CHAPTER 4

AFFECTED ENVIRONMENT

4.0 AFFECTED ENVIRONMENT

This chapter describes the existing social, economic and natural environmental conditions in the study area without the influence of the recommended project. The discussion provides a description of the environment in which the project would take place and describes the relevant resources in the study area.

4.1. Description of Project Area

4.1.1. Social and Economic Environment

Population

According to the April 2003 NCTCOG's *2030 Demographic Forecast*, the year 2000 total population for North Central Texas was 5,067,400 and was projected to grow approximately 56 percent to 9,107,900 by the year 2030. According to this report from NCTCOG, the Metroplex was one of the fastest growing areas in the United States and this trend is expected to continue through the year 2030.

According to the April 2003 NCTCOG's *2030 Demographic Forecast*, North Central Texas is projected to have a 2030 population of 9.1 million persons in 3.4 million households and non-construction employment of 5.4 million jobs. The rate of growth projected through three decades represented in this forecast is at a magnitude never before experienced in the North Central Texas region.

According to the NCTCOG Research and Information Services, the year 2004 total population for the Metroplex is 5,856,350. From January 2003 to January 2004, the region added 146,400 new persons, which marks the eighth consecutive year to add over 100,000 persons to the region.

Population Growth by County

As the Metroplex continues to attract new industry and businesses, the associated increases in population and employment begin to inflict a measurable strain on the existing transportation

systems. In 2000, the four NCTCOG core counties, Collin, Dallas, Denton and Tarrant, captured 90 percent of all the household growth in the region. Tarrant County led all counties in the region by adding 39,950 persons from January 2003 to January 2004, pushing the total population of Tarrant County to 1,589,200 residents. Tarrant County is projected to lead all the NCTCOG counties in absolute growth by capturing 21 percent of all the projected household growth during the 30-year forecast period. Additionally, Johnson County is expected to triple its 2000 household total by the year 2030.

The DFW Consolidated Metropolitan Statistical Area (CMSA), in which the PSC is located, has grown dramatically since 1990. According to the United States Bureau of the Census, the combined population of Tarrant and Dallas Counties grew from 3,022,913 in 1990 to 3,665,118 in the year 2000. NCTCOG 2025 projections for these same counties are 2,012,600 and 2,587,100 respectively, resulting in a total population of 4,599,700. *Mobility 2025 – 2004 Update: The MTP* reports that the metropolitan area's population is growing at an approximate annual rate of 1.76 percent, which is higher than the national average growth.

Population By Race

Census 2000 data shows that the total minority population for the study area is 24 percent; for the City is 53 percent; and, for Tarrant County is 37 percent. (The minority category includes individuals identified as belonging to a racial category other than white. Hispanic refers to individuals of Hispanic origin, which includes all racial categories).

According to the 2000 Census, Whites are the predominant ethnic group in Tarrant County, representing 71 percent of the total population. Blacks represent 13 percent, American Indians one percent, Asians and Hawaiian four percent; nine percent are classified as not belonging to any particular ethnic group and three percent constitute persons who are of more than one race. Persons of Hispanic origin, which can be of any of the previous-mentioned ethnic groups, represent 20 percent of the total County population. The City's demographic profile using 2000 Census data indicates that Whites represent 60 percent, Blacks represent 20 percent, American Indians represent

one percent, Asians/Pacific Islanders represent three percent, others classified as not belonging to any particular racial group represent 14 percent and persons who are more than one race represent three percent. Citywide, Hispanics or Latinos of any race compose 30 percent. The recommended project is located within ten census tracts, mapped and designated by the U.S. Department of Commerce, Census Bureau (Census 2000) as 1019.00, 1028.00, 1053.00, 1054.05, 1109.03, 1055.06, 1055.08, 1055.10, 1110.09, 1110.10. Within the PSC, as a percentage of total population, the 2000 Census indicated that Whites represent 80 percent, Blacks represent eight percent, American Indians represent one percent, Asian/Pacific Islander represent three percent, others represent seven percent and persons who are of two or more races represent two percent. Within the PSC census tracts, Hispanics represent 14 percent of the total population. The ethnic compositions within the PSC per census tract are summarized in Table 4-1.

Table 4-1 – Ethnic Composition by Census Tract

Census Tract	White	Black	American Indian	Asian/ Pacific Islander	Other	Two or More Races	Hispanic (All Races)
1019.00	961	47	2	18	42	14	89
%	*88.7*	*4.3*	*0.2*	*1.7*	*3.9*	*1.3*	*8.2*
1028.00	1,129	74	4	4	38	22	81
%	*88.8*	*5.8*	*0.3*	*0.3*	*3.0*	*1.7*	*6.4*
1053.00	433	27	17	6	354	48	672
%	*48.9*	*3.1*	*1.9*	*0.7*	*40.0*	*5.4*	*75.9*
1054.05	3,384	411	14	102	119	94	329
%	*82.1*	*10.0*	*0.3*	*2.5*	*2.9*	*2.3*	*8.0*
1109.03	1,592	62	3	76	25	13	66
%	*89.9*	*3.5*	*0.2*	*4.3*	*1.4*	*0.7*	*3.7*
1055.06	3,855	547	29	180	282	105	582
%	*77.1*	*10.9*	*0.6*	*3.6*	*5.6*	*2.1*	*11.6*
1055.08	3,721	634	29	209	235	109	502
%	*75.4*	*12.8*	*0.6*	*4.2*	*4.8*	*2.2*	*10.2*
1055.10	2,482	789	25	240	96	90	329
%	*66.7*	*21.2*	*0.7*	*6.5*	*2.6*	*2.4*	*8.8*
1110.09	2,745	130	11	134	32	60	171
%	*88.2*	*4.2*	*0.4*	*4.3*	*1.0*	*1.9*	*5.5*
1110.10	1,309	15	3	3	2	22	51
%	*96.7*	*1.1*	*0.2*	*0.2*	*0.1*	*1.6*	*3.8*

Source: U.S. Census Bureau, Census 2000

Growth of Major Employers

According to the NCTCOG's *June 2004 Major Employers List*, there are 944 major employers in the North Central Texas Region. Major employment establishments are those that have a minimum of 250 full-time and part-time workers. Major employers in the North Central Texas region combine to employ 790,450 person, representing 25 percent of all employment in the region. Tarrant County has 227 major employer sites, most of which are concentrated in the City's CBD and along IH 35W north and south of downtown. Major employment centers that would be served by the proposed facility include the Fort Worth CBD, the West Fort Worth Hospital District and the Southwest Fort Worth market area. In 2004, Lockheed Martin Corporation in Fort Worth led all major employers in the 16-county region with 16,800 workers.

Housing

As a result of the low interest rates in 1994, home building activity began to increase in north Texas. According to NCTCOG *DFW Metropolitan Area Profile*, residential construction permits in Fort Worth increased by four percent as of 1997. In addition, multi-family construction was on the rise. The *Profile of General Demographic Characteristics for the City of Fort Worth, Texas: 2000* reports a total of 211,035 housing units of which 92.4 percent are occupied and 7.6 are vacant. Housing tenure information indicates that of the 195,078 occupied units, 55.9 percent are owner occupied and 44.1 percent are renter occupied. The NCTCOG Research and Information Services' 2001 Housing Estimates reported a total of 575,212 housing units that included single-family, multi-family and other (mobile home, trailer, houseboat, etc.) for Tarrant County. The City's total estimated housing units in 2001 was 213,828.

According to the Real Estate Center at Texas A&M University and the United States Census Data, building permit activity data indicated an increase in single-family housing of 120 percent in 2000 over 1990 in the Fort Worth/Arlington metropolitan area and 108 percent in Tarrant County. Multi-family housing increased by 85 percent in the City and 102 percent in Tarrant County for the same year. The NCTCOG's *Profile of General Demographic Characteristics for Tarrant County, Texas: 2000* reports that from a total of 565,830 housing units, 533,864 were occupied and 31,966 were

vacant. The City alone had a total of 211,165 housing units of which 195,146 (92.4 percent) were occupied and 16,019 (7.6 percent) were vacant.

Income

The median income per household along the PSC was higher than that for the City and slightly lower than that for Tarrant County. According to 1999 income captured in the 2000 census data, the household median income for the PSC was $46,365 compared to $37,074 for the City and $46,179 for Tarrant County. Table 4-2 summarizes the median household income per census tract within the PSC.

Table 4-2 – Median Household Income by Census Tract in 1999

Census Tract	Median Household Income (Dollars)
1019.00	38,869
1028.00	61,750
1053.00	36,538
1054.05	40,710
1055.06	31,030
1055.08	42,815
1055.10	45,882
1109.03	49,698
1110.09	82,785
1110.10	33,571

Source: U.S. Census Bureau, Census 2000

4.1.2. Utilities

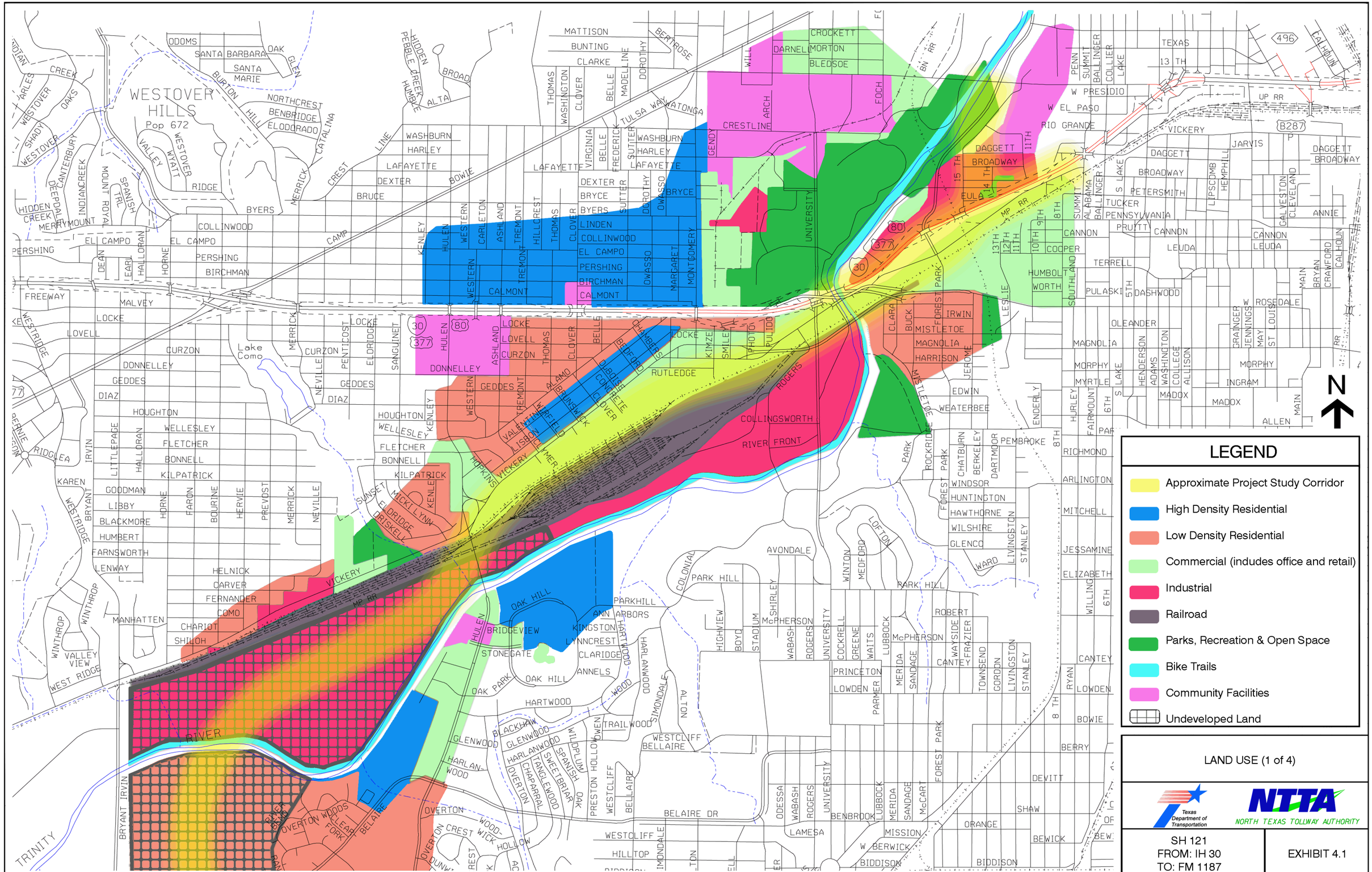
Existing utilities located within the developed areas along the PSC include water and wastewater, gas, telephone and cable television lines. The Holly Water Plant, a principal water treatment plant for the City, is located east of Forest Park near the northern project limit. Located south of Vickery Boulevard and west of Hulen Street is a high-energy electrical transmission line that traverses the PSC parallel to the Centennial Railroad Yards. Another high energy electrical transmission line traverses the PSC between Overton Ridge and Oakmont Boulevard and another crosses the PSC just north of FM 1187. A major raw water line, which distributes water from Cedar Creek Reservoir to

Lake Benbrook, traverses the PSC just south of Sycamore School Road. General utility infrastructure for new development in the southwest quadrant of Fort Worth is ongoing.

4.1.3. Existing Land Use and Employment within the Project Study Corridor

A transportation plan was developed in order to meet future traffic needs due to growth and development in the DFW area. *Mobility 2025 - 2004 Update*, prepared by the NCTCOG and approved by the RTC, was designed to guide the implementation of roadway and transit improvements in the region. *Mobility 2025 Plan Update* reports a rapid future growth in the DFW area through the year 2025 and indicates that the local population would grow 63 percent and employment 70 percent by the year 2025. The population travel needs, such as travel patterns and travel times, alter when changes in land use take place.

The land use along the PSC, from IH 30 to FM 1187, varies from undeveloped land to developed areas of residential, commercial, industrial and farmland purposes (Exhibit 4.1 through Exhibit 4.4). The establishments north of IH 30 and west along Vickery Boulevard include industrial and commercial buildings with interspersed areas of residential units, churches and vacant lots. The area south of the UPRR tracks and west of Hulen Street is currently undeveloped, but zoned for commercial and industrial development. Residential areas and recreational facilities, such as hiking and biking trails are aligned with the Trinity River. The land south of Bellaire Drive to Altamesa/Dirks Road is suburban with retail and commercial sites as well as single and multi-family residential units. From Altamesa/Dirks Road to FM 1187, the majority of the land is undeveloped with the exception of established farmland and scattered residential areas. The main result of these changes is that areas are separated from each other and scattered throughout a particular area. This area is characterized by the lack of central traffic destinations.



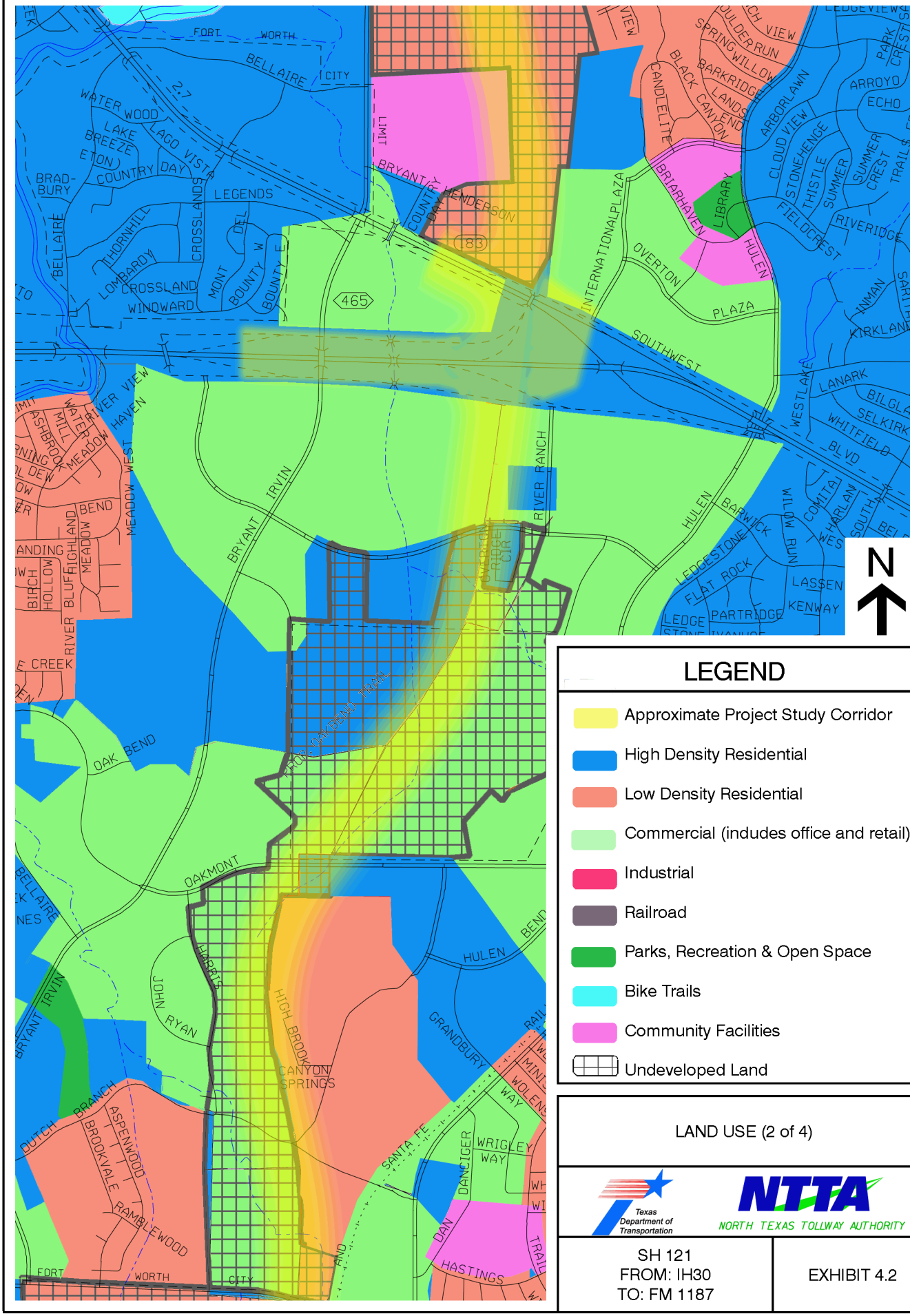
LAND USE (1 of 4)

Texas Department of Transportation

NTTA NORTH TEXAS TOLLWAY AUTHORITY

SH 121
FROM: IH 30
TO: FM 1187

EXHIBIT 4.1



LEGEND

- Approximate Project Study Corridor
- High Density Residential
- Low Density Residential
- Commercial (indudes office and retail)
- Industrial
- Railroad
- Parks, Recreation & Open Space
- Bike Trails
- Community Facilities
- Undeveloped Land

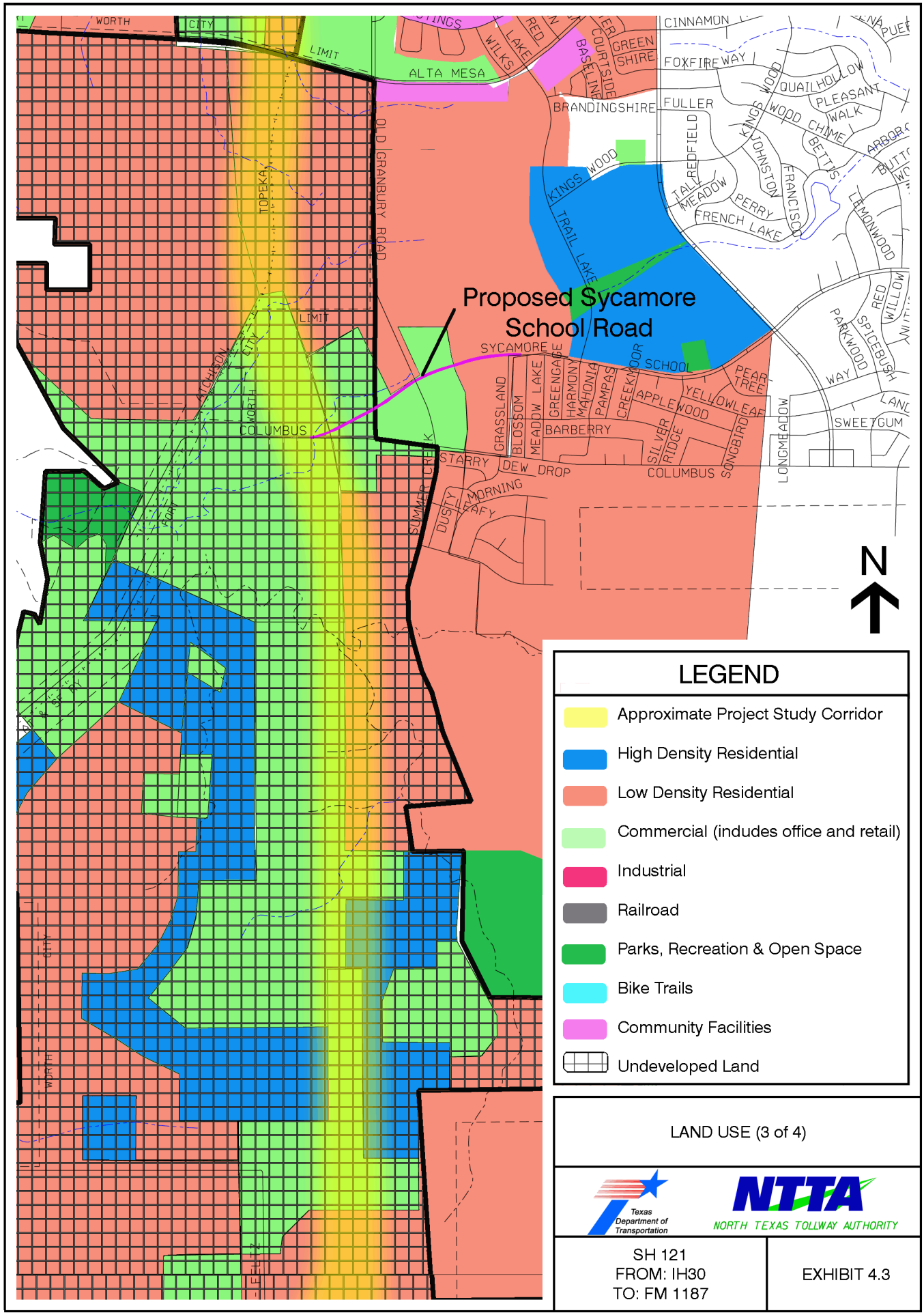
LAND USE (2 of 4)

Texas Department of Transportation

NTTA NORTH TEXAS TOLLWAY AUTHORITY

SH 121
FROM: IH30
TO: FM 1187

EXHIBIT 4.2



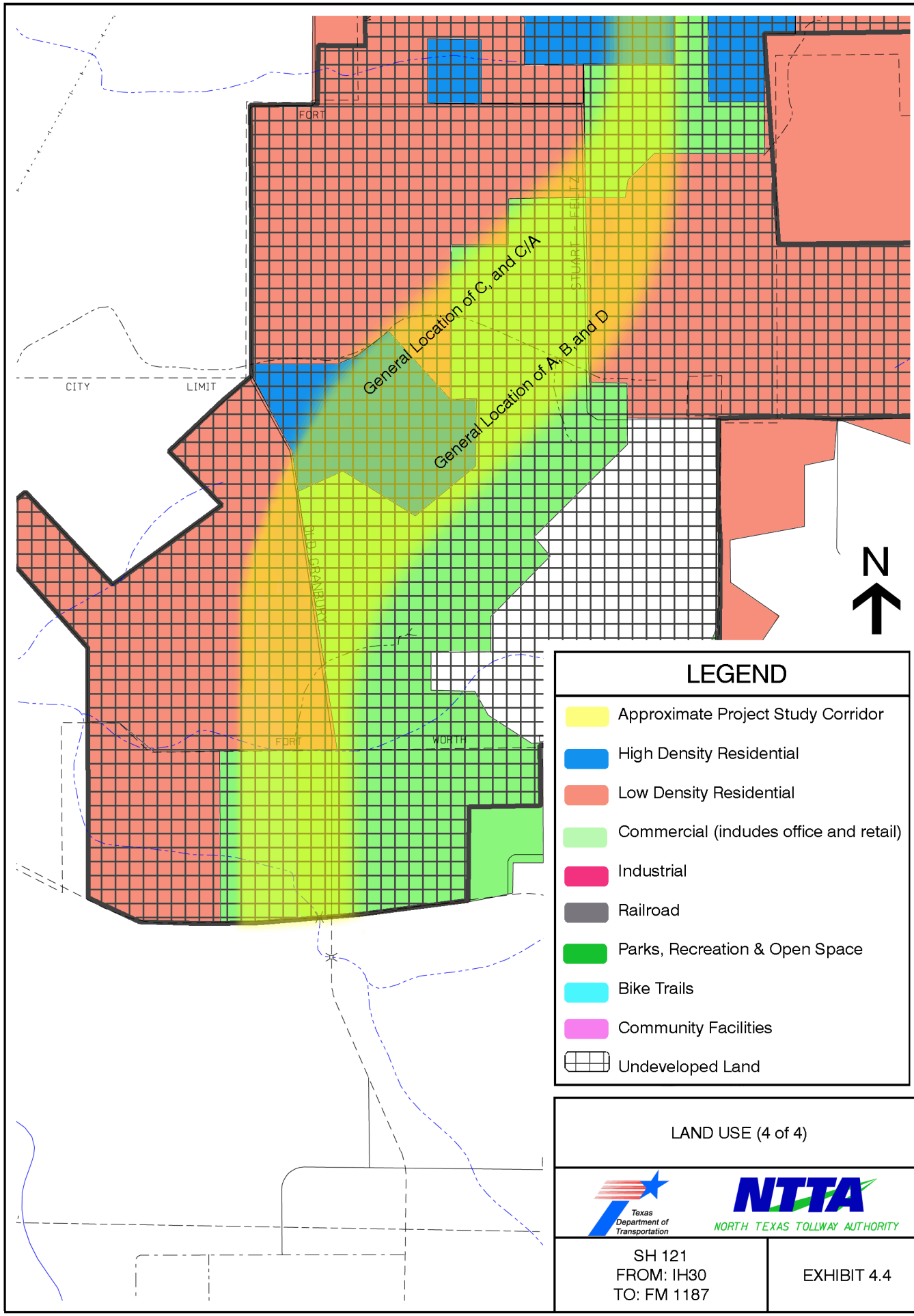
LAND USE (3 of 4)

Texas Department of Transportation

NTTA NORTH TEXAS TOLLWAY AUTHORITY

SH 121
FROM: IH30
TO: FM 1187

EXHIBIT 4.3



LAND USE (4 of 4)

Texas Department of Transportation

NTTA NORTH TEXAS TOLLWAY AUTHORITY

SH 121
FROM: IH30
TO: FM 1187

EXHIBIT 4.4

4.1.4. Transportation Facilities

Roadways

The vast network of existing roadways in Fort Worth is comprised of a variety of roadway types including residential streets and major City streets, plus interstate and other highways (Exhibit 4.5). Major highways such as IH 30, IH 20, SH 199 and US 377 running east-west and IH 35W and Business 287, running north south are located within or in close proximity to the PSC.

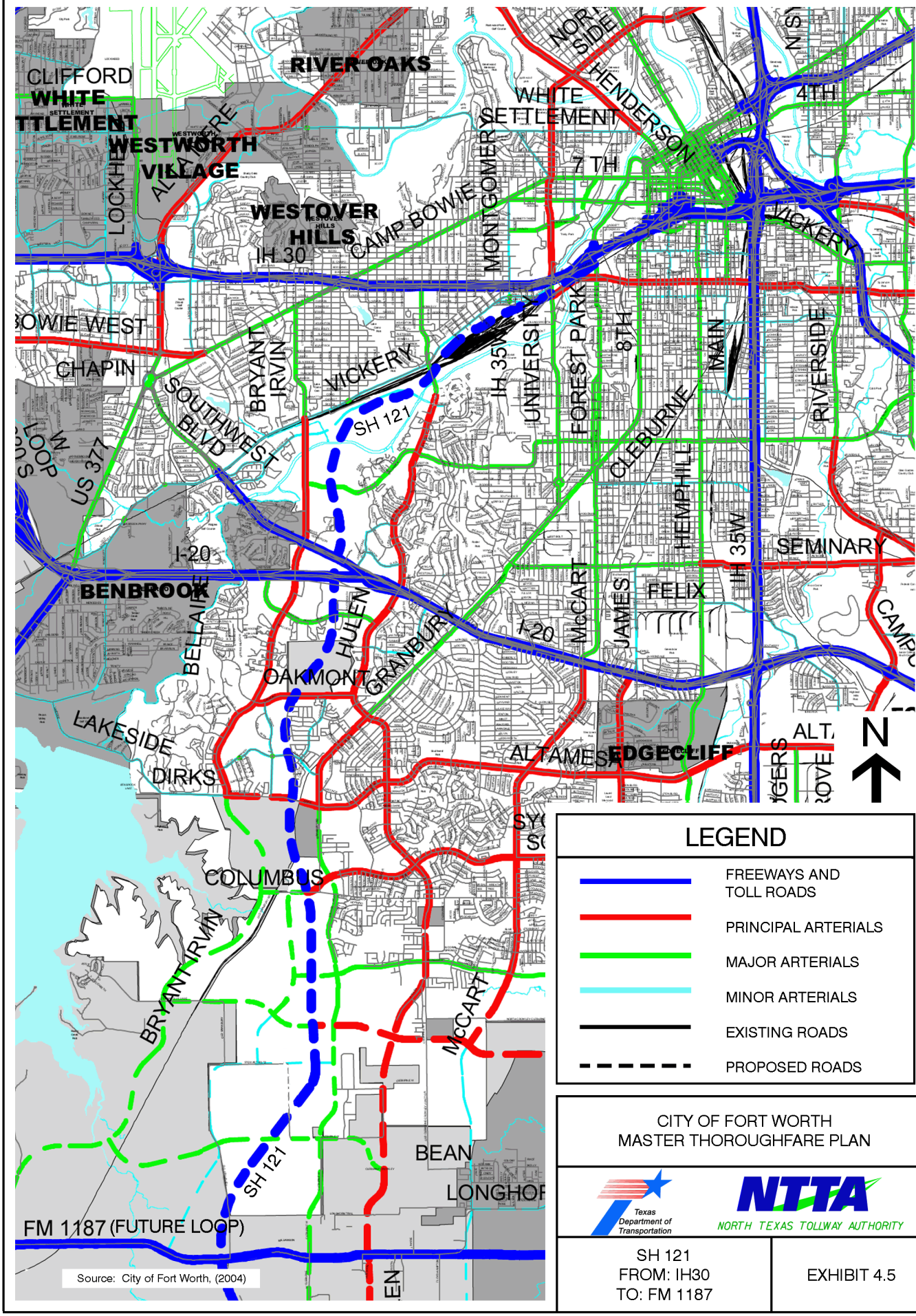
Roadways traversing the PSC or located adjacent to it include: Forest Park Boulevard, IH 30, IH 20, SH 183, Lancaster Avenue, Oakmont Boulevard, Rosedale Street, Vickery Boulevard, Wenneca Avenue, Tucker Street, Bellaire Drive, Altamesa/Dirks Road, , Hulen Street, Bryant Irvin Road, Montgomery Street, University Drive, Columbus Trail, Stuart-Feltz Road and FM 1187.

The existing road network around the PSC is composed of arterials, collectors, local streets, FM, county roads and unpaved roads. These roads typically have adequate to deteriorating pavement, high crowns, narrow or no shoulders, limited sight distances and discontinuous geometry. Also, many of these roads are discontinuous and have more vehicle traffic than they were designed to carry. Without major improvements to the existing road network or construction of a new roadway, such as proposed, the existing system would continue to become more congested. Increased congestion can lead to unsafe driving conditions that could result in higher traffic accidents.

4.1.5. Publicly Oriented Facilities

The Fort Worth Cultural District is located near the PSC and bounded by West 7th Street, Montgomery Street, IH 30 and University Drive. Offering a variety of shops, restaurants, six museums as well as performance art theaters, the area is the third largest Cultural District in the United States.

Public parks and recreation areas are located within the PSC. Currently, there is a bike trail maintained by the City of Fort Worth Parks and Community Services Department along the Clear



CITY OF FORT WORTH
MASTER THOROUGHFARE PLAN

Texas Department of Transportation

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

SH 121
FROM: IH30
TO: FM 1187

EXHIBIT 4.5

Fork of the Trinity River. This bike trail is also part of the NCTCOG's planned veloweb system. The veloweb is composed of smaller roads with a minimum of stop signs and traffic lights benefiting fast moving bicyclists. Preliminary plats, filed with the City before March 2004, show proposed parks adjacent to the proposed SH 121 ROW. Existing parks are depicted in Exhibit 4.6. Proposed parks are depicted in Exhibit 5.8.

Various facilities, such as schools and hospitals as well as churches, exist in close proximity to the PSC. These locations include the Fort Worth Country Day School, located on Country Day Boulevard, Brooklyn Heights School, located at 3813 Valentine, All Saints Hospital, located north of Oakmont Boulevard and the Harris Methodist South Southwest Hospital, located south of Oakmont Boulevard. The churches include: San Mateo Catholic Church on Lovell Avenue, Greater Friendship Baptist Church on Wenneca Avenue and St. Paul Lutheran Church north of IH 30.

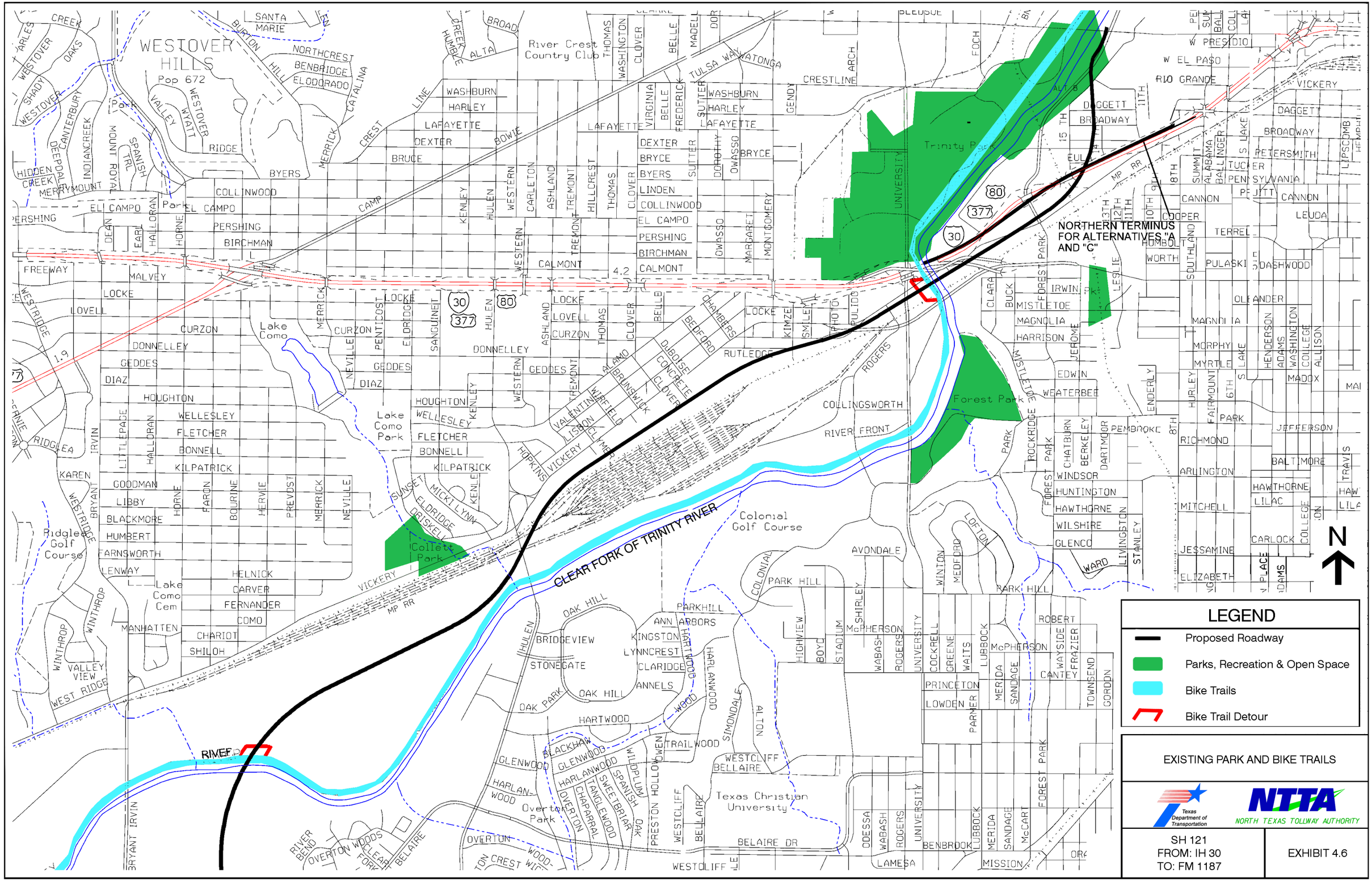
4.2. Environmental Setting

4.2.1. Earth Resources

Soils

The various soil series along the PSC are best described utilizing the general soil map units as developed by the Natural Resource Conservation Service (NRCS), formerly the Soil Conservation Service, in "The Soil Survey of Tarrant County" June, 1981. The general soil map units are typically comprised of one or more major detailed soil map units in combination with minor proportions of other soil types. General soil map units found in the PSC include the Sanger-Purves-Slidell, the Aledo-Bolar-Sanger and the Frio-Trinity units. The Sanger-Purves-Slidell unit consists of nearly level and gently sloping, deep and shallow, clayey soils located mainly on uplands. The soils in this unit are mainly used as cropland, pastureland and rangeland and for urban purposes. The map unit is primarily made up of well-drained soils on slopes of zero to five percent. This unit makes up approximately 21 percent of the County and 37 percent of the PSC.

The Aledo-Bolar-Sanger unit consists of gently sloping to moderately steep, very shallow to deep, loamy and clayey soils located mainly on uplands. The soils in this unit are mainly used as


NORTHERN TERMINUS FOR ALTERNATIVES "A AND "C"
WESTOVER HILLS
Pop 672
River Crest Country Club
Trinity Park
Forest Park
Lake Como
Lake Como Park
Collett Park
Ridglea Golf Course
Colonial Golf Course
Texas Christian University
Overton Park
CLEAR FORK OF TRINITY RIVER
RIVER
FREEWAY
CAMP
MP RR
LEGEND
Proposed Roadway
Parks, Recreation & Open Space
Bike Trails
Bike Trail Detour
EXISTING PARK AND BIKE TRAILS
Texas Department of Transportation
NTTA
NORTH TEXAS TOLLWAY AUTHORITY
SH 121
FROM: IH 30
TO: FM 1187
EXHIBIT 4.6
N

rangeland, pastureland and cropland and for urban purposes. The map unit is primarily made up of well-drained soils on slopes of one to 20 percent. This unit makes up 20 percent of the County and 48 percent of the PSC.

The Frio-Trinity unit consists of nearly level, clayey soils located on floodplains. The soils in this unit are mainly used as pastureland and for urban purposes. The map unit is primarily made up of well-drained soils on zero to one percent slope. This unit makes up seven percent of the County and about 15 percent of the PSC.

Geography

The PSC is within the Trinity River Basin in North Central Texas and the northwestern portion of the West Gulf Coastal Plain of Texas. Structurally, the area lies between the Texas Basin on the east and the Fort Worth Basin on the west. The Balcones fault approaches the eastern edge of the PSC.

Topography in the area consists of rolling hills with elevations ranging from 695 to 1,065 ft above sea level.

Mineral Resources

Sand, gravel, stone, lime and cement represent the greatest contribution to previous mineral production in Tarrant County. No current mineral or petroleum production occurs within the PSC.

Prime and Unique Farmlands

Some soil series within the PSC have been designated as prime farmland. These soils are found along the Clear Fork of the Trinity River between IH 20 and Vickery Boulevard. This section of the PSC is currently undeveloped, though it is designated for commercial uses and has not in the recent past supported farmland activities.

Wetlands

The 1992 National Wetlands Inventory (NWI) maps as prepared by the United States Department of the Interior, U.S. Fish and Wildlife Service (FWS), current aerial photographs and visual inspection of the proposed alignment were utilized to identify and locate affected wetlands. Wetlands are defined in the *1987 USACE Wetlands Delineation Manual* as, "those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support and that under normal circumstances, do support, a prevalence of vegetation typically adapted for life in saturated soil conditions." Wetlands generally include swamps, marshes, bogs and similar areas.

Identifiable wetland (potential jurisdictional waters of the United States) areas associated with the SH 121 PSC are of two types, as indicated by the FWS Wetland Classification System. These two types are:

- Riverine - all freshwater habitats contained within a channel, including streams, springs and/or rivers, except those dominated by trees, shrubs, or persistent emergent vegetation; and
- Palustrine - water systems dominated by emergent vegetation, or small (less than 20 ac), shallow (less than six feet in depth) bodies of water without shoreline features dominated by bedrock or wave action.

The potential jurisdictional waters of the United States associated with ponds within the PSC are composed of small man-made surface water impoundments intended for livestock watering. These impoundments are mostly less than one acre in surface area. Pond designations under the FWS include: Palustrine, unconsolidated bottoms, permanently flooded, dike impoundments, PUBHh; Palustrine, unconsolidated bottom, semi-permanently flooded, diked impoundment, PUBFh; and, Riverine, unconsolidated bottom, permanently flooded, excavated, R2UBHx. The impoundments designated PUBHh and PUBFh generally have some emergent vegetation and might contain small forage fish or game fish. However, they are not considered to be of high quality or serve as an important wildlife habitat. Riverine jurisdictional waters of the United States (streams and rivers) demonstrate appreciable flow only after rainfall or in the case of the Clear Fork of the Trinity River, those times when flow is being released from the Benbrook dam or spillway. Vegetation contained within floodplain areas associated with streambed jurisdictional waters of the United States within

the PSC is predominantly deciduous hardwood broad-leaf trees. There are approximately 20 jurisdictional waters of the United States within or in close proximity to proposed SH 121. Most of these areas are palustrine (stock ponds).

Surface Water Resources

The PSC is within the Trinity River Basin. Surface waters within the PSC include the Clear Fork of the Trinity River, stream segment 0829 from the confluence with the West Fork of the Trinity River to Benbrook Dam and several intermittent streams, such as several unnamed tributaries to Rock Creek as well as the Clear Fork of the Trinity River. The Clear Fork of the Trinity River begins in Parker County and drains southwestern Tarrant County. The Clear Fork of the Trinity River is a mature stream with a fairly low, uniform gradient of approximately seven feet per mile.

According to the TCEQ's 1998 Water Quality Inventory, the water quality of the segment is limited due to water quality standards violations; however, the designated water uses do include contact recreation, high aquatic life or public water supply. The Texas Department of Health (TDH) issued an aquatic life closure in 1990 due to elevated levels of chlordane in fish tissues; fish consumption is not supported. Urban runoff appears to be the principal source of contamination. Water flow within the PSC is primarily influenced by rainfall.

Benbrook Lake reservoir was formed by the impoundment of waters of the Clear Fork of the Trinity River and is located approximately one mile southwest and upstream of the PSC. The reservoir is a source of water for the City and Tarrant County. It also serves as a recreational facility in addition to providing flood control. The Fort Worth District of the USACE manages Lake Benbrook. In addition to Benbrook Lake, there are several small impoundments consisting of ponds generally less than one acre in surface area that are used mainly for livestock watering.

Neither the USCG nor the USACE consider the waterway along the PSC as navigable.

The Clear Fork of the Trinity River as well as various intermittent streams, such as Rock Creek and other unnamed tributaries to the Clear Fork of the Trinity River are found within the SH 121 PSC. The Clear Fork of the Trinity River begins in Parker County and flows southwest into Tarrant County. According to the TCEQ 1998 Water Quality Inventory, the Clear Fork of the Trinity River, stream segment 0829: from the confluence with the West Fork Trinity River to Benbrook Lake Dam, has been classified to have a limited water quality because of water quality standard violations. The stream supports a high aquatic life and it is used for contact recreation and for public water supply, but because of the high levels of chlordane in fish tissue, fish consumption is not supported through the lower mile of the segment. The principal source of contamination is urban runoff. Water flow within the PSC is influenced mainly by rainfall events.

Benbrook Lake reservoir is formed by the impoundment of waters of the Clear Fork of the Trinity River and is located approximately one mile southwest and upstream of the PSC. According to TCEQ 1998 Water Quality Inventory, Benbrook Lake, stream segment 0830: from Benbrook Lake Dam to a point 220 yards (yd) downstream of US 377, up to the normal pool elevation of 694 ft, has been classified as having limited water quality or effluent limited because the lake is designated as a public water supply reservoir.

The designation of Benbrook Lake as a public water supply reservoir affords special wastewater treatment requirements. All domestic wastewater dischargers, located within five miles upstream of public water supply reservoirs, are required to achieve advanced waste treatment. The classification of Benbrook Lake as "water quality limited" or "effluent limited" is due only because of the public water supply designation and does not mean that any water quality standards have been exceeded. The lake supports a high aquatic life and its designated uses are contact recreation and as mentioned, public water supply. The reservoir is a major source of water for the City and Tarrant County and also provides recreation and flood control. Data for the current TCEQ evaluation period indicate attainment of criteria for designated uses.

In addition to Benbrook Lake, there are several small impoundments in the PSC consisting of ponds generally less than one acre in surface area. These are used mainly for livestock watering. The

impact to these small water bodies ranges from 28 percent to 90 percent as discussed in Jurisdictional Waters of the United States and Wetlands Impacts, (Chapter 5.0, Environmental Consequences).

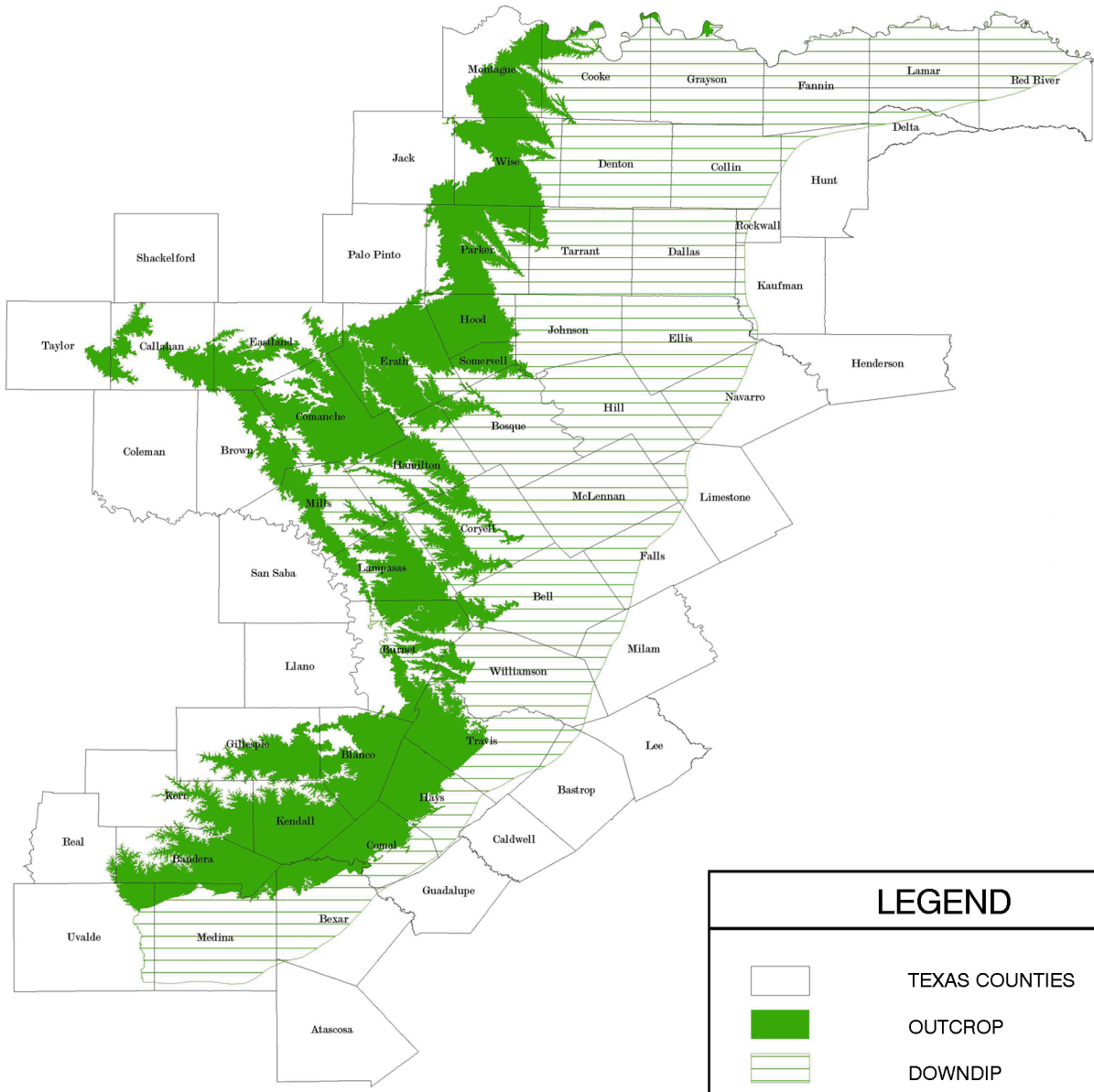
Groundwater Resources

The Trinity Aquifer (Exhibit 4.7) consists of early Cretaceous age formations of the Trinity Group that extends from the Red River in North Texas to the Hill Country of South-Central Texas. Formations comprising the Trinity Group are (from youngest to oldest) the Paluxy Sand, Glen Rose and Twin Mountain-Travis Peak. The Travis Peak formation has historically been the most productive in Tarrant County. Its depth increases toward the east ranging from 550 ft at Eagle Mountain Lake to 1,490 ft at Arlington. It has an approximate thickness of 300 ft where it crosses the PSC. The Paluxy Sand formation crops out in the northwestern part of the county and averages 160 ft in thickness, beginning at a depth of approximately 300 ft. A Quaternary system of detrital alluvial deposits consists of material derived from formations that crop out within the drainage basin of the Trinity River. These floodplain deposits consist of rounded gravel, sand and clay. Floodplain deposits are extensive along the Clear Fork of the Trinity River and range in width from a few feet to more than two miles. The alluvial deposits in Tarrant County furnish small to moderate quantities of ground water, the larger yields coming from lower terraces and floodplains. The quality of water from this formation is generally poor due to surface pollution.

The Trinity Aquifer is a major aquifer underlying the SH 121 PSC. The downdip section of this aquifer underlies approximately 90 percent of Tarrant County. Along the PSC, the water-bearing formations dip below the surface and are covered by other formations. The downdip section of an aquifer is less susceptible to contamination. The outcrop of the Trinity aquifer, or recharge zone, is located west of the PSC. Woodbine, a minor aquifer, also underlies the PSC (Exhibit 4.8). The outcrop, the principal recharge zone, is located east of the PSC.

Climate

The Metroplex is located within north central Texas, approximately 250 mi north of the Gulf of Mexico. It is near the headwaters of the Trinity River that is found within the upper margins of the


Montague
Cooke
Grayson
Fannin
Lamar
Red River
Delta
Jack
Wise
Denton
Collin
Hunt
Rockwall
Shackelford
Palo Pinto
Parker
Tarrant
Dallas
Kaufman
Taylor
Callahan
Eastland
Hood
Johnson
Ellis
Erath
Somervell
Henderson
Navarro
Comanche
Hill
Bosque
Coleman
Brown
Hamilton
McLennan
Limestone
Mills
Coryell
Falls
San Saba
Lampasas
Bell
Milam
Llano
Burnet
Williamson
Gillespie
Blanco
Travis
Lee
Kerr
Hays
Bastrop
Kendall
Real
Caldwell
Comal
Bandera
Guadalupe
Bexar
Uvalde
Medina
Atascosa
N
LEGEND
TEXAS COUNTIES
OUTCROP
DOWNDIP
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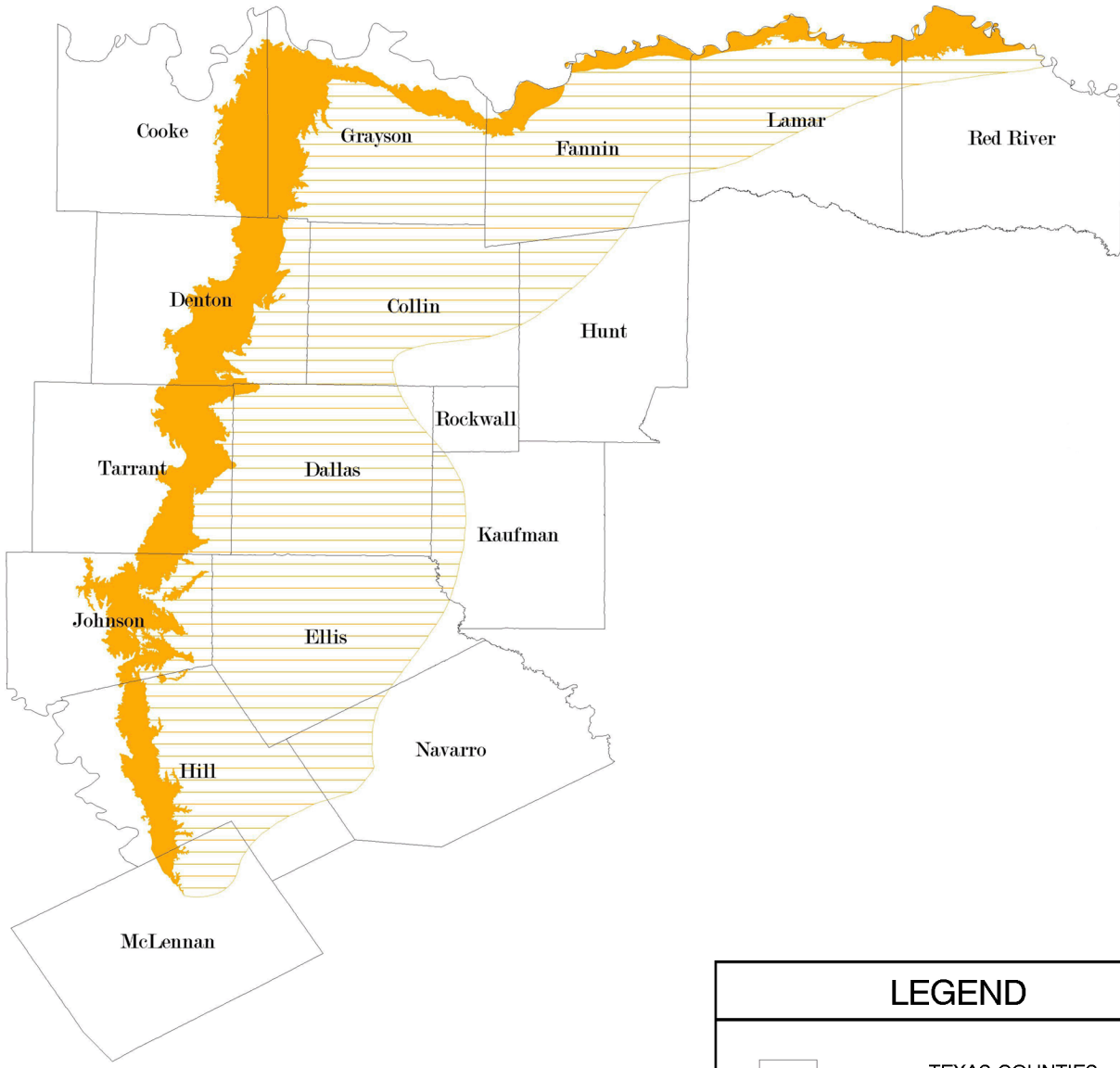
Transportation
NTTA
NORTH TEXAS TOLLWAY AUTHORITY
SH 121
FROM: IH30
TO: FM 1187
EXHIBIT 4.7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TEXAS COUNTIES
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WOODBINE AQUIFER
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SH 121
FROM: IH30
TO: FM 1187
EXHIBIT 4.8

Coastal Plain. The Metroplex's climate is humid subtropical with hot summers. It is also continental, characterized by a wide annual temperature range. Annual precipitation varies considerably, ranging from less than 16 inches (in) to more than 45 in. Winters are mild, but "blue northers" occur about three times each winter and often are accompanied by sudden drops in temperature. Periods of extreme cold that occasionally occur are short-lived, so that even in January mild weather occurs frequently. The highest temperatures of summer are associated with fair skies, westerly winds and low humidity. Characteristically, hot spells in the summer are broken into three-to-five day periods by thunderstorm activity. Average temperatures range from an average low of 37º F in January to an average high of 98º F in August. Thunderstorms occur throughout the year, but are most frequent in the spring. The average length of the warm season (freeze-free period) is approximately 249 days. The average last occurrence of 32º F or below is normally in mid-March and the average first occurrence is in late November. The mean annual precipitation is 33.7 in and the mean annual snowfall is 3.1 in.

Air Quality

Four areas in Texas: Houston/Galveston, Beaumont-Port Arthur, DFW and El Paso are in non-attainment for O_3 under the 1-hour standard. Under this standard, O_3 concentrations of 125 parts per billion (ppb) should not be met or exceeded more than three times in three consecutive years at the same monitoring site.

The PSC is located within a non-attainment area for 1-hour and 8-hr O_3 standards. Under 8-hour standard, ozone concentrations for the average of the annual fourth highest daily eight-hour maximum over a three-year period cannot be at or above 85ppb. A demonstration of transportation conformity for added capacity projects to the 8-hour O_3 standard is not required until the end of the EPA one-year grace period. The EPA one-year grace period will end June 15, 2005. O_3 concentrations have exceeded the 1-hour standard of 0.125 parts per million (ppm)/125 ppb. The TCM to correct the current air quality status for O_3 is presented in the SIP. Carbon Monoxide (CO) standards have not been exceeded over the last four years; Tarrant County is in attainment for CO standards.

Traffic Noise

Sound from highway traffic is generated primarily from vehicle tires, engine and exhaust. It is commonly measured in decibels (dB).

Sound occurs over a wide range of frequencies. However, not all frequencies are detectable by the human ear; therefore, an adjustment is made to the high and low frequencies to approximate the way an average person hears traffic sound. This adjustment is called A-weighting and is expressed as dB(A).

Presently the predominant noise generators north of Bellaire Drive in the proposed SH 121 project area are vehicular traffic and the UPRR Yard. Noise from the railroad yard is attributed to the existing train hump station. This station is where railcars are released from the train they are on and sent over a hump to self propel to a new train by a computer operated switch network. The noise from the impact as the railcar connects with a new train can be heard from quite a distance.

Land use from Vickery Boulevard to FM 1187, is predominantly undeveloped with a few exceptions such as a school, a church, two hospitals and residential areas. The church, the hospital and the multi-family residential areas have no frequent human outdoor activity areas between highway and receiver; therefore, they were analyzed as activity category E (interior), with FHWA Noise Abatement Criteria (NAC) of 52 dB(A). Because the school and the single-family areas south of Oakmont Boulevard, Sunset Terrace and Mistletoe Heights have frequent human outdoor activity areas facing the proposed SH 121, they were analyzed as activity NAC category B (exterior), with FHWA NAC of 67 dB(A). More details on traffic noise analysis can be found in Noise Impacts (Chapter 5.0, Environmental Consequences).

Hazardous Materials

Hazardous Materials (hazmat) are used extensively by society for manufacturing, transportation, cleaning and other associated activities. They can be found in virtually every aspect of public and private daily activities, such as household cleaners, automotive fuels, manufacturing chemicals and

water and wastewater disinfectants. Independently owned auto-repair businesses, old filling stations, dry cleaners and manufacturing facilities are located along the northern section of the PSC. Auto-body shops and repair garages typically handle fuels and oils, filling stations store gasoline, dry cleaners use solvents and manufacturing facilities use many different types of chemicals. The presence of these types of materials does not imply that the property is contaminated, but might be an indication of the potential for contamination.

A Phase I Environmental Site Assessment report identified areas of potential environmental concern relating to hazardous waste use on properties within the SH 121 PSC. The report lists sites registered in the TCEQ Voluntary Cleanup Program (VCP), TCEQ Leaking Petroleum Storage Tank (LPST) database, TCEQ registered Underground Storage Tank (UST) database, Environmental Protection Agency (EPA) Resource Conservation and Recovery Act Information System (RCRIS) database utilizing the Facility index system (FINDS) and the Texas Industrial and Hazardous Waste Database (TxIHW). More details on report findings can be found in Section 5.22, Hazardous Waste Sites.

Potential waste sites can be categorized as: hazardous, municipal, solid waste, demolition, or other environmentally sensitive materials that would require special handling prior to and during construction of the project.

For the purposes of this study, a hazardous waste site is a potentially contaminated area, regardless of size, where waste materials, UST's or other environmentally sensitive materials are stored, used, produced or ultimately disposed. The presence of these materials indicate the potential for contamination, thereby justifying further investigation to assess the waste related impacts to the project. The *Resource Conservation Recovery Act* (RCRA) and the Comprehensive Environmental Response, *Compensation and Liability Act* (CERCLA) regulate hazardous waste sites.

Two categories of sites were identified within the PSC: former service/filling stations and commercial/industrial areas. Potential contamination associated with present and former service/filling stations located within the PSC is primarily related to the presence or former presence of UST's. UST's are strictly regulated by the TCEQ and EPA; however, UST's removed or taken

out of service prior to the adoption of regulations might have released pollutants that remain in the ground undetected. For these reasons, all current and former service/filling stations or any site that contains or formerly contained UST's should be considered potentially contaminated.

Commercial/Industrial areas might be contaminated due to the nature of the materials produced, raw materials used for production and/or the by-products of plant processes. There are numerous independently owned auto-repair businesses located along the northern section of the PSC. Auto-body shops and repair garages typically handle fuels, oils, paints and solvents. The presence of these types of materials does not imply that the property is contaminated, but could indicate potential surface or underground contamination.

A Phase I EA (1998) "commercial" investigation was commissioned by the TxDOT Fort Worth District Office to identify areas of potential environmental concern relating to hazardous waste use on properties within the PSC. The report lists:

- TCEQ VCP
- TCEQ LPST
- TCEQ registered Petroleum Storage Tank (PST) sites,
- EPA RCRIS database information from the FINDS and
- TxIHW database system.

A TxDOT hazmat study was subsequently conducted to identify any additional potential hazmats sites located within the potential ROW for Alternatives A, B, C, C/A and D. In addition to the databases mentioned previous, the EPA Envirofacts Database was searched to locate RCRA and Superfund sites within or near the PSC. However, RCRA sites do not include conditionally exempt small quantity generators that might produce enough waste over time to affect the environment. An additional field investigation was conducted on October 4, 2001 to locate sites that might have been excluded from government databases. Three additional sites were located that might pose a potential hazmat contamination. These sites are described as "potential" in each of the hazardous waste site tables that are presented for the different Build alternatives. Further investigation of the sites identified in the study might be necessary prior to ROW acquisition and/or during construction.

Results from the 1998 Phase I "Commercial" investigation and the 2001 TxDOT research revealed that the majority of the hazardous waste sites within the PSC are located in two areas. One of the areas is just north of IH 30 between Forest Park and Eleventh Avenue. The second area is along Vickery Boulevard between Concrete Street and Forest Park. Information can be found in Section 5.22, Hazardous Waste Sites (Chapter 5.0, Environmental Consequences).

4.3. Ecological Resources

4.3.1. Ecological Setting

The PSC is located within the Texan Biotic Province. All proposed alternatives lie in a transition area of the Blackland Prairies and East Cross Timbers. Non-urbanized areas of the PSC are most consistent with silver bluestem-Texas wintergrass grasslands vegetation type as outlined in "Vegetation Types of Texas" (Texas Parks and Wildlife Department [TPWD], 1984). Other areas of the project would be described as cleared pastureland and areas under cultivation.

The flora and fauna found within the PSC are typical of that found in the southeastern part of the Country. Benbrook Lake, in the vicinity of the PSC, supports diverse fish species. It is an important feeding and staging habitat for migratory birds. The Clear Fork of the Trinity River, located within the PSC represents a valuable ecological environment. A Colonial Waterbird Rookery (CWR) has been documented to occur within 1.5 mi of the project, but would not be affected by this project. Efforts by the TPWD and the City to stock the river with channel catfish, largemouth bass and rainbow trout are currently under way. Over 40 species of indigenous mammals have been inventoried in Tarrant County and potentially could be found within much of the PSC. Over 500 species of birds are known to occur within Tarrant county on a resident or transient basis and their potential presence in the PSC is only diminished by the existing urban activity.

The vegetation in the rural area located along the southern alignment consists of big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), switchgrass (*Panicum virgatum*), gramas (*Bouteloua sp.*) and buffalo grass (*Buchloe dactyloides*). In the past, substantial amounts of prairie forbs such as western ragweed (*Ambrosia*

psilostachya), sedges (*Cyperaceae sp.*), asters (*Aster sp.*) and sageworts (*Artemisia ludoviciana var. mexicana*) covered the area. Land mismanagement and cultivation have caused the uplands to be covered mostly by scrub oak (*Quercus sinuate var. breviloba*), mesquite (*Prosopis glandulosa*) and juniper (*Juniperus ashei*) with mid and shortgrass understories. The bottomland trees include hardwoods such as pecan (*Carya illinionensis*), oak (*Quercus sp.*) and elm (*Ulmus americana and Ulmus crassifolia*). Mesquite trees have heavily invaded these bottomland areas. Characteristic understory shrubs and vines include skunkbush (*Rhus trilobata*), saw greenbriar (*Smilax bona-nox*), bumelia (*Sideroxylon lanuginosum var. oblongifolium*) and poison ivy (*Toxicodendron radicans*).

Many of the native biotic communities have been displaced as a result of urban development as well as industrial and commercial activities. The vegetation in the urban areas along the northern part of the PSC is predominately ornamental. Trees such as crape-myrtle (*Langerstroemia indica*) sweetgum (*Liguidambar styraciflua*), live oak (*Quercus virginiana*), holly (*Ilex deciduas*) and mimosa (*Albizia julibrissin*) are currently located along roads, medians and property lines.

4.3.2. Environmentally Sensitive Areas

Environmentally sensitive areas are areas such as wildlife refuges, wild and scenic rivers or other specially designated areas. There are no known Environmentally Sensitive Areas located within the PSC.

4.4. Cultural Resources

An assessment of the potential for cultural resources within the PSC of the SH 121 from Forest Park Boulevard in Fort Worth to FM 1187 has been conducted. Research centered upon the identification of previously conducted archeological surveys, recorded archeological sites, properties listed on the National Register of Historic Places (NRHP), State Archeological Landmarks (SALs), Texas Historical Landmarks (THL) and Texas Historical Markers (THM) was conducted at the Texas Archeological Research Laboratory (TARL) and the Texas Historical Commission (THC). Background summaries and the historical context for the PSC, the historic background, requirements

for NRHP Eligible buildings/structures and the historic architectural context are found in the Historic Buildings Report on file at the TxDOT Fort Worth District Headquarters.

4.4.1. Archeological Surveys

A TxDOT survey was performed along the PSC in 1994. The survey resulted in the recording of one prehistoric archeological site: 41TR137. This site is located west of Old Granbury Road and south of Columbus Trail. Two other previous TxDOT surveys have been performed within the vicinity of the PSC, one on IH 20 in the City of Benbrook and the other on a section of FM 1187. In addition, a survey for the Department of Housing and Urban Development (HUD) included a tract of 22 ac east of Benbrook. No prehistoric archeological sites were identified as a result of these surveys.

An archeological survey of the northern sections of the PSC was conducted in March of 1999. It included nearly all of the northern sections of the PSC that were not surveyed in 1994. Certain areas in the northern section of the project were not surveyed, because they are currently the locations of active businesses in urban settings. Survey of these latter areas would be relegated to the construction phase of the project. The survey conducted in 1999 covered a very large tract of private land that crosses a section of the Clear Fork of the Trinity River. Two archeological sites were discovered within the proposed ROW on the Alternatives A, B, C, C/A and D, consisting of one prehistoric site (41TR170) and one historic site (41TR171).

Five additional prehistoric archeological sites have been recorded in the general area of the project (Section 4.4.2, Archeological Sites), but none of these are located within the proposed ROW of Alternatives A, B, C, C/A and D.

4.4.2. Archeological Sites

Prehistoric site 41TR170 was discovered buried within floodplain deposits on the south side of the Clear Fork of the Trinity River. Survey of the 41TR170 area revealed a buried, multi-component prehistoric site. The site is extensive and covers a large portion of the ROW in the general area where the project area intersects the southern edge of the Clear Fork of the Trinity River. Two

distinct lenses of prehistoric cultural materials were detected, one buried approximately three feet below surface and one buried approximately 4.25 ft below the surface. This suggests the presence of at least two different prehistoric occupations during the late Holocene.

Site 41TR170 contains intact, rock lined hearth features, exhibits good organic preservation (animal bone and charcoal) and is buried at variable depths in the floodplain. Thus, site 41TR170 appears to be undisturbed and exhibits several of the positive qualities by which the NRHP significance of archeological sites is measured. Geomorphic evaluation of the floodplain in this area suggests the presence of deep Holocene soils and that the cultural materials might have been deposited relatively late in the Central Texas archeological sequence (Late or Post-Archaic, over the last 1000-2000 years).

Historic archeological site 41TR171 consists of a collection of historic to modern buildings and building remains located along an abandoned road north of the Clear Fork of the Trinity River. This site consists primarily of a pile of rough cut stone and fence remnants at the southern end of the site, barbed wire fencing and a dilapidated shed and cattle loader in the center, an old foundation remnant likely dating to the turn of the century further north and a dilapidated shed at its northern end. Also included in the site are a number of collections of trash and other refuse. About 50 percent of this site is located within the proposed SH 121 ROW. Site 41TR171 is disturbed and contains a mix of historic and modern-age deposits and therefore appears ineligible for the NRHP or as a SAL.

Five additional prehistoric archeological sites have been recorded in the general area of the project (41TR65, 66, 119, 137, 147). Of these, only site 41TR137 is located close to the ROW. Archeological site 41TR137, recorded in the TxDOT survey of 1994 is located near Lake Benbrook. At the time of recording, the site area was pastureland. Recorders observed a biface, chert flakes, flakes of other materials and fire-cracked rock. No features were observed and no shovel tests were performed in the site. Twenty-two shovel tests were performed west of the site in the projected ROW of the road. These produced negative results suggesting that the site would not be impacted by construction of the planned tollroad.

4.4.3. Historic Resources

NRHP Properties and SALs

Although one recorded Texas Historic Landmark is located within 0.25 mi from the location of the proposed SH 121, no NRHP properties or SALs have yet been designated within the PSC.

Historical Markers

Two cemeteries with historical markers are located in the area. Burke Cemetery is located 0.50 mi south of the project at the Clear Fork of the Trinity River and the Willburn Cemetery is in a residential development on the north side of Mary's Creek near its confluence with the Clear Fork of the Trinity River. Neither cemetery would be impacted by the recommended project.

Cemeteries

Four cemeteries are found within the general project area, but would not be affected by construction of the project. Two of the cemeteries were noted previous and have historical markers associated with them. The other two are known as Muhlinghause and Crilleland Cemeteries situated along Rock Creek. Both sites are about a mile west of the project.

4.4.4. Historic Buildings and Structures

Historic Buildings and Structures — Field Survey Results

The following historic resource information identifies architectural sites (buildings, structures, objects and districts, etc.) within the Area of Potential Effect (APE) for the proposed SH 121 project. The APE, as designated by the THC for this proposed undertaking is one-quarter of a mile on either side of the proposed SH 121. Archival research and a reconnaissance survey were conducted to identify historic-age sites (pre-1952) within the project's APE.

The archival research consisted of reviewing the NRHP, the State Archeological Landmark (SAL) listings and the Historic Fort Worth Library and property files. The results indicate that no National Register Markers, three Official State Historical Markers and one City Marker commemorating

important historical figures were identified within the APE for the proposed route. The reconnaissance surveys consisted of identifying, examining and photographing potential sites of interest and on occasion were supplemented with informal interviews with interested property owners. Based on the Secretary of Interior's Standards and Guidelines for the Evaluation of Historic Properties the historical significance and architectural integrity the buildings were evaluated for their potential eligibility to the NRHP.

The project area stretches from IH 30 to FM 1187. There were no architectural sites more than 50 years of age or older identified in the southern portion of the project area from IH 20 to FM 1187. However, a large concentration of historic-age resources located between IH 30 to IH 20 in the northern portion of the project area was identified. As a result, the focus of the field survey was between Eighth Avenue and Hulen Street with which 257 residential, commercial and industrial properties, bridges, railroad structures and a botanic garden (site Nos. 1 through 257) were identified and evaluated for National Register eligibility based on the information about each structure provided below. In addition, specific information pertaining to historic buildings including mapped location, photo documentation and the potential impact of each alternative is included in a Historic Buildings Report submitted under separate cover. This report is on file at the TxDOT Fort Worth District Headquarters.

NRHP Listed and Potentially Eligible Sites

The field survey identified 13 potentially NRHP eligible sites in the APE of the proposed new location tollroad. Residential dwellings, railroad structures, a botanic garden, a historic district, an industrial property and a bridge are the building types identified and of which summaries of each are included in the following site summaries.

Factory Place Neighborhood:
Site No: 36 Deats Duplex House

Location:	3930-32 Lisbon Street
Construction Date:	1929
Property type:	Domestic/Multi-family
Residential Status:	Potentially eligible for National Register listing.

The single-story, clapboard sided, rectangular-plan duplex is surmounted by a front-gabled roof with exposed rafters. It is accessed through two single door entries sheltered by two symmetrical front-gabled porches with brick pier supports. The original owner of the house was George W. Deats, master mechanic for the Texas & Pacific Railroad. He purchased the property the year the Lancaster Railroad Yards moved to this area and built the house the following year. It has served as rental property and an owner-occupied residence for workers in the Texas and Pacific Lancaster Railroad Yards. It is eligible for National Register listing under Criterion A: Event and its association with community planning and development west of Fort Worth.

Brooklyn Heights Neighborhood:

Site No: 37 Graham-Merchant House

Location:	3504 Lovell Avenue
Construction Date:	1901
Property type:	Domestic/Single-family Residential
Residential Status:	Potentially eligible for State of THM program: eligible for National Register listing.

The single-story, L-plan, clapboard sided house is surmounted by a cross-gabled roof. Single door entries on the east elevation and south facade are accessed through a shed and half-hipped roof porch supported by square wood columns. The windows are single or pairs of one/one double-hung wood sash. They are flanked by wood shutters and sheltered by shed awnings. Two separate shed roof additions extend from the north elevation.

Howard B. Graham built the house and lived in it until 1913 when he sold it to Calvin C. Merchant, a laborer, who lived there until his death in 1924. His wife occupied the house until 1939. The Graham-Merchant house is eligible for the official THM Program and for listing in the NRHP under Criterion C: Design/Construction and under Criterion B: association with a relevant person.

Site No. 77 Centennial Yards, Texas and Pacific Lancaster Railyards

Location:	South of 3900 Block of Vickery Boulevard
Construction Date:	1928
Property type:	Railroad
Residential Status:	Potentially eligible for National Register listing under the Railroad Structures Multiple Property Group.

Historically, the railyards consisted of two office and machine shops and one repair facility. In 1928, John Lancaster, president of the Texas and Pacific Railroad, unveiled plans to improve the downtown rail system. The improvement involved relocating the roundhouse, train yards, repair facilities and shops from the depot to a spot three miles southwest of the CBD of Fort Worth. This new location of facilities spawned a new community of industries and railroad workers who lived near by. Originally, the main structure featured multi-paned casement windows, a projecting cornice and a parapet along the front elevations. The railyards are eligible for National Register listing under the proposed Railroad Structures Multiple Property Group.

Site No. 78 Municipal Rose Garden/Fort Worth Botanic Garden

Location:	2200 Botanic Garden Drive
Construction Date:	1933-1934
Property type:	Botanic Garden
Residential Status:	Potentially eligible for National Register listing

Historically, the oldest botanic gardens in Texas, it consists of the main building and the Rose Garden. Built with Depression Relief funds, the City borrowed $340,000 from the Reconstruction Finance Corporation to construct a new city park. The Civil Works Administration, who employed stonemasons, carpenters and unskilled workers completed the work. The design, by Hare and Hare of Kansas City, Missouri, was based on a Renaissance axial plan, incorporating a formal garden in the center with smaller gardens radiating out on terraces below. The walkways and shelters are made of Palo Pinto County sandstone. The entire site is eligible for National Register listing under Criterion C: Design/Construction and Criterion A: for its association with the Depression Era.

Site No. 79 Texas and Pacific Railroad bridge

Location:	2000 Block of Vickery Boulevard
Construction Date:	1927
Property type:	Railroad
Residential Status:	Potentially eligible for National Register listing under the Railroad Structures Multiple Property Group.

The Texas and Pacific Railroad bridge is a steel through truss system supported by reinforced concrete piers and approaches. It crosses the Clear Fork of the Trinity River and is eligible for National Register listing under the Railroad Structures Multiple Property Group.

Mistletoe Heights Neighborhood:

Site No. 80 Mistletoe Heights Neighborhood Historic District

Location:	Southside of Fort Worth
Construction Date:	Ca 1909-1922
Property type:	Residential District
Residential Status:	Potentially eligible for National Register listing as a historic district.

Although it was platted in 1890, Mistletoe Heights was not immediately annexed to the city. Annexation was achieved in two phases, in 1909 and 1922. It was only after World War I that the area was developed as a residential district; during this period, city government became more structured and apportionment of services more organized. By the late 1920s, the area was densely settled, with an area of large homes as well as smaller enclaves of more modest bungalows. Today, Mistletoe Heights is a local conservation area, one of nine subdivisions comprising the Forest Park Conservation District. It is eligible National Register listing as historic district significance in community planning and development.

Site No: 85 Agee-Renfro-Vandervoort House

Location:	1200 Mistletoe Drive
Construction Date:	Ca 1915
Property type:	Domestic/Single-family Residential
Residential Status:	Contributing member of the Forest Park Conservation District; eligible for National Register listing following restoration and/or documentation.

The two-story, brick, Mediterranean-influenced dwelling is surmounted by a hipped tile roof with boxed eaves, a plain frieze and a hipped dormer. A single door entry with sidelights is accessed through a one-story, hip-roofed, partial-width porch with paired round columns on a solid brick railing. The windows are single and triple one/one double-hung wood sash; windows north and south of the porch have an arched transom. A hipped porte-cochere with brick piers is at the north elevation.

Howard L. Agee, president and general manager of the Agee Screen Company is the earliest recorded owner of the house. The Renfro family, owners of a drug store chain, owned the house in the 1920s and 1930s. In 1940, they traded the house to the Vandervoort family, owners of the Vandervoort Dairy, in exchange for the provision of ice cream to the Renfro Drug Store. The

Vandervoort family sold the house in 1954. The house is a contributing member of the Forest Park Conservation District and eligible for National Register listing under Criterion C: Design/Construction.

Site No: 117 Boyd House

Location:	1138 Clara Street
Construction Date:	Ca 1919
Property type:	Domestic/Single-family Residential
Residential Status:	Contributor to the Forest Park Conservation District; eligible for National Register listing following restoration and/or documentation.

A hipped roof with wide overhanging eaves surmounts the two-story, stuccoed, Prairie-influenced dwelling. A double door entry is accessed through a one-story hipped corner porch supported by stucco piers and a solid railing with concrete coping. The windows are single and bands of narrow 1/1 double-hung wood sash. In the 1920s, the first owner, Ellis H. Boyd, part owner of a motor company and oil well manufacturing company, built it. Currently, it is a contributing member of the Forest Park Conservation District and eligible for listing in the National Register under Criterion C: Design/Construction.

Site No: 144 Klar House

Location:	2400 Mistletoe Boulevard
Construction Date:	Ca 1927
Property type:	Domestic/Single-family Residential
Residential Status:	Contributing member of the Forest Park Conservation District; eligible for National Register listing following restoration and/or documentation.

A hipped tile roof with wide overhanging eaves surmounts the single-story, brick, Prairie-influenced dwelling. It is accessed through a hip-roofed, partial-width porch supported by brick piers with decorative column capitals and a solid brick railing topped by concrete coping. Windows are single, paired and triple one/one double-hung wood-sash with decorative muntins in the upper sash. Three brick chimneys rise above the north, south and west elevations. The house was built by Stein & Carb for Jacob Klar, a partner in the jewelry firm of Wolf & Klar. It is a contributing member of the Forest Park Conservation District and eligible for listing in the National Register under Criterion C: Design/Construction as an excellent example of an embellished bungalow.

Quality Hill:

Site No. 239 Cobb-Burney House

Location:	1598 Sunset Terrace
Construction Date:	1903
Property type:	Domestic/Single-family Residential
Residential Status:	Currently a State of THM; eligible for National Register listing.

The two-story, rectangular-plan, yellow brick, Prairie-influenced house is surmounted by a side-gabled roof with large overhanging eaves. A single door entry accesses the southwest facade sheltered by a flat roof porch supported by rectangular brick columns that partially spans the facade. A single four/one double-hung wood sash window to the northwest and southeast flanks the entrance door. Pairs of casement windows with decorative wood muntins are featured on the second level. Other windows include shorter single or ribbon casement with decorative wood muntins. A decorative brick pattern defines the soffit line around the house and is featured between each window on the second level. A brick chimney rises above the southwest slope of the roof.

The house was built for Lyman D. Cobb, a mortgage company president and his wife Emma. In 1919 Emma Cobb sold the home to Judge Ivy Burney, a lawyer whose special field was the cattle industry. Currently the house bears a State of THM and is eligible for National Register listing under Criterion C: Design/Construction and for its influences of the Chicago Prairie School style of architecture.

Site No. 255 Saint Louis and San Francisco Railroad Bridge

Location:	2200 Block of West 7th Street
Construction Date:	1931
Property type:	Railroad
Residential Status:	Potentially eligible for National Register listing under the Railroad Structures Multiple Property Group.

The Saint Louis and San Francisco Railroad bridge is a steel through truss system supported by reinforced concrete piers. It features a long timber trestle that extends west across Trinity Park. The bridge was built after the Saint Louis and San Francisco Railroad bought the ROW crossing the

Clear Fork of the Trinity River. It is eligible for National Register listing under the Railroad Structures Multiple Property Group.

Site No. 256 City of Fort Worth Water Works/North Holly Water Treatment Plant

Location:	1500 11th Avenue
Construction Date:	1891-1892 to 1954
Property type:	Industrial
Residential Status:	Potentially eligible for listing in the NRHP

The City of Fort Worth Water Works/North Holly Water Treatment Plant is divided into two separate pieces of property, North Holly and South Holly. North Holly is a historic property built prior to 1952 and includes the earliest building, the pump building, dating from 1891-1892. The plant was built in response to the city's unprecedented growth related to the coming of the railroads and associated industries. Additionally, the rectangular-plan, block form buildings incorporate elements of Romanesque Revival and Mission Revival influences which are a prime example of municipal design from the early twentieth century. For this reason it is eligible for listing in the NRHP under Criterion A: Event and its association with the historic growth and development of Fort Worth and Criterion C: Design/Construction.

The property on which South Holly is located was developed separately from North Holly. The City acquired Land in 1956 for construction of South Holly, which opened for operation in 1958. Prior to the City's acquisition of the property, the land was undeveloped and not used for water filtration or treatment; however, the buildings were sensitively designed to emulate the simple rectangular forms and the Romanesque Revival style of North Holly. After coordination with TxDOT, Environmental Affairs Division (ENV), the buildings were determined ineligible for the National Register because they do not meet the 50-year age requirement established by the construction date of the proposed SH 121 project.

Site No. 257 West Lancaster Bridge

Location:	2800 Block of West 7th Street
Construction Date:	1938
Property type:	Roadway Underpass-Overpass/Bridges
Residential Status:	Potentially eligible for listing in the NRHP

Crossing over the West Fork of the Trinity River and Trinity Park, the bridge was built to reduce traffic congestion on West 7th Street. The underpass over Foch Street incorporates a retaining wall and a pedestrian stairway to the bridge level and was built to provide access to Farington Field Stadium. According to the Tarrant County Historic Resource Survey, the bridge is eligible listing in the NRHP as part of the Roadway Underpass-Overpass Multiple Property Group. The survey stated "The significance of the group lies in its scale – unusually large for a Texas city – and in its portrayal of the city's commitment to accommodate rail facilities during a period of intense growth."

Non-eligible Sites

A total of 242 properties were identified in the project area that are not eligible for National Register listing, but are more than 50 years in age. Additionally, two buildings, site Nos. 82 and 148, are included in the survey and are less than 50 years in age. They are modern houses located in the Mistletoe Heights neighborhood. Constructed within the last two decades, they detract from the overall historic integrity of the neighborhood, but are included in the survey to demonstrate the current context of the area. More specific information pertaining to each historic-age and modern building, including photographic documentation and its relation to the proposed SH 121, is included in the Historic Buildings Report, under separate cover and on file at the TxDOT Fort Worth District Office.

4.5. Endangered/Threatened Species

Available information on threatened and endangered species from governmental agencies was obtained in order to assess the impact of the proposed SH 121. The FWS branch office in Arlington, Texas provided the list of endangered, threatened, candidate species and species of concern for Tarrant County. The TPWD Biological and Conservation Data System provided the Federal and State list for Tarrant County (Rev. 11/12/03) and these two lists were combined as shown in Table 4-3. The area around Benbrook Lake supports the feeding and staging cycles of a wide variety of migratory birds. Over 40 species of mammals and over 500 species of birds, both resident and transient are known to occur within Tarrant County and would have access to the PSC. The presence of any of these species within the PSC would be limited by their compatibility with urban activity.

Table 4-3 – Tarrant County Listed Endangered/Threatened Species SH 121 Corridor

Species	Federal Status	State Status	Description of Suitable Habitat	Habitat Present
Birds				
Arctic Peregrine Falcon *(Falco peregrinus tundrius)*	DL	T	Nests in tundra regions; migrates through Texas; winter inhabitant of coastlines and mountains from Florida to South America. Open areas, usually near water.	No
Bald Eagle *(Haliaeetus leucocephalus)*	LT-PDL	T	Nests and winters near rivers, lakes and along coasts; nests in tall trees or on cliffs near large bodies of water.	No
Henslow's Sparrow *(Ammodramus)henslowii*	—	—	Grasslands, weedy fields or cut-over areas; dense groundcover with lots of bunch grasses, vines and brambles; bare ground for running/walking.	No
Interior Least Tern *(Sterna anitllarum athalassos)*	LE	E	Nests along sand and gravel bars within braided streams and rivers; also known to nest on man-made structures.	No
Migrant Loggerhead Shrike (*Lanius ludovicanus migrans)*	—	—	Open and semi-open grassy areas, farmland with scattered trees and brush.	Yes
Western Burrowing Owl (*Anthene cunicularia hypugaea)*	—	—	Prairies, pastures, farmland areas, savannas, open areas, vacant lots near human habitation.	Yes
White-faced Ibis *(Plegadis chihi)*	—	T	Prefers freshwater marshes, sloughs and irrigated rice fields, but will use brackish and saltwater habitat; nests in marshes, in low trees, on ground in bulrushes, reeds, or floating mats.	No
Whooping Crane *(Grus Americana)*	LE	E	Estuaries, prairie marshes savannah, grasslands, croplands pastures-winter resident at Aransas NWR, Aransas and Matagorda.	No
Mammals				
Black-tailed Prairie Dog (*Cynomys ludovicianus)*	C	—	Shortgrass prairies, pastures and farmland areas. Form colonies.	Yes
Plains Spotted Skunk *(Spliogale putorius interrupta)*	—	—	Open fields, prairies, croplands, fence rows, farmyards, forest edges and woodlands; prefers wooded, brushy areas and tallgrass prairie.	Yes
Reptiles				
Texas Garter Snake *(Thamnophis sirtalis annectens)*	—	—	Wet or moist microhabitats near streams, rivers, ditches, canals, marshes and ponds.	Yes
Texas Horned Lizard *(Phrynosoma cornutum)*	—	T	Open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; sandy to rocky soil.	No
Timber/Canebrake Rattlesnake *(Crotalus horridus)*	—	T	Swamps, floodplains, upland woodlands, riparian zones, abandoned farmland; prefers dense ground cover, i.e., grapevines or palmetto.	Yes
Vascular Plants				
Auriculate false foxglove *(Tomanthera auriculata)*	—	—	Found in degraded prairies floodplains, fallow fields and borders of upland sterile woods; Extirpated in Texas; known from late 1800s specimen labeled "Benbrook."	No
Glen Rose Yucca *(Yucca necopina)*	—	—	Grasslands on sandy soils; also found in limestone bedrock, clayey soil on top of limestone and gravelly limestone alluvium. Flowering April-June.	No
LE, LT - Federally Listed Endangered/Threatened PT, C - Federally Proposed Threatened, or Candidate Species DL, PDL - Federally Delisted/Proposed Delisted			E, T - State Endangered/Threatened " — " - Species of Concern, but with no regulatory listing status	

Source: U.S. Fish and Wildlife Service, Texas Parks and Wildlife Department and survey of project area (Update 11/12/03).

4.6. Publicly Owned Facilities and Community Services

Coordination was initiated with the TPWD and no existing or planned facilities are located within the PSC. A copy of the *Texas Outdoor Recreation Plan* (TORP), 1995, was reviewed. There are no plans being developed within the PSC for future publicly owned facilities or community services. The City of Fort Worth Parks and Community Services Department currently maintains a bike trail along the Clear Fork of the Trinity River (Please see Exhibit 4.6). This bike trail is also part of a NCTCOG planned veloweb system and would remain unaffected as a result of this project. Preliminary plats, filed with the City before March 2004, show proposed parks adjacent to the proposed SH 121 ROW. Proposed parks are depicted in Exhibit 5.8. There are no wild or scenic rivers as designated by the National Park Service within the PSC or vicinity.