4	EA	Furnish & Install Decorative Trash Receptacle	$2,650.00	$10,600.00
901C	10	EA	Pedestrian Light Fixture with Taller Pole	$7,350.00	$73,500.00
1225C	1	LS	Storm Water Pollution Prevention Measures	$4,273.00	$4,273.00
1601A	1	LS	Traffic Control	$11,627.00	$11,627.00
The quantities and prices shown hereon are an indication of the Engineer's				**Sub-total**	$883,967.00
opinion of probable construction costs associated with the referenced				**20% Contingency**	$176,793.40
project and are NOT a guarantee of individual or total construction costs.				**15% Engineering / Surveying**	$26,519.01
				TOTAL	$1,087,279.41

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (PAVING)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**
Project Description: Bataan Street - Singleton to Main (Phase 1) — *Date:* **7/30/2013**
Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
102	2,314	CY	Unclassified Street Excavation	$17.00	$39,338.00
107	1,157	CY	Select Borrow Material for Subgrade	$28.00	$32,396.00
407	3,000	LF	6-inch Reinforced Concrete Curb w/ 12" Gutter	$22.00	$66,000.00
454	747	SY	9-inch Reinforced Concrete Pvmt. (Intersections only)	$63.00	$47,061.00
454A	245	SY	9-inch Thick Reinf. Conc. Crosswalks (Stamped & stained)	$76.00	$18,620.00
454B	6,195	SY	9-inch Thick Reinforced Concrete (Intersection Pavement Excluded)	$63.00	$390,285.00
457	1,574	SY	6-inch Thick Reinforced Concrete Driveway	$50.00	$78,700.00
514	5,600	SY	Lime Stabilization Base Course (Bus lanes & conc. Pvmt.)	$5.00	$28,000.00
515	100	TN	Hydrated Lime (35 lbs./SY)	$163.00	$16,300.00
521	49	TN	Material for Temp. Maintenance of Traffic	$28.00	$1,372.00
607A	3,156	SY	Bermuda Grass Block Sodding	$6.00	$18,936.00
618	1,500	SF	6-inch Reinforced Concrete Barrier Free Ramp	$9.00	$13,500.00
625	10	EA	Remove and Reset Mail Boxes	$182.00	$1,820.00
626A	10	EA	Remove and Reset Traffic Control Sign	$220.00	$2,200.00
639	80	EA	Tree Removal	$540.00	$43,200.00
645	2,800	LF	Geotextile Silt Fencing	$3.00	$8,400.00
722	4,806	LF	4-inch Thermoplastic Lane Markers	$2.00	$9,612.00
900	108	EA	Tree	$417.00	$45,036.00
901A	12	EA	Furnish & Install Decorative Bench	$2,250.00	$27,000.00
901B	12	EA	Furnish & Install Decorative Trash Receptacle	$2,650.00	$31,800.00
901C	17	EA	Pedestrian Light Fixture with Taller Pole	$7,350.00	$124,950.00
1225C	1	LS	Storm Water Pollution Prevention Measures	$5,220.00	$5,220.00
1601A	1	LS	Traffic Control	$14,200.00	$14,200.00
The quantities and prices shown hereon are an indication of the Engineer's				**Sub-total**	$1,063,946.00
opinion of probable construction costs associated with the referenced				**20% Contingency**	$212,789.20
project and are NOT a guarantee of individual or total construction costs.				**15% Engineering / Surveyin**	$31,918.38
				TOTAL	$1,308,653.58

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (PAVING)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**
Project Description: Herbert Street - Toronto to Commerce (Phase 1) — *Date:* **7/30/2013**
Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
102	3,153	CY	Unclassified Street Excavation	$17.00	$53,601.00
107	1,577	CY	Select Borrow Material for Subgrade	$28.00	$44,142.00
201	7,525	SY	Remove Concrete Drive and Apron	$10.00	$75,250.00
202	660	LF	Remove Concrete Curb and Gutter	$9.00	$5,940.00
202A	980	SY	Remove Asphalt Pavement	$8.00	$7,840.00
203	2,305	SF	Remove Concrete Sidewalk	$2.00	$4,610.00
355	18,056	SF	4-inch Thick Reinforced Concrete Walk	$5.00	$90,280.00
407	4,514	LF	6-inch Reinforced Concrete Curb w/ 12" Gutter	$22.00	$99,308.00
454	600	SY	9-inch Reinforced Concrete Pvmt. (Intersections only)	$63.00	$37,800.00
454A	380	SY	9-inch Thick Reinf. Conc. Crosswalks (Stamped & stained)	$76.00	$28,880.00
454B	8,480	SY	9-inch Thick Reinforced Concrete (Intersection Pavement Excluded)	$63.00	$534,240.00
457	1,574	SY	6-inch Thick Reinforced Concrete Driveway	$50.00	$78,700.00
514	9,458	SY	Lime Stabilization Base Course (Bus lanes & conc. Pvmt.)	$5.00	$47,290.00
515	165	TN	Hydrated Lime (35 lbs./SY)	$163.00	$26,895.00
521	69	TN	Material for Temp. Maintenance of Traffic	$28.00	$1,932.00
607A	4,446	SY	Bermuda Grass Block Sodding	$6.00	$26,676.00
618	1,700	SF	6-inch Reinforced Concrete Barrier Free Ramp	$9.00	$15,300.00
625	10	EA	Remove and Reset Mail Boxes	$182.00	$1,820.00
626A	5	EA	Remove and Reset Traffic Control Sign	$220.00	$1,100.00
639	10	EA	Tree Removal	$540.00	$5,400.00
645	4,514	LF	Geotextile Silt Fencing	$3.00	$13,542.00
722	6,771	LF	4-inch Thermoplastic Lane Markers	$2.00	$13,542.00
900	152	EA	Tree	$417.00	$63,384.00
901A	16	EA	Furnish & Install Decorative Bench	$2,250.00	$36,000.00
901B	16	EA	Furnish & Install Decorative Trash Receptacle	$2,650.00	$42,400.00
901C	23	EA	Pedestrian Light Fixture with Taller Pole	$7,350.00	$169,050.00
1225C	1	LS	Storm Water Pollution Prevention Measures	$10,000.00	$10,000.00
1601A	1	LS	Traffic Control	$20,000.00	$20,000.00
The quantities and prices shown hereon are an indication of the Engineer's				**Sub-total**	$1,554,922.00
opinion of probable construction costs associated with the referenced				**20% Contingency**	$310,984.40
project and are NOT a guarantee of individual or total construction costs.				**15% Engineering / Surveying**	$46,647.66
				TOTAL	$1,912,554.06

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (PAVING)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**
Project Description: Singleton Street Paving - Beckley to Sylvan (Phase 1) — *Date:* **7/30/2013**
Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
102	9,300	CY	Unclassified Street Excavation	$17.00	$158,100.00
107	4,650	CY	Select Borrow Material for Subgrade	$28.00	$130,200.00
201	20,667	SY	Remove Concrete Drive and Apron	$10.00	$206,670.00
202	7,032	LF	Remove Concrete Curb and Gutter	$9.00	$63,288.00
203	800	SF	Remove Concrete Sidewalk	$2.00	$1,600.00
203A	24,000	SF	Remove Concrete Sidewalk (Brick Pavers)	$2.00	$48,000.00
210	80	LF	Remove and Reset Fence	$15.00	$1,200.00
355	37,200	SF	4-inch Thick Reinforced Concrete Walk	$5.00	$186,000.00
407	7,032	LF	6-inch Reinforced Concrete Curb w/ 12" Gutter	$22.00	$154,704.00
454	7,053	SY	9-inch Reinforced Concrete Pvmt. (Intersections only)	$63.00	$444,339.00
454A	2,303	SY	9-inch Thick Reinf. Conc. Crosswalks (Stamped & stained)	$76.00	$175,028.00
454B	27,392	SY	9-inch Thick Reinforced Concrete (Intersection Pavement Excluded)	$63.00	$1,725,696.00
457	2,161	SY	6-inch Thick Reinforced Concrete Driveway	$50.00	$108,050.00
514	34,445	SY	Lime Stabilization Base Course (Bus lanes & conc. Pvmt.)	$5.00	$172,225.00
515	13	TN	Hydrated Lime (35 lbs./SY)	$163.00	$2,119.00
521	94	TN	Material for Temp. Maintenance of Traffic	$28.00	$2,632.00
607A	6,107	SY	Bermuda Grass Block Sodding	$6.00	$36,642.00
618	5,700	SF	6-inch Reinforced Concrete Barrier Free Ramp	$9.00	$51,300.00
625	10	EA	Remove and Reset Mail Boxes	$182.00	$1,820.00
626A	10	EA	Remove and Reset Traffic Control Sign	$220.00	$2,200.00
639	46	EA	Tree Removal	$540.00	$24,840.00
645	6,200	LF	Geotextile Silt Fencing	$3.00	$18,600.00
722	12,400	LF	4-inch Thermoplastic Lane Markers	$2.00	$24,800.00
722A	6,200	LF	Thermoplastic Striping for Bike Lane	$2.00	$12,400.00
729C	6	EA	Procure/Install Reg/Guide Sign for Bike Lane	$375.00	$2,250.00
900	312	EA	Tree	$417.00	$130,104.00
901A	22	EA	Furnish & Install Decorative Bench	$2,250.00	$49,500.00
901B	22	EA	Furnish & Install Decorative Trash Receptacle	$2,650.00	$58,300.00
901C	31	EA	Pedestrian Light Fixture with Taller Pole	$7,350.00	$227,850.00
1225C	1	LS	Storm Water Pollution Prevention Measures	$14,000.00	$14,000.00
1601A	1	LS	Traffic Control	$27,500.00	$27,500.00
The quantities and prices shown hereon are an indication of the Engineer's				**Sub-total**	$4,261,957.00
opinion of probable construction costs associated with the referenced				**20% Contingency**	$852,391.40
project and are NOT a guarantee of individual or total construction costs.				**15% Engineering / Surveying**	$127,858.71
				TOTAL	$5,242,207.11

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 12" Water Gulden Ln (Amonette). - Singleton to Main (Phase 1) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WATER MAIN		
1800HP	120	LF	6" PVC Water Pipe with Paving	$47.00	$5,640.00
1800LP	1090	LF	12" PVC Water Pipe with Paving	$62.00	$67,580.00
5020	2	TN	Cast Iron Fittings	$2,200.00	$4,400.00
5050	5	EA	Water Service	$2,500.00	$12,500.00
5091	4	EA	Install Fire Hydrant	$3,300.00	$13,200.00
5092	4	EA	Remove Fire Hydrant	$350.00	$1,400.00
5093	4	EA	Deliver Fire Hydrant	$125.00	$500.00
5100H	4	EA	6" Gate Valve	$1,200.00	$4,800.00
5100L	6	EA	12" Gate Valve	$2,500.00	$15,000.00
5120H	4	EA	Remove, Salvage, & Deliver 6" Valve	$250.00	$1,000.00
5120J	5	EA	Remove, Salvage, & Deliver 8" Valve	$500.00	$2,500.00
5600	3	EA	Cut and Plug Existing Main	$650.00	$1,950.00
5610	3	EA	Cut and Plug Main for Test	$850.00	$2,550.00
6925	1210	LF	Trench Safety & Support	$2.50	$3,025.00
7030	60	CY	Rock Foundation	$40.00	$2,400.00
7040	7	CY	Stabilized Backfill	$90.00	$630.00
7041	3	CY	Flowable Backfill	$125.00	$375.00
7050	162	CY	Sand Backfill	$18.00	$2,916.00
7071	7	CY	Class B Concrete	$115.00	$805.00
7730	1	LS	Disposal of Heavy Chlorinated Water Main for Flushing	$4,000.00	$4,000.00
8011	1210	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$4,840.00
			WATER MAIN SUBTOTAL		*$152,011.00*
			WATER ADJUSTMENTS		
20300	5	EA	Adjust Water Meter Box	$330.00	$1,650.00
20330	3	EA	Adjust Water Valve Covers & Stacks	$230.00	$690.00
20500	3	EA	Investigation	$700.00	$2,100.00
			WATER ADJUSTMENTS SUBTOTAL		*$4,440.00*

The quantities and prices shown hereon are an indication of the Engineer's	**Sub-total**	$156,451.00
opinion of probable construction costs associated with the referenced	**20% Contingency**	$31,290.20
project and are NOT a guarantee of individual or total construction costs.	**15% Engineering / Surveying**	$23,467.65
	Grand Total	$211,208.85

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 12" Water Herbert Street - Singleton to Commerce (Phase 1) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WATER MAIN		
1800H	210	LF	6" PVC Water Pipe	$50.00	$10,500.00
1800L	2000	LF	12" PVC Water Pipe	$75.00	$150,000.00
5020	3	TN	Cast Iron Fittings	$2,200.00	$6,600.00
5050	10	EA	Water Service	$2,500.00	$25,000.00
5091	7	EA	Install Fire Hydrant	$3,300.00	$23,100.00
5092	7	EA	Remove Fire Hydrant	$350.00	$2,450.00
5093	7	EA	Deliver Fire Hydrant	$125.00	$875.00
5100H	7	EA	6" Gate Valve	$1,200.00	$8,400.00
5100L	2	EA	12" Gate Valve	$2,500.00	$5,000.00
5120H	1	EA	Remove, Salvage, & Deliver 6" Valve	$250.00	$250.00
5600	6	EA	Cut and Plug Existing Main	$650.00	$3,900.00
5610	6	EA	Cut and Plug Main for Test	$850.00	$5,100.00
6925	2210	LF	Trench Safety & Support	$2.50	$5,525.00
7030	82	CY	Rock Foundation	$40.00	$3,280.00
7040	13	CY	Stabilized Backfill	$90.00	$1,170.00
7041	4	CY	Flowable Backfill	$125.00	$500.00
7050	220	CY	Sand Backfill	$18.00	$3,960.00
7071	10	CY	Class B Concrete	$115.00	$1,150.00
7730	1	LS	Disposal of Heavy Chlorinated Water Main for Flushing	$4,000.00	$4,000.00
8011	2210	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$8,840.00
			WATER MAIN SUBTOTAL		*$269,600.00*
			WATER ADJUSTMENTS		
20300	10	EA	Adjust Water Meter Box	$330.00	$3,300.00
20330	2	EA	Adjust Water Valve Covers & Stacks	$230.00	$460.00
20500	1	EA	Investigation	$700.00	$700.00
			WATER ADJUSTMENTS SUBTOTAL		*$4,460.00*

The quantities and prices shown hereon are an indication of the Engineer's	**Sub-total**	$274,060.00
opinion of probable construction costs associated with the referenced	**20% Contingency**	$54,812.00
project and are NOT a guarantee of individual or total construction costs.	**15% Engineering / Surveying**	$41,109.00
	Grand Total	$369,981.00

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 16" Water Main Street - Bataan to Beckley (Phase 1) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WATER MAIN		
1800HP	270	LF	6" PVC Water Pipe with Paving	$47.00	$12,690.00
1805QP	2700	LF	16" PVC Water Pipe with Paving	$160.00	$432,000.00
5020	4	TN	Cast Iron Fittings	$2,200.00	$8,800.00
5050	20	EA	Water Service	$2,500.00	$50,000.00
5091	9	EA	Install Fire Hydrant	$3,300.00	$29,700.00
5092	9	EA	Remove Fire Hydrant	$350.00	$3,150.00
5093	9	EA	Deliver Fire Hydrant	$125.00	$1,125.00
5100H	9	EA	6" Gate Valve	$1,200.00	$10,800.00
5100Q	6	EA	16" Gate Valve	$21,383.00	$128,298.00
5120H	9	EA	Remove, Salvage, & Deliver 6" Valve	$250.00	$2,250.00
5120J	6	EA	Remove, Salvage, & Deliver 8" Valve	$500.00	$3,000.00
5160	6	EA	60" Diameter Water Manhole	$11,000.00	$66,000.00
5600	5	EA	Cut and Plug Existing Main	$650.00	$3,250.00
5610	5	EA	Cut and Plug Main for Test	$850.00	$4,250.00
6925	2970	LF	Trench Safety & Support	$2.50	$7,425.00
7030	141	CY	Rock Foundation	$40.00	$5,640.00
7040	17	CY	Stabilized Backfill	$90.00	$1,530.00
7041	6	CY	Flowable Backfill	$125.00	$750.00
7050	592	CY	Sand Backfill	$18.00	$10,656.00
7071	16	CY	Class B Concrete	$115.00	$1,840.00
7730	1	LS	Disposal of Heavy Chlorinated Water Main for Flushing	$4,000.00	$4,000.00
8011	2970	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$11,880.00
			WATER MAIN SUBTOTAL		*$799,034.00*
			WATER ADJUSTMENTS		
20300	20	EA	Adjust Water Meter Box	$330.00	$6,600.00
20330	3	EA	Adjust Water Valve Covers & Stacks	$230.00	$690.00
20500	6	EA	Investigation	$700.00	$4,200.00
			WATER ADJUSTMENTS SUBTOTAL		*$11,490.00*

The quantities and prices shown hereon are an indication of the Engineer's	**Sub-total**	$810,524.00
opinion of probable construction costs associated with the referenced	**20% Contingency**	$162,104.80
project and are NOT a guarantee of individual or total construction costs.	**15% Engineering / Surveying**	$121,578.60
	Grand Total	$1,094,207.40

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 12" Water Main in Bataan Street - Singleton to Main (Phase 1) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WATER MAIN		
1800H	150	LF	6" PVC Water Pipe	$50.00	$7,500.00
1800L	1500	LF	12" PVC Water Pipe	$75.00	$112,500.00
5020	2	TN	Cast Iron Fittings	$2,200.00	$4,400.00
5050	10	EA	Water Service	$2,500.00	$25,000.00
5091	5	EA	Install Fire Hydrant	$3,300.00	$16,500.00
5092	5	EA	Remove Fire Hydrant	$350.00	$1,750.00
5093	5	EA	Deliver Fire Hydrant	$125.00	$625.00
5100H	5	EA	6" Gate Valve	$1,200.00	$6,000.00
5100L	8	EA	12" Gate Valve	$2,500.00	$20,000.00
5120H	2	EA	Remove, Salvage, & Deliver 6" Valve	$250.00	$500.00
5120L	1	EA	Remove, Salvage, & Deliver 12" Valve	$750.00	$750.00
5600	6	EA	Cut and Plug Existing Main	$650.00	$3,900.00
5610	6	EA	Cut and Plug Main for Test	$850.00	$5,100.00
6925	2000	LF	Trench Safety & Support	$2.50	$5,000.00
7030	81	CY	Rock Foundation	$40.00	$3,240.00
7040	12	CY	Stabilized Backfill	$90.00	$1,080.00
7041	4	CY	Flowable Backfill	$125.00	$500.00
7050	220	CY	Sand Backfill	$18.00	$3,960.00
7071	9	CY	Class B Concrete	$115.00	$1,035.00
7730	1	LS	Disposal of Heavy Chlorinated Water Main for Flushing	$4,000.00	$4,000.00
8011	2000	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$8,000.00
			WATER MAIN SUBTOTAL		*$231,340.00*
			WATER ADJUSTMENTS		
20300	10	EA	Adjust Water Meter Box	$330.00	$3,300.00
20330	6	EA	Adjust Water Valve Covers & Stacks	$230.00	$1,380.00
20500	3	EA	Investigation	$700.00	$2,100.00
			WATER ADJUSTMENTS SUBTOTAL		*$6,780.00*

The quantities and prices shown hereon are an indication of the Engineer's	**Sub-total**	$238,120.00
opinion of probable construction costs associated with the referenced	**20% Contingency**	$47,624.00
project and are NOT a guarantee of individual or total construction costs.	**15% Engineering / Surveying**	$35,718.00
	Grand Total	$321,462.00

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 24" & 16" W.W. Fabrication Street - Sylvan to Poe (Phase 1) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WASTEWATER MAIN		
3120VP	1080	LF	24" PVC Pressure Rated Wastewater Pipe with Paving	$163.00	$176,040.00
3120QP	1930	LF	16" PVC Pressure Rated Wastewater Pipe with Paving	$109.00	$210,370.00
6060	28	EA	Wastewater Lateral	$1,950.00	$54,600.00
6130AG	10	EA	60" Wastewater Manhole	$8,700.00	$87,000.00
6141	10	EA	Vacuum Test for Wastewater Manhole	$250.00	$2,500.00
6920	3010	LF	Television Inspection	$3.00	$9,030.00
6925	3010	LF	Trench Safety & Support	$1.50	$4,515.00
7030	465	CY	Rock Foundation	$35.00	$16,275.00
7040	26	CY	Stabilized Backfill	$90.00	$2,340.00
7041	8	CY	Flowable Backfill	$125.00	$1,000.00
7050	640	CY	Sand Backfill	$20.00	$12,800.00
8011	3010	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$12,040.00
			WASTEWATER MAIN SUBTOTAL		*$588,510.00*
			WASTEWATER ADJUSTMENTS		
20500	7	EA	Investigation	$400.00	$2,800.00
			WASTEWATER ADJUSTMENTS SUBTOTAL		*$2,800.00*

The quantities and prices shown hereon are an indication of the Engineer's	**Sub-total**	$591,310.00
opinion of probable construction costs associated with the referenced	**20% Contingency**	$118,262.00
project and are NOT a guarantee of individual or total construction costs.	**15% Engineering / Surveying**	$88,696.50
	Grand Total	$798,268.50

Appendix B

West Dallas Signature Point Project

Phase II Roadway, Water and Wastewater Cost Estimates

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (PAVING)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**
Project Description: Commerce Street Paving - Sylvan to Herbert (Phase 1) — *Date:* **7/30/2013**
Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
102	5,548	CY	Unclassified Street Excavation	$17.00	$94,316.00
107	2,774	CY	Select Borrow Material for Subgrade	$28.00	$77,672.00
201	16,644	SY	Remove Concrete Drive and Apron	$10.00	$166,440.00
202	4,832	LF	Remove Concrete Curb and Gutter	$9.00	$43,488.00
203	19,328	SF	Remove Concrete Sidewalk	$2.00	$38,656.00
355	28,992	SF	4-inch Thick Reinforced Concrete Walk	$5.00	$144,960.00
407	4,832	LF	6-inch Reinforced Concrete Curb w/ 12" Gutter	$22.00	$106,304.00
454	5,916	SY	9-inch Reinforced Concrete Pvmt. (Intersections only)	$63.00	$372,708.00
454A	3,000	SY	9-inch Thick Reinf. Conc. Crosswalks (Stamped & stained)	$76.00	$228,000.00
454B	10,728	SY	9-inch Thick Reinforced Concrete (Intersection Pavement Excluded)	$63.00	$675,864.00
457	1,400	SY	6-inch Thick Reinforced Concrete Driveway	$50.00	$70,000.00
514	24,966	SY	Lime Stabilization Base Course (Bus lanes & conc. Pvmt.)	$5.00	$124,830.00
515	292	TN	Hydrated Lime (35 lbs./SY)	$163.00	$47,596.00
521	74	TN	Material for Temp. Maintenance of Traffic	$28.00	$2,072.00
607A	4,759	SY	Bermuda Grass Block Sodding	$6.00	$28,554.00
618	3,600	SF	6-inch Reinforced Concrete Barrier Free Ramp	$9.00	$32,400.00
625	20	EA	Remove and Reset Mail Boxes	$182.00	$3,640.00
626A	10	EA	Remove and Reset Traffic Control Sign	$220.00	$2,200.00
639	80	EA	Tree Removal	$540.00	$43,200.00
645	4,832	LF	Geotextile Silt Fencing	$3.00	$14,496.00
722	9,664	LF	4-inch Thermoplastic Lane Markers	$2.00	$19,328.00
900	242	EA	Tree	$417.00	$100,914.00
901A	18	EA	Furnish & Install Decorative Bench	$2,250.00	$40,500.00
901B	18	EA	Furnish & Install Decorative Trash Receptacle	$2,650.00	$47,700.00
901C	25	EA	Pedestrian Light Fixture with Taller Pole	$7,350.00	$183,750.00
1225C	1	LS	Storm Water Pollution Prevention Measures	$7,870.00	$7,870.00
1601A	1	LS	Traffic Control	$21,410.00	$21,410.00
The quantities and prices shown hereon are an indication of the Engineer's				**Sub-total**	$2,738,868.00
opinion of probable construction costs associated with the referenced				**20% Contingency**	$547,773.60
project and are NOT a guarantee of individual or total construction costs.				**15% Engineering / Surveying**	$82,166.04
				TOTAL	$3,368,807.64

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (PAVING)

Project Name: Beckley to Herbert *PK No:* **3018-09.155**

Prepared By: *Date:* **11/30/2010**

Item No.	Est. Quant.	Unit	Description	Unit Price	Total
102	2600	CY	Unclassified Street Excavation	$14.00	$36,400.00
107	2,225	CY	Select Borrow Material for Subgrade	$23.00	$51,175.00
201	1911	SY	Remove Concrete Drive and Apron	$8.00	$15,288.00
202	6,600	LF	Remove Concrete Curb and Gutter	$5.00	$42,000.00
203	23,500	SF	Remove Concrete Sidewalk	$1.00	$23,500.00
204	65	EA	Remove Concrete or Masonry Steps	$191.00	$8,125.00
210	750	LF	Remove and Reset Fence	$15.00	$11,250.00
320	120	LF	Concrete Sidewalk Curb	$8.00	$960.00
355	29,450	SF	4-inch Thick Reinforced Concrete Walk	$4.00	$117,800.00
407	5,700	LF	6-inch Reinforced Concrete Curb w/ 12" Gutter	$20.00	$114,000.00
416	60	CY	Reinforced Concrete Type 3 or 4 steps	$674.00	$40,440.00
423	29	CY	Reinforced Concrete Type 6 Retaining Wall	$575.00	$16,675.00
454	1200	SY	9-inch Reinforced Concrete Pvmt. (Intersections only)	$49.00	$58,800.00
454A	1550	SY	9-inch Thick Reinf. Conc. Crosswalks (Stamped & stained)	$51.00	$79,050.00
454B	760	SY	9-inch Thick Reinforced Concrete Bus Lane	$49.00	$37,240.00
457	2300	SY	6-inch Thick Reinforced Concrete Driveway	$39.00	$89,700.00
504	4,375	TON	Asphalt Concrete Fine Grade Surface Course (4" Avg.)	$115.00	$503,125.00
514	3,400	SY	Lime Stabilization Base Course (Bus lanes & conc. Pvmt.)	$3.00	$10,200.00
515	60	TN	Hydrated Lime (35 lbs./SY)	$138.00	$8,280.00
516	18,850	SY	Surface Milling	$5.00	$94,250.00
519A	19,600	SY	Slurry Seal	$3.00	$58,800.00
521	100	TN	Material for Temp. Maintenance of Traffic	$29.00	$2,900.00
604	7,100	LF	Sawed Breakout Groove	$2.50	$17,750.00
607A	6500	SY	Bermuda Grass Block Sodding	$4.00	$26,000.00
618	3500	SF	6-inch Reinforced Concrete Barrier Free Ramp	$8.00	$28,000.00
625	2	EA	Remove and Reset Mail Boxes	$112.00	$224.00
626A	37	EA	Remove and Reset Traffic Control Sign	$150.00	$5,550.00
639	10	EA	Tree Removal	$500.00	$5,000.00
645	6900	LF	Geotextile Silt Fencing	$1.40	$9,660.00
722	1	LS	4-inch Thermoplastic Lane Markers	$20,000.00	$20,000.00
722A	13,500	LF	Thermoplastic Striping for Bike Lane	$2.00	$27,000.00
729C	6	EA	Procure/Install Reg/Guide Sign for Bike Lane	$350.00	$2,100.00
1601A	1	LS	Traffic Control	$50,000.00	$50,000.00
0	0	0	0	$0.00	$0.00

The quantities and prices shown hereon are an indication of the Engineer's opinion of probable construction costs associated with the referenced project and are NOT a guarantee of individual or total construction costs.

Sub-total	$1,611,242.00
Contingency	$161,124.20
TOTAL	$1,772,366.20

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 20" Water Main in Commerce St. - Sylvan to Beckley (Phase 2) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WATER MAIN		
1800H	540	LF	6" PVC Water Pipe	$50.00	$27,000.00
2010S	5130	LF	20" Prestressed Concrete Cylinder Pipe	$479.00	$2,457,270.00
5020	7	TN	Cast Iron Fittings	$2,200.00	$15,400.00
5050	100	EA	Water Service	$2,500.00	$250,000.00
5091	18	EA	Install Fire Hydrant	$3,300.00	$59,400.00
5092	18	EA	Remove Fire Hydrant	$350.00	$6,300.00
5093	18	EA	Deliver Fire Hydrant	$125.00	$2,250.00
5100H	18	EA	6" Gate Valve	$1,000.00	$18,000.00
5100S	24	EA	20" Gate Valve	$1,300.00	$31,200.00
5120H	18	EA	Remove, Salvage, & Deliver 6" Valve	$250.00	$4,500.00
5120L	20	EA	Remove, Salvage, & Deliver 12" Valve	$750.00	$15,000.00
5160	24	EA	60" Diameter Water Manhole	$11,000.00	$264,000.00
5600	15	EA	Cut and Plug Existing Main	$650.00	$9,750.00
5610	15	EA	Cut and Plug Main for Test	$850.00	$12,750.00
6925	5670	LF	Trench Safety & Support	$2.50	$14,175.00
7030	475	CY	Rock Foundation	$40.00	$19,000.00
7040	33	CY	Stabilized Backfill	$90.00	$2,970.00
7041	10	CY	Flowable Backfill	$125.00	$1,250.00
7050	1140	CY	Sand Backfill	$18.00	$20,520.00
7071	23	CY	Class B Concrete	$115.00	$2,645.00
7730	1	LS	Disposal of Heavy Chlorinated Water Main for Flushing	$4,000.00	$4,000.00
8011	5670	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$22,680.00
			WATER MAIN SUBTOTAL		$3,260,060.00
			WATER ADJUSTMENTS		
20300	100	EA	Adjust Water Meter Box	$330.00	$33,000.00
20330	22	EA	Adjust Water Valve Covers & Stacks	$230.00	$5,060.00
20500	10	EA	Investigation	$700.00	$7,000.00
			WATER ADJUSTMENTS SUBTOTAL		*$45,060.00*
The quantities and prices shown hereon are an indication of the Engineer's				**Sub-total**	$3,305,120.00
opinion of probable construction costs associated with the referenced				**20% Contingency**	$661,024.00
project and are NOT a guarantee of individual or total construction costs.				**15% Engineering / Surveying**	$495,768.00
				TOTAL	$4,461,912.00

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 16" Water Main in Main St. - Slyvan to Bataan (Phase 2) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WATER MAIN		
1800HP	180	LF	6" PVC Water Pipe with Paving	$47.00	$8,460.00
1805QP	1590	LF	16" PVC Water Pipe with Paving	$160.00	$254,400.00
5020	2	TN	Cast Iron Fittings	$2,200.00	$4,400.00
5050	10	EA	Water Service	$2,500.00	$25,000.00
5091	6	EA	Install Fire Hydrant	$3,300.00	$19,800.00
5092	6	EA	Remove Fire Hydrant	$350.00	$2,100.00
5093	6	EA	Deliver Fire Hydrant	$125.00	$750.00
5100H	6	EA	6" Gate Valve	$1,200.00	$7,200.00
5100Q	8	EA	16" Gate Valve	$21,383.00	$171,064.00
5120J	5	EA	Remove, Salvage, & Deliver 8" Valve	$500.00	$2,500.00
5120L	2	EA	Remove, Salvage, & Deliver 12" Valve	$750.00	$1,500.00
5160	24	EA	60" Diameter Water Manhole	$11,000.00	$264,000.00
5600	7	EA	Cut and Plug Existing Main	$650.00	$4,550.00
5610	7	EA	Cut and Plug Main for Test	$850.00	$5,950.00
6925	1770	LF	Trench Safety & Support	$2.50	$4,425.00
7030	125	CY	Rock Foundation	$40.00	$5,000.00
7040	10	CY	Stabilized Backfill	$90.00	$900.00
7041	3	CY	Flowable Backfill	$125.00	$375.00
7050	355	CY	Sand Backfill	$18.00	$6,390.00
7071	8	CY	Class B Concrete	$115.00	$920.00
7730	1	LS	Disposal of Heavy Chlorinated Water Main for Flushing	$4,000.00	$4,000.00
8011	1770	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$7,080.00
			WATER MAIN SUBTOTAL		$800,764.00
			WATER ADJUSTMENTS		
20300	10	EA	Adjust Water Meter Box	$330.00	$3,300.00
20330	5	EA	Adjust Water Valve Covers & Stacks	$230.00	$1,150.00
20500	5	EA	Investigation	$700.00	$3,500.00
			WATER ADJUSTMENTS SUBTOTAL		$7,950.00

The quantities and prices shown hereon are an indication of the Engineer's	**Sub-total**	$808,714.00
opinion of probable construction costs associated with the referenced	**20% Contingency**	$161,742.80
project and are NOT a guarantee of individual or total construction costs.	**15% Engineering / Surveying**	$121,307.10
	TOTAL	$1,091,763.90

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 16" Wastewater Main in Commerce St. - Yorktown to Commerce (Phase 2) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
WASTEWATER MAIN					
3120V	1610	LF	24" PVC Pressure Rated Wastewater Pipe	$200.00	$322,000.00
3120Q	3170	LF	16" PVC Pressure Rated Wastewater Pipe	$150.00	$475,500.00
6060	50	EA	Wastewater Lateral	$1,100.00	$55,000.00
6130AE	9	EA	48" Wastewater Manhole	$6,000.00	$54,000.00
6130AG	6	EA	60" Wastewater Manhole	$8,000.00	$48,000.00
6141	15	EA	Vacuum Test for Wastewater Manhole	$250.00	$3,750.00
6920	4780	LF	Television Inspection (City)	$1.50	$7,170.00
6925	4780	LF	Trench Safety & Support	$1.50	$7,170.00
7030	390	CY	Rock Foundation	$35.00	$13,650.00
7040	40	CY	Stabilized Backfill	$90.00	$3,600.00
7041	12	CY	Flowable Backfill	$125.00	$1,500.00
7050	1340	CY	Sand Backfill	$20.00	$26,800.00
8011	4780	LF	Construction Surveying & Staking (Water & WW Mains)	$1.00	$4,780.00
			WASTEWATER MAIN SUBTOTAL		$1,022,920.00
WASTEWATER ADJUSTMENTS					
20500	15	EA	Investigation	$400.00	$6,000.00
			WASTEWATER ADJUSTMENTS SUBTOTAL		*$6,000.00*
The quantities and prices shown hereon are an indication of the Engineer's				**Sub-total**	$1,028,920.00
opinion of probable construction costs associated with the referenced				**20% Contingency**	$205,784.00
project and are NOT a guarantee of individual or total construction costs.				**15% Engineering / Surveying**	$154,338.00
				TOTAL	$1,389,042.00

Appendix C

West Dallas Signature Point Project
Phase III Water and Wastewater Cost Estimates

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 12" Water Famous Dr. - Commerce to Yorktown (Phase 3) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WATER MAIN		
1800HP	90	LF	6" PVC Water with Paving	$47.00	$4,230.00
1800LP	690	LF	12" PVC Water Pipe with Paving	$62.00	$42,780.00
5020	2	TN	Cast Iron Fittings	$2,200.00	$4,400.00
5050	28	EA	Water Service	$2,500.00	$70,000.00
5091	3	EA	Install Fire Hydrant	$3,300.00	$9,900.00
5092	3	EA	Remove Fire Hydrant	$350.00	$1,050.00
5093	3	EA	Deliver Fire Hydrant	$125.00	$375.00
5100H	3	EA	6" Gate Valve	$1,200.00	$3,600.00
5100L	4	EA	12" Gate Valve	$2,500.00	$10,000.00
5600	3	EA	Cut and Plug Existing Main	$650.00	$1,950.00
5610	3	EA	Cut and Plug Main for Test	$850.00	$2,550.00
6925	780	LF	Trench Safety & Support	$2.50	$1,950.00
7030	40	CY	Rock Foundation	$40.00	$1,600.00
7040	5	CY	Stabilized Backfill	$90.00	$450.00
7041	2	CY	Flowable Backfill	$125.00	$250.00
7050	105	CY	Sand Backfill	$18.00	$1,890.00
7071	5	CY	Class B Concrete	$115.00	$575.00
7730	1	LS	Disposal of Heavy Chlorinated Water Main for Flushing	$4,000.00	$4,000.00
8011	780	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$3,120.00
			WATER MAIN SUBTOTAL		*$164,670.00*
			WATER ADJUSTMENTS		
20300	28	EA	Adjust Water Meter Box	$330.00	$9,240.00
20330	3	EA	Adjust Water Valve Covers & Stacks	$230.00	$690.00
20500	2	EA	Investigation	$700.00	$1,400.00
			WATER ADJUSTMENTS SUBTOTAL		*$11,330.00*

The quantities and prices shown hereon are an indication of the Engineer's	**Sub-total**	$176,000.00
opinion of probable construction costs associated with the referenced	**20% Contingency**	$35,200.00
project and are NOT a guarantee of individual or total construction costs.	**15% Engineering / Surveying**	$26,400.00
	TOTAL	$237,600.00

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 16" Water I-30 - Beckley to Sylvan (Phase 3) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WATER MAIN		
1800HP	420	LF	6" PVC Water with Paving	$47.00	$19,740.00
1805QP	4000	LF	16" PVC Water Pipe with Paving	$160.00	$640,000.00
5020	5	TN	Cast Iron Fittings	$2,200.00	$11,000.00
5050	100	EA	Water Service	$2,500.00	$250,000.00
5091	14	EA	Install Fire Hydrant	$3,300.00	$46,200.00
5100H	14	EA	6" Gate Valve	$1,200.00	$16,800.00
5100Q	4	EA	16" Gate Valve	$21,383.00	$85,532.00
5160	4	EA	60" Diameter Water Manhole	$11,000.00	$44,000.00
5600	14	EA	Cut and Plug Existing Main	$650.00	$9,100.00
5610	14	EA	Cut and Plug Main for Test	$850.00	$11,900.00
6925	4420	LF	Trench Safety & Support	$2.50	$11,050.00
7030	305	CY	Rock Foundation	$40.00	$12,200.00
7040	24	CY	Stabilized Backfill	$90.00	$2,160.00
7041	8	CY	Flowable Backfill	$125.00	$1,000.00
7050	880	CY	Sand Backfill	$18.00	$15,840.00
7071	22	CY	Class B Concrete	$115.00	$2,530.00
7730	1	LS	Disposal of Heavy Chlorinated Water Main for Flushing	$4,000.00	$4,000.00
8011	4420	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$17,680.00
			WATER MAIN SUBTOTAL		*$1,200,732.00*
			WATER ADJUSTMENTS		
20300	100	EA	Adjust Water Meter Box	$330.00	$33,000.00
20330	4	EA	Adjust Water Valve Covers & Stacks	$230.00	$920.00
20500	3	EA	Investigation	$700.00	$2,100.00
			WATER ADJUSTMENTS SUBTOTAL		*$36,020.00*

The quantities and prices shown hereon are an indication of the Engineer's	**Sub-total**	$1,236,752.00
opinion of probable construction costs associated with the referenced	**20% Contingency**	$247,350.40
project and are NOT a guarantee of individual or total construction costs.	**15% Engineering / Surveying**	$185,512.80
	TOTAL	$1,669,615.20

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 12" Water Yorktown Street - Eastus to Fort Worth (Phase 3) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WATER MAIN		
1800HP	90	LF	6" PVC Water with Paving	$47.00	$4,230.00
1800LP	650	LF	12" PVC Water Pipe with Paving	$62.00	$40,300.00
5020	2	TN	Cast Iron Fittings	$2,200.00	$4,400.00
5050	10	EA	Water Service	$2,500.00	$25,000.00
5091	3	EA	Install Fire Hydrant	$3,300.00	$9,900.00
5092	3	EA	Remove Fire Hydrant	$350.00	$1,050.00
5093	3	EA	Deliver Fire Hydrant	$125.00	$375.00
5100H	3	EA	6" Gate Valve	$1,200.00	$3,600.00
5100L	5	EA	12" Gate Valve	$2,500.00	$12,500.00
5120H	3	EA	Remove, Salvage, & Deliver 6" Valve	$250.00	$0.00
5120J	5	EA	Remove, Salvage, & Deliver 8" Valve	$500.00	$2,500.00
5600	2	EA	Cut and Plug Existing Main	$650.00	$1,300.00
5610	2	EA	Cut and Plug Main for Test	$850.00	$1,700.00
6925	740	LF	Trench Safety & Support	$2.50	$1,850.00
7030	38	CY	Rock Foundation	$40.00	$1,520.00
7040	5	CY	Stabilized Backfill	$90.00	$450.00
7041	2	CY	Flowable Backfill	$125.00	$250.00
7050	99	CY	Sand Backfill	$18.00	$1,782.00
7071	4	CY	Class B Concrete	$115.00	$460.00
7730	1	LS	Disposal of Heavy Chlorinated Water Main for Flushing	$4,000.00	$4,000.00
8011	740	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$2,960.00
			WATER MAIN SUBTOTAL		*$120,127.00*
			WATER ADJUSTMENTS		
20300	10	EA	Adjust Water Meter Box	$330.00	$3,300.00
20330	2	EA	Adjust Water Valve Covers & Stacks	$230.00	$460.00
20500	2	EA	Investigation	$700.00	$1,400.00
			WATER ADJUSTMENTS SUBTOTAL		*$5,160.00*

The quantities and prices shown hereon are an indication of the Engineer's	**Sub-total**	$125,287.00
opinion of probable construction costs associated with the referenced	**20% Contingency**	$25,057.40
project and are NOT a guarantee of individual or total construction costs.	**15% Engineering / Surveying**	$18,793.05
	TOTAL	$169,137.45

ENGINEER'S OPINION OF
PROBABLE CONSTRUCTION COST (DWU)

Project Name: West Dallas Signature Pilot Point Project — *PK No:* **3445-13.248**

Project Description: 12" & 10" W.W. Main Street - Main to Commerce (Phase 3) — *Date:* **7/30/2013**

Prepared By: Pacheco Koch Consulting Engineers (JDJ)

Item No.	Est. Quantity	Unit	Description	Unit Price	Total
			WASTEWATER MAIN		
3110KP	1800	LF	10" PVC Pressure Rated Wastewater Pipe with Paving	$81.00	$145,800.00
3110LP	4520	LF	12" PVC Pressure Rated Wastewater Pipe with Paving	$95.00	$429,400.00
6060	150	EA	Wastewater Lateral	$1,950.00	$292,500.00
6130AE	17	EA	48" Wastewater Manhole	$6,000.00	$102,000.00
6141	17	EA	Vacuum Test for Wastewater Manhole	$250.00	$4,250.00
6920	6320	LF	Television Inspection (City)	$3.00	$18,960.00
6925	6320	LF	Trench Safety & Support	$1.50	$9,480.00
7030	300	CY	Rock Foundation	$35.00	$10,500.00
7040	53	CY	Stabilized Backfill	$90.00	$4,770.00
7041	16	CY	Flowable Backfill	$125.00	$2,000.00
7050	870	CY	Sand Backfill	$20.00	$17,400.00
8011	6320	LF	Construction Surveying & Staking (Water & WW Mains)	$4.00	$25,280.00
			WASTEWATER MAIN SUBTOTAL		*$1,062,340.00*
			WASTEWATER ADJUSTMENTS		
20500	10	EA	Investigation	$331.00	$3,310.00
			WASTEWATER ADJUSTMENTS SUBTOTAL		*$3,310.00*

The quantities and prices shown hereon are an indication of the Engineer's	**Sub-total**	$1,065,650.00
opinion of probable construction costs associated with the referenced	**20% Contingency**	$213,130.00
project and are NOT a guarantee of individual or total construction costs.	**15% Engineering / Surveying**	$159,847.50
	TOTAL	$1,438,627.50

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