ENVIRONMENTAL ASSESSMENT

INTERSTATE HIGHWAY 820

FROM INTERSTATE HIGHWAY 35W TO STATE HIGHWAY 121/183/26

CITY OF FORT WORTH
CITY OF HALTOM CITY
CITY OF NORTH RICHLAND HILLS
TARRANT COUNTY, TEXAS

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I. INTRODUCTION

The Texas Department of Transportation (TxDOT), in cooperation with the Federal Highway Administration (FHWA) as the lead federal agency, has undertaken the preparation of an environmental assessment (EA) for a six mile section of Interstate Highway (IH) 820 in Tarrant County, Texas. This EA presents the potential social, economic, and environmental impacts for the preferred alternative located between IH 35W and State Highway (SH) 121/183/26 in Tarrant County. This EA complies with the National Environmental Policy Act (NEPA) of 1969 (as amended) and allows FHWA to determine whether an Environmental Impact Statement (EIS) would be necessary.

The FHWA has developed federal regulations for highway projects. These regulations, Title 23 of the Code of Federal Regulations (CFR), Part 771 provide instructions for assessing environmental impacts specific to federally-funded transportation projects. This EA provides the public and decision makers with adequate and appropriate information regarding the preferred alternatives' social, economic, and environmental impacts. Any potential impacts determined to be "significant" would require the EA to be upgraded to complete an EIS. Based on the preferred alternatives' potential social, economic, and environmental impacts identified, TxDOT does not anticipate that an EIS would be required.

Upon FHWA's approval of the EA for further processing, this EA would be made available for public review and comment. Additionally, TxDOT would schedule and conduct a public hearing to encourage further comments on the EA and the preferred alternative. The final selection of the preferred alternative would be made by TxDOT after the environmental impacts are evaluated and comments on the EA, including those from the public hearing, have been fully evaluated.

The EA would then be submitted to FHWA for concurrence and issuance of a Finding of No Significant Impacts (FONSI). After issuance of the FONSI, FHWA may authorize funding for final design and project construction. In the event that FHWA would require the completion of an EIS, the processing of the EA would cease. TxDOT would coordinate with FHWA to publish a Notice of Intent in the *Federal Register*.

A. Project History

1. Conventional Freeway Facility

In 1992, the IH 820 project was initiated. A preliminary engineering plan for three build alternatives (Alternatives I, II, and III) was prepared based for Year 2010 traffic projections. The preliminary plans were presented at a public meeting on June 3, 1993, at the North Richland Hills Community Center. The improvements and suggestions made at the public meeting were incorporated into Alternative I, which then became the Preferred Alternative. The Preferred Alternative provided for two eastbound and westbound frontage road lanes with auxiliary lanes and turn lanes at intersections, four to six eastbound and westbound main lanes, and a 48-foot wide median.

2. HOV Facility

In 1994, TxDOT contracted with the Texas Transportation Institute (TTI) to study Tarrant County regional roadways to determine which roadways could benefit from the addition of High Occupancy Vehicle (HOV) lanes. In late 1994, TxDOT determined in conjunction with North Central Texas Council of Governments (NCTCOG) and TTI that IH 820 should include a single, reversible HOV lane from IH 35W to SH 121/183/26/FM 1938 (Northeast Mall Interchange) to connect with proposed HOV lanes proposed on Airport Freeway (SH121/SH 183/SH 26) to the east. The study used traffic projections for the 2020 design year. Traffic volumes for the IH 820 project were

updated from 2010 to 2020 to ensure that the HOV lanes and added capacity to IH 820 would be compatible.

The recommended Preferred Alternative developed after the June 3, 1993, public meeting was revised to include the proposed HOV lanes, update the design to accommodate the 2020 traffic volumes, and convert the project from English to metric units. Additional design modifications including minimizing right-of-way (ROW) impacts were made to the Preferred Alternative based upon coordination meetings with local public officials and a Value Engineering Study completed in November 1997. These modifications in 1997 included two lane direct connectors in the IH 35W/IH 820 interchange and additional HOV access from Iron Horse Boulevard.

3. Managed (Toll) Lane Facility

Due to funding shortfalls which created the inability of the TxDOT to fund multiple large freeway projects in a reasonable time frame; the Texas Transportation Commission worked with the Texas Legislature and Texas voters to adopt funding strategies (law) to help expedite much needed transportation projects. Some of these funding strategies are: creation of regional mobility authorities to fund projects, ability to sell bonds, and the ability to enter into a public private partnership to design, build, and maintain these transportation facilities.

Because of the magnitude of expenditure needed to reconstruct IH 820, there has been no regional mobility authorities formed to advance this proposed project. TxDOT has sold bonds and is currently funding much needed projects; however, it is unlikely that bonds would be sold for any one particular large scale project because there must be a revenue source to assure repayment of the bonds. Therefore, TxDOT has pursued the public private partnership with regards to the proposed improvements on IH 820.

The change of the proposed HOV lanes to “managed lanes” is how TxDOT proposes to expedite the proposed improvements. Managed (toll) lanes are dedicated lanes that users would pay a fee to use. A managed (toll) lane facility is one that increases freeway efficiency by packaging various operational and design actions. Lane management operations may be adjusted at any time to better match regional goals. In addition, the projected Year 2030 traffic volumes were developed by TxDOT in conjunction with the NCTCOG so they are consistent with traffic volumes prepared for the *Mobility 2030-The Metropolitan Plan (MTP)* through the latest demographic forecast for the constrained corridor of IH 820.

II. DESCRIPTION OF EXISTING FACILITY

The existing facility is IH 820 in Tarrant County, Texas between the Mark IV Parkway interchange west of IH 35W (western terminus) and SH 121/183/26 (eastern terminus), a distance of approximately six miles (see Exhibit 1a: Site Location Map). This portion of IH 820 is the northeast quadrant of a loop that encircles a large portion of the City of Fort Worth, and other smaller municipalities, and is known locally as the Northeast Loop. IH 820 between IH 35W and SH 121/183/26 was constructed between 1963 and 1967. There have been minor modifications to the facility since then but the main lanes have remained as four lanes. As shown on Exhibit 1a, the IH 820 interchange with SH 121/SH183/SH 26/FM 1938 (also known at the Northeast Mall interchange) is the eastern end of the project limits. This interchange was reconstructed from 1997 to 2002. Representative photographs of the project area are located in Exhibit 6.

A. Width and Number of Lanes of Existing Facility

The existing roadway is a four-lane interstate highway functioning as an east-west freeway that traverses three cities: Fort Worth, Haltom City, and North Richland Hills. There are two main lanes that are 12 feet wide with 10-foot wide outside and four-foot wide inside shoulders, and include a

48-foot wide median (see Exhibit 5). There is full control of access onto IH 820. The existing (ROW) is typically 350 feet wide. The existing posted speed limit is 60 miles per hour (mph). Going west to east along the project, existing frontage roads along the northern highway boundary are in place (see Exhibit 2: Design Schematic) from:

- IH 35W to the Union Pacific Railroad track located east of Haltom Road;
- the Fort Worth & Western Railroad (FWWR) track owned by Dallas Area Rapid Transit (known locally as the Tarantula Steam Train line) to SH 26.

Going west to east, existing frontage roads along the southern highway boundary are in place from:

- Mark IV Parkway to IH 35W;
- IH 35W to North Beach Street;
- North Beach Street to Anderson; and
- Iron Horse Boulevard to SH 26.

Major crossroads (going west to east along the project) consist of Mark IV Parkway, IH 35W, North Beach Street, Haltom Road, U.S. 377 (Denton Highway), Meadow Lakes Drive/Iron Horse Drive, Rufe Snow Drive (reconstructed in 2005), Holiday Lane, SH 26 (Grapevine Highway and part of the Northeast Mall interchange) (see Exhibit 2: Design Schematic).

B. Land Use in Project Area

Based on field observations of land use conducted in August/September 1998, June 2003, October 2006, and review of aerial photographs, existing land use along the project within Fort Worth is approximately 40 percent vacant, 40 percent commercial (including hotels, office parks, and retail), 10 percent light industrial, three percent quasi-public (churches), and seven percent residential (including mobile homes and apartments) (see Exhibit 3a: Existing Land Use Map).

Based on field observations and review of aerial photographs, existing land use along the project within Haltom City is approximately 55 percent vacant, 20 percent commercial, 15 percent parks, recreation and open space, five percent public facilities (churches, a water tower), and five percent residential (see Exhibit 3a: Existing Land Use Map).

Based on field observations and review of aerial photographs, existing land use along the project within North Richland Hills is approximately 50 percent commercial, 20 percent public or quasi-public (municipal buildings, churches, and a school), 20 percent low density residential, and 10 percent vacant (see Exhibit 3a: Existing Land Use Map).

There has continued to be limited development in the Haltom City and Fort Worth sections of the facility due to a lack of frontage roads that allow access. However, some areas have developed where access from side streets could be secured. In addition, short portions of the frontage road in the southwest portion of the project from Beach Street to Anderson Lane have opened industrial/commercial development in Fort Worth.

III. DESCRIPTION OF PROPOSED PROJECT

The proposed action is the reconstruction and widening of IH 820 in Tarrant County, Texas between IH 35W (western terminus) and SH 121/183/26 (eastern terminus), a distance of approximately six miles (see Exhibit 1a: Site Location Map).

A. Project Limits

The project limits for the proposed construction on IH 820 are from approximately 360 feet west of Mark IV Parkway at the western end, including the IH 820/IH 35W interchange direct connection ramps and tie-ins with IH 820 in Fort Worth, east to SH 121/183/26. The project also includes the east-west managed (toll) lanes connections and the north-south managed (toll) lanes connections from SH 121/SH 183/SH 26 to IH 820 through the Northeast Mall interchange (see Exhibit 2: Sheets 11 and 12). The project limits for the proposed construction for the IH 820/IH 35W interchange are from approximately 820 feet north of Fossil Creek Boulevard south to Meacham Boulevard.

Full control of access is proposed for this facility. The study limits for this EA and the construction limits are the same on IH 820. For the interchange with IH 35W, the southern study limit for the EA ends at Meacham Boulevard while the project schematic extends farther south to show the full effect of the interchange (see Exhibit 2: Project Schematic).

B. Number of Lanes

There would be three 12-foot wide general purpose lanes (non-toll) in each direction plus auxiliary lanes and 10-foot wide inside and outside shoulders. Two managed (toll) lanes would be provided in each direction within the median from west of IH 35W to SH 121/183/26. The managed (toll) lanes would be 12-feet wide with four-foot wide inside and 10-foot wide outside shoulders (see Exhibit 5: Typical Sections). The Preferred Alternative would provide for two 12-foot wide eastbound and westbound frontage lanes, discontinuous at the Southwestern/Dallas Area Rapid Transit (DART) Railroad, with auxiliary lanes and turn lanes at intersections. The proposed main lanes design speed is 60 mph.

C. Right of Way

The proposed improvements would require approximately 60 feet of new ROW for a typical width of 410 feet. However, the ROW may be wider where intersections, ramps, managed (toll) lanes, auxiliary lanes, and where cuts or fills result in increased widths of side slopes. Exhibit 2 illustrates the preliminary schematic of the existing ROW and the horizontal alignment of the proposed improvements. Approximately 41.93 acres of additional ROW would be required to accommodate the proposed facility. Early acquisition has occurred for the proposed improvements. A detailed description of the early acquisition properties can be found in Exhibit 10.

At this time, temporary and/or permanent easements have not been determined. Detours would be planned based on traffic volumes that utilize the roadway and the proposed project would require traffic control plans for staged construction.

D. Future Land Use

The City of Fort Worth *North and Northwest District Plan* show land use along IH 820 from Mark IV Parkway to North Beach Street is part of an activity corridor, which is an area of highly intensive land uses parallel to major freeway systems. The Haltom City *Future Land Use Map* (see Exhibit 3b) indicates the city plans for predominantly commercial land use to abut IH 820. Haltom City has a plan to add backage roads along the south side of IH 820 from Beach Street to U.S. 377 (Denton Highway). The backage road would tie to a similar roadway in Fort Worth from IH 35W to Beach Street. This series of backage roads would open up a large area for development along the IH 820 corridor. The City of North Richland Hills *Comprehensive Land Use Plan* (see Exhibit 3d) indicates that the city plans for a variety of land uses to abut IH 820.

IV. NEED AND PURPOSE FOR PROPOSED ACTION

Transportation improvements are needed on IH 820 to address current and projected traffic demands and facility deficiencies. The traffic demand on IH 820 results from many causes

including high population growth, proximity to employment centers, lack of sufficient alternative routes, and high use of single occupancy vehicle users (SOV's). There are insufficient lanes on IH 820 to carry the existing and projected east-west traffic demand. The high traffic volumes on the highway result in many effects, including slow travel speeds and extended hours of congestion, increased accidents, and increased air pollution.

The purpose of the proposed project is to improve mobility throughout the corridor to relieve existing traffic congestion, improve local traffic circulation, and accommodate future travel demand. The project is needed for the reasons discussed in the following sections.

A. Projected Population and Employment Growth

The cities of Haltom City, North Richland Hills, Fort Worth, and other communities in northeastern Tarrant County have experienced steady population and employment growth. This growth is accompanied by increased population density in Tarrant County, as well as substantial increases in motor vehicle numbers utilizing present transportation facilities. The proposed project is needed to accommodate this increase and expected increase in population for northeastern Tarrant County and the Dallas-Fort Worth (DFW) Metropolitan Area.

According to the *Mobility 2030* and the 2000 Census, the year 2000 population for the DFW Metropolitan Area, which includes Collin, Dallas, Denton, Rockwall and Tarrant Counties, and portions of Ellis, Johnson, Kaufman, and Parker Counties, was approximately 4.87 million, an increase of 29 percent since 1990. By 2030, the DFW Metropolitan Area population is expected to be approximately 9.09 million persons, an increase of 187 percent from 2000. On average, the region is anticipated to add population at a rate of approximately 140,000 persons per year. Growth in the region is predicted to continue in a northerly direction with the IH 820 corridor experiencing moderately-high to high population density by 2030. The projected population growth in the project area is shown in Table 1.

TABLE 1. POPULATION GROWTH IN AREA

	Final Census				Forecasted	
	1970	**1980**	**1990**	**2000**	**2010**	**2030**
Communities Within the Project Area						
Fort Worth	393,455	385,164	447,619	534,694	624,956	826,665
Haltom City	28,127	29,014	32,856	39,018	43,521	44,941
North Richland Hills	16,514	30,592	45,895	55,635	65,686	73,417
Tarrant County	716,317	860,880	1,170,103	1,446,219	1,746,082	2,291,700
Communities Near Project						
Keller	1,474	4,156	13,683	27,345	38,127	47,310
Southlake	2,031	2,808	7,065	21,519	26,350	31,433
Watauga	3,778	10,284	20,009	21,908	23,868	25,819

Sources:
North Central Texas – Population by Decade, 1960-2000. March 2001, NCTCOG Research and Information Services; *NCTCOG Estimated Populations and Population Projections*. March 2007, NCTCOG Research and Information Services.

B. Changing Land Use

The proposed project is needed to accommodate changes in land use in the project vicinity. Land use changes along IH 820, though limited, are more pronounced in the western end of the project, in Haltom City and especially Fort Worth, where vacant land abutting the project is being developed with commercial uses such as hotels, office parks, and retail. At the eastern end of the project in North Richland Hills, land use is typical of development along a major urban highway, with a variety of land uses including commercial, light industrial, residential, and park/open space. Although land

use adjacent to the project area in the eastern end is not changing quickly, vacant properties are being developed and other properties are being redeveloped.

Changes in land use along the project are determined by the existing zoning. It is not anticipated that the project would substantially change the adjacent land usage as it is planned for future development. The project is consistent with local planning efforts. Exhibits 3b, 3c, and 3d show the future land uses.

C. Traffic Projections

Traffic volumes continue to increase as a result of area growth. Traffic is particularly congested because the capacity of the existing IH 820 facility is being exceeded by the current travel demand. Table 2 lists the projected 2010 average daily traffic (ADT) and projected 2030 ADT for IH 820 main lanes, managed (toll) lanes, and frontage roads.

TABLE 2. AVERAGE DAILY TRAFFIC (ADT) VOLUMES

Location	2010 ADT	2030 ADT
IH 35W to Beach Street	138,000	213,300
Beach Street to U.S. 377	143,700	213,600
U.S. 377 to Rufe Snow Drive	170,700	255,500
Rufe Snow Drive to SH 26	183,900	275,600
SH 26 to SH 121/SH 183 (Northeast Mall Interchange)	214,300	321,400

Source: TxDOT

D. Changing Access Needs

Population and land use changes have occurred in the study area; especially to the north with the addition of residential and commercial development. Local access is needed to accommodate the commercial, light industrial and residential land uses along the corridor. This would be done by providing some frontage roads in areas that currently do not have access (see Exhibit 2) with the exception between U.S. 377 and Iron Horse Boulevard due to the DART Railroad. In addition to adding frontage roads to the existing facility, ramps would be added, lengthened, or removed, and braided ramps (one ramp bridging over second ramp) would be used in some locations to relieve congestion along IH 820 and IH 35W. The addition of managed (toll) lanes would facilitate longer distance trips (such as IH 35W in Fort Worth to IH 35E in Dallas or SH 121/ SH 183/ SH 26 to the north and south of DFW airport) through the project area without increasing access needs.

E. Current Condition of Facility

The existing four-lane facility was constructed from approximately 1963 through 1967 (see Exhibit 5: Typical Sections). The facility does not meet current urban freeway design standards as described in the *Texas Department of Transportation Roadway Design Manual* (October 2006) and in *A Policy on Geometric Design of Highways and Streets* (5th Edition, 2004) published by the American Association of State Highway and Transportation Officials. Specifically, the current condition of the facility does not meet the urban freeway standards in the following ways:

- Left hand exits at the IH 35W interchange go against driver expectancy. Typically, drivers anticipate right hand exits.
- Due to the increased travel demand on the facility since it was built, the distance from the ramps to the cross street intersections is too short in some instances, causing traffic to back up onto the main lanes due to merges.
- There is inadequate capacity for the existing and projected 2030 traffic volumes. Inadequate capacity results in frequent starts and stops along the roadway decreasing air quality (due to idling vehicles) and increasing the likelihood of rear-end and side-swipes accidents.

- Vertical bridge clearances are less than 16.5 feet in some instances. Inadequate bridge clearances could result in damaged bridge structures, lodged vehicles, and temporary closure of the roadway for repairs.
- Vertical curvature along IH 820 does not meet minimum standards for a 60 mph design speed (the facility is currently posted at 60 mph).

F. Accident Rates

As shown in Table 3, the traffic accident data for IH 820 shows the number of reported accidents that occurred between IH 35W to SH 26 during the period of 1992 to 2000 and 2005 to 2006. Of these, 2,208 (56 percent) resulted in injuries. The traffic accident data reports indicated 23 fatal accidents occurred during these time frames. As shown in Table 3, the number of accidents and injuries between do not show a trend over the period. As traffic volumes increase in the study area roadways, the number of accidents is likely to increase. This is because increased congestion interrupts normal traffic flow, leading to a greater number of vehicle conflicts and accidents. Without improvements, study area roadways and intersections are likely to have higher accident rates in the future. In addition, as traffic continues to spread to other secondary roads to avoid highway congestion, the secondary roads are likely to experience deterioration in operating conditions.

TABLE 3. TRAFFIC ACCIDENT DATA*

Category	1992	1993	1994	1995	1996	1997	1998	1999	2000	2005	2006
Annual Average Daily Traffic	78,000 to 113,000	75,000 to 117,000	83,000 to 126,000	83,000 to 116,000	89,000 to 112,000	94,000 to 129,000	101,000 to 142,000	111,000 to 145,000	109,000 to 140,000	117,000 to 135,000	116,000 to 146,000
Injury Accidents	154	151	154	162	215	199	226	230	284	219	191
Fatal Accidents	1	4	2	2	2	2	3	4	1	1	1
Fatalities	na	na	na	na	na	na	na	na	na	1	1
Total Accidents	384	429	368	315	304	304	340	357	459	351	348

* Accident data from 2001 to 2004 is not readily available due to a change in the data collection methodology and program used TxDOT during this time frame.

V. ALTERNATIVES

A. Planning and Public Involvement Process

Because of anticipated traffic demands and congestion, possible delays in emergency services, and decreased safety, TxDOT initiated a study in the year 1992 to develop feasible and reasonable plans for roadway improvements in the IH 820 corridor from IH 35W to SH 121/SH 183. TxDOT Fort Worth District coordinated with the NCTCOG (the Metropolitan Planning Organization [MPO] for the DFW area), Tarrant County, and the cities of Fort Worth, North Richland Hills, and Haltom City to gather and assess their input concerning potential transportation improvements along IH 820 within Tarrant County.

Upon completion of data collection and development of initial alternative alignments, TxDOT presented initial findings in a public meeting on June 3, 1993. Those alignments were based on the traditional “pay as you go” system of funding transportation improvements and at the time appeared to be within the funding capacity of TxDOT. The alternatives were:

- Alternative I included eight to 12 main lanes (four to six in each direction) with a 24-foot wide median and two to four eastbound and westbound frontage road lanes. The ROW would typically be 350 feet wide.
- Alternative II included two express lanes, six to 10 main lanes (three to five in each direction), and six frontage road lanes. The ROW would be typically 400 feet wide.
- Alternative III included four express lanes, six to 10 main lanes (three to five in each direction), and four to eight frontage road lanes. The ROW would typically be 400 feet wide.

Due to the new requirements of the Clean Air Act (CAA) amendments of 1990, NCTCOG worked with the transportation providers in the DFW area in developing strategies to bring the area into attainment status. One of the strategies developed was the use of HOV lanes.

TTI, in cooperation with TxDOT and NCTCOG, was engaged and developed a matrix of cross section alternatives and HOV lane configurations, as documented in their technical report dated November 1997. TTI provided input on proposed alternative improvements to the corridor. The cities provided local thoroughfare plans, utility information, and development plans/plats for existing and proposed development within the corridor. The NCTCOG provided traffic projections and input related to the MTP. The HOV alternative was being prepared for presentation to the public when the four Section 4(f) properties were identified, two of which required the acquisition of property. There was a time delay in resolution of the minor acquisition amounts on the two Section 4(f) properties. During the delay, it became evident that the traditional way of funding transportation improvements was no longer going to work in a timely manner because of escalating construction costs. This was supported by the 1997 TTI technical report and the 1997 Value Engineering Study that utilized the 2030 traffic projections.

TxDOT elected to pursue alternative means to fund several proposed projects, IH 820 being one of them. To be able to deliver the transportation improvements needed for the DFW area, many facilities would need to seek alternative methods for funding, if the improvements were to be made within the next 10 plus years. So in 2004, TxDOT began developing a plan for IH 820 that included a managed lane element.

Again, the local officials were met with in determining access points to the managed lane facility and a general consensus was reached. In addition, the local officials indicated a need to keep the overall ROW footprint the same. This has remained the same with a minimal amount of additional ROW in select locations that have been coordinated with the local officials. The preferred alternative has been developed through the public meeting in 1993 and the numerous meetings with local officials until the present. The preferred alternative (which includes the managed lane toll element) was presented to the public April 27, 2006. The main discussions at the public meeting revolved around access to the managed lane facility and when the project would be implemented. Other comments included future noise level, dust, and emergency response times. While concerns were raised by the public they were in general support of the proposed project; only one respondent expressed disapproval for the proposed project.

B. Tolling Consideration

The Regional Transportation Council (RTC), which governs transportation in the DFW region, has established a policy for managed (toll) lanes. It is the policy of the RTC for managed (toll) lanes in the region to be open 24 hours a day to general traffic (see Exhibit 15 to RTC policy). That policy sets criteria for the region which guarantees the riders of the managed (toll) lane facility a minimum speed of operation. To accomplish this, the managed (toll) lane facility would not be a set fee, but would rather be set based on demand. The higher the demand on the roadway; the higher the fee for use. In turn, the build alternative would free up much needed demand on the general purpose

lanes (non-tolled) so that travelers not using the managed (toll) lanes would also benefit. Transit vehicles and certain other exempt vehicles would not be charged a toll, which would allow riders and users to take advantage of the managed (toll) lanes reliability and predictability (RTC Toll Policy, September 2007). HOV users will receive a discount during peak period operations. The operation, maintenance, and enforcement of the managed (toll) lanes are currently under study by TxDOT, North Texas Tollway Authority, and the Fort Worth Transportation Authority. Discussion of toll related issues related to environmental justice populations are located in Section VI.G.2. through Section VI.G.5.

C. Description of Reasonable Alternatives

Previous alternatives considered for this corridor that were presented in 1993 and discussed with local officials that are proposed to implement the improvements as a completely "free" facility (no direct cost to user) have been eliminated due to financial constraints and the need to implement the project within the reasonable foreseeable future. Avoidance alternatives that do not require acquisition from the Section 4(f) properties are discussed in more detail in the programmatic Section 4(f) evaluation in Exhibits 8 and 9. However, the avoidance alternatives were eliminated because they either did not meet the need and purpose for the project or because the costs, environmental impacts, and community disruption would reach extraordinary magnitude and present unique problems.

In addition, there are no nearby similar alternate parallel controlled-access facilities to IH 820 that could be used. SH 114 is approximately 12 miles north and IH 30 is approximately six miles south. The IH 30 corridor is also experiencing congestion and traffic demand issues and has been studied for capacity improvements.

1. No-Build Alternative

The no-build alternative would result in no improvements being made. The existing IH 820 would continue to function as a four-lane freeway. The advantage of the no-build alternative would be that no businesses or residents would be displaced because acquisition of privately owned land would not be required, and money for the upgrading of this facility could be used for other projects.

The disadvantage of the no-build alternative would be increased traffic congestion and slower operating speeds would continue to plague IH 820 and would worsen, based on anticipated growth and traffic levels. The increased congestion and slower operating speeds would contribute to a decline in air quality and increase fuel usage, because traffic congestion forces vehicles to operate at irregular operating speeds. In addition, drivers would seek alternative routes through neighborhoods increasing the likelihood of accidents in these areas because alternative freeway routes are not available or are as congested as IH 820. It would not meet the current urban freeway standards, which would increase the safety of the traveling public. The no-build alternative would not meet the need and purpose for the proposed project.

2. Recommended Preferred Alternative

The Preferred Alternative was developed from the 1993 public meeting, numerous meeting with the cities and agencies, value engineering study and presented in a public meeting held on April 27, 2006. The April 2006 public meeting also discussed the tolling element and there were no major public concerns (see Section V.A.). There would be 41.93 acres of new ROW required for the proposed project. There would be three 12-foot wide general purpose lanes (non-toll) with auxiliary lanes and 10-foot wide inside and outside shoulders. Two managed lanes (toll) in each direction would be provided in the median from west of IH 35W to the east end of the project [see Exhibit 7: Access Comparison for a list of entrances onto the general purpose (non-toll) and managed lanes (toll)]. The managed (toll) lanes would have 12-foot wide lanes with four-foot inside shoulders and

10-foot wide outside shoulders (see Exhibit 5: Typical Sections). It would also provide for two 12-foot wide discontinuous eastbound and westbound frontage lanes (see Exhibit 2: Sheets 6 and 7) with auxiliary lanes for merging and turn lanes at intersections.

The original access to the HOV/managed lanes at Iron Horse Boulevard has been expanded with access to and from the east at U.S. 377 (Denton Highway) and to and from the west at Haltom Road. In addition, access is provided from and to IH 820 main lanes west of IH 35W and near SH 26 (see Exhibit 7: Access Comparison). Direct access to IH 35W is provided to the north and was added to the south at the request of the City of Fort Worth. The Haltom Road access was added in coordination with the NCTCOG and Haltom City. During this process with Haltom City, the Haltom Road access was adjusted by grade separating Haltom Road over the frontage roads and access the frontage roads with "jug handle" ramps. This access also was coordinated with the backage roads planned by Haltom City. The preferred alternative has been developed through the public meeting in 1993 and 2006 and numerous meetings with areas cities and agencies from early 2006 until the present.

The total cost for IH 820 which includes preliminary engineering, construction, construction engineering, indirect costs, contingencies and ROW acquisition and utilities relocation is estimated in 2008 dollars as $498,293,000.
The advantages of the Preferred Alternative would be:

- One additional main lane (general purpose non-toll) in each direction would be added resulting in an increase in traffic capacity to accommodate projected 2030 design year traffic. This would reduce congestion and increase mobility.
- Two managed (toll) lanes in each direction would be provided to help meet vehicle reduction standards, thus improving air quality. Managed (toll) lanes encourage car pooling, and car pooling reduces congestion. There would be an improvement of air quality by reducing traffic congestion. Congestion causes vehicles to operate at irregular operating speeds and worsens air quality.
- There would be improved access to adjacent property on the south side of IH 820 between Iron Horse Boulevard and Rufe Snow Drive and between Beach Street and Haltom Road.
- Safety would be increased by providing an up to date facility with design standards set for the anticipated traffic volumes.

The disadvantage of the Preferred Alternative would be the encroachment and/or relocation of both private and public entities, including businesses, residences and municipal facilities. It would require the relocation of a high-voltage electrical transmission tower and an aviation fuel pipeline.

VI. ENVIRONMENTAL ISSUES ELIMINATED FROM FURTHER STUDY

A. Threatened and Endangered Species

According to the U.S. Fish and Wildlife (USFWS) and the Texas Parks and Wildlife Department (TPWD) Wildlife Diversity Group, several threatened, endangered, or species of concern plant and wildlife species are known to occur in Tarrant County (Table 4). Although some general suitable habitat sufficient was noted in the general proposed project area to support some species of concern listed in Table 4, none of these species or any preferred habitat specific to and favored by these species that would support larger populations or population growth were observed within the proposed project area during the site visit. Because no suitable habitat was identified for any threatened or endangered species, no state or federally listed endangered or threatened species would be affected by this proposed project. The TPWD Natural Diversity Database (NDD) was searched for occurrences near the proposed project. The search determined that no occurrences

listed in the NDD are near the proposed project area. Therefore, resources listed in the NDD would not be affected by the proposed project. The proposed project would have no effect on any federally listed species.

TABLE 4. FEDERAL AND STATE-LISTED THREATENED AND ENDANGERED SPECIES WHICH MAY OCCUR IN TARRANT COUNTY*						
Species	**Federal Status**	**State Status**	**Description of Suitable Habitat**	**Habitat Present**	**Species Effect**	**Pertinent Project Information**
Birds						
American Peregrine Falcon *Falco peregrinus anatum*	DL	E	Potential migrant. Nests in the Trans-Pecos region of west Texas; nests on high cliffs, often near water where prey species are most common.	No	No	No high cliffs or trees near open water suitable for nesting within area. Rare to uncommon migrant.
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	No	May use project area as stopover during migration.
Bald Eagle *Haliaeetus leucocephalus*	DL	T	Nests and winters near rivers, lakes and along coasts; nests in tall trees or on cliffs near large bodies of water.	No	No	May use project area as stopover. No large water bodies in project area,
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	No	No grasslands/prairies or fields in project area
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	No	No braided streams with sand/gravel bars located in project area
Peregrine Falcon *Falco peregrinus*	—	E, T	both subspecies migrate across the state from more northern breeding areas in US and Canada to winter along coast and farther south; subspecies (F. p. anatum) is also a resident breeder in west Texas; the two subspecies' listing statuses differ, thus the species level shows this dual listing status; because the subspecies are not easily distinguishable at a distance, reference is generally made only to the species level; see subspecies for habitat.	No	No	No high cliffs or trees near open water suitable for nesting within area. Rare to uncommon migrant. May use project area as stopover during migration.
Western Burrowing Owl *Anthene cunicularia hypugaea*	—	—	Prairies, pastures, agricultural areas, savannas, open areas, vacant lots near human habitation.	Yes	No	Species is primarily found in the western 2/3 of the state. Some pastures, open areas, and vacant lots occur, however no impacts are anticipated.
Whooping Crane *Grus americana*	LE	E	Estuaries, prairie marshes savannah, grasslands, croplands pastures- winter resident at Aransas NWR, Aransas and Matagorda.	No	No	May use project area as stopover during migration, but highly unlikely because the area does not contain wetlands
Mammals						
Gray Wolf *Canis lupis*	LE	E	Extirpated; formerly known throughout the western two-thirds of state in forests, brushlands, or grasslands.	No	No	Extirpated species, last known occurrence in Texas was Brewster County in 1970.
Plains Spotted Skunk *Spilogale putorius interrupta*	—	—	Open fields, prairies, croplands, fence rows, farmyards, forest edges, and woodlands; prefers wooded, brushy areas and tallgrass prairie.	Yes	No	Suitable habitat, such as grassland and small wooded areas, noted within proposed project area. The general disturbed and open nature of the project area is not favored by skunk. No impacts are anticipated.
Red Wolf *Canis rufus*	LE	E	Extirpated; formerly known throughout eastern half of Texas in brushy and forested areas, as well as coastal prairie.	No	No	Extirpated species, last known occurrence in Texas was Chambers County in 1964.
Reptiles						
Texas Garter Snake *Thamnophis sirtalis annectens*	—	—	Wet or moist microhabitats near streams, rivers, ditches, canals, marshes, and ponds.	Yes	No	There are riparian zones in project area. However, minimal impacts would occur in these areas. No impacts are anticipated.
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	No	Species typically found in rocky, brushy areas not in an urban area.

TABLE 4. FEDERAL AND STATE-LISTED THREATENED AND ENDANGERED SPECIES WHICH MAY OCCUR IN TARRANT COUNTY*						
Species	**Federal Status**	**State Status**	**Description of Suitable Habitat**	**Habitat Present**	**Species Effect**	**Pertinent Project Information**
Timber/Canebrake Rattlesnake *Crotalus horridus*	—	T	Swamps, floodplains, upland woodlands, riparian zones, abandoned farmland; prefers dense ground cover, i.e. grapevines or palmetto.	No	No	Riparian zones are located in project area, but area is highly urbanized.
Vascular Plants						
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	No	Area is highly urbanized and soils are not conducive to growing this species

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
*Data Sources: U.S. Fish and Wildlife Service, Texas Parks and Wildlife Department and survey of project area. Update 2-14-08.

B. Migratory Birds

Several of the bird species potentially inhabiting the proposed project area are considered migratory. No active or abandoned nests were observed during the field assessment. Therefore, no effect on these species is anticipated because of this proposed project. Measures to avoid harm to migratory birds, their nests, eggs, or young would be taken if they are observed on the proposed project.

C. Farmland Impacts

The project is located in an urbanized area with no adjacent farmland. None of the areas adjacent to the project are zoned for agricultural purposes. All of the land proposed to be incorporated into the project ROW is zoned for urban land uses. No division of farmland would occur. No prime farmlands would be affected; therefore, coordination with the Natural Resources Conservation Service is not required.

D. Aesthetic Considerations

The proposed project is expected to blend with the character of the area. Because the project is the widening and improvement of an existing freeway, the view of the proposed road would not be substantially different from the view of the existing road. Because of the developed nature of the area, very few indigenous, native trees and shrubs would be impacted. Aesthetic values would be emphasized. Construction practices that minimize adverse effects on existing vegetation would be promoted. Disturbed areas would be restored and reseeded according to the specifications in accordance with TxDOT's "Seeding for Erosion Control," Executive Order 13112 on Invasive Species, and the Executive Memorandum on Beneficial Landscaping.

E. Public Facilities and Services

Community resources along the project boundaries include the following:

- Schools: Richland High School, Glenview Christian School.
- Shopping Centers: Crossroads Village, Rufe Snow Drive – 820 Value Center, and North Hills Village
- Churches/Places of Worship: First Baptist Church of Fort Worth, Glenview Baptist Church, Richland Hills Church of Christ, and First Church of Christ Scientist.
- Recreational Facilities: North Park, Iron Horse Golf Course, North Richland Hills Tennis Center.
- Hospitals: None
- Fire Departments: None
- City Halls: North Richland Hills Municipal Complex

- Libraries: North Richland Hills Public Library
- Day Cares: None
- Senior Centers: None
- Other: North Richland Hills Community Center, North Richland Hills Enrichment Center

Some property would be acquired from each of the community resources except North Park and Iron Horse Golf Course. The impacts to the North Richland Hills Tennis Center and North Richland Hill Community Center are discussed in more detail in Section VII.E and Exhibits 8 and 9. The property to be acquired from Richland High School, North Richland Hills Public Library, and the First Baptist Church of Fort Worth is a landscaped buffer. The property to be acquired from the remaining facilities would remove parking; however, the amount of parking to be eliminated would be minor and would not affect the viability or functions of the facilities. Property owners would be paid fair market value for land and improvements in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended.

The Holy Trinity Charismatic Episcopal Church was acquired in July 2004 through an early ROW acquisition process (see Exhibit 10 for more information). The purchase was made at the request of the church because of financial hardships that resulted from the inability to sell the property for an extended period of time during the development and approval of the IH 820 project. The Preferred Alternative for the project required the displacement of the church building. The church has relocated about four miles to 785 Treadwell Drive in Hurst, Texas.

The benefits to public facilities and services would be recognized through improved access, capacity, and reduced congestion. The proposed improvements would provide an increase in accessibility for the various religious, educational, medical, and recreational facilities in the general area. Emergency public services would have a safer, more efficient facility to use in the performance of their various duties.

F. Limited English Proficiency

Executive Order 13166, entitled "Improving Access to Services for Persons with Limited English Proficiency," mandates that federal agencies examine the services it provides and develop and implement a system by which limited English proficiency (LEP) persons can meaningfully access those services consistent with, and without unduly burdening, the fundamental mission of the agency. Each agency shall also work to ensure that recipients of federal financial assistance (recipients) provide meaningful access to their LEP applicants and beneficiaries. TxDOT complies with Executive Order 13166 by offering to meet the needs of persons requiring special communication accommodations in all public involvement activities. Previous public involvement notices have been published only in English (1993 and 2006); however, TxDOT would consider advertising in other languages in future public involvement notices and providing interpreters upon request, if there is an indication of this need. No indications of an LEP population were present in the environmental investigations, including street signs in a foreign language, commercial signs in a foreign language, and requests for interpreters at public meetings, nor other indications from previous public involvement events. Table 5 shows the population by census tract and block groups that speak English “not well” or “not at all.”

TABLE 5. 2000 CENSUS LIMITED ENGLISH PROFICIENCY			
Census Tract	**Total Population***	**Speak English "not well" or "not at all"**	**Percent Speak English "not well" or "not at all"**
Census Tract 1050.05	3,778	148	3.9%
Census Tract 1050.05 Block Group 1	2,588	51	2.0%
Census Tract 1050.05 Block Group 2	1,190	98	8.2%
Census Tract 1050.06	1,410	84	6.0%
Census Tract 1050.06 Block Group 1	1,410	84	6.0%
Census Tract 1101.01	5,336	210	3.9%
Census Tract 1101.01 Block Group 1	2,715	112	4.1%
Census Tract 1102.03	6,279	150	2.4%
Census Tract 1102.03 Block Group 1	3,609	43	1.2%
Census Tract 1102.03 Block Group 2	2,670	107	4.0%
Census Tract 1102.04	5,077	335	6.6%
Census Tract 1102.04 Block Group 1	1,764	188	10.7%
Census Tract 1132.12	4,551	90	2.0%
Census Tract 1132.12 Block Group 1	2,328	51	2.2%
Census Tract 1132.13	3,240	34	1.0%
Census Tract 1132.13 Block Group 1	983	15	1.5%
Census Tract 1132.13 Block Group 2	701	0	0.0%
Census Tract 1132.13 Block Group 3	795	11	1.4%
Census Tract 1132.17	3,998	29	0.7%
Census Tract 1132.17 Block Group 3	712	0	0.0%
Census Tract 1132.17 Block Group 4	1,463	22	1.5%
Census Tract 1132.19	7,717	250	3.2%
Census Tract 1132.19 Block Group 2	551	13	2.4%
Census Tract 1134.03	2,344	12	0.5%
Census Tract 1134.03 Block Group 2	303	0	0.0%
Census Tract 1138.11	2,904	56	1.9%
Census Tract 1138.11 Block Group 1	876	24	2.7%
Census Tract 1138.11 Block Group 2	2,028	32	1.6%
Overall Totals for Block Groups	**26,686**	**850**	**3.2%**
Overall Totals for Census Tracts	**46,634**	**1,398**	**3.0%**

Source: 2000 U.S. Census. American Fact Finder.
*Only includes population older than five years old per the U.S. Census Bureau

The languages spoken by LEP populations are as follows: 51.3 percent speak Spanish, 2.9 percent speak Indo-European, 43.8 percent speak Asian or Pacific Island, and 2.0 percent speak other languages. These numbers represent a person's primary language, but do not necessarily preclude them from speaking English.

TxDOT's objective is to establish interoperable toll accounts throughout the state. Once fully implemented, a single ETC account established by motorist with state or local toll authorities [TxDOT TxTag stickers, the NTTA TollTag (Dallas area), and the Harris County Toll Road Authority (HCTRA) EZ TAG (Houston area)] would be accepted on the I-820 managed lane facility. TxDOT will work with new toll authorities to ensure interoperability statewide. Currently, the NTTA and

TxDOT are the only agencies offering bilingual (English and Spanish) information in both their websites and over the phone (Customer Service Center). The information available in English and Spanish includes account information, payment methods, instructions on how to set up online accounts, and how to manage toll violations among other subjects. HCTRA does not offer Spanish information on either their website or over the phone (Customer Service).

VII. AFFECTED ENVIRONMENT AND ENVIRONMENTAL IMPACTS/ CONSEQUENCES

A. Natural Resources

1. Vegetation

The project is located within the Eastern Cross Timbers Subregion of the Oak Woods and Prairies Natural Region and the Grand Prairie Subregion of the Blackland Prairies Natural Region. *The Vegetation Types of Texas (TPWD, 1984)* shows that the project is located within the Crops physiognomic region. The Crops vegetation type is a statewide vegetation category that includes cultivated cover crops and row crops utilized for food and/or fiber for humans or domesticated animals. It may also portray grassland associated with crop rotations. A secondary region is "Urban" which reflects major metropolitan areas with vegetation usually restricted to road ROW areas, building landscapes, or undeveloped areas, and may be expected to include remnants of the land cover types that predate urbanization. The areas within the project area that are not improved pastureland or developed grassland have been developed for urban usage, with little or no existing native vegetation.

The vegetation in the proposed project area is not consistent with the Crops physiognomic region. The proposed project is located in an area zoned for urban uses and is highly developed. Properties consisting of vacant land are located primarily in the western end of the project site in Fort Worth and in the central portion in Haltom City. They consist of mowed fields containing domestic and native grasses such as Bermudagrass, Indian grass, Johnsongrass, meadow dropseed, sideoats grama, silver bluestem, switchgrass, Texas wintergrass, and Texas cupgrass. With the exception of grassland prairies, no natural or unique plant communities were identified within the vicinity of the project.

Ornamental vegetation exists along the project site at several locations where it has been installed for landscaping purposes, typically near commercial developments. Generally, this vegetation consists of Bradford pear, Buford holly, crape myrtle, Indian hawthorn, live oak, pyracantha, sweet gum, and yaupon. While ornamental vegetation can provide a refuge to some wildlife, the scattered nature and low concentration of this ornamental vegetation within the project area makes this unlikely.

"Unusual habitat features" as outlined in the TxDOT-TPWD "Memorandum of Agreement (MOA) for the Finalization of the 1998 Memorandum of Understanding Concerning Habitat Descriptions and Mitigation, were observed in areas that are expected to be impacted by the proposed project. The only "unusual habitat features" (as defined in the MOA) occurring in the study area are fencerow vegetation and riparian vegetation. The following paragraphs provide detailed descriptions of unusual and special habitat features.

- Fencerow Vegetation: Woody fencerow vegetation expected to be removed to clear new ROW extends from an estimated total 508 feet in one area along IH 820. This fencerow starts approximately from approximately 508 feet east of Haltom Road to the Union Pacific Railroad overpass. This fencerow consists entirely of sugarberry (*Celtis laevigata*). The displaced trees

range in size from six inches to 16 inches diameter at breast height (dbh). The total area of fencerow trees to be removed is approximately 0.29 acre in size.

- Riparian Vegetation: Proposed highway widening would removed approximately 0.54 acres of riparian vegetation adjacent to perennial and ephemeral stream channels in two areas of existing ROW.

Vegetation characteristics of these two areas are summarized in the following text:

- Little Fossil Creek – perennial stream; existing ROW; impacts 0.52 acre; consists of 30 percent American elm (*Ulmus americana*), 15 percent each cedar elm (*Ulmus crassifolia*), green ash (*Fraxinus pennsylvanica*), and sugarberry (*Celtis laevigata*), and 12 percent black willow (*Salix nigra*). The displaced trees range in size from six inches to 10 inches dbh with a 10 percent canopy cover.
- Little Fossil Creek – perennial stream; existing ROW; impacts 0.02 acre; consists of approximately 55 percent American elm (*Ulmus americana*), 24 percent box elder (*Acer negundo*), 12 percent pecan (*Carya illinoensis*), and less than five percent sugarberry (*Celtis laevigata*), black willow (*Salix nigra*), and green ash (*Fraxinus pennsylvanica*). The displaced trees range in size from six inches to 16 inches dbh with a five percent canopy cover.

"Special habitat features" as outlined in the TxDOT-TPWD MOA, were observed in areas that are expected to be impacted by the proposed project. These features include the following areas:

- Stream LFC-2: Approximately 1,427 feet east of the IH 820 / IH 35W overpass, 0.028 acres would be impacted and on the westbound IH 820 frontage road approximately 1,312 feet east of IH 35W 0.015 acres would be impacted.
- Little Fossil Creek: On the north frontage road, approximately 610 feet west of Mark IV Parkway and on the south frontage road, 0.015 acres would be impacted and approximately 460 feet west of Mark IV Parkway, 0.050 acres would be impacted.
- Singing Hills Creek: Approximately 810 feet west of Industrial Park Boulevard, 0.007 acres would be impacted.
- Un-named Tributary to Big Fossil Creek: Approximately 1,837 feet east of North Beach Street, 0.001 acres would be impacted.

<u>Environmental Consequences of Implementing the Preferred Alternative</u>

Trees are sporadic throughout the project area. They are located along fence lines, in or near riparian zones and within landscaped areas around businesses and residential areas. Three areas located along the project contain trees that would be impacted by the proposed project:

- Tree Area A (see Table 6), from approximately 508 feet east of Haltom Road to the Union Pacific Railroad overpass, is an upland area approximately 0.60 acre in size. The overstory, based on two sub-areas that were sampled in October 1998 and reassessed in June 2003 and in October 2006, consists entirely of sugarberry (*Celtis laevigata*). The displaced trees (by sampling extrapolation) range in size from six inches to 16 inches dbh.
- Tree Area B (see Table 13), from approximately 721 feet east of U.S. 377 to approximately 2,100 feet east of U.S. 377, is a lowland area in the Little Fossil Creek floodplain that is approximately 0.52 acre in size. The overstory, based on tree counts performed in September 1998 and reassessed in June 2003 and in October 2006, consists of approximately 30 percent American elm (*Ulmus americana*), 15 percent each cedar elm (*Ulmus crassifolia*), green ash (*Fraxinus pennsylvanica*), and sugarberry (*Celtis laevigata*), and 12 percent black willow (*Salix nigra*). The displaced trees range in size from six inches to 10 inches dbh.

- Tree Area C (see Table 13), from 870 feet east of U.S. 377 to 1,115 feet east of U.S. 377, is a lowland area in the Little Fossil Creek floodplain that is approximately 0.02 acre in size. The overstory, based on tree counts performed in September 1998 and reassessed in June 2003 and in October 2006, consists of approximately 55 percent American elm (*Ulmus americana*), 24 percent box elder (*Acer negundo*), 12 percent pecan (*Carya illinoensis*), and less than five percent sugarberry (*Celtis laevigata*), black willow (*Salix nigra*), and green ash (*Fraxinus pennsylvanica*). The displaced trees range in size from six inches to 16 inches dbh.

TABLE 6. DIAMETERS OF TREES TO BE REMOVED

Species	Size in Diameter at Breast Height		
	6-12 inches	12-16 inches	Total No.
Tree Area A - From 475 feet to 2,165 feet east of Haltom Road			
Sugarberry	22	6	28
Tree Area B - From 722 feet to 3,000 feet east of U.S. 377 (Denton Highway)			
Black Willow	6	0	6
Green Ash	9	0	9
Box Elder	1	0	1
Tree Area C - From 870 feet to 1,115 feet east of U.S. 377 (Denton Highway)			
Sugarberry	1	0	1
Black Willow	0	1	1
American Elm	11	14	25
Pecan	6	1	7
Box Elder	5	1	6

Although there are approximately 84 trees that have been identified as being impacted, the majority of those trees are invasive species; however, 22 of the 84 are of a higher quality (i.e., larger, older, and more healthy). Due to the low number of quality trees displaced by this project, no compensatory mitigation would be offered.

Vegetation impacts associated with the proposed project would not affect any of the following: 1) habitat for Federal listed or candidate species; 2) rare vegetation series (S1, S2 or S3) for State listed species; 3) rare vegetation community (S1 or S2); or 4) native prairies. Disturbed areas would be restored and reseeded according to the TxDOT specifications for Seeding and Erosion Control, Executive Order 13112 on Invasive Species, and the Executive Memorandum on Beneficial Landscaping. A mix of native and introduced grasses and forbs would be used to revegetate the disturbed areas.

Environmental Consequences of Implementing the No-Build Alternative

If the no-build alternative were implemented, the existing facility and the clear zones would continue to be mowed and maintained at the current maintenance intervals. The habitat in the un-maintained sections of the existing ROW would change with normal biological succession. The no-build alternative would not result in any conversion of land to transportation use.

2. Water Quality Issues

a) Watershed/Basin Information

Storm water runoff from proposed construction would flow into Little Fossil Creek, approximately 525 feet west of Mark IV Parkway; Big Fossil Creek, approximately 984 feet east of U.S. 377; Calloway Branch of the West Fork of the Trinity River, approximately 2,100 feet west of SH 26 and several unnamed streams and tributaries. According to the TCEQ Water Quality Inventory, the majority of the branches, creeks, and streams that cross the project, are located in Segment 0806 (West Fork Trinity River below Lake Worth). Water in this segment is classified as "Water Quality

Limited." Designated water uses include contact recreation, public water supply, and high aquatic life. The Calloway Branch of the West Fork of the Trinity River is located in Segment 0841 (Lower West Fork Trinity River) of the Trinity River Basin. This water body is classified as "Water Quality Limited" and designated water uses consist of contact recreation and intermediate aquatic life.

According to the 2004 Clean Water Act Section 303(d) list, segments 0806 and 0841 are designated as threatened or impaired due to bacteria and polychlorinated biphenyls (PCB) in fish tissue. The project is within five miles upstream of the threatened or impaired segments. Therefore, coordination with the TCEQ is required for total maximum daily loads. The water quality of wetlands and waters in the State shall be maintained in accordance with all applicable provisions of the Texas Surface Water Quality Standards including the General, Narrative, and Numerical Criteria.

b) Federal Emergency Management Agency Floodplain Information

According to the USGS 7.5 Minute Quadrangle Maps (Hurst, Texas and Haltom City, Texas) and the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map (FIRM) for Tarrant County, Texas and Incorporated Areas (Map Panel Nos. 48439C0085 G, 48439C0120G, 48439C0090 G, and 48439C0125 G), the project crosses the following water bodies and flood zones:

IH 820 water bodies and their associated flood zones (from west to east):

- Little Fossil Creek, approximately 525 feet west of Mark IV Parkway. This stream is located in zone AE.
- Un-named tributary to Stream LFC-2, approximately 623 feet west of North Riverside Drive. This stream is located in zone A.
- Stream LFC-1, approximately 328 feet west of North Beach Street. This stream is located in zone AE.
- Un-named tributary to Big Fossil Creek, approximately 1,903 feet east of North Beach Street. This stream is located in zone A.
- Big Fossil Creek, approximately 984 feet east of U.S. 377. This stream is located in zone A.
- Singing Hills Creek, approximately 820 feet west of Industrial Park Boulevard. This stream is located in zone AE.
- Stream BFC-7 (a tributary to Big Fossil Creek), approximately 1,805 feet east of Industrial Park Boulevard. This stream is located in zone A.
- Calloway Branch of the West Fork Trinity River, approximately 2,100 feet west of SH 26. This stream is located in zone AE.

IH 820/IH 35W interchange water bodies and flood zones:

- Little Fossil Creek, approximately 1,181 feet north of Meacham Boulevard. This stream is located in zone AE.
- Stream LFC-2 (a tributary to Little Fossil Creek), at the IH 820/IH 35W overpass. This stream is located in zone AE.

According to National Flood Insurance Program, Zone A and Zone AE are located in a special flood hazard area inundated by the 100 year. No base flood elevations have been determined for Zone A. Base flood elevations have been determined for Zone AE.

Tarrant County and the cities of Fort Worth, Haltom City, and North Richland Hills are participants in the National Flood Insurance Program (NFIP). Hydraulic design practices for this project would be

in accordance with current TxDOT design policies and standards. Drainage facilities would permit conveyance of the 100-year flood (inundation of the roadway being acceptable) without causing substantial damage to the highway, stream, or other property. This project would not raise the base floodplain elevation to a level, which would violate the applicable floodplain regulations or ordinances.

Environmental Consequences of Implementing the Preferred Alternative

(i) Channel Impacts

Modifications to six existing drainage structures would be required for the proposed project. Modification of the structures would impact waters of the United States (U.S.), which are under the jurisdiction of the U.S. Army Corps of Engineers (USACE). The locations of the jurisdictional waters and their impacted areas are listed in Table 7.

TABLE 7. IMPACTED JURISDICTIONAL WATERS ASSOCIATED WITH DRAINAGE STRUCTURES

Creek Name	Location	Impacted Area (Acres)	Impacted (Ft) Within Channel	Channel Modifications Yes or No
Stream LFC-2	Approximately 1,427 ft east of the IH 820/IH 35W overpass	0.028 ac	92 ft	No
	On the westbound IH 820 frontage road approximately 1,312 ft east of IH 35W	0.015 ac	65 ft	No
Little Fossil Creek	On the north frontage road approximately 610 ft west of Mark IV Parkway	0.050 ac	55 ft	No
	On the south frontage road approximately 460 ft west of Mark IV Parkway	0.003 ac	3 ft	No
Singing Hills Creek	Approximately 810 ft west of Industrial Park Boulevard	0.007 ac	98 ft	No
Un-named tributary to Big Fossil Creek	Approximately 1,837 ft east of North Beach Street	0.001 ac	10 ft	No

(ii) Wetlands

The proposed project area was surveyed for the presence of wetlands using the methods outlined in the USACE's *Field Guide for Wetland Delineation* (1987); no wetlands were identified in the vicinity of the proposed project area.

(iii) Permits

An USACE Nationwide Permit 14 (Linear Transportation Crossings) would be used for this proposed project. None of the crossings would impact more than 0.1 acre of waters of the U.S. or special aquatic sites including wetlands; therefore, a Pre-Construction Notification to the USACE is not required. The waters are not navigable; therefore, neither a U.S. Coast Guard Section 9 Permit of the Rivers and Harbors Act of 1899 and the General Bridge Act of 1946 nor a USACE Section 10 Permit would be required.

(iv) TCEQ Section 401 Best Management Practice Statement

As a result of impacts to water of the U.S. associated with the construction of the proposed project, Erosion Control, Sedimentation Control, and Post Construction Total Suspended Solids (TSS) Control devices from the TCEQ Section 401 Best Management Practices (BMP) List would be required. Table 8 contains the approved BMPs for each category. At least one device from each category would be utilized. Erosion Control devices would be implemented and maintained until construction is complete. Sedimentation Control devices would be maintained and remain in place

until completion of the proposed project. Post-Construction TSS Control devices would be implemented upon completion of the proposed project.

TABLE 8. BEST MANAGEMENT PRACTICES		
Erosion Control	**Sedimentation Control**	**Post Construction TSS**
Temporary Vegetation	Sand Bag Berm	Retention/Irrigation
Blankets/Mulch/Matting	Silt Fence	Vegetative Filter Strip
Mulch	Triangular Filter Dike	Constructed Wetlands
Sod	Rock Berm	Wet Basins
Interceptor Swale	Hay Bale Dike	Vegetation Lined Drainage Ditches
Diversion Dikes	Brush Berm	Grassy Swales
Erosion Control Compost	Stone Outlet Sediment Trap	Sand Filter Systems
Mulch Filter Berms/Socks	Sediment Basin	Extended Detention Basins
Compost Filter Berms/Socks	Erosion Control Compost	Erosion Control Compost
	Mulch Filter Berms/Socks	Mulch Filter Berms/Socks
	Compost Filter Berms/Socks	Compost Filter Berms/Socks

(v) Texas Pollutant Discharge Elimination System

Because this project would disturb more than one acre, TxDOT would be required to comply with the TCEQ - Texas Pollutant Discharge Elimination System (TPDES) Storm Water General Permit for Construction Activity. The project would disturb more than five acres; therefore, a Notice of Intent would be filed to comply with TCEQ stating that TxDOT would have a Storm Water Pollution Prevention Plan (SW3P) in place during construction of proposed project. This SW3P utilizes the temporary control measures as outlined in the Department's manual *Standard Specifications for the Construction of Highways, Streets, and Bridges*. Impacts would be minimized by avoiding work by construction equipment directly in the stream channels and/or adjacent areas. No long-term water quality impacts are expected as a result of the proposed project.

(vi) Storm Water Issues

To minimize impacts to water quality during construction, the proposed project would utilize temporary erosion and sedimentation control practices from TxDOT's manual *Standard Specifications for the Construction of Highways, Streets, and Bridges*. Where appropriate, these measures would be in place prior to the initiation of construction, and would be maintained throughout the duration of the construction. Clearing of vegetation would be limited and/or phased in, to maintain a natural water quality buffer and minimize the amount of erodible earth exposed at any one time.

The contractor would take appropriate measures to prevent, minimize and control the spill of fuels, lubricants, and hazardous materials in the construction staging area. All spills, including those of less than 25 gallons, shall be cleaned immediately and any contaminated soil shall be immediately removed from the site and be disposed of properly. Designated areas shall be identified for spoils disposal and materials storage. These areas shall be protected from run-on and run-off. Materials resulting from the destruction of existing roads and structures shall be stored in these designated areas.

The use of construction equipment within the stream channel would be minimized (or not necessary). If work within a watercourse or wetland is unavoidable, heavy equipment shall be placed on mats, if necessary, to protect the substrate from gouging and rutting. All construction equipment and materials used within the stream channel and immediate vicinity would be removed as soon as the work schedule permits and/or when not in use and shall be stored in an area protected from run-on and run-off.

All materials being removed and/or disposed of by the contractor would be handled in accordance with State and Federal laws and by the approval of the Project Engineer. Any changes to ambient water quality during construction of the proposed project would be prohibited, would result in additional water quality control measures, would be mitigated as soon as possible, and would be reported to the TCEQ within 24 hours of becoming aware of impacts. The contractor would provide "good housekeeping" practices, as well as "grade management" techniques to ensure that proper precautions are in place throughout construction of the proposed project.

There are no public water supply intakes within the proposed project limits or adjacent areas. No adverse water quality effects are expected to affect this resource.

Environmental Consequences of Implementing the No-Build Alternative
Modifications of the existing culverts would not occur under the no-build alternative; therefore, no coordination with the USACE would be required, nor would there be impacts to the streams or channels.

B. Hazardous Materials

Pursuant to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and the Resource Conservation and Recovery Act (RCRA), a preliminary investigation was conducted to identify sites within the project study area which are "at risk" of environmental contamination by hazardous wastes and substances. This initial screening type investigation was conducted to indicate areas of potential concern for further investigation or precautionary actions. The scope of the preliminary investigation consisted of a review of American Society of Testing and Materials (ASTM E-1527-00) compliant federal and state environmental databases and the performance of a site visit to confirm information from the databases and note additional field observations. No land use history, title searches, records/historic historic maps review, interviews, or consultation with local/state/federal authorities were conducted. A consultant database search was conducted and UST/LUST updated information was obtained from the TCEQ in November 2006. The ASTM databases consist of:

- Federal National Priorities List (NPL)
- Federal Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) list
- Federal RCRA Corrective Action Report (CORRACTS) Treatment, Storage, and Disposal (TSD) facilities list
- Federal RCRA non-CORRACTS TSD facilities list
- Federal RCRA generators list
- Federal Emergency Response Notification System (ERNS) list
- State-equivalent NPL
- State-equivalent CERCLIS
- State landfill and/or solid waste disposal site lists
- State underground storage tank (UST) lists
- State leaking underground storage tank (LUST) lists
- State aboveground storage tank (AST) lists

Twenty-nine facilities were identified within 500 feet of the areas of proposed construction. The database search revealed more than 29 entries or listings because many facilities were on multiple databases. Table 9 provides a summary of the database search results for the ASTM databases.

TABLE 9. SUMMARY OF ASTM REGULATORY DATABASE FINDINGS					
Map/ Database ID#	**Name**	**Location Information**	**Regulatory Information**	**General Gradient**	**Comment**
8a	Valero	5301 North Beach Street, Fort Worth, TX 76137 West of and adjacent to North Beach Street	Facility ID No. 70029	Up	Active PST/UST facility. ROW to be acquired along eastern property line. Potential to impact project is low.
8b	Mobil Oil Corporation (gas station)	5300 North Beach Street, Fort Worth, TX 76137 Northeast corner IH 820 and North Beach	Facility ID No. 60329 RCRA ID No. TX1000654038	Down	Active PST/UST facility. Southern portion being acquired as new ROW. Potential to impact project is low.
8e	RaceTrac 108	5310 North Beach Street, Fort Worth, TX 76137 East of and adjacent to North Beach Street	Facility ID No. 75717	Down	Active PST/UST facility. No ROW acquisition proposed. Potential to impact project is low.
9a	Wal-Mart	6801 NE Loop 820 North Richland Hills, TX 76137 North of and adjacent to IH 820	Facility ID No. 58464 RCRA ID No. TX1000139300 TX Ind Haz Waste EPA ID No. TXD981909559	Cross	Facility is now Rec Warehouse. Tank has been removed, inactive as a RCRA facility. ROW to be acquired along southern property line. Potential to impact project is low.
9b-c	Pep Boys 731	6755 NE Loop 820 North Richland Hills, TX 76137 North of and adjacent to IH 820	Facility ID No. 47432 RCRA ID No. TX1004784903	Cross	Tank has been removed. ROW to be acquired along southern property line. Potential to impact project is low.
10a-b	Wal-Mart	6401 NE Loop 820 North Richland Hills, TX 76180 North of and adjacent to IH 820	Facility ID No. 76949 RCRA ID No. TX1004787611	Up	Active PST/UST facility. ROW to be acquired along southern property line. Potential to impact project is low.
10c-d	Sam's Club No. 8268	6375 NE Loop 820 North Richland Hills, TX 76180 North of and adjacent to IH 820	Facility ID No. 75007 RCRA ID No. TX1008892488	Up	Active PST/UST facility. ROW to be acquired along southern property line. Potential to impact project is low.
11	Home Depot No. 540	6501 NE Loop 820 North Richland Hills, TX 76180 North of and adjacent to IH 820	RCRA ID No. TX1001267021	Up	ROW to be acquired along southern property line. Soil and/or groundwater contamination unlikely. Potential to impact project is low.
13a-b	Mobil Oil Corp./ Tetco #737	5036 Rufe Snow Drive North Richland Hills, TX 76180 Southeast corner of IH 820 and Rufe Snow Drive	LPST ID No.'s 97677 and 107401 Facility ID No. 17720 RCRA ID No. TX1000884863	Cross	LPST's resulted in soil contamination only. Tanks have been removed, facility has been demolished. LPST cases closed. Northern and western portions of property to be acquired as new ROW. Potential to impact project is low.

TABLE 9. SUMMARY OF ASTM REGULATORY DATABASE FINDINGS					
Map/ Database ID#	**Name**	**Location Information**	**Regulatory Information**	**General Gradient**	**Comment**
13c	Wright Bros. Cleaners	5033C Rufe Snow Drive, North Richland Hills, TX 76180 West of and adjacent to Rufe Snow Drive	RCRA ID No. TX1000234935 TX Ind Haz Waste EPA ID No. TXD982305096	Cross	Facility no longer in operation; no current property with this address. Apparent location now part of Five Star Ford. ROW previously acquired along eastern property line; no additional ROW acquisition planned. Potential to impact project is low.
13d-e	Exxon RS 67356/Exxon Mobil Corp.	5037 Rufe Snow Drive North Richland Hills, TX 76118 Southwest corner of IH 820 and Rufe Snow Drive	Facility ID No. 26314 RCRA ID No. TX1004785408	Cross	Tanks have been removed, facility has been demolished. Northern and eastern portions of property to be acquired as new ROW. Potential to impact project is low.
13f-g	Nick's Chevron	5100 Rufe Snow Drive North Richland Hills, TX 76118 Norththeast corner of IH 820 and Rufe Snow Drive	Facility ID No. 5731 RCRA ID No. TX1000654803 TX Ind Haz Waste EPA ID No. TXD988047007	Cross	Active PST/UST facility. Northern and western portions of property to be acquired as new ROW. Potential to impact project is low.
13h	Five Star Ford	6618 NE Loop 820 North Richland Hills, TX 76180 South of and adjacent to IH 820	Facility ID No. 75193	Down	Active AST facility. ROW previously acquired along northern property line; no additional ROW acquisition planned. Potential to impact project is low.
13i	vacant lot	6500 NE Loop 820 North Richland Hills, TX 76180 South of and adjacent to IH 820	Facility ID No. 65969	Down	Tanks have been removed. Property appears to be part of Five Star Ford. ROW previously acquired along northern property line; no additional ROW acquisition planned. Potential to impact project is low.
14	Zimmerer Kubota & Equipment Co.	5600 NE Loop 820 Fort Worth, TX 76180 South of and adjacent to IH 820	LPST ID No. 104185 Facility ID No. 20651	Up	No facility found at this address. LPST resulted in minor soil contamination only. Tanks have been removed. LPST case closed. ROW to be acquired along northern property line. Potential to impact project is low.
15	Industrial Catering Inc.	4400 NE Loop 820 Haltom City, TX 76177 South of and adjacent to IH 820	Facility ID No. 8009	Up	No facility found at this address. Tank has been removed. ROW to be acquired along northern property line. Potential to impact project is low.

TABLE 9. SUMMARY OF ASTM REGULATORY DATABASE FINDINGS					
Map/ Database ID#	**Name**	**Location Information**	**Regulatory Information**	**General Gradient**	**Comment**
16a-b	RAS 6 7305/ Exxon Mobil Corp.	5200 Denton Highway Fort Worth, TX 76177 Northeastern corner of IH 820 and Denton Hwy/U.S. 377	LPST ID No. 105892 Facility ID No. 26313	Down	Facility is now a small office building occupied by Ace Cash Express and Express Personnel Service. LPST resulted in minor soil contamination only. Tanks have been removed. LPST case closed. Southwestern half of property to be acquired as new ROW. Potential to impact project is low.
17	NTB No. 718	6904 NE Loop 820 North Richland Hills, TX 76180 Southwest corner of IH 820 and Vance Road	RCRA ID No. TX1008375326	Up	Active RCRA Small-Quantity Generator. Northern portion of property to be acquired as new ROW. Soil and/or groundwater contamination unlikely. Potential to impact project is low.
18	Don Davis Chrysler	3400 NE Loop 820 Fort Worth, TX 76101 South of and adjacent to IH 820	Facility ID No. 74597	Down	Active AST facility. ROW to be acquired along northern property line. Soil and/or groundwater contamination unlikely. Potential to impact project is low.
19	Allied Bendix Aerospace	2508 NE Loop 820 Fort Worth, TX 76106 South of and adjacent to IH 820	RCRA ID No. TX1000248992	Cross	Inactive RCRA Small-Quantity Generator. No ROW acquisition proposed. Potential to impact project is low.
21	Quick Shop Food Mart	5251 North Beach Street Fort Worth, TX 76137 Southwest corner of IH 820 and North Beach Street	Facility ID No. 70761	Down	Northern portion of property to be acquired as new ROW. Potential to impact project is low.
23	S & T Food Mart 8	5005 Denton Highway Fort Worth, TX 76117 Southwestern corner of IH 820 and Denton Hwy/U.S. 377	Facility ID No. 73815	Up	Active PST/UST facility. Northern and western portions of property to be acquired as new ROW. Potential to impact project is low.
27	Gene Huggins Enterprises	7501 NE Loop 820 North Richland Hills, TX 76180 Northeast corner of IH 820 and Cloyce Court	Facility ID No. 1270	Cross	Car dealership. Active PST/UST facility. ROW to be acquired along southern property line. Potential to impact project is low.
28	vacant warehouse	5113 North Freeway Fort Worth, TX 76106 South of IH 820; west of and adjacent to North Freeway (IH 35W)	LPST ID No. 108070 Facility ID No. 21034	Down	Facility currently occupied by Jeb Moving & Storage. LPST resulted in groundwater contamination. Tanks have been removed. LPST case closed. No ROW acquisition proposed. Potential to impact project is low.

TABLE 9. SUMMARY OF ASTM REGULATORY DATABASE FINDINGS					
Map/ Database ID#	Name	Location Information	Regulatory Information	General Gradient	Comment
32	Van Waters and Rogers Inc.	5001 North Freeway, Suite D, Fort Worth, TX 76106 South of IH 820; west of and adjacent to North Freeway (IH 35W)	RCRA ID No. TX1000136159	Down	No longer listed at this address. Combined office/light industrial facility. No ROW acquisition proposed. Potential to impact project is low.
36	Westmoor Bootmakers Inc.	4901 North Freeway Fort Worth, TX 76106 South of IH 820; west of and adjacent to North Freeway (IH 35W)	RCRA ID No. TX1000836772	Down	No longer listed at this address. Combined office/light industrial facility. No ROW acquisition proposed. Potential to impact project is low.
40	Fire Station No. 9	2575 Polaris Drive Fort Worth, TX 76111 South of IH 820; east of North Freeway (IH 35W)	Facility ID No. 7547	Down	Active PST/UST facility. No ROW acquisition proposed. Potential to impact project is low.
41	Shell Service Station	2551 Meacham Boulevard, Fort Worth, TX 76111 South of IH 820; northeast corner of North Freeway (IH 35W) and Meacham Boulevard	Facility ID No. 71043	Down	Active PST/UST facility. No ROW acquisition proposed. Potential to impact project is low.
42	Mobil Oil Corp.	2529 Meacham Boulevard, Fort Worth, TX 76111 South of IH 820; northwest corner of North Freeway (IH 35W) and Meacham Boulevard	Facility ID No. 17634 RCRA ID No. TX1000654017 TX Ind Haz Waste EPA ID No. TXD988038618	Up	Facility is currently a Texaco service station. LPST resulted in soil contamination only. Active PST/UST facility. LPST case closed. No ROW acquisition proposed. Potential to impact project is low.

Environmental Consequences of Implementing the Preferred Alternative

Sites that are likely to be contaminated are considered to be moderate risk. These include landfills and reported LUST sites that do not have full closure status; no such facilities were identified within 500 feet of the areas of proposed construction. However, sites are categorized as low risk if available information indicates that some potential for contamination exists, but the site is not likely to pose a contamination problem for ROW acquisition or construction of the project. Low risk sites include active, modern gasoline stations and other facilities, which are listed only as producing some quantity of hazardous waste on the property.

As shown in Table 9, the risk of encountering contamination at all of the identified properties is low. In addition to properties at which there is no indication of a past release or at which releases have been remediated, almost all of the identified sites are located down or cross gradient from the proposed project area, and/or in areas in which no new ROW would be acquired. The most likely situation in which contamination would be encountered would be during subsurface excavations for storm sewers. The locations of storm sewers along the expanded IH 820 have not yet been determined. If future designs call for subsurface excavation adjacent to any of the properties, additional investigation prior to construction may be warranted.

During any construction project, there exists the potential to encounter contaminated soil or water. Included in this projects contract would be the TxDOT standard specifications for construction that require the contractor to be familiar with and comply with all federal, state, and local laws, ordinances, and regulations related to the treatment and disposal of hazardous materials. All properties that have potential contamination or are known hazardous material sites would be assessed and handled accordingly during the ROW acquisition phase of the project development to satisfy standard due diligence precautions suggested by current environmental law.

Environmental Consequences of Implementing the No-Build Alternative

Under the no-build alternative, no new ROW would be acquired, thus, there would be no potential to encounter contaminated soil or water. No contaminated areas would be disturbed due to construction activities.

C. Air Quality

The proposed North Central Texas project is located in Tarrant County, which is part of the U.S. Environmental Protection Agency's (EPA) designated nine county non-attainment area for the eight-hour standard for the pollutant ozone; therefore, the transportation conformity rule applies. The proposed project is consistent with the area's financially constrained long-range *Mobility 2030 Metropolitan Transportation Plan* (MTP) and the *2008-2011 Transportation Improvement Program* (TIP) as proposed by the NCTCOG. The U.S. Department of Transportation [FHWA/Federal Transit Administration (FTA)] found the MTP to conform to the State Implementation Plan (SIP) on June 12, 2007, and found the *2008-2011 TIP* to conform on October 31, 2007. All projects in the NCTCOG's TIP that are proposed for federal or state funds were initiated in a manner consistent with requirements of amended 23 USC 134, 23 USC 135, 176(c) of the CAA [42 USC 7506(c)] and 49 USC 5303. Energy, environment, air quality, cost and mobility considerations are addressed in the programming of the TIP.

The primary pollutants from motor vehicles are volatile organic compounds (VOCs), carbon monoxide (CO), and nitrogen oxides (NOx). Volatile organic compounds and NOx can combine under the right conditions in a series of photochemical reactions to form ozone. Because these reactions take place over a period of several hours, maximum concentrations of ozone are often found far downwind of the precursor sources. Thus, ozone is a regional problem and not a localized condition.

The modeling procedures of ozone require long term meteorological data and detailed area wide emission rates for all potential sources (industry, business, and transportation) and are normally too complex to be performed within the scope of an environmental analysis for a highway project. Accordingly, concentrations of ozone for this purpose of comparing the results of the National Ambient Air Quality Standards (NAAQS) are modeled by the regional air quality planning agency for the SIP. However, concentrations for carbon monoxide are readily modeled for highway projects and are required by federal regulations.

Topography and meteorology of the area in which the project is located would not seriously restrict dispersion of the air pollutants. The traffic data used in the analysis was obtained from the TxDOT Transportation Planning and Program (TPP) Division. The analysis used the traffic from the most congested segment to calculate the worst case scenario for air quality. The 2013 estimated time of completion traffic is estimated to be 227,700 vehicles per day [including service roads and managed (toll) lanes] and the 2030 traffic is estimated to be 321,400 vehicles per day [including service roads and managed (toll) lanes].

1. *Project Level CO Analysis*

Carbon monoxide concentrations for the proposed action were modeled using the worst case scenario (adverse meteorological conditions and sensitive receptors at the ROW line) in accordance with the TxDOT *Air Quality Guidelines*. Local concentrations of carbon monoxide are not expected to exceed national standards at any time. Table 10 summarizes the results of the analysis.

TABLE 10. AIR QUALITY ANALYSIS

Year	Traffic Volume		Emission Factor (g/mile)	1-Hour CO (ppm)	1-Hour % NAAQS	8-Hour CO (ppm)	8-Hour % NAAQS
	ADT (vpd)	DHV (vph)					
2013	227,700	25,000	6.6	4.5	12.9	2.8	31.1
2030	321,400	35,400	5.4	3.9	11.1	2.5	27.8

The National Ambient Air Quality Standards (NAAQS) for CO is 35 ppm for one hour and 9 ppm for eight-hour. Analysis includes a one hour background concentration of 1.8 ppm and an eight-hour background concentration of 1.2 ppm.

Carbon monoxide background (ambient) concentrations of 1.8 parts per million (ppm) by volume for a one-hour average and 1.2 ppm for an eight-hour average were used in the analysis. The NAAQS for CO is 35 ppm for one-hour and nine ppm for eight-hour. Carbon monoxide concentrations were modeled under the worst meteorological conditions (wind speed of three feet per second; wind bearing of 90°; stability class of five; surface roughness of 40 in; mixing height of 3000 feet). As shown in Table 10, the 2030 design year CO concentrations are 3.9 ppm or 11.1 percent of NAAQS for one-hour and 2.5 ppm or 27.8 percent of NAAQS for eight-hour.

The control of particulate matter emanating from various construction activities would be in accordance with Texas Commission on Environmental Quality (TCEQ) regulation. Included in this project's contract would be the TxDOT standard specification for construction that requires the contractor to be familiar and comply with all federal, state, and local laws, ordinances, and regulations that affect the conduct of work. The construction, maintenance, and operation of this facility would be consistent with the SIP as prepared by the TCEQ.

2. *Mobile Source Air Toxics*

a) Air Toxics Background

In addition to the criteria air pollutants for which there are NAAQS, EPA also regulates air toxics. Air toxics are pollutants known or suspected to cause cancer or other serious health or environmental effects. Most air toxics originate from human-made sources, including on-road mobile sources (cars, light trucks, motorcycles, and 18-wheelers), non-road mobile sources (e.g., bulldozers, locomotives, aircraft, boats, etc.) area sources (e.g., dry cleaners, gas stations), and stationary/point sources (e.g., electric utilities, petrochemical refining, and other industry).

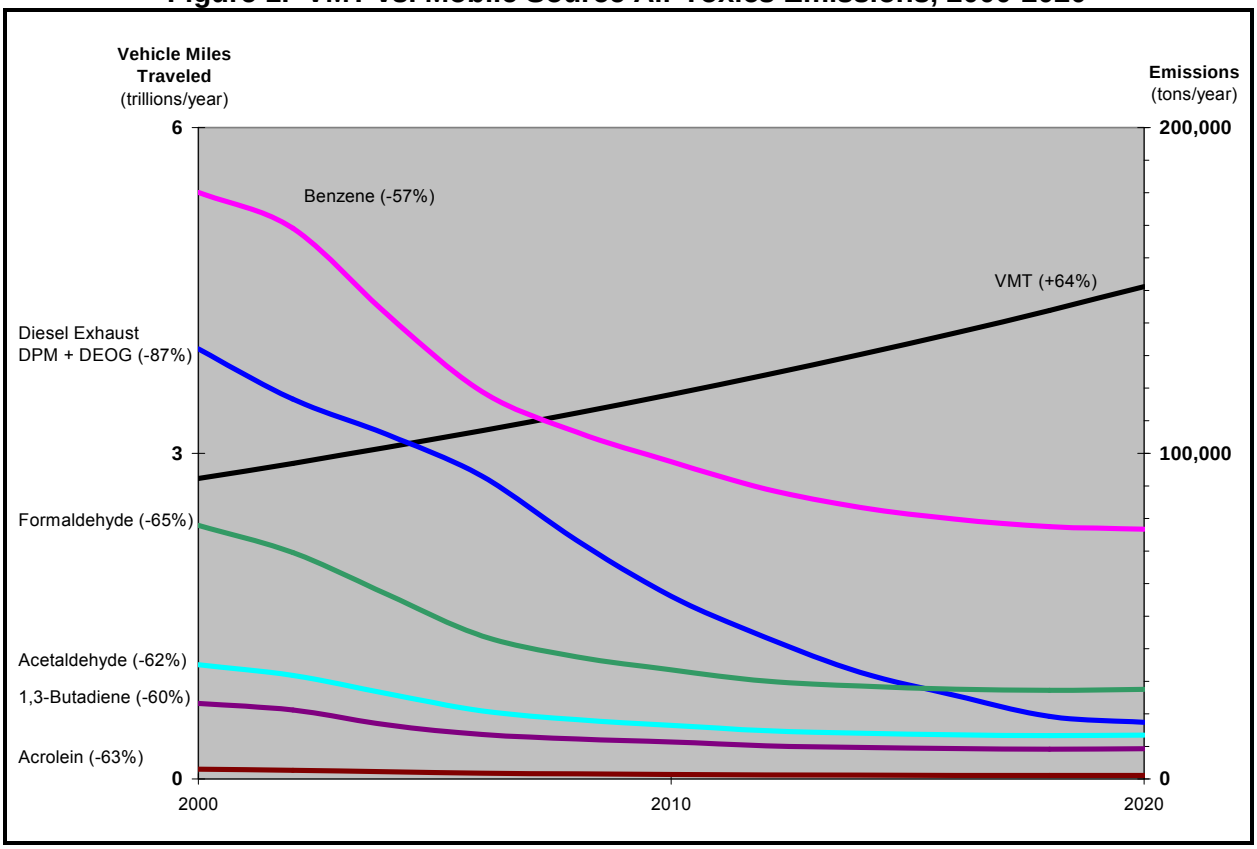
Mobile Source Air Toxics (MSATs) are a subset of the 188 air toxics defined by the Clean Air Act. MSATs are compounds emitted from highway vehicles and non-road equipment. Some toxic compounds are present in fuel and are emitted to the air when the fuel evaporates or passes through the engine unburned. Other toxics are emitted from the incomplete combustion of fuels or as secondary combustion products. Metal air toxics also result from engine wear or from impurities in oil or gasoline. (see EPA420-R-00-023 [EPA, 2000a] for more details on MSATs).

In 2006, FHWA, and TxDOT issued new guidance on completing MSAT assessments of highway projects. .Quantitative assessments of MSATs can provide some information on the quantity of MSATs emitted from passenger cars, light trucks, and heavy trucks. However, simple quantification

of these emissions, coupled with other considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, would not give enough information to reach meaningful conclusions about project-specific health impacts.

The EPA is the lead federal agency for administering the Clean Air Act and has certain responsibilities regarding the health effects of MSATs. EPA issued a Final Rule on Controlling Emissions of Hazardous Air Pollutants from Mobile Sources (66 FR 17229, March 29, 2001). This rule was issued under the authority in Section 202 of the Clean Air Act. In its rule, EPA examined the impacts of existing and newly promulgated mobile source control programs, including its reformulated gasoline (RFG) program, its national low emission vehicle (NLEV) standards, its Tier 2 motor vehicle emissions standards and gasoline sulfur control requirements, and its proposed heavy duty engine and vehicle standards and on-road diesel fuel sulfur control requirements. Between 2000 and 2020, FHWA projects that even with a 64 percent increase in vehicle miles traveled (VMT), these programs will reduce on-road emissions of benzene, formaldehyde, 1,3-butadiene, and acetaldehyde by 57 percent to 65 percent, and will reduce on-road diesel PM emissions by 87 percent, as shown in Figure 1.

Figure 1. VMT vs. Mobile Source Air Toxics Emissions, 2000-2020



Notes: For on-road mobile sources. Emissions factors were generated using MOBILE6.2. MTBE proportion of market for oxygenates is held constant, at 50%. Gasoline RVP and oxygenate content are held constant. VMT: Highway Statistics 2000, Table VM-2 for 2000, analysis assumes annual growth rate of 2.5%. "DPM + DEOG" is based on MOBILE6.2-generated factors for elemental carbon, organic carbon and SO4 from diesel-powered vehicles, with the particle size cutoff set at 10.0 microns.
Source: FHWA 2006

In an ongoing review of MSATs, the EPA finalized additional rules under authority of CAA Section 202(l) to further reduce MSAT emissions that are not reflected in the above graph. The EPA issued Final Rules on Control of Hazardous Air Pollutants from Mobile Sources (72 FR 8427, February 26,

2007) under Title 40 Code of Federal Regulations Parts 59, 80, 85 and 86. The rule changes are effective on April 27, 2007. As a result of this review, EPA adopted the following new requirements to significantly lower emissions of benzene and the other MSATs by: (1) lowering the benzene content in gasoline; (2) reducing evaporative emissions that permeate through portable fuel containers; and (3) reducing non-methane hydrocarbon (NMHC) exhaust emissions from passenger vehicles operated at cold temperatures (under 75 degrees Fahrenheit).

Beginning in 2011, petroleum refiners must meet an annual average gasoline benzene content standard of 0.62 percent by volume, for both reformulated and conventional gasoline, nationwide. This would be a 38 percent reduction from 2007. EPA standards to reduce NMHC exhaust emissions from new gasoline-fueled passenger vehicles will become effective in phases. Standards for light-duty vehicles and trucks (≤ 6000 pounds [lbs]) become effective during the period of 2010 to 2013, and standards for heavy light-duty trucks (6,000 to 8,000 lbs) and medium-duty passenger vehicles (up to 10,000 lbs) become effective during the period of 2012 to 2015. Evaporative requirements for portable gas containers become effective with containers manufactured in 2009. Evaporative emissions must be limited to 0.3 grams of hydrocarbons per gallon per day.

EPA has also adopted more stringent evaporative emission standards (equivalent to current California standards) for new passenger vehicles. The new standards become effective in 2009 for light vehicles and in 2010 for heavy vehicles. In addition to the reductions from the 2001 rule, the new rules will significantly reduce annual national MSAT emissions. The EPA estimates that emissions in the year 2030, when compared to emissions in the base year prior to the rule, will show a reduction of 330,000 tons of MSATs (including 61,000 tons of benzene), more than one million tons of volatile organic compounds, and more than 19,000 tons of PM 2.5.

TxDOT 2006 *Air Quality Guidelines* require a quantitative MSAT analysis when design year traffic is equal to or greater than 140,000 ADT. IH 820 from IH35 to SH 121/183/26 has an ADT volume as seen in Table 2.

Project Specific MSAT Information

Numerous technical shortcomings of emissions and dispersion models and uncertain science with respect to health effects prevent meaningful or reliable estimates of MSAT emissions and effects of this project (see "Unavailable Information for Project Specific MSAT Impact Analysis" at the end of this section for more information). However qualitative assessment cannot identify and measure health impacts from MSATs, it can give a basis for identifying and comparing the potential differences among MSAT emissions, if any, from the various alternatives. The quantitative assessment presented below is derived in part from a study conducted by FHWA entitled *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives*, found at: www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm.

For both the alternatives in this EA, the amount of MSATs emitted would be proportional to the vehicle miles traveled (VMT) assuming that other variables such as fleet mix are the same for each alternative. The VMT estimated for the Build Alternative is slightly higher than that for the No Build Alternative, because the additional capacity increases the efficiency of the roadway and attracts rerouted trips from elsewhere in the transportation network. This increase in VMT would lead to higher MSAT emissions for the action alternative along the highway corridor, along with a corresponding decrease in MSAT emissions along the parallel routes. The emissions increase is offset somewhat by lower MSAT emission rates due to increase speeds, according to EPA's MOBILE6 emissions model, emissions of all the priority MSATs except for diesel particulate matter decreases as speed increases. The extent to which these speed related emissions decreases would offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models.

Because the estimated VMT under each of the alternatives is nearly the same, it is expected there would be no appreciable difference in overall MSAT emissions among the various alternatives. Also, regardless of the alternative chosen, emissions would likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2005 and 2025. Local conditions may differ from these national projections in terms of fleet mix and turnover, VMT growth rates, and local control measures. However, the magnitude of the EPA projected reductions is so great (even accounting for VMT growth) that MSAT emissions in the study area are likely to be lower in the future in nearly all cases.

Because of the specific characteristics of the project alternatives, under each alternative there may be localized areas where VMT would increase and other areas where VMT would decrease. Therefore it is possible that localized increases and decreases in MSAT emissions may occur. However, as discussed previously, the magnitude and the duration of these potential increases compared to the No Build Alternative cannot be accurately quantified due to the inherent deficiencies of current models. In addition, even if localized increases do occur, they too would be substantially reduced in the future due to implementation of EPA's vehicle and fuel regulations.

In sum, under the Build Alternative in the design year it is expected there would be reduced MSAT emissions in the immediate area of the project, relative to the No Build Alternative, due to the reduced VMT associated with more direct routing, and due to EPA's MSAT reduction programs. In comparing various project alternatives, MSAT levels could be higher in some locations than others, but current tools and science are not adequate to quantify them. However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, would cause region-wide MSAT levels to be significantly lower than today in almost all cases.

b) TCEQ Monitor Data

The TCEQ monitors for the criteria pollutants and air toxics. Not all monitors measure for all criteria pollutants and air toxics. The closest monitors are within five miles of IH 820 (Table 11). The closest hazardous air pollutant (HAP) monitor is approximately 3.08 miles from IH 820. The official data from these monitors are found on the EPA's maintained web site, not all monitors sample for the same pollutants, and various monitors do not have one year of complete data to compile an annual average. It usually takes several months after a complete year of data is collected for that data to be quality controlled and quality assured.

TABLE 11. LOCAL MONITOR DATA

Monitor ID	2006 Annual Average 1-Hour $PM_{2.5}$	2006 Peak 24-Hour Annual Average					Distance from IH 820
		Benzene	1,3 Butadiene	Formaldehyde	Acetaldehyde	Acrolein	
CAMS 13	11.07 ug/m3	4.96 ug/m3	0.20 ug/m3	2.97 ug/m3	3.06 ug/m3	0.32 ug/m3	3.08 miles

Source: EPA, 2007

Notes: EPA disclaimer regarding these data: "Readers are cautioned not to infer a qualitative ranking order of geographic areas based on AirData reports. Air pollution levels measured in the vicinity of a particular monitoring site may not be representative of the prevailing air quality of a county or urban area. Pollutants emitted from a particular source may have little impact on the immediate geographic area, and the amount of pollutants emitted does not indicate whether the source is complying with applicable regulations."

c) Sensitive Receptors within Study Area

FHWA has completed a review of several studies that have attempted to address how MSAT concentration levels may behave based on the distance from a roadway. FHWA notes that both models and experimental data predict short-term concentrations of air toxics can be elevated for receptors downwind of and very near roadways. The tendency for pollutant levels to drop off

substantially as the distance from the roadway increases is well documented. The distance where the highest decrease in concentration starts to occur is approximately 328 feet (100 meters). By 1,640 feet (500 meters), most studies have found difficulty distinguishing between background levels of a given pollutant and the elevated levels that may have been found directly adjacent to the roadway. Finally, wind direction and speed, vehicle traffic levels, and roadway design can further increase or decrease the distance at which elevated levels of any given pollutant can be distinguished as directly associated with a roadway.

Sensitive receptors are defined as schools both public and private, licensed day care facilities, hospitals, and senior citizen care facilities. Thirteen sensitive receptors were identified and mapped within the IH 820 study area (Tables 12 and 13 and Exhibit 11). One of these sensitive receptors, Interim Healthcare is within 100 meters (328 feet) of the study area, with the remaining 12 falling within 500 meters (1,640 feet).

TABLE 12. IH 820 SENSITIVE RECEPTORS IN THE STUDY AREA

Location	Address	Distance to Centerline
Richland High School	5201 Holiday Lane	488ft (149m)
All Care Bone & Joint Center	8251 Bedford-Euless Road	485ft (148m)
Richland Hills Church of Christ	6300 NE Loop 820	587ft (179m)
First Baptist Church of Fort Worth	5100 NE Loop 820	1000ft (305m)
Glenview Baptist Church & Christian School	4805 NE Loop 820	623ft (190m)
Interim Healthcare	3601 NE Loop 820	308ft (94m)
Bright Horizons Children's Center	4175 Sandshell Drive	587ft (179m)
Landmark Healthcare	921 N Main	370ft (113m)
Concentra Medical Centers	4060 Sanshell Drive	816ft (249m)
North Richland Hills Middle School	4800 Rufe Snow Drive	1482ft (452m)
Snow Heights Elementary	4801 Vance Road	1496ft (456m)
North Hills Hospital	4401 Booth Calloway Road	501ft (153m)
Texas Pediatric Surgery Center	4375 Booth Calloway Road	748ft (228m)

TABLE 13. IH 820 RECEPTORS BY DISTANCE

Scenario	Number of Receivers within:	
	328 feet (100 meters)	1640 feet (500 meters)
Build	1	12

(i) Unavailable Information for Project Specific MSAT Impact Analysis

This EA includes a basic analysis of the likely MSAT emission impacts of this project. However, available technical tools do not enable the prediction of project-specific health impacts resulting from the emission changes associated with the Scenarios addressed in this EA. Due to these limitations, the following discussion is included in accordance with Council on Environmental Quality (CEQ) regulations [40 CFR 1502.22(b)] regarding incomplete or unavailable information.

(ii) Information that is Unavailable or Incomplete

Evaluating the environmental and health impacts from MSATs on a proposed highway project would involve several key elements, including emissions modeling, dispersion modeling to estimate ambient concentrations resulting from the estimated emissions, exposure modeling to estimate

human exposure to the estimated concentrations, and then final determination of health impacts based on the estimated exposure. Each of these steps is encumbered by technical shortcomings or uncertain science that prevents a more complete determination of the MSAT health impacts of this project.

- Emissions: The EPA tools to estimate MSAT emissions from motor vehicles are not sensitive to key variables determining emissions of MSATs in the context of highway projects. While MOBILE6.2 is used to predict emissions at a regional level, it has limited applicability at the project level. MOBILE6.2 is a trip-based model – emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects. For particulate matter, the model results are not sensitive to average trip speed, although the other MSAT emission rates do change with changes in trip speed. Also, the emission rates used in MOBILE 6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles. Lastly, in its discussion of PM under the conformity rule, EPA has identified problems with MOBILE6.2 as an obstacle to quantitative analysis.

  These deficiencies compromise the capability of MOBILE6.2 to estimate MSAT emissions. MOBILE 6.2 is an adequate tool for projecting emissions trends, and performing relative analyses between alternatives for very large projects, but it is not sensitive enough to capture the effects of travel changes tied to smaller projects or to predict emissions near specific roadside locations. However, MOBILE6.2 is currently the only available tool for use by FHWA/TxDOT and may function adequately for larger scale projects for comparison of alternatives.
- Dispersion: The tools to predict how MSATs disperse are also limited. The EPA's current regulatory models, CALINE3 and CAL3QHC, were developed and validated more than a decade ago for the purpose of predicting episodic concentrations of carbon monoxide to determine compliance with the NAAQS. The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk. The National Cooperative Highway Research Program (NCHRP) of the Transportation Research Board is conducting research on best practices in applying models and other technical methods in the analysis of MSATs. This work will also focus on identifying appropriate methods of documenting and communicating MSAT impacts in the NEPA process and to the general public. Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations.
- Exposure Levels and Health Effects: Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts. Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emission rates) over a 70-year period. There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the

general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts. Consequently, the results of such assessments would not be useful to decision makers, who would need to weigh this information against other project impacts that are better suited for quantitative analysis.

(iii) Summary of Existing Credible Scientific Evidence Relevant to Evaluating the Impacts of MSATs

Research into the health impacts of MSATs is ongoing. For different emission types there are a variety of studies that show that some either are statistically associated with adverse health outcomes through epidemiological studies (frequently based on emission levels found in occupational settings) or that animals demonstrate adverse health outcomes when exposed to large doses.

Exposure to toxics has been a focus of a number of EPA efforts. Most notably, the agency conducted the National Air Toxics Assessment (NATA) in 1996 to evaluate modeled estimates of human exposure applicable to the county level. While not intended for use as a measure of or benchmark for local exposure, the modeled estimates in the NATA database best illustrate the levels of various toxics when aggregated to a national or state level.

The EPA is in the process of assessing the risks of various kinds of exposures to these pollutants. The EPA Integrated Risk Information System (IRIS) is a database of human health effects that may result from exposure to various substances found in the environment. The IRIS database is located at http://ww.epa.gov/iris. The following toxicity information for the six prioritized MSATs was taken from the IRIS database Weight of Evidence Characterization summaries and represents the Agency's most current evaluations of the potential hazards and toxicology of these chemicals or mixtures.

- Acetaldehyde (B2 Probable Human Carcinogen): Based on sufficient evidence of carcinogenicity in animals;
- Acrolein: Under the Draft Guidelines for Carcinogen Risk Assessment (EPA, 1999b), the potential carcinogenicity of acrolein cannot be determined because the existing data are inadequate for an assessment of human carcinogenic potential for either the oral or inhalation route of exposure. There are no adequate human studies of the carcinogenic potential of acrolein. Collectively, experimental studies provide inadequate evidence that acrolein causes cancer in laboratory animals;
- Benzene: Under the Proposed Guidelines for Carcinogen Risk Assessment (EPA, 1996), benzene is characterized as a known human carcinogen for all routes of exposure based upon convincing human evidence as well as supporting evidence from animal studies (EPA, 1979, 1985, 1998; Agency for Toxic Substances and Disease Registry [ATSDR], 1997);
- 1,3 Butadiene: Under the EPA's Draft Guidelines for Carcinogen Risk Assessment (EPA, 1999b), 1,3-butadiene is characterized as carcinogenic to humans by inhalation. This characterization is supported by the total weight of evidence provided by the following: 1) sufficient evidence from epidemiologic studies of the majority of U.S. workers occupationally exposed to 1,3-butadiene, either to the monomer or to the polymer by inhalation, showing increased lymphohematopoietic cancers and a dose-response relationship for leukemia in polymer workers (EPA, 1999b, Section II.A.2), 2) sufficient evidence in laboratory animal studies showing that 1,3-butadiene causes tumors at multiple sites in mice and rats by inhalation (EPA, 1999b, Section II.A.3), and 3) numerous studies consistently demonstrating that 1,3-butadiene is metabolized into genotoxic metabolites by experimental animals and humans (EPA, 1999b, Section II.A.4). The specific mechanisms of 1,3-butadiene-induced carcinogenesis are unknown. However, the scientific evidence strongly suggests that the

carcinogenic effects are mediated by genotoxic metabolites of 1,3-butadiene (i.e., the monoepoxide, the diepoxide, and the epoxydiol);

- Diesel Exhaust: Using the EPA's Draft Guidelines for Carcinogen Risk Assessment (EPA, 1999b), diesel exhaust is likely to be carcinogenic to humans by inhalation from environmental exposures; and
- Formaldehyde (B1 Probable Human Carcinogen): The chronic health hazard assessment for formaldehyde is based on limited evidence in humans, and sufficient evidence in animals. Human data include nine studies that show statistically substantial associations between site-specific respiratory neoplasms and exposure to formaldehyde or formaldehyde-containing products. An increased incidence of nasal squamous cell carcinomas was observed in long-term inhalation studies in rats and in mice. The classification is supported by in vitro genotoxicity data and formaldehyde's structural relationships to other carcinogenic aldehydes such as acetaldehyde.

There have been other studies that address MSAT health impacts in proximity to roadways. The Health Effects Institute, a non-profit organization funded by EPA, FHWA, and industry has undertaken a major series of studies to research near-roadway MSAT hot spots, the health implications of the entire mix of mobile source pollutants, and other topics. The final summary of the series is not expected for several years.

Some recent studies have reported that proximity to roadways is related to adverse health outcomes – particularly respiratory problems. Much of this research is not specific to MSATs, instead surveying the full spectrum of both criteria and other pollutants. The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties previously listed and enable us to perform a more comprehensive evaluation of the health impacts specific to the project.

(iv) Relevance of Unavailable or Incomplete Information

While available tools do allow the reasonable prediction of emission changes between alternatives for larger projects, the amount of MSAT emissions from each of the project alternatives and MSAT concentrations or exposures created by each of the project alternatives cannot be predicted with enough accuracy to be useful in estimating health impacts. Therefore, the relevance of the unavailable or incomplete information is that it is not possible to make a determination of whether any of the alternatives would have “significant adverse impacts on the human environment.”

d) MSATs

The approach used in the analysis of MSATs within the IH 820 study area considers the on-road sources for the six priority MSATs (i.e., acetaldehyde, acrolein, benzene, 1,3 butadiene, DPM, and formaldehyde). This analysis is based on existing or base year (2007) and future volumes of traffic (2015 and 2030) that have been projected by the NCTCOG travel model. An affected transportation network was derived from the 2030 No-Build Scenario compared to the 2030 Build Scenario to determine which roadway links in the model achieve a plus or minus five percent volume change. The affected transportation network was then compared to the 2007 and 2015 models to extrapolate the baseline and interim year model. Speeds were modeled as average speeds and weighted by both the type of roadway and by the amount of total VMT that occur at that speed.

This analysis uses MOBILE6.2 inputs that are appropriate to the DFW Urban Area, Tarrant County specifically. These inputs are consistent with those used for other modeling activities in the area (e.g., SIP inventories, conformity analyses). Modeling parameters and more detailed information can be found in the IH 820 – From IH35W to SH 121/183/26 Air Toxics Analysis Technical Report.

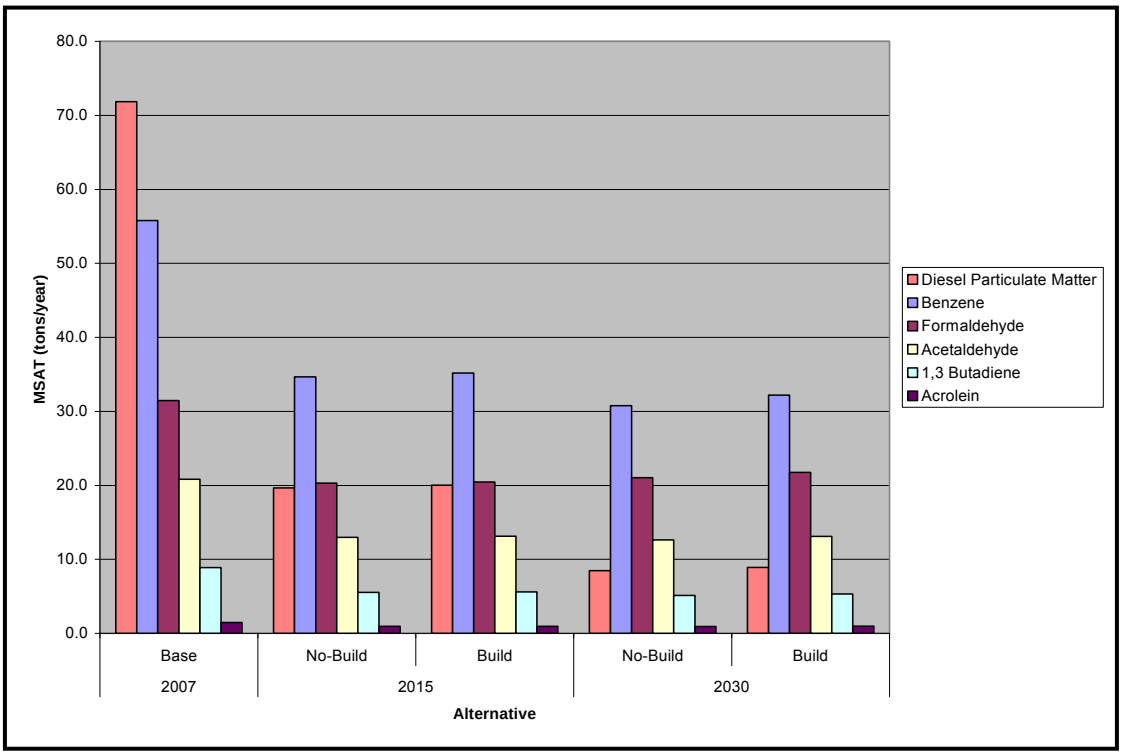
e) MSAT Results

The resulting emission inventory for the six priority MSATs was compiled as summarized in Table 14 and Figure 2 for the Base Year (2007), an interim year (2015), and the 2030 design year. Both the 2015 and 2030 had two scenarios, the No-Build and the Build for the project.

TABLE 14. MSAT EMISSIONS IH 820 BY SCENARIO (TONS/YEAR)

	Year / Scenario					% Difference	
Compound	2007 Base	2015 No-Build	2015 Build	2030 No-Build	2030 Build	2007 to 2030 No-Build	2007 to 2030 Build
Acetaldehyde	21	13	13	13	13	-39%	-37%
Acrolein	2	1	1	1	1	-36%	-34%
Benzene	56	35	35	31	32	-45%	-42%
1,3 Butadiene	9	6	6	5	5	-42%	-40%
Formaldehyde	31	20	21	21	22	-33%	-31%
DPM	72	20	20	9	9	-88%	-88%
Total MSAT	190	94	95	79	80	-59%	-57%
Total VMT (Miles/Year)	9,373,354	12,305,514	12,538,396	16,593,608	17,458,180	77%	86%

Figure 2. Projected Changes in MSAT Emissions by Scenario Over Time

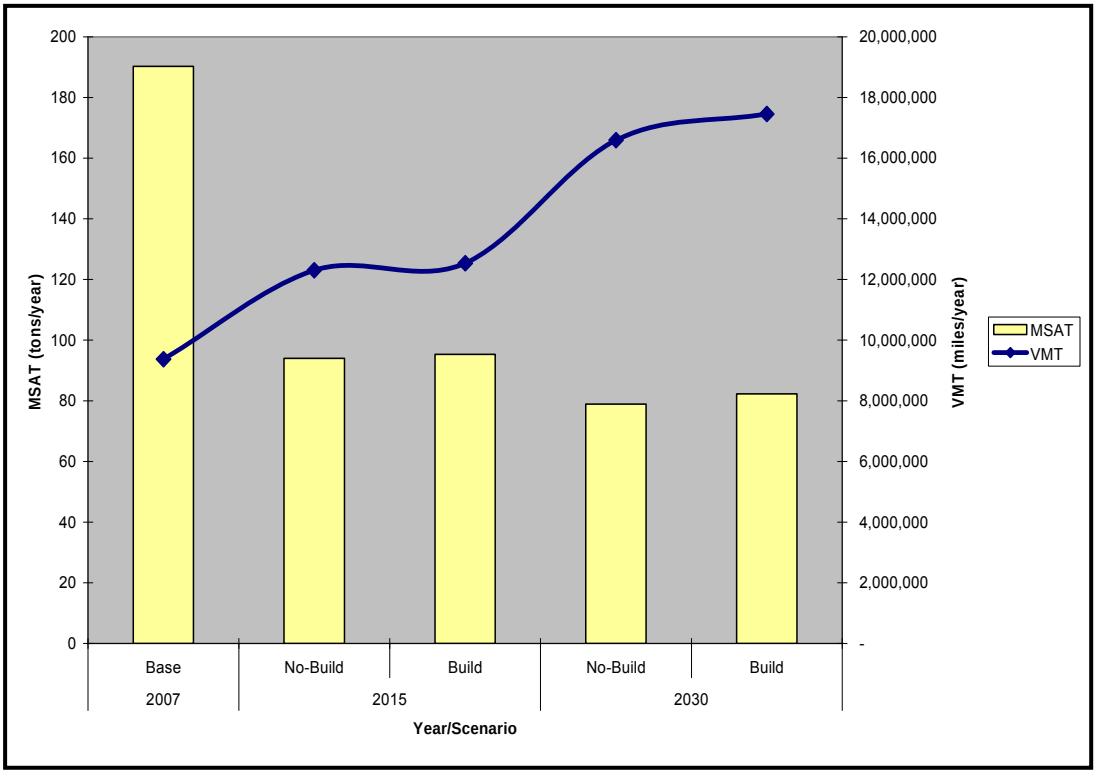


The analysis indicates a substantial decrease in MSAT emissions can be expected for both the Build and No-Build Scenarios (2030) versus the base year (2007). Emissions of total MSATs are predicted to decrease by approximately 57 percent in 2030 Build Scenario compared with 2007 levels. If emissions are plotted over time, a substantially decreasing level of MSAT can be seen, (Figure 3) however, overall VMT continues to rise. Differences in total MSAT emissions between

the No-Build and Build Scenarios were found. The 2030 Build Scenario is expected to generate a five percent increase in VMT as compared to the 2030 No-Build, and a corresponding four percent increase in MSATs.

Of the six priority MSAT compounds, benzene and diesel particulate matter (DPM) contribute the most to the emissions total in 2007 (see Table 14 and Figure 2). The amount of DPM emitted in 2007 is higher than the amount of benzene emitted. In future years a substantial decline in benzene is anticipated (42 percent reduction in benzene from 2007 to 2030, Build Scenario), and an even larger reduction in DPM emissions is predicted (about an 88 percent decrease from 2007 to 2030, Build Scenario).

Figure 3. Comparison of MSAT Emissions vs. VMT by Scenario



These emission levels are for all the MSATs evaluated and are mostly a reflection of the total VMT. The reasons for these dramatic improvements are two fold, a change in vehicle fuels, both gasoline and diesel fuel, and a change in emission standards that both light-duty and heavy-duty on-road motor vehicles must meet. The EPA predicts substantial future air emission reductions as the agency's new light-duty and heavy-duty on-road fuel and vehicle rules come into effect (Tier II, light-duty vehicle standard, Heavy-Duty Diesel Vehicle and (HDDV) standards and low sulfur diesel fuel, and the EPA's proposed Off-Road Diesel Engine and Fuel Standard). These projected air emission reductions will be realized even with the predicted continued growth in VMT. See EPA's Tier II Regulatory Impact Analysis (RIA) and EPA's HDDV RIA; Regulatory Impact Analysis (EPA, 2001; EPA, 1999).

Growth in the DFW area is expected to remain robust through 2030. Population is expected to increase 80 percent and employment growth is expected to increase by 72 percent from 2000

through 2030. There are several ways to address this anticipated growth and consequential increase in traffic within the DFW metropolitan area.

Increased roadway usage, which will occur either under the No-Build or Build Scenarios, will not necessarily lead to increases in harmful emissions (NOx, VOCs, PM, or MSATs). Such emissions from vehicles are expected to continue the current dramatic pattern of decrease, even with continuing increases in VMT. Technology is improving at a pace that exceeds the effect of increased VMT. IH 820 is estimated to emit the following total amounts of the six priority air toxics in Table 15.

TABLE 15. MSAT EMISSIONS PER YEAR

Year	IH 820 (Affected Traffic Network)
2007 Base	380,600 lbs or 190 tons
2015 No-Build	188,000 lbs or 94 tons
2015 Build	190,000 lbs or 95 tons
2030 No-Build	156,000 lbs or 78 tons
2030 Build	164,000 lbs or 82 tons

f) MSAT Conclusions

The ability to discern differences in MSAT emissions among transportation alternatives is difficult given the uncertainties associated with forecasting travel activity and air emissions 23 years or more into the future. The main analytical tool for predicting emissions from on-road motor vehicles is the EPA's MOBILE6.2 model. The MOBILE6.2 model is regional in scope and has limited applicability to a project-level analysis. However, the effects of a major transportation project extend beyond its corridor and an evaluation within the context of an affected transportation network can be accomplished.

When evaluating the future options for upgrading a transportation corridor, the major mitigating factor in reducing MSAT emissions is the implementation of the EPA's new motor vehicle emission control standards. Substantial decreases in MSAT emissions will be realized from a current base year (2007) through an estimated time of completion for a planned project and its design year some 23 years in the future. Accounting for anticipated increases in VMT and varying degrees of efficiency of vehicle operation, total MSAT emissions were predicted to decline approximately 57 percent from 2007 to 2030. While benzene emissions were predicted to decline more than 42 percent, emissions of DPM were predicted to decline even more (i.e., 88 percent).

MSATs, especially benzene, have dropped dramatically since 1995, and are expected to continue dropping. The introduction of reformulated gasoline has lead to a substantial part of this improvement. In addition, Tier II automobiles introduced in model year 2004 will continue to help reduce MSATs. Diesel exhaust emissions have been falling since the early 1990s with the passage of the CAA amendments. The CAA amendments provided for improvement in diesel fuel through reductions in sulfur and other diesel fuel improvements. In addition, the EPA has further reduced the sulfur level in diesel fuel, which took effect in 2006. The EPA also has called for dramatic reductions in NOx emissions, and PM from on-road and off-road diesel engines. MSATs as in relation to IH 820 are not expected to increase overall air toxics in the DFW area in the future years investigated.

3. Congestion Management Process

The Congestion Management Process (CMP) is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for

alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The project was developed from NCTCOG's operational CMP which meets all requirements of Title 23 CFR Parts 450 and 500.

Operational improvements and travel demand reduction strategies are commitments made by the region at two levels: program level and project level implementation. Program level commitments are inventoried in the regional CMP, which was adopted by NCTCOG Regional Transportation Council; they are included in the financially constrained MTP, and future resources are reserved for their implementation.

The CMP element of the plan carries an inventory of all project commitments (including those resulting from major investment studies) detailing type of strategy, implementing responsibilities, schedules, and expected costs. At the project programming stage, travel demand reduction strategies and commitments would be added to the regional Transportation Improvement Program (TIP) or included in the construction plans. The regional TIP provides for programming of these projects at the appropriate time with respect to the SOV facility implementation and project specific elements.

Committed congestion reduction strategies and operational improvements within the study area are included in the regional TIP. They include committed congestion reduction strategies including intersection and signal improvements, intelligent transportation systems (ITS), and new roadways. TxDOT and NCTCOG would manage this project, which is included in the regional CMP, under the Congestion Mitigation and Air Quality (CMAQ) program.

The projects identified in Table 16 were selected as transportation improvements consistent with the MTP *Mobility 2030*. This plan was developed for the year 2030 and includes both long-range and short-range strategies and operational improvements that lead to the development of an integrated intermodal transportation system that facilitates the efficient movement of people and goods in the DFW metropolitan area.

In an effort to reduce congestion and the need for SOV lanes in the region, TxDOT and NCTCOG would continue to promote congestion reducing strategies through the CMAQ program, the CMP, and the MTP. The congestion strategies considered for this project would help alleviate congestion on IH 820 and parallel facilities in the SOV study boundary, but would not completely eliminate congestion.

TABLE 16. CMP/OPERATIONAL IMPROVEMENTS IN THE CORRIDOR					
Street / Name	**City**	**Implementing Agency**	**Project Type**	**Year of Implementation**	**Cost**
Various Locations	North Richland Hills	North Richland Hills	Traffic Signal Improvement	2007	$150,000
Mid Cities Blvd. at Davis Blvd.	North Richland Hills	North Richland Hills	Intersection Improvements	2007	$942, 600
Various Locations	Various	Tarrant/Various	ITS	2007	$3,060,000
Park & Ride at IH 820/SH26	North Richland Hills	North Richland Hills	Park & Ride	2007	$300,000
I-35NAFTA Corridor Technology Deployment Program – Fort Worth District (Western Subregion)	Various	TxDOT	ITS	2006	$402,500
I-35W from US 81/US 287 to I-820	Fort Worth	TxDOT	Bottleneck Removal	2005	$2,676,159
Freeways in NW and SE Tarrant County	Various	TxDOT	ITS	2004	$2,421,250
Mobility Assistance Patrol	Various	TxDOT	ITS	2002	$80,000

Source: NCTCOG TIPINS (on-line) August, 2007
ITS – A system that aids transportation operators and emergency personnel as they monitor traffic, detect and respond to incidents and inform the public of traffic conditions via the internet, roadway devices, and the media.

Managed (toll) lanes: The *Mobility 2030 Plan* recommended system represents approximately 600 lane miles of HOV/managed (toll) lanes based on current and projected traffic congestion. The corridors of IH 820 and IH 35W were included in this evaluation. These managed (toll) lanes are designed to provide additional traffic capacity, increase trip reliability for HOV/managed (toll) lane users and mass transit vehicles, and to generate revenue to operate and maintain the corridor facility.

D. Noise

This analysis was accomplished in accordance with TxDOT's (FHWA approved) *Guidelines for Analysis and Abatement of Highway Traffic Noise*. Sound from highway traffic is generated primarily from a vehicle's tires, engine, and exhaust. It is commonly measured in decibels and is expressed as "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 sounds. This adjustment is called A-weighting and is expressed as "dBA." Also, because traffic sound levels are never constant due to the changing number, type, and speed of vehicles, a single value is used to represent the average or equivalent sound level and is expressed as "Leq."

The traffic noise analysis typically includes the following elements:

- Identification of land use activity areas that might be impacted by traffic noise.
- Determination of existing noise levels.
- Prediction of future noise levels.
- Identification of possible noise impacts.
- Consideration and evaluation of measures to reduce noise impacts.

The FHWA has established Noise Abatement Criteria (NAC) for various land use activity areas that are used as one of two means to determine when a traffic noise impact would occur (see Table 17).

TABLE 17. FHWA NOISE ABATEMENT CRITERIA

Activity Category	dBA Leq	Description of Land Use Activity Areas
A	57 (exterior)	Lands on which serenity and quiet are of extra-ordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (exterior)	Developed lands, properties, or activities not included in categories A or B above.
D	--	Undeveloped lands.
E	52 (interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

Source: FHWA
NOTE: primary consideration is given to exterior areas (Category A, B or C) where frequent human activity occurs. However, interior areas (Category E) are used if exterior areas are physically shielded from the roadway, or if there is little or no human activity in exterior areas adjacent to the roadway.

A noise impact occurs when either the absolute or relative criterion is met:

- Absolute criterion: The predicted noise level at a receiver approaches, equals, or exceeds the NAC. "Approach" is defined as one dBA below the NAC. For example: a noise impact would occur at a Category B residence if the noise level is predicted to be 66 dBA or above.
- Relative criterion: The predicted noise level substantially exceeds the existing noise level at a receiver even though the predicted noise level does not approach, equal, or exceed the NAC. “Substantially exceeds” is defined as more than 10 dBA. For example, a noise impact would occur at a Category B residence if the existing level is 54 dBA and the predicted level is 65 dBA (11 dBA increase).

When a traffic noise impact occurs, noise abatement measures must be considered. A noise abatement measure is any positive action taken to reduce the impact of traffic noise on an activity area.

Environmental Consequences of Implementing the Preferred Alternative

The FHWA traffic noise modeling software was used to calculate existing and predicted traffic noise levels. The model primarily considers the number, type, and speed of vehicles; highway alignment and grade; cuts, fills and natural berms; surrounding terrain features; and the locations of activity areas likely to be impacted by the associated traffic noise.

Existing and predicted traffic noise levels were modeled at receiver locations (see Table 18 and Exhibit 2) that represent the land use activity areas adjacent to the proposed project that might be impacted by traffic noise and potentially benefit from feasible and reasonable noise abatement. Exhibit 2 shows the noise receiver locations along with the noise barrier locations.

The Build Alternative, shown in Table 20, would result in a traffic noise impact at nine representative receivers and the following noise abatement measures were considered: traffic management, alteration of horizontal and/or vertical alignments, acquisition of undeveloped property to act as a buffer zone, and the construction of noise barriers.

TABLE 18. NOISE RECEIVERS						
Receiver	**NAC Category**	**NAC Level**	**Existing 2010**	**Predicted 2030**	**Change (+/-)**	**Noise Impact**
R1 Multi Family Residence	E	52	42	47	5	No
R2 Single Family Residence	B	67	64	68	4	Yes
R3 Single Family Residence	B	67	64	69	5	Yes
R4 Single Family Residence	B	67	58	63	5	No
R5 Single Family Residence	B	67	69	74	5	Yes
R6 Single Family Residence	B	67	73	73	0	Yes
R7 Single Family Residence	E	52	45	47	2	No
R8 Place of Worship	E	52	49	49	0	No
R9 Single Family Residence	B	67	73	73	0	Yes
R10 Single Family Residence	E	52	45	47	2	No
R11 Single Family Residence	B	67	70	72	2	Yes

Before any abatement measure can be incorporated into the project, it must be both feasible and reasonable. To be feasible, the measure must reduce noise levels by at least five dBA at impacted receivers and to be reasonable it must not exceed $25,000 for each benefited receiver.

- Traffic Management: Control devices could be used to reduce the speed of the traffic; however, the minor benefit of one dBA per five mph reduction in speed does not outweigh the associated increase in congestion and air pollution. Other measures such as time or use restrictions for certain vehicles are prohibited on state highways.
- Alteration of Horizontal and/or Vertical Alignments: Any alteration of the existing alignment would displace existing businesses and residences, require additional ROW, and not be cost effective/reasonable.
- Buffer Zone: The acquisition of sufficient undeveloped land adjacent to the highway project to preclude future development that could be impacted by highway traffic noise would not be cost effective/reasonable.
- Noise Barriers: This is the most commonly used noise abatement measure.

Noise barriers were evaluated for the each of the impacted receiver locations with the following results. Noise barriers would not be feasible and reasonable for any of the following impacted receivers and, therefore, are not proposed for incorporation into the project:

- R2 and R3: These receivers represent residences that are not adjacent to the proposed project. A noise barrier for these residences would not achieve the minimum feasible reduction of five dBA.
- R9 and R11: These receivers represent four residences and one place of worship adjacent to the proposed project. A noise barrier that would achieve the minimum feasible reduction of five dBA at each of these receivers would exceed the reasonable, cost-effectiveness criterion of $25,000.

Noise barriers would be feasible and reasonable for the impacted receivers listed in Table 19 and depicted in Exhibit 2 and are proposed for incorporation into the proposed project.

TABLE 19. NOISE BARRIER PROPOSAL						
Barrier	**Representative Receivers**	**Total # Benefited**	**Length (feet)**	**Height (feet)**	**Total Cost***	**$/Benefited Receiver**
1	R5	5	510	12	$110,160	$22,032
2	R6	8	813	12	$175,630	$21,953
* Based on estimated construction costs of $18 per square foot.						

Any subsequent project design changes may require a reevaluation of this preliminary noise barrier proposal. The final decision to construct the proposed noise barrier would not be made until after the completion of the project design, utility evaluation, and polling of adjacent property owners.

Some land use activity areas adjacent to the project are currently Category D, undeveloped land. Also, no new development is currently planned, designed, or programmed in these areas. There is no NAC for undeveloped land; therefore, the project would not result in any noise impacts to these areas. However, to avoid noise impacts that may result from future development of properties adjacent to the project, local officials responsible for land use control programs should ensure, to the maximum extent possible, no new residential activities are planned or constructed along or within the predicted (2030) 66 dBA residential impact contour of 310 feet from the ROW.

Noise associated with the construction of the project is difficult to predict. Heavy machinery, the major source of noise in construction, is constantly moving in unpredictable patterns. However, construction normally occurs during daylight hours when occasional loud noises are more tolerable. None of the receivers is expected to be exposed to construction noise for a long duration; therefore, any extended disruption of normal activities is not expected. Provisions would be included in the plans and specifications that require the contractor to make every reasonable effort to minimize construction noise through abatement measures such as work-hour controls and proper maintenance of muffler systems.

A copy of this traffic noise analysis would be provided to local officials to ensure, to the maximum extent possible, future developments are planned, designed, and programmed in a manner that would avoid traffic noise impacts. On the date of approval of this document (Date of Public Knowledge), FHWA and TxDOT are no longer responsible for providing noise abatement for new development adjacent to the project.

Environmental Consequences of Implementing the No-Build Alternative

Under the no-build alternative, traffic noise would tend to increase with an associated increase in traffic.

E. Cultural Resources

NEPA requires consideration of important historic, cultural, and natural aspects of our national heritage. Important aspects of our national heritage that may be present in the project corridor have been considered under Section 106 of the National Historic Preservation Act of 1966 (NHPA), as amended. This act requires federal agencies to “take into account” the “effect” that an undertaking would have on “historic properties.” Historic properties are those included in or are eligible for inclusion in the National Register of Historic Places (NRHP) and may include structures, buildings/districts, objects, cemeteries, and archeological sites. In accordance with the Advisory Council on Historic Preservation (ACHP) regulations pertaining to the protection of historic properties (36 CFR 800.4), federal agencies are required to locate, evaluate and assess the effects that the undertaking would have on such properties. These steps shall be completed under terms of the First Amended Programmatic Agreement between FHWA, the State Historic Preservation Officer (SHPO), the ACHP, and TxDOT. The identification of potential historic properties has been

undertaken for structures, buildings/districts, objects, cemeteries, and archeological sites found within the project corridor.

This project also falls under the purview of the Antiquities Code of Texas (ACT), because it may involve “lands owned or controlled by the State of Texas or any city county, or local municipality thereof.” As the project would involve state purchase of ROW, or lands belonging to local municipalities and of counties, under jurisdiction of the ACT, historic properties would also be considered under provisions of the Memorandum of Understanding (MOU) between the SHPO and TxDOT. The ACT allows for all such properties to be considered as State Archeological Landmarks (SALs), and requires that each be examined in terms of possible “significance.” Significance standards for the code are clearly outlined under Chapter 26 of the Texas Historical Commission’s (THC) Rules of Practice under Procedure for the ACT and closely follow those of the Secretary of Interior’s Standards and Guidelines.

1. Archeology

In 1993, and again in 1998, the Texas Archeological Research Laboratory (TARL) at the University of Texas was consulted to determine whether any recorded historical or archeological resources were located within or close to the proposed project area. No recorded archeological sites, sites listed on the NRHP, or sites designated as SALs were present within the proposed project area.

Archeological consultation between TxDOT and THC was initiated for this project in 2003, with a series of letters (dated February 12, 2003; February 27, 2003; September 30, 2003; and January 26, 2004) regarding advanced "hardship purchases" (see Exhibit 10). For each of the hardship purchases, a TxDOT archeologist determined that the tract did not have reasonable potential to contain archeological historic properties [36 CFR 800.16(1)] or SALs (13 TAC 26.08) and that the tract did not warrant archeological survey or additional research. THC concurred in each case.

In 2004, the entire project Area of Potential Effects (APE) was evaluated for archeological resources. The APE was determined to be the existing and proposed ROW as defined by the project schematics at that time. A check of the on-line Texas Archeological Sites Atlas revealed no recorded archeological sites within, immediately adjacent to, or within a mile of the proposed project APE. Most of the APE had been extensively disturbed by existing highway and railroad construction, associated development (commercial and residential) of adjacent properties, and installation of numerous utilities. Examination of project schematics and aerial photos, as well as numerous drives through the project area led to the conclusion that the only portion of the proposed project APE that had not been developed/disturbed and that might have slight potential to include archeological sites eligible for listing in the NRHP or designation as SALs was within the Big Fossil Creek floodplain. Thus, TxDOT conducted an archeological survey (with trenching) across the Big Fossil Creek floodplain portion of the APE. This survey did not identify any archeological sites or settings with reasonable potential to contain them. With the completion of this survey, TxDOT archeologists determined that the proposed project would have no effect on archeological historic properties or SALs. The THC concurred on April 7, 2004.

In 2008, revised project schematics were examined revealing an additional four acres of proposed ROW (and APE) that would be affected by the project. The Texas Archeological Sites Atlas was rechecked (on January 4, 2008) for the new area of proposed ROW as well as for the entire project APE. No recorded archeological sites were present within, immediately adjacent to, or within a mile of the project APE. A TxDOT archeologist conducted a literature review for the proposed additional APE and determined that the area had little potential for containing archeological sites eligible for listing as archeological historic properties or SALs and did not warrant archeological survey or further investigations. The THC concurred on January 4, 2008.

Section 106 consultation with federally-recognized Native American tribes with a demonstrated historic interest in the region was initiated on April 2, 2004. No objections or expressions of concern were received within the comment period. Additional Section 106 consultation with federally recognized Native American tribes with a demonstrated historic interest in the region was initiated on January 7, 2008.

In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area would cease and TxDOT archeological staff would be contacted to initiate post-review discovery procedures under the provisions of the First Amended Programmatic Agreement among the FHWA, TxDOT, the Texas SHPO, and ACHP regarding the Implementation of Transportation Undertakings (PA-TU), and the MOU (43 TAC 2.24) between TxDOT and THC.

2. Historic Structures

A review of the NRHP, the list of SALs, and the list of Recorded Texas Historic Landmarks (RTHL) indicated that no historically significant resources have been previously documented within the APE. It has been determined through consultation with the SHPO that the APE for the proposed project is 150 feet from the project right-of-way. A site visit in January 2007 and January 2008 revealed that there are 46 resources at 43 numbered sites, 50 years of age or older (built prior to 1966), located within the project APE. These resources include 39 residences, one agricultural site, one social hall, and one school. TxDOT determined that neither any of historic-age resources nor any of the residential subdivisions are NRHP eligible. Furthermore, there are no Official Texas Historical Markers in the APE.

Pursuant to Stipulation VI "Undertakings with Potential to Cause Effects" of the PA-TU between the FHWA, the Texas SHPO, the ACHP, and TxDOT and the MOU, ENV historians determined that none of the historic-age resources are eligible for listing in the NRHP. Since the properties are not NRHP eligible, the project would have no effects to historic properties and individual project coordination with SHPO is not required.

F. Section 4(f) Resources

Section 4(f) of the U.S. Department of Transportation Act of 1966 [49 U.S.C. 3039c)] and 23 CFR 774 requires that the proposed use of any land from a significant publicly owned park or recreation area, wildlife refuge, or historic site that is listed in or is eligible for listing in the NRHP be given particular attention. Final action requiring the acquisition of such land must document that there are no feasible and prudent alternates to its use. Additionally, a full evaluation of measures to minimize harm to that resource must be made and documented.

<u>Environmental Consequences of Implementing the Preferred Alternative</u>

There are four Section 4(f) resources within the study area. As summarized in Table 20, additional ROW would not be acquired at two of these sites. Additional ROW would be required from the North Richland Hills Community Center (NRHCC) and the North Richland Hills Tennis Center (TC). Approximately 0.521 acres would be acquired from the 6.7 acre NRHCC site and 0.58 acres would be acquired from the 7.6 acre TC site. Programmatic Section 4(f) Evaluations have been prepared for each of these sites and are included in this EA as Exhibit 8 and Exhibit 9, respectively. The exhibits describe the proposed action, need and purpose, Section 4(f) resource, impacts to the resource by the proposed action, avoidance alternatives considered (i.e., no-build, new location, reduced roadway width), measures to minimize harm to the resource, and agency coordination. The avoidance alternatives considered were eliminated because they either did not meet the project need and purpose or because the cost, environmental impact, and community disruption would reach extraordinary magnitudes and present unique problems. The project would not require the use of any publicly owned land from a wildlife or waterfowl refuge, or historic site.

TABLE 20. POTENTIAL SECTION 4(F) RESOURCES WITHIN STUDY AREA			
Facility Name and Address	**Owner**	**Schematic Property Number**	**Acquiring Additional ROW?**
Iron Horse Golf Course[1] 6200 Skylark	Haltom City and North Richland Hills[1]	61, 159, 160	No
Tennis Center 7111 Northeast Loop 820	North Richland Hills	84	Yes, 0.521 acres
North Park 5220 Denton Hwy.	Haltom City	51, 52, 53	No
North Richland Hills Community Center	North Richland Hills	145	Yes, 0.58 acres

[1] Iron Horse Golf Course is within the city limits of Haltom City and is owned by Haltom City, but is leased to North Richland Hills under a long-term arrangement.

Environmental Consequences of Implementing the No-Build Alternative

Under the no build alternative, no additional ROW would be required. Thus, there would be no ROW acquired from a Section 4(f) property.

G. Environmental Justice

1. Census Data

Executive Order 12898 is intended to promote a review of the distribution of minority and low-income communities within a project area to determine whether or not these neighborhoods would be disproportionately affected by a proposed project. The intent of assessing environmental justice is to identify and thereby avoid, minimize, or mitigate significant and adverse environmental effects of proposed Federal actions on minority communities and low-income communities. For purposes of this EA, U.S. 2000 Census data has been used to identify areas with high minority concentrations and low-incomes.

Census data obtained from the 11 census tracts that encompass or are located along IH 820 (Tracts 1050.05, 1050.06, 1101.01, 1102.03, 1102.04, 1132.12, 1132.13, 1132.17, 1132.19, 1134.03 and 1138.11), were analyzed to determine minority (minority includes both race and ethnicity) and income characteristics in the project area. A total of 50,212 persons were recorded in the 11 census tracts. The race distribution within the 11 tracts is presented in Table 21. The locations of the blocks are shown on Exhibit 1b.

TABLE 21. RACIAL DISTRIBUTION CHARACTERISTICS OF STUDY AREA								
		Population/Percentage						
Census Area (Census Tract, Block Group, Block)	**Total Population (1)**	**White**	**Black**	**Hispanic or Latino (2)**	**American Indian; Eskimo; or Aleut**	**Asian**	**Pacific Islander**	**Other (3)**
Census Tract 1050.05 Block Group 1	2,629	2,235 85.0%	101 3.8%	254 9.7%	12 0.5%	148 5.6%	0 0.0%	82 3.1%
Tract 1050.05, Block 1026	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.05, Block 1027	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.05, Block 1028	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.05, Block 1029	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%

TABLE 21. RACIAL DISTRIBUTION CHARACTERISTICS OF STUDY AREA								
		Population/Percentage						
Census Area (Census Tract, Block Group, Block)	Total Population (1)	White	Black	Hispanic or Latino (2)	American Indian; Eskimo; or Aleut	Asian	Pacific Islander	Other (3)
Tract 1050.05, Block 1030	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.05, Block 1031	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.05, Block 1032	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.05, Block 1033	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1050.05 Block Group 2	1,301	1,014 77.9%	35 2.7%	402 30.9%	12 0.9%	31 2.4%	1 0.1%	163 12.5%
Tract 1050.05, Block 2001	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.05, Block 2016	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.05, Block 2018	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.05, Block 2019	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.05, Block 2020	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1050.06 Block Group 1	1,603	889 55.5%	418 26.1%	557 34.7%	18 1.1%	13 0.8%	1 0.1%	239 14.9%
Tract 1050.06, Block 1000	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.06, Block 1001	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.06, Block 1002	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.06, Block 1003	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.06, Block 1004	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.06, Block 1024	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.06, Block 1025	915	548 59.9%	352 38.5%	184 20.1%	1 0.1%	9 1.0%	1 0.1%	2 0.2%
Tract 1050.06, Block 1035	5	0 0.0%	0 0.0%	5 100.0%	0 0.0%	0 0.0%	0 0.0%	5 100.0%
Tract 1050.06, Block 1036	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.06, Block 1038	2	2 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.06, Block 1039	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1050.06, Block 1040	1	1 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1101.01 Block Group 1	2,794	1,958 70.1%	154 5.5%	627 22.4%	11 0.4%	274 9.8%	1 0.0%	282 10.1%

TABLE 21. RACIAL DISTRIBUTION CHARACTERISTICS OF STUDY AREA								
		Population/Percentage						
Census Area (Census Tract, Block Group, Block)	Total Population (1)	White	Black	Hispanic or Latino (2)	American Indian; Eskimo; or Aleut	Asian	Pacific Islander	Other (3)
Tract 1101.01, Block 1000	857	516 60.2%	62 7.2%	270 31.5%	2 0.2%	104 12.1%	0 0.0%	116 13.5%
Tract 1101.01, Block 1001	1,386	953 68.8%	92 6.6%	311 22.4%	8 0.6%	132 9.5%	1 0.1%	147 10.6%
Census Tract 1102.03 Block Group 1	3,894	2,840 72.9%	256 6.6%	498 12.6%	27 0.7%	469 12.0%	2 0.1%	208 5.3%
Tract 1102.03, Block 1032	107	65 60.7%	17 15.9%	18 16.8%	0 0.0%	17 15.9%	0 0.0%	7 6.5%
Tract 1102.03, Block 1035	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1102.03 Block Group 2	3,063	2,575 84.1%	101 3.3%	406 13.3%	24 0.8%	118 3.9%	0 0.0%	168 5.5%
Tract 1102.03, Block 2034	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1102.04 Block Group 1	1,903	1,438 75.6%	29 1.5%	311 16.3%	15 0.8%	210 11.0%	13 0.7%	170 8.9%
Tract 1102.04, Block 1000	15	8 53.3%	0 0.0%	0 0.0%	1 6.7%	4 26.7%	0 0.0%	0 0.0%
Tract 1102.04, Block 1001	60	15 25.0%	6 10.0%	0 0.0%	0 0.0%	35 58.3%	0 0.0%	0 0.0%
Tract 1102.04, Block 1002	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1132.12 Block Group 1	2,399	2,185 91.1%	74 3.1%	103 4.3%	4 0.2%	86 3.6%	0 0.0%	28 1.2%
Tract 1132.12, Block 1000	198	170 85.9%	6 3.0%	10 5.1%	0 0.0%	12 6.1%	0 0.0%	7 3.5%
Tract 1132.12, Block 1006	379	359 94.7%	6 1.6%	12 3.2%	1 0.3%	11 2.9%	0 0.0%	2 0.5%
Tract 1132.12, Block 1007	464	370 79.7%	50 10.8%	46 9.9%	3 0.6%	14 3.0%	0 0.0%	15 3.2%
Census Tract 1132.13 Block Group 1	1,058	869 82.1%	38 3.6%	152 14.4%	11 1.0%	32 3.0%	1 0.1%	78 7.4%
Tract 1132.13, Block 1000	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 1001	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 1002	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 1003	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 1004	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 1006	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 1008	38	33 86.8%	0 0.0%	5 13.2%	0 0.0%	0 0.0%	0 0.0%	5 13.2%

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Tract 1132.13, Block 1009	2	0 0.0%	0 0.0%	2 100.0%	0 0.0%	0 0.0%	0 0.0%	2 100.0%
Tract 1132.13, Block 1010	230	168 73.0%	15 6.5%	51 22.2%	1 0.4%	13 5.7%	0 0.0%	21 9.1%
Census Tract 1132.13 Block Group 2	703	651 92.6%	19 2.7%	54 7.7%	3 0.4%	6 0.9%	0 0.0%	22 3.1%
Tract 1132.13, Block 2000	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 2001	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 2002	35	31 88.6%	0 0.0%	2 5.7%	1 2.9%	1 2.9%	0 0.0%	2 5.7%
Tract 1132.13, Block 2003	53	39 73.6%	10 18.9%	5 9.4%	0 0.0%	4 7.5%	0 0.0%	0 0.0%
Tract 1132.13, Block 2004	69	66 95.75	0 0.0%	3 4.3%	0 0.0%	0 0.0%	0 0.0%	3 4.3%
Tract 1132.13, Block 2005	13	13 100.0%	0 0.0%	3 23.1%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 2013	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 2014	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1132.13 Block Group 3	845	787 93.1%	16 1.9%	39 4.6%	6 0.7%	8 0.9%	0 0.0%	16 1.9%
Tract 1132.13, Block 3000	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 3001	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.13, Block 3002	149	123 82.6%	4 2.7%	10 6.7%	0 0.0%	6 4.0%	0 0.0%	8 5.4%
Tract 1132.13, Block 3020	62	60 96.8%	0 0.0%	0 0.0%	2 3.2%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1132.17 Block Group 3	745	632 64.8%	16 2.1%	106 14.2%	6 0.8%	25 3.4%	0 0.0%	53 7.1%
Tract 1132.17, Block 3004	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.17, Block 3006	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.17, Block 3007	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.17, Block 3008	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.17, Block 3009	372	286 76.9%	16 4.3%	51 13.7%	4 1.1%	24 6.5%	0 0.0%	34 9.1%
Tract 1132.17, Block 3010	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.17, Block 3011	58	58 100.0%	0 0.0%	3 5.2%	0 0.0%	0 0.0%	0 0.0%	0 0.0%

TABLE 21. RACIAL DISTRIBUTION CHARACTERISTICS OF STUDY AREA								
		Population/Percentage						
Census Area (Census Tract, Block Group, Block)	Total Population (1)	White	Black	Hispanic or Latino (2)	American Indian; Eskimo; or Aleut	Asian	Pacific Islander	Other (3)
Tract 1132.17, Block 3016	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.17, Block 3017	8	6 75.0%	0 0.0%	2 25.0%	1 12.5%	0 0.0%	0 0.0%	1 12.5%
Tract 1132.17, Block 3018	29	28 96.6%	0 0.0%	1 3.4%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.17, Block 3019	30	28 93.3%	0 0.0%	6 20.0%	0 0.0%	0 0.0%	0 0.0%	2 6.7%
Tract 1132.17, Block 3020	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.17, Block 3021	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1132.17 Block Group 4	1,564	1296 82.9%	69 4.4%	199 12.7%	17 1.1%	37 2.4%	3 0.2%	96 6.1%
Tract 1132.17, Block 4015	45	40 88.9%	0 0.0%	0 0.0%	1 2.2%	4 8.9%	0 0.0%	0 0.0%
Tract 1132.17, Block 4020	122	89 73.0%	15 12.3%	15 12.3%	1 0.8%	1 0.8%	1 0.8%	7 5.7%
Tract 1132.17, Block 4023	28	16 57.1%	0 0.0%	8 28.6%	0 0.0%	2 7.1%	0 0.0%	6 21.4%
Tract 1132.17, Block 4024	38	38 100.0%	0 0.0%	2 5.3%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.17, Block 4025	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1132.19 Block Group 2	552	497 90.0%	12 2.2%	53 9.6%	2 0.4%	5 0.9%	9 1.6%	14 2.5%
Tract 1132.19, Block 2010	7	6 85.7%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.19, Block 2011	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.19, Block 2017	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.19, Block 2018	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.19, Block 2019	2	2 100.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1132.19, Block 2020	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1134.03 Block Group 2	336	297 88.4%	8 2.4%	20 6.0%	1 0.3%	5 1.5%	0 0.0%	10 3.0%
Tract 1134.03, Block 2003	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1138.11 Block Group 1	951	779 81.9%	19 2.0%	95 10.0%	3 0.3%	88 9.3%	0 0.0%	33 3.5%
Tract 1138.11, Block 1003	117	108 92.3%	0 0.0%	3 2.6%	0 0.0%	6 5.1%	0 0.0%	2 1.7%
Tract 1138.11, Block 1007	287	230 80.1%	0 0.0%	41 14.3%	1 0.3%	31 10.8%	0 0.0%	16 5.6%

TABLE 21. RACIAL DISTRIBUTION CHARACTERISTICS OF STUDY AREA								
		Population/Percentage						
Census Area (Census Tract, Block Group, Block)	**Total Population (1)**	**White**	**Black**	**Hispanic or Latino (2)**	**American Indian; Eskimo; or Aleut**	**Asian**	**Pacific Islander**	**Other (3)**
Tract 1138.11, Block 1008	2	0 0.0%	1 50.0%	0 0.0%	0 0.0%	1 50.0%	0 0.0%	0 0.0%
Tract 1138.11, Block 1013	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Tract 1138.11, Block 1015	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Census Tract 1138.11 Block Group 2	2,132	1,770 83.0%	38 1.8%	308 14.4%	14 0.7%	126 5.9%	4 0.2%	132 6.2%
Tract 1138.11, Block 2023	0	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%	0 0.0%
Overall Census Block Group Percentages	**28,472**	**79.8%**	**4.9%**	**14.7%**	**0.7%**	**5.9%**	**0.1%**	**6.3%**
Overall Census Block Percentages	**6,185**	**72.4%**	**10.5%**	**17.3%**	**0.5%**	**7.0%**	**0.0%**	**6.6%**

Notes: (1) Total population is the summation of all race categories reported from the U.S. Census Bureau consisting of White, Black, American Indian and Alaska native, Asian, native Hawaiian and other Pacific islander, some other race, and two or more races.
(2) Total of persons reporting as Hispanic or Latino ethnic origin. As race and ethnic origin are two separate and distinct concepts, these persons may be of any other race.
(3) Other is defined as “some other race” category defined by the U.S. Census Bureau.

Table 22 provides the 2000 Census median incomes for households and families. The NCTCOG Metropolitan Planning Area (MPA) had a poverty level at 10.8 percent in 1999 based on the 2000 Census.

TABLE 22. 2000 CENSUS MEDIAN INCOME FOR HOUSEHOLD, FAMILIES, AND NON-FAMILY HOUSEHOLDS				
Census Tract	Median Income in 1999 Dollars		Total Per Capita Income in 1999 Dollars	Percent Below Poverty
	Households	Families		
Census Tract 1050.05	$47,194	$56,458	$28,359	8.3%
Census Tract 1050.05 Block Group 1	$47,826	$58,953	$33,947	6.5%
Census Tract 1050.05 Block Group 2	$45,978	$47,353	$16,214	12.5%
Census Tract 1050.06	$31,484	$31,484	$39,504	9.9%
Census Tract 1050.06 Block Group 1	$31,484	$31,484	$39,504	9.9%
Census Tract 1101.01	$40,288	$42,321	$19,283	7.9%
Census Tract 1101.01 Block Group 1	$38,750	$38,345	$18,505	7.7%
Census Tract 1102.03	$54,229	$57,346	$23,499	5.1%
Census Tract 1102.03 Block Group 1	$58,158	$65,000	$26,342	3.0%
Census Tract 1102.03 Block Group 2	$50,046	$50,455	$19,837	7.8%
Census Tract 1102.04	$40,598	$43,464	$16,391	6.4%
Census Tract 1102.04 Block Group 1	$46,792	$47,857	$16,771	3.4%
Census Tract 1132.12	$49,198	$63,903	$34,310	6.7%
Census Tract 1132.12 Block Group 1	$44,167	$83,427	$36,235	6.4%
Census Tract 1132.13	$54,622	$64,568	$27,139	4.0%
Census Tract 1132.13 Block Group 1	$40,580	$51,833	$21,558	8.6%
Census Tract 1132.13 Block Group 2	$62,917	$64,405	$39,010	0.0%
Census Tract 1132.13 Block Group 3	$64,837	$64,783	$24,618	1.8%
Census Tract 1132.17	$59,536	$56,400	$23,918	8.3%
Census Tract 1132.17 Block Group 3	$43,274	$53,750	$24,073	4.8%
Census Tract 1132.17 Block Group 4	$39,968	$46,969	$18,703	8.5%
Census Tract 1132.19	$40,254	$48,976	$21,871	9.5%
Census Tract 1132.19 Block Group 2	$48,409	$50,250	$27,217	4.4%
Census Tract 1134.03	$51,696	$62,750	$23,604	4.0%
Census Tract 1134.03 Block Group 2	$44,444	$70,625	$18,874	0.0%
Census Tract 1138.11	$46,983	$52,794	$20,205	6.4%
Census Tract 1138.11 Block Group 1	$40,481	$61,544	$26,142	1.2%
Census Tract 1138.11 Block Group 2	$50,962	$51,741	$17,710	8.6%

Source: 2000 U.S. Census. American Fact Finder.

The identification of minority populations were based on the CEQ guidance document *Environmental Justice Guidance under the National Environmental Policy Act.* Based on this guidance, minority populations should be identified either: (a) the minority population of the affected area exceeds 50 percent or (b) the minority population percentage of the affected area is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis and who are members of the following population groups: American Indian or Alaskan Native; Asian or Pacific Islander; Black, not of Hispanic origin; or Hispanic. According to FHWA Order 6640.23, a low-income population is defined as any population that has a median household income below the U.S. Department of Health and Human Services (HHS) defined poverty guideline for a family of four.

In accordance with Executive Order 12898, FHWA Order 6640.23, and the CEQ guidance document of environmental justice, data on the presence of minority and low-income populations were analyzed at the corridor level to ensure the proposed project does not subject these populations to a "disproportionately high and adverse effect." To complete this analysis, the inclusive blocks were analyzed for percent minorities. In addition, these blocks were compared to a larger reference area (block groups) for minority populations to determine if any meaningful greater populations of minorities were present. The 2008 HHS poverty guideline for a family of four ($21,200) was compared to the block groups located within the proposed project area to determine if low-income populations were present.

As show in Table 21, five affected blocks (Block 1025, block group 2, census tract 1050.06; Block 1000, block group 1, census tract 1101.01; Block 1001, block group 1, census tract 1102.4, Block 1009, block group 1, census tract 1132.13; Block 1008 block group 1, census tract 1138.11) have a minority population above 50 percent. No blocks in the project area were identified to have meaningfully greater percent minority populations than the immediate general area (block groups). Because the smallest unit for demographic data is the block-level, the impacts (e.g., displacements and/or ROW impacts, noise impacts) to these affected units are assumed to be proportional to the entire demographic profile of the affected block.

Median household income for the proposed project area is $47,004, which is higher than the average of the census tracts for the proposed project area ($46,917). The median household income for each of the inclusive block groups within the proposed project area was higher than the 2008 HHS poverty guideline of $21,200. Because these representative populations are above the 2008 HHS poverty guideline, no low-income populations were identified in the proposed project area.

Environmental Consequences of Implementing the Preferred Alternative

As mentioned previously, five minority populations were identified in the proposed project area. Adverse impacts to three of the five blocks would occur as a result of the proposed project. Blocks 1000 (block group 1, census tract 1101.01), 1001 (block group 1, census tract 1102.04), and 1008 (block group 1, census tract 1138.11) would have impacts from ROW acquisition. Blocks 1000 (block group 1, census tract 1101.01) and 1001 (block group 1, census tract 1102.04) would both require one business displacement in addition to the right-of-way required. No other adverse impacts from the proposed project including, but not limited to, air quality, noise, biological, social, or cultural resource impacts would occur (see the appropriate sections in the EA for descriptions of impacts). Mitigation for these ROW impacts would occur through the payment of fair market value for the acquired property and structures as well as relocation benefits for those that qualify and would occur in compliance with the Uniform Relocation Assistance and Real Property Acquisitions Policies Act (see the ROW and displacements sections of the EA).

Although the previous identified impacts to the minority populations would occur, they would not be disproportionately high and adverse compared to the general population. As show in Exhibit 2 and explained in Sections III.C and VII.G.1, numerous areas would require ROW acquisition and displacements and would not be isolated within the areas with minority populations. Based on this analysis, the proposed project would not cause disproportionately high and adverse impacts on any minority or low-income populations in accordance with the Executive Order 12898 regarding environmental justice.

Environmental Consequences of Implementing the No-Build Alternative

The No-Build Alternative would leave the facility in its current condition. As stated in the description of the No-Build Alternative in Section V.C.1, the conditions on IH 820 would continue to degrade causing a decrease in mobility and an increase in traffic congestion, noise, air pollution, fuel usage,

and accidents from vehicles seeking alternate routes through neighborhoods. These are determined to be adverse affects to the northern Tarrant County area and would affect minority and low-income populations. Although adverse impacts from the No-Build Alternative would occur to minority and low-income populations, they would not be disproportionately high and adverse compared to the general population per Executive Order 12898 regarding environmental justice.

2. Toll Pricing

TxDOT traditionally funds projects based on priority and when funds become available. Due to funding shortfalls, it is unlikely that many of the major freeway reconstruction and widening projects could take place within the foreseeable future (2030) without seeking alternate funding methods. In the proposed IH 820 project, a managed (toll) lane facility is being proposed for the 2030 build alternative. The proposed project would be expected to be done by a private partner to reconstruct and widen this facility to accommodate three general purpose lanes (non-tolled) in each direction, two frontage road lanes (non-tolled) in each direction and two managed (toll) facility lanes in each direction. A managed (toll) facility is one that increases freeway efficiency by packaging various operational and design actions. Lane management operations may be adjusted at any time to better match regional goals.

As described in Section V.B, the RTC, which governs transportation in the DFW area, has established a policy for managed (toll) lanes. That policy sets criteria for the region which guarantees the riders of the managed (toll) lane facility a minimum speed of operation (see Exhibit 15 for RTC policy). To accomplish this, the managed (toll) lane facility would not be a set fee, but would rather be set based on demand. The higher the demand, the higher the fee for use. In turn, the build alternative would free up much needed demand on the general purpose lanes (non-tolled) so that travelers not using the managed (toll) lanes would also benefit. Transit vehicles and certain other exempt vehicles would not be charged a toll, which would allow riders and users to take advantage of the managed (toll) lanes reliability and predictability.

The managed (toll) lane concept supports the build alternative because without it, the region would suffer from decreased Level of Service (LOS) along many of the major freeway facilities along with air quality concerns created by idling vehicles. In addition, those individuals that depend on the freeway system for their livelihood would be negatively impacted by the increased congestion as it relates to their commute times. Indirectly, this would also impact free time for family, friends, and enjoyment.

The following is an estimated example of the cost that may be incurred by an SOV using the IH 820 managed (toll) lanes. If the average rate of 12.5, 14.5, and 17 cents a mile (the low, average, and high toll rates based upon the RTC, September 2007) is used, the potential cost can be illustrated using the following scenario. For this example, it is assumed that the SOV user would make 250 round-trips per year from IH 35W to Northeast Mall interchange. Under this scenario, the annual cost within the 6.4 mile distance (12.8 miles per round trip) would be approximately $400, $465, and $545 for the 12.5, 14.5, and 17 cents per mile, respectively, per year. An SOV using the managed (toll) lanes with an annual household income equal to the median household income of the Tarrant County ($31,582) would spend 1.3, 1.5, and 1.7 percent of the household income on tolls based on the 12.5, 14.5, and 17 cents per mile, respectively. Those households living at the HHS poverty guideline level in 2008 for a family of four of $21,200 would spend 1.9, 2.2. 2.6 percent of household income on tolls for the 12.5, 14.5, and 17 cents per mile, respectively. Those households living below the HHS poverty level would spend a proportionately higher percentage of household income on tolls.

The current RTC Managed Lane Polices (RTC modified September 13, 2007) state that the maximum toll rate for managed lanes would be 75 cents per mile during the fixed schedule phase (the first six months of operation). This established maximum rate would be evaluated and adjusted, if warranted, with RTC approval. After the fixed schedule phase, the toll rate would be established to maintain a minimum corridor speed of 50 miles per hour and provide predictable trip times.

3. Electronic Toll Collection Systems

The toll collection system for the IH 820 managed (toll) lanes would operate under a fully electronic format. Vehicles would not have to stop to pay a toll, rather vehicles would pass through electronic readers and be assessed a toll charge. This is known as an electronic toll collection system (ETC).

Recent advances have allowed another possible ETC toll collection method that would accommodate vehicles without a toll tag. In this method, license plates are photographed and scanned by computers or read by the toll operator. The registered vehicle owners are then sent a periodic billing statement based on activity, with an additional fee included for billing and handling. This video tolling program allows motorists to travel the tolled lanes without needing a transponder and without needing to stop and pay. However, it should be noted the video tolling method would be more expensive for users of the facility because of the additional fee associated with billing and handling of the periodic billing statements. For Texas Turnpike Authority (TTA) TxTags, a $1 fee is currently (in 2008) applied to each monthly invoice for non-tag customers. For North Texas Tollway Authority (NTTA) TollTags, a $1 fee is currently (in 2008) applied to each monthly invoice for non-tag customers.

TxDOT's objective is to establish interoperable toll accounts. Any ETC account set up with a toll facility operator in Fort Worth, Dallas, Austin, or Houston another other city would be able to access toll roads or managed (toll) lanes in any of toll authority areas while having the tolls charged to the user's home account. To achieve this objective, toll tags or stickers issued by a toll authority in one area of the state would be capable of being read by the toll system in another area of the state. Each toll authority would be capable of registering toll transactions to the user's home toll account. Users from other states or international drivers would be billed similarly to users without toll tags.

4. Method of Toll Charge Collections

The toll collection system for the IH 820 managed (toll) lanes would be interoperable with other toll facilities in the state. The TxTag, NTTA TollTag, and Houston area EZ TAG would be accepted. Toll charge collections would be automatically deducted from the user's prepaid credit or cash account. The user would be required to maintain sufficient funds in the account to cover incurred toll charges.

With the NTTA TollTag, for example, a prepaid credit card toll account user would pay a minimum amount of $40 dollars as an initial deposit and receive a tag. The account would be reduced each time the user opts to pass through an operating ETC gantry. Currently, when the user's account reaches $10 or less, the user's credit card or debit card would be charged $40 to automatically increase the available balance.

With a cash toll account, in addition to the initial $40 minimum payment and replenishing the account when the balance reaches $10 or less, cash users must pay a deposit of $25 per tag. Depending on the type of tag, to add funds to the account cash users would need to visit a TollTag store in the DFW area or the TxTag Customer Service Center in Austin; both tags also allow a check or money order to be mailed in to maintain the account balance. The cash user deposit

would be refunded without interest if the user returns the tag (by mail or in person) in good condition, or if the user converts the cash account to a credit card account.

5. Origin-Destination Analysis

Origin-destination data secured from the NCTCOG was used for further analysis of user impacts of the proposed IH 820 managed (toll) lane facility on low-income and minority populations. Origin-destination data can determine travel patterns of traffic along a transportation facility during a typical day. This form of analysis is useful in assessing user impacts as the number of trips associated with specific population characteristics can be studied to provide general travel assumptions of those specific populations. Trips are defined as a one-way movement from where a person starts (origin) to where the person is going (destination).

Assessing user impacts in the form of an origin-destination analysis is an integral component of the environmental justice analysis for the proposed project. As funding mechanisms evolve, the trend towards utilization of toll facilities in this region would, through time, create user impacts as access to highway systems becomes an issue to the economically disadvantaged. The origin-destination analysis revealed anticipated users and associated traffic patterns of the proposed project in 2030 and identified environmental justice populations to assess the intensity of use by those protected populations.

The information associated with the origin-destination analysis is organized by traffic survey zones (TSZs) which are small geographic units of area that are developed as a basis for estimation of travel. TSZs may vary in size, are determined by roadway network and homogeneity of development, and directly reflect demographic data generated by the U.S. Census Bureau. Delineated by state and/or transportation offices for tabulating traffic-related data, TSZs usually consist of one or more census blocks, block groups, or census tracts. A total of 4,813 TSZs comprise the origin-destination study area for both the build and no-build alternatives. Of the total number of TSZs located within the origin-destination study area, 3,227 TSZs are anticipated to regularly utilize the IH 820 facility (free mainlanes, managed lanes and/or frontage roads) in 2030 (originating at least one trip per day) under the build alternative and 2,560 TSZs are anticipated to regularly utilize the IH 820 in the no-build alternative. This represents 67.0 percent of the total study area TSZs for the IH 820 facility and 53.2 percent of the total study area TSZs for the no-build alternative.

TransCAD®, a GIS-based transportation planning software, was utilized by the NCTCOG to generate the traffic data analyzed during the origin-destination analysis. The NCTCOG conducted a select-link analysis based on 2030 morning peak period traffic to generate origin-destination data associated with the proposed project. Morning peak period traffic represents the vehicles that pass a point on a highway during the time period between 6:30 a.m. and 8:59 a.m. Morning peak traffic is the preferred form of traffic data for origin-destination analysis because it is the most effective means to convey daily trips linked to TSZs. Traffic data exported directly from TransCAD® select-link matrices was correlated with U.S. Census Bureau data to provide a demographic profile of users anticipated to utilize the proposed IH 820 facility in 2030.

To clarify the intent of the origin-destination analysis, the analysis does not attempt to identify specific users (low-income or minority populations) but instead compares the origins and intensity origins of trips based on collective socio-economic characteristics at the TSZ level for both the toll and non-toll scenarios. In other words, the origin-destination analysis predicts the potential users of the IH 820 corridor in 2030 by correlating the general socio-economic characteristics of the future users based on Census 2000 data to the intensity of use quantified by the number of trips per TSZ generated by TransCAD®. The NCTCOG conducted a “select-link analysis” based on 2030

morning peak period traffic. The model distinguishes between toll and non-toll scenarios by identifying the "toll links." These "toll links" are assigned a cost per mile for the toll scenario and no cost per mile for the non-toll scenario. The model then assigns vehicle trips based on user cost, trip distance, time of day, and other factors to achieve system equilibrium in the network. The correlation of Census 2000 and TransCAD® data is the best available method to identify which TSZs would originate trips anticipated to utilize the IH 820 facility and general demographics of the population associated with those TSZs. However, the vehicle trip assignment process does not consider relative income differences or the differences in relative cost to potential users in the population when making trip assignments. Because no definitive data exists on the future users of IH 820, the origin-destination analysis cannot predict the specific race, ethnicity, or economic status associated with the predicted trips on toll or non-toll facilities. However, the origin-destination analysis can identify a potential difference in trip intensity by comparing toll and non-toll scenario TSZ trip percentages.

Analysis of the origin-destination trip was concentrated on those TSZs with high proportions of low-income and/or minority populations within the study area that are anticipated to utilize the proposed managed (toll) lane portion of the facility in 2030. The threshold for an environmental justice TSZ was defined as a TSZ with an environmental justice population (specifically low-income or minority populations) equal to or greater than 51 percent of the total TSZ population. A total of 1,542 environmental justice TSZs were identified within the NCTCOG study area. Of the identified environmental justice TSZs, a total of 893 are anticipated to regularly utilize the proposed IH 820 facility (originating at least one trip per day) under the build alternative and 650 TSZs are anticipated to regularly utilize the IH 820 in the no-build alternative. For the build alternative, data analysis indicates that of approximately 55,304 total trips which originated from the TSZs anticipated to utilize IH 820 approximately 10.6 percent (5,858 trips) of the total trips originate from environmental justice TSZs. For the no-build alternative, data analysis indicates that of approximately 31,848 total trips which originated from the TSZs anticipated to utilize IH 820 approximately 9.0 percent (2,866 trips) of the total trips originate from environmental justice TSZs. Based on the higher percentage of environmental justice populations using the facility under the build alternative versus the no-build, it can be surmised that a traffic diversion/redistribution cannot be attributed with the tolling element. Exhibits 1c and 1d show the environmental justice TSZs that would use the IH 820 facility per number of trips. Exhibits 1e and 1f break out each environmental justice TSZs that would use the IH 820 facility (originating at least one trip per day) by environmental justice type (i.e. minority, low-income, etc.).

Based on the origin-destination information, it is not anticipated that there would be any disproportionate impacts to low-income or minority populations with the implementation of the proposed project due to the low distribution of trips between identified low-income and/or minority populations and the low percentage of these populations within the proposed project study area. In addition, the adjacent toll free main lanes and frontage roads would be available for use; however, these non-tolled lanes may be flowing at a slower speed than the tolled lanes. The proposed IH 820 project would benefit users and adjacent populations as a result of the improved system linkage and mobility within the study area and region.

Proactive public involvement, including public meetings and surveys, and coordination with local planning officials can help avoid disproportionate impacts by allowing these populations to voice their concerns and be a part of the planning process. Therefore, environmental justice populations in the study area would be impacted equally as the entire study area non-minority population. However, individual low-income persons may choose to utilize adjacent non-toll alternatives specifically for cost saving measures. Low-income individuals may be impacted as a result of difference in time travel associated with utilizing non-toll alternatives. The economic impact of managed (toll) lanes would be higher for low-income residents because the cost of paying tolls

would represent a higher percentage of household income than for non-low-income households. The toll rates for the IH 820 managed (toll) lanes would be consistent with other toll rates in the region.

H. Social and Economic Issues

1. Displacements

Environmental Consequences of Implementing the Preferred Alternative
The project would require ROW from 136 properties. It is estimated that six properties would require relocation. The properties are listed in Table 23 (see Exhibit 2 for location). The three residences are located on the east end of the proposed project area near Holiday Lane. TxDOT has acquired 18 properties through the early ROW acquisition process. These properties are shown on Exhibit 2 and discussed in more detail in Exhibit 10 in the Appendix.

TABLE 23. RELOCATIONS

Facility Name and Location	Schematic Property Number
Residence A	92 (Exhibit 2, Sheet 9)
Residence B	94 (Exhibit 2, Sheet 9)
Residence C	126 (Exhibit 2, Sheet 9)
Zimmerer Kubota	161 (Exhibit 2, Sheet 6)
Unclaimed Freight Company	173 (Exhibit 2, Sheet 5)
Comfort Inns	172 (Exhibit 2, Sheet 5)

A search of the Multiple Listing Service (MLS) for the proposed project area resulted in approximately 565 single family residences currently listed for sale. These properties range in size and price, but more than 50 percent were comparable to the displacement residences based on their cost/value, size, and amenities. The commercial MLS database also included over 80 available commercial properties for sale within the proposed project area. No commercial properties of critical services would be displaced by the proposed project.

Property owners would be paid fair market value for land and improvements in accordance with the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended. Relocation assistance is available to all individuals, families, businesses, and non-profit organizations displaced by public transportation projects, in accordance with Title VIII of the Civil Rights Act of 1968, Title VI of the Civil Rights Act of 1964, and the Housing and Urban Development Amendment Act of 1974. Relocation benefits and assistance are available to persons without regard to race, color, religion, national origin, sex, age, or handicap. The benefits of the Relocation Assistance Program are in addition to the normal payment of fair market value for land and improvements involved in ROW acquisitions.

Environmental Consequences of Implementing the No-Build Alternative
If the no-build alternative were implemented, no relocation would occur and no new ROW would be acquired; however, no improvement to traffic mobility and no increase in safety to the traveling public would occur.

2. Economic Impacts

Environmental Consequences of Implementing the Preferred Alternative
As previously stated, the project would require ROW from 136 properties. Of these properties, the three residences and three businesses listed in Table 23 (see Exhibit 2 for location) would require

relocation. The parking at 18 additional businesses would be reduced; however, the percentage of parking lost is not anticipated to render the businesses non-viable as they currently exist.

During construction, there would be short-term economic gain to the area due to new job opportunities and a temporary boost to the local economy. Road users would receive long-term economic benefits resulting from lower vehicle operating costs and improved safety.

Environmental Consequences of Implementing the No-Build Alternative
Under the no-build alternative, no properties, structures, or parking spaces would be impacted, thus, there would be no economic impacts to adjacent property owners.

3. Utilities

Environmental Consequences of Implementing the Preferred Alternative
Utility companies with affected utilities in the area would be contacted prior to construction to coordinate relocation or adjustments where necessary. The adjustment and relocation of any utilities would be handled so that no substantial interruptions would take place while these adjustments are being made.

Environmental Consequences of Implementing the No-Build Alternative
Under the no-build alternative, no new ROW would be acquired, thus it would not be necessary to relocate any utilities.

I. Indirect and Cumulative Impacts

1. Indirect Effects

According to the CEQ definition, indirect effects are those "caused by an action and occur later in time or farther removed in distance, but are still reasonably foreseeable" (40 CFR 1508.8). Indirect effects "may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems" (40 CFR 1508.8). Indirect effects were assessed based on guidance described in the Transportation Research Board's (TRB) NCHRP *Report 466: Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects*.

The FHWA generally describes consequences of an action as falling under two broad categories: direct and indirect. Indirect effects differ from direct effects, which are associated with the construction and operation of the proposed project and are "caused by the action and occur at the same time and place" (40 CFR 1508.8). Direct effects, as discussed in previous sections as well as in the Cumulative Impacts section of this EA, would not or could not occur without implementation of the proposed project.

Examples of indirect effects could include the following:

- Development and land use changes due to improved access;
- Runoff increases due to changes in land use and increased development on land surrounding the proposed facility;
- Increased sedimentation of wetlands and streams and decreased water quality due to induced land use changes; and
- Loss of vegetative communities and decreased habitat value in areas of increased land development spurred by the proposed project.

A variety of quantitative and qualitative methods such as ArcMap GIS files, city land use plans, conversations with city planners, and review of planning websites and documents were used to determine possible indirect effects that may occur with implementation of the proposed project. In addition to mapping and quantitative computations, qualitative information was obtained from the City of Fort Worth's *Transportation Gap Analysis*, the City of North Richland Hills *Loop 820 Corridor Plan*, the City of Haltom City's *Comprehensive Land Use Plan*, CEQ, NEPA, and FHWA guidance papers and regulations, and the EA. Based on this methodology, resource specific indirect effects were identified and are discussed in the following sections.

a) Land Use

Indirect land use was analyzed using the NCHRP project 25-25 (22) – *Forecasting Indirect Land Use Effects of Transportation Projects*. Induced changes in the pattern of land use may occur with improved access along the project corridor, at interchanges [such as IH 35W, Beach Street, Haltom Road, U.S. 377 (Denton Highway), Rufe Snow Drive, SH 26, and SH 121], and along frontage roads. Additionally, land use changes within the project area, which is defined as the area of potential effect immediately adjacent to the project corridor, would likely include the redevelopment of already developed areas, specifically in North Richland Hills, as well as the conversion of undeveloped land to commercial and residential uses, particularly in Fort Worth and Haltom City.

The indirect effects of this process of conversion are likely to be most notable in the western portion of the study area where undeveloped land abutting the project corridor is planned for the development of commercial uses such as restaurants, hotels, and office buildings as well as residential subdivisions. Based on existing land use, as compared to the City of Haltom City's *Future Land Use Map*, an estimated 263 acres of undeveloped land within the project area would be converted to either multi-use buildings, including retail, office and service commercial properties or quasi-public land use, which includes facilities such as schools, churches, and hospitals. According to City Engineer/Public Works for the City of Haltom City, the widening of IH 820 would facilitate plans for growth, development, and redevelopment within the vicinity of the project.

According to the Fort Worth *Transportation Gap Analysis*, "future growth outside of the Central City is projected to consist primarily of suburban and urban residential densities," which includes the proposed project. Based on existing land use within Fort Worth, an estimated 305 acres of the undeveloped land within the project area would be converted to either urban or suburban residential use.

Within the eastern portion of the project area, which encompasses the City of North Richland Hills, Exhibits 3b, 3c, and 3d shows the land use characteristics typical of development along an established major highway with a variety of uses including commercial, light industrial, residential, and parks/open space. The *Loop 820 Corridor Plan* depicts a limited amount of land that is currently undeveloped or not already planned for development and shows changes in the pattern of land use that may occur with implementation of the proposed project. Although land use adjacent to the project corridor is changing slowing, implementation of the proposed project would likely facilitate the redevelopment of already developed areas and the conversion of undeveloped land (which accounts for approximately 81 acres within the project area) to commercial use. According to the *Loop 820 Corridor Plan*, the "revitalization of the land uses along the major corridor will concentrate on reinventing existing shopping centers and commercial strip centers."

b) Water Quality

Future increases in stormwater runoff levels, non-point source pollution, and effects to groundwater associated with projected regional and local development are currently occurring and are expected to continue; however, appreciable differences are anticipated with the Build Alternative. The network of future roadways and subdivision streets, in conjunction with the proposed project, would

contribute to increased runoff as impermeable surface areas increase. The density and type of future development within the study area would contribute to the overall changes in runoff.

c) Waters of the U.S., including Wetlands

Changes in land use and related effects on wetlands and waters of the U.S. are currently occurring and are expected to continue. New induced development and corresponding excavation or increases in stormwater flow could encroach upon and/or affect aquatic resources by changing vegetation/wildlife habitat or hydrology and therefore, potentially the size, functions, or value of the resources. With construction of the Build Alternative, these impacts would be greatly accelerated as growth and development occurs.

d) Vegetation

Changes in land use and related effects on vegetative communities are currently occurring and are expected to continue; however, the impacts of the indirect effects would be greatly accelerated under the Build Alternative as growth and development occurs. New induced development and associated roadway construction could result in the clearing of prairies and grassland, as well as the fragmentation of habitat. The proposed project would indirectly affect undeveloped land (which accounts for approximately 35 percent of the existing land use) or potential wildlife habitat.

e) Environmental Justice

The environmental justice community, as a subset of the larger study area community, would experience indirect effects that mirror those of the general population. Low-income populations would experience greater impacts from proposed project which includes a managed/HOV system; however, impacts relating to the economic impacts of tolling on environmental justice populations are considered a direct effect and have been addressed in Section VII.G.

Indirect effects pertaining to air quality, access to public facilities and services, traffic operations, and traffic noise would be experienced by the environmental justice population. However, the proposed project would not result in disproportionate or adverse effects on environmental justice populations.

f) Air Quality

Less congestion along the IH 820 corridor would result in fewer cars traveling at lower speeds or in idling conditions for shorter period of time during peak periods, resulting in less fuel combustion, and lower idling emissions. Because traffic would be moved closer to receptors from the widening and addition of managed lanes to IH 820, potential exist for localized increase of mobile source emissions (including MSATs) along the proposed project.

g) Regional Toll and Managed/HOV System

The current regional network for roadways, priced facilities (i.e., toll, HOV/managed), and passenger rail is expected to increase by 2030. Exhibits 12a through 12c obtained from the 2030 MTP show the proposed roadway, priced facilities, and passenger rail for the region in 2030. For the roadways system, the 2007 transportation network for DFW (calculated in mainlane lane-miles) consist of 4,397 lane-miles. Of the total system, 434 of the lane-miles are tolled (approximately 11 percent). The anticipated 2030 transportation network for DFW would consist of approximately 8,569 mainlane lane-miles, which 30 percent (approximately 2,542 lane-miles) are tolled. Table 24 list the priced facilities included in the 2030 MTP and when they are expected to be open to traffic. These projects include the construction of new location toll roads, the addition of managed HOV lanes, and the expansion of existing toll facilities. Exhibits 12d through 12f show the priced facility system listed in Table 24 for the projected years of 2015, 2025, and 2030.

TABLE 24. FUTURE PRICED FACILITIES			
Roadway	**Location**	**Responsible Agency**	**Work Planned**
Open to Traffic by 2015			
Dallas North Tollway	Parker Road to Royal Lane	NTTA	Expand existing toll road
IH 30 – Dallas County	SH 161 to IH 35E	TxDOT-Dallas	Add managed HOV lanes
IH 30 – Tarrant County	Cooper Street to Ballpark Way	TxDOT-Fort Worth	Add managed HOV lanes
IH 35E	IH 635 to Loop 12	TxDOT-Dallas	Add managed HOV lanes
IH 35E – "Northern Link"	FM 407 to PGBT	TxDOT-Dallas	Add managed HOV lanes
IH 35W	SH 170 to IH 30	TxDOT-Fort Worth	Add managed HOV lanes
IH 635	Luna Road to US 75	TxDOT-Dallas	Add managed HOV lanes
IH 820	SH 121/SH 183 to SH 121/SH 10	TxDOT-Fort Worth	Add managed HOV lanes
Loop 9	US 287/Outer Loop to IH 20/SH 190	TxDOT-Dallas	New toll road
Loop 12	IH 35E to SH 183	TxDOT-Dallas	Add managed HOV lanes
President George Bush Turnpike	IH 35E to SH 78	NTTA	Expand existing toll road
President George Bush Turnpike (Eastern Extension)	SH 78 to IH 30	NTTA	New toll road
SH 114	SH 121 (West) to International Parkway	TxDOT-Fort Worth	Add managed HOV lanes
SH 121	IH 820 to Minnis Road	TxDOT-Fort Worth	Add managed HOV lanes
SH 121	SH 183 to IH 820	TxDOT-Fort Worth	Add managed HOV lanes
SH 121	IH 30 to US 67	NTTA	New toll road
SH 121 – Collin County	US 75 to Hillcrest Road	TxDOT-Dallas	New toll road
SH 161	SH 183 to IH 20	TxDOT-Dallas	New toll road
SH 161/SH 360 Toll Connector	SH 161 to Sublett Road (SH 360)	TxDOT-Dallas & TxDOT-Fort Worth	New toll road
SH 170	SH 114 to US 81/US 287	NTTA	New toll road
SH 183	SH 121 to SH 161	TxDOT-Fort Worth	Add managed HOV lanes
SH 360 (toll road)	Sublett Road to US 287	NTTA	New toll road
Trinity Parkway	IH 35E to IH 45/US 175	NTTA	New toll road
US 75 – Collin/Dallas County	SH 121 (South) to Exchange Parkway	TxDOT-Dallas	Add managed HOV lanes
US 75 – North Collin County	SH 121 (North) to SH 121 (South)	TxDOT-Dallas	Add managed HOV lanes
Open to Traffic by 2025			
Dallas North Tollway	FM 121 to US 380	NTTA	New toll road
IH 20/US 287	IH 820 to Sublett Road (US 287)	TxDOT-Fort Worth	Add managed HOV lanes
IH 30	IH 35E to Bobtown Road	TxDOT-Dallas	Add managed HOV lanes

TABLE 24. FUTURE PRICED FACILITIES			
Roadway	**Location**	**Responsible Agency**	**Work Planned**
IH 30 – Tarrant County	IH 820 to Cooper Street	TxDOT-Fort Worth	Add managed HOV lanes
IH 30 – Tarrant County	Ballpark Way to SH 161	TxDOT-Fort Worth	Add managed HOV lanes
IH 35	Outer Loop (FM 156) to IH 35E/IH 35W	TxDOT-Dallas	Add managed HOV lanes
IH 35E	SH 183 to IH 20	TxDOT-Dallas	Add managed HOV lanes
IH 35E "Northern Link"	FM 2181 to FM 407	TxDOT-Dallas	Add managed HOV lanes
IH 35E "Northern Link"	PGBT to IH 635	TxDOT-Dallas	Add managed HOV lanes
IH 35W	IH 35/IH 35E to SH 170	TxDOT-Dallas	Add managed HOV lanes
IH 635	US 75 to IH 30	TxDOT-Dallas	Add managed HOV lanes
IH 820/US 287	US 287 to IH 820 (US 287)	TxDOT-Fort Worth	Add managed HOV lanes
Loop 12	SH 183 to Spur 408	TxDOT-Dallas	Add managed HOV lanes
Outer Loop (Eastern Subregion)	IH 20/Loop 9 to IH 30	TxDOT-Dallas	New toll road
Outer Loop (Eastern Subregion)	US 75 to IH 35	TxDOT-Dallas	New toll road
President George Bush Turnpike	Belt Line Road to IH 635	NTTA	Expand existing toll road
SH 114 – Dallas County	SH 121 to SH 183	TxDOT-Dallas	Add managed HOV lanes
SH 170	SH 199/Outer Loop to US 67	NTTA	New toll road
SH 183	SH 161 to IH 35E	TxDOT-Dallas	Add managed HOV lanes
SH 190	IH 30/PGBT to IH 20/Loop 9	NTTA	New toll road
SH 360	Outer Loop to FM 2258	TxDOT-Dallas	New toll road
SH 360 (toll road)	US 287 to Outer Loop/Loop 9	NTTA	New toll road
US 67	IH 35E to FM 1382	TxDOT-Dallas	Add managed HOV lanes
US 67 – Dallas/Ellis County	FM 1382 to Loop 9	TxDOT-Dallas	Add managed HOV lanes
US 80	IH 30 to Belt Line Road	TxDOT-Dallas	Add managed HOV lanes
Open to Traffic by 2030			
IH 635	US 80 to IH 20	TxDOT-Dallas	Add managed HOV lanes
Outer Loop (Eastern Subregion)	IH 30 to US 75	TxDOT-Dallas	New toll road
Outer Loop (Western Subregion)	SH 199 to US 287/Loop 9	TxDOT-Fort Worth	New toll road

The expanding roadway network, including priced facilities, would cause indirect and/or cumulative impacts to the region. Because of the regional nature of these impacts, the proposed impacts would be better discussed at the regional level. The discussion of the expansion of the priced facility component of the system is discussed in the cumulative impacts section.

2. Cumulative Impacts (Project Level Analysis)

As addressed by the CEQ (40 CFR 1508.7), cumulative impacts are defined as "the impact on the environment which results from the incremental impact of an action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." This analysis follows the requirements and processes outlined in TxDOT's *Guidance on Preparing Indirect and Cumulative Impact Analyses* (2006) as well as 23 CFR 771, the FHWA Technical Advisory T 6640.8A (1987), the CEQ handbook *Considering Cumulative Effects Under the National Environmental Policy* (1997), *Questions and Answers Regarding the Consideration of Indirect and Cumulative Impacts in the NEPA Process*, CEQ's Memorandum, *Guidance on the Consideration of Past Actions in Cumulative Effects Analysis* (2005), and the California Department of Transportation (Caltrans) *Guidance for Preparers of Indirect and Cumulative Impact Assessments* (2005).

While FHWA position papers and technical guidance require that cumulative impacts be evaluated, the agency recognizes that there is no standard approach or methodology, area of effect, or predefined impact categories. For this particular project, a variety of quantitative and qualitative methods such as ArcMap GIS files, available comprehensive land use plans, and planning websites and documents were used in this cumulative impact analysis.

Methods

Based on TxDOT's *Guidance on Preparing Indirect and Cumulative Impact Analyses*, Table 25 shows the eight-step approach was used to identify and evaluate potential cumulative impacts of the proposed project in combination with other past, present, and reasonably foreseeable actions.

TABLE 25. GUIDELINES FOR IDENTIFYING AND ASSESSING CUMULATIVE IMPACTS

Step	Guidelines
1	Identify the resources to consider in the analysis.
2	Define the study area for each affected resource.
3	Describe the current health and historical context for each resource.
4	Identify direct and indirect impacts that may contribute to a cumulative impact.
5	Identify other reasonably foreseeable actions that may affect resources.
6	Assess potential cumulative impacts to each resource.
7	Report the results.
8	Assess and discuss mitigation issues for all adverse impacts.

Source: TxDOT 2006.

(i) Step 1. Identify resources to consider in the analysis

Step 1 requires the identification of resources/issues associated with the proposed project that may result in cumulative impacts. The proposed project was reviewed to gather input on substantial issues in the project area, which was determined through scoping with federal, state, and local agencies, and for input on the proposed project and issues of concern as provided at past public meetings. The Study Team used this information to identify resources/issues to consider in this

cumulative impact analysis and to evaluate the potential for cumulative impacts to all project resources and issues.

TxDOT guidance states that "if a project will not cause direct or indirect impacts on a resource, it will not contribute to a cumulative impact on the resource." Therefore, if the proposed project would not have a direct or indirect impact on a resource, then that resource would not be carried forward for detailed cumulative impact analysis. Furthermore, this analysis "should focus on 1) those resources substantially impacted by the project, and 2) resources currently in poor or declining health or at risk even if the project impacts are relatively small."

The results of the Step 1 evaluation identified four major resources/issues that warrant more detailed discussion. These include:

- Land Use
- Water Quality
- Waters of the U.S., including Wetlands
- Vegetation
- Environmental Justice
- Air Quality

(ii) Step 2. Define the study area for each resource

For the purpose of assessing cumulative impacts, Step 2 identifies the geographic extent of the resource study area (RSA) and the temporal RSA considered in this cumulative impact analysis.

Geographic Resource Study Area (Project Level Analysis)

Land Use: The cumulative impact RSA for land use was developed by the Study Team by identifying an area of influence (AOI) where potential cumulative impacts could occur. The RSA is dependent on the AOI which was determined to be an irregular shaped polygon made up of similar roadways as the proposed project benefiting traffic along the project (see Exhibit 1a). Therefore, the cumulative impact RSA for land use is generally located within the Cities of Fort Worth, Haltom City, and North Richland Hills and bordered by Watauga Road to the north, SH 26/U.S. 377 to the south and east, and IH 35W to the west.

Water Quality: The cumulative impact RSA for water quality was developed by the Study Team by identifying the watersheds that intersect the project corridor. The RSA for water quality includes the Lower West Fork, Big Fossil Creek, and Trinity River Basin Watersheds.

Since the late 1980s, watershed organizations, tribes, and federal and state agencies have moved toward managing water quality by using a watershed approach. In Texas, the TCEQ manages the Water Pollution Control Program, the primary regulatory program to maintain, restore, and enhance water quality, by watershed.

Furthermore, the Big Fossil Creek Watershed, located in northern Tarrant County, encompasses 73 square miles and drains into the West Fork of the Trinity River. This area is one of the fastest growing urban areas in the country and the trend is expected to continue. The Trinity River Common Vision program is a nationally recognized cooperative program to provide a safe, clean, enjoyable, natural, and diverse Trinity River to benefit all DFW region. It is a joint program that includes the NCTCOG, and USACE to act on behalf of local governments, to address the impacts from the explosive growth that makes the creek corridor increasingly vulnerable to flooding and other priority issues. These programs and initiatives are based on the protection of watersheds and

water quality as an important regional resource that affects the overall public safety, quality of life, and welfare or residents in each particular watershed.

Waters of the U.S., including Wetlands: The cumulative impact RSA for waters of the U.S., including wetlands, was developed by the Study Team using the watershed approach. Watersheds were used to establish the wetlands study area boundary because effects to wetlands can affect the overall health of a watershed. Wetlands are important elements of a watershed because they serve as the link between land and water resources. This link has been demonstrated in practice by resource agency requirements for compensatory mitigation for wetland effects within the same watershed whenever possible. Effects to wetlands can greatly affect watershed health because wetlands are directly connected to watershed hydrology through sheet flow or direct hydrologic connections. Collectively, wetlands provide many watershed benefits, including pollutant removal, flood storage, wildlife habitat, groundwater recharge, and erosion control. The RSA for wetlands includes the Lower West Fork, Big Fossil Creek, and Trinity River Basin Watersheds.

Vegetation: The geographic area considered for vegetation incorporates two vegetation types as described in *The Vegetation Types of Texas*. The majority of the project area is described as Urban (46) with the most western portion of the project area described as Crops (44). Croplands occur throughout the state and include cultivated cover crops or row crops, which provide food and/or fiber for either man or domestic animals. This vegetation type may also include grassland associated with crop rotations.

Environmental Justice

The RSA for environmental justice is the nine counties found within the NCTCOG MPA (Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, and Tarrant Counties). Evaluating environmental justice as a resource can consist of several elements including: air quality, traffic operations, traffic noise, socio-economic impacts, and lighting/visual impacts.

Air Quality

Air quality associated with the NAAQS are addressed at a regional level for transportation conformity. Transportation conformity is determined as the entire ozone non-attainment area comprised of nine counties (Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Tarrant, and Rockwall). Therefore, the RSA is the DFW nine-county, non-attainment area for air quality (MSATs, ozone, and carbon monoxide).

Temporal Resource Study Area

The CEQ definition (40 CFR 1508.7) of cumulative impacts states that past conditions and activities must be considered along with present and reasonably foreseeable actions. Therefore, a temporal RSA for this cumulative impact analysis was defined and spans from 1980 to 2030. This time frame is divided almost equally between past and future; between the documentation of past effects and the prediction of future outcomes. The following sources were used to analyze the potential for cumulative impacts.

- Data sources, providing key patterns that date back to 1980, were accessible for this report.
- Demographic forecasts and local comprehensive plans are available up to 2030, which represents the furthest extent of transportation and land use planning efforts available for future activity.
- Available information on development plans and population trends is provided in previous sections of this EA.

Statutes, regulations, and ordinances, discussed throughout this EA, have been designed by federal, state, and local governments to ensure the sustainability of resources by requiring project sponsors to avoid, minimize, and mitigate for the environmental effects of their actions.

Although it would be ideal to identify all past, present, and reasonably foreseeable activities so their potential effects could be taken into consideration in combination with those from the proposed project, a lack of site specific details regarding such actions (i.e., type, location, magnitude, and scale) are not always comprehensively available. Therefore, potential effects from other actions were estimated based on available information from general development plans and trends. Where effects could not be quantitatively determined, potential effects were only qualitatively determined. It was found that many of the potential effects to the resources/issues considered in this cumulative impact analysis are not specifically attributable to the proposed project but are related to the indirect and cumulative impacts of urbanization and associated infrastructure, which has occurred and is occurring throughout the study area. An example of this change includes the conversion of vacant land, agricultural fields, or open space to residential, commercial, institutional, and/or industrial uses.

(iii) Step 3. Describe the current health and historical context for each resource

Patterns or activities that have contributed to the current condition of the resources/issues considered in this cumulative impact analysis would not differ greatly with the proposed project because growth and development is taking place independently, and to varying degrees, are currently occurring and are expected to continue. The health of each resource considered in this analysis is summarized in Table 25.

(iv) Step 4. Identify direct and indirect impacts that may contribute to a cumulative impact

For this analysis, the Study Team identified direct and indirect effects that could contribute to a cumulative impact (see Table 26). Additional information on the direct and indirect effects for each of the resources/issues carried forward in this cumulative impact analysis is discussed in previous sections of this EA.

TABLE 26. RESOURCE EVALUATION FOR CUMULATIVE IMPACT ANALYSIS				
Resource/Issue	**Health of Resource**	**Direct Impacts**	**Indirect Impacts**	**Project Level Cumulative Impacts**
Land Use	Changing – Within the DFW Area, the IH 820 Corridor is heavily urbanized and developed with land uses such as residential, commercial, institutional, and/or industrial uses. Development is medium high density with most development as commercial and residential. Within the RSA, a limited amount of land is currently undeveloped, specifically in Haltom City, or not already planned for development. Land would continue to be redeveloped and/or converted to residential and commercial uses as the area's population and employment levels increase.	The proposed project would convert approximately 41.93 acres of existing land use and undeveloped property to transportation uses. In addition, the project would improve access in the immediate project area and regionally.	Induced changes in land use may occur from improved local access along the project corridor and at intersections (such as Holiday Lane, Rufe Snow Drive, Industrial Boulevard, U.S. 377, and SH 26) and along frontage roads. Land use changes would also include the redevelopment of business establishments in commercial areas as well as the conversion of undeveloped land to commercial and residential uses. Approximately 649 acres of undeveloped land abutting the proposed project is planned for development (retail, commercial, light industrial, residential, public facilities, and parks/open space), as depicted in the Cities of Haltom City, Fort Worth, and North Richland Hills future land use plans. Indirect development within the RSA would be consistent with all local and state government plans and policies.	The change of land use from undeveloped to other land uses (including additional transportation uses as listed in Table 27) could contribute to the long-term decline in the health of natural resources, as many natural resources are incompatible with developed land. Supportive infrastructures (sewer and water) can be expected to expand and impervious surfaces would increase resulting in additional challenges to stormwater management. Over the planning period of this project, these changes are anticipated to represent a small portion of available land.

TABLE 26. RESOURCE EVALUATION FOR CUMULATIVE IMPACT ANALYSIS				
Resource/Issue	**Health of Resource**	**Direct Impacts**	**Indirect Impacts**	**Project Level Cumulative Impacts**
Water Quality	Improving – According to the TCEQ Water Quality Inventory, the West Fork Trinity River, segments 0806 and 0841 within five miles downstream of the proposed project have designated uses including contact recreation, public water supply, and aquatic life. These segments have a water quality designation of "high" because of water quality standard violations and advanced waste treatment requirements. These segments are listed on the 2004 Clean Water Act Section 303(d) list as impaired due to elevated bacteria levels and PCBs in fish tissue. Several factors (including storm water runoff, municipal discharges and an increase in development and impervious surfaces) have contributed to the current condition of water quality. However, since the Clean Water Act was implemented in 1972 overall water quality has been improving nationwide.	Direct project impacts to resources that would affect water quality include impacts to the Fossil Creek floodplain as well as direct crossings of several water bodies, including Little Fossil Creek, Singing Hills Creek, Big Fossil Creek, and Calloway Branch. Project construction would result in a temporary increase in sedimentation and turbidity. Construction impacts would be minimized through the incorporation of appropriate BMPs for erosion control.	Future increases in storm water runoff levels, non-point source pollution, and effects to groundwater associated with projected regional and local development are anticipated regardless of project construction; however, appreciable differences are anticipated with the Build Alternative. The network of future roadways and subdivision streets, in conjunction with the proposed project, would contribute to increased runoff as impermeable surface areas increase. The density and type of future development within the study area would contribute to the overall changes in runoff.	Project effects to resources that would affect water quality in the short-term include effects to runoff and receiving streams during construction of future actions. The cumulative impact may also include long-term effects to wetlands and riparian areas, thereby affecting surface water quality. Over the planning period of this project, these changes are anticipated to affect a relatively small area of aquatic resources.

TABLE 26. RESOURCE EVALUATION FOR CUMULATIVE IMPACT ANALYSIS				
Resource/Issue	**Health of Resource**	**Direct Impacts**	**Indirect Impacts**	**Project Level Cumulative Impacts**
Waters of the U.S., including Wetlands	Stable – According to the Texas Environmental Almanac (1995), inland wetlands (including bottomland hardwood forests, riparian vegetation and playa lakes {shallow lakes}) account for 80 percent of the total wetland acreage in Texas. Most of the inland wetlands are on privately held properties. In the last 200 years, the state has lost over 60 percent of its most valuable inland wetlands, primarily from agriculture, timber production, reservoir construction, and urban and industrial development. Within the project area, increased development has resulted in channelization, excavation, and the filling of natural streams and wetlands.	The proposed project would affect six jurisdictional waters of the U.S. None of the crossings would affect more than 0.1 acre of waters of the U.S. or special aquatic sites including wetlands. No wetlands would be affected by the project.	A small change in land use and related effects on wetlands and waters of the U.S. would occur from the proposed project. New induced development and corresponding excavation or increases in stormwater flow could encroach upon and/or affect aquatic resources by changing vegetation/wildlife habitat or hydrology and therefore, potentially the size, functions, or value of the resources.	Continued growth and development associated with urbanization as well as new transportation facilities would bring a corresponding effect and possibly increased effect to aquatic resources. The cumulative impact would include long-term effects to waters of the U.S., wetlands, and riparian areas, thereby affecting the quality, function, and value of these resources. Over the planning period of this project, these changes are anticipated to affect a relatively small area of aquatic resources.

TABLE 26. RESOURCE EVALUATION FOR CUMULATIVE IMPACT ANALYSIS				
Resource/Issue	**Health of Resource**	**Direct Impacts**	**Indirect Impacts**	**Project Level Cumulative Impacts**
Vegetation	Declining – About 98 percent of the Blackland Prairie and 75 percent of the Oak Woods and Prairies was converted to cropland during the late nineteenth and early twentieth century. Subsequently, some of the croplands have been converted to grazing land or have been left fallow. Woody brush species or trees have since invaded a significant percentage of the tracts not in cultivation.	The proposed project would affect approximately 0.29 acre of fencerow vegetation and 0.54 acre of riparian vegetation within the existing and proposed ROW. Permanent impacts to vegetated land, primarily associated with Little Fossil Creek, would result in the removal of approximately 84 trees within the existing and proposed ROW.	New induced development and roadway construction adjacent to or near the proposed project could result in the clearing of maintained pastureland, as well as the fragmentation of habitat. The proposed project would indirectly effect undeveloped land (which accounts for approximately 35 percent of the existing land use), or potential wildlife habitat.	Reasonably foreseeable actions within the vicinity of the proposed project include linear transportation projects, including those listed in Table 27, which could potentially convert over 100 acres of land (undeveloped/ developed) to roadway ROW. Additionally, an estimated 649 acres of undeveloped land abutting the proposed project is planned for development (retail, commercial, light industrial, residential, public facilities, and parks/open space), as depicted in the Cities of Haltom City, Fort Worth, and North Richland Hills future land use plans. This undeveloped land includes several types of vegetation, such as vegetated tree line habitat, degraded pasture, and riparian vegetation. Overall, the cumulative impact of the proposed project, combined with reasonably foreseeable actions, would include the continued conversion of wooded areas, prairies, and grasslands to other uses as land development occurs. This development and other actions would also change the diversity of vegetation in areas that are currently used for cropland.

TABLE 26. RESOURCE EVALUATION FOR CUMULATIVE IMPACT ANALYSIS				
Resource/Issue	**Health of Resource**	**Direct Impacts**	**Indirect Impacts**	**Project Level Cumulative Impacts**
Environmental Justice	Changing – According to the U.S. Census Bureau and the NCTCOG, the MPA has shown an increase in the environmental justice populations. Minority populations increased from 30.8 percent to 48.2 percent and low-income populations increased from 8.8 percent to 13.2 percent from 1990 to 2005. An increase of 21.8 percent of environmental justice population occurred from 1990 to 2005.	The proposed project would not result in significant disproportionate environmental justice impacts. Although the study area contains a minority population of 35.3 percent, the project impacts would not be limited to the census blocks associated with these minority populations. Low-income populations would be impacted by toll rates, toll collection, and other matters associated with user fees.	Indirect effects pertaining to air quality, access to public facilities and services, traffic operations and traffic noise would be experienced by the environmental justice population to the same extent and in the same manner (whether positive or negative) as experienced by the general population. For these reasons, with regard to indirect effects to the proposed project would not result in disproportionate or adverse effects on environmental justice population.	Historically, TxDOT has financed projects on a “pay-as-you-go” basis, using motor fuel taxes and other revenue. The trend towards utilization of toll facilities in this region would create “user impacts” as access to highway systems becomes an issue to the economically disadvantaged. Over the long term, the increased user cost on the managed lane may make transit a more competitive option.

TABLE 26. RESOURCE EVALUATION FOR CUMULATIVE IMPACT ANALYSIS				
Resource/Issue	**Health of Resource**	**Direct Impacts**	**Indirect Impacts**	**Project Level Cumulative Impacts**
Air Quality	Improving – According to NCTCOG, the DFW area has been on of the fastest growing areas in the United States, and is expected to continue to grow. Growth often results in increase in development, including more vehicles, industrial sites, and airline travel. These sources can increase air pollution in the DFW. The DFW area is in attainment for all NAAQS with the exception of Ozone. Through programs aimed to increase alternative transportation, improve highway capacity, and EPA's rules for controlling emissions, air quality is expected to improve.	The proposed project is consistent with the MTP and the TIP as proposed by the NCTCOG. The U.S. DOT found the MTP to conform to the SIP and TIP. Project level CO emissions were below the one-hour and eight-hour standards for CO. Additionally, CO was shown to decrease from 2013 to 2030. Because traffic would be moved closer to receptors from the proposed project, potential exist for localized increase of mobile source emissions (including MSATs) along the proposed project. On-road MSAT, VOC, NOx, and CO emissions are anticipated to decrease over time due to the implementation of EPA regulations to improve vehicle technology and fuel. The six priority MSAT emissions were shown to decrease for future projections.	Less congestion along the IH 820 corridor would result in fewer cars traveling at lower speeds or in idling conditions for shorter period of time during peak periods, resulting in less fuel combustion, and lower idling emissions.	Air quality cumulative impacts associated with transportation projects are addressed at the regional level by analyzing the air quality impacts in the MTP *Mobility 2030* and the fiscal year 2008-2011 TIP. The U.S. DOT is responsible for determining conformity of the MTP and TIP with local air quality goals as presented in the SIP. The SIP addresses how each state will comply with NAAQS and must be submitted by state governments that contain areas that are in nonattainment. The IH 820 project appears in the MTP and the TIP and has been determined to conform to the SIP. Section IV.D demonstrates the IH 820 project would be incompliance with federally established air quality standards. The EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions of on-road emissions, including MSAT, CO, and ozone precursors.

(v) Step 5. Identify other reasonably foreseeable actions that may affect resources
Reasonably foreseeable actions are those that are likely to occur, or are probable, rather than those that are merely possible. Reasonably foreseeable actions within the vicinity of the proposed project include linear transportation projects that could potentially affect the same resources as the project. These actions are summarized in Table 27.

Several sources including city land uses plans, conversations with city planners, and planning websites, were reviewed to identify reasonably foreseeable development plans within the project vicinity. Through conversation with the City Engineer/Public Works for the City of Haltom City and review of the North Richland Hills *Loop 820 Corridor Plan*, it is anticipated that the proposed project would be used to acquire specific development and re-development plans within the communities surrounding the project area and along IH 820. However, no known "reasonably foreseeable" plans or platted developments for projects such as industrial developments, retail/commercial centers, or residential subdivisions were identified for this analysis.

TABLE 27. LIST OF ACTIONS BY FEDERAL, STATE, AND LOCAL AGENCIES/OTHER INTERESTS

Action	Type of Action
Tarrant County	
SH 183 (Airport Freeway) from IH 820 to SH 360	Widen to three general purpose lanes in each direction with three managed (toll) lanes in each direction for a total of 12 lanes with frontage roads for future traffic volumes.
SH 183 (Airport Freeway) from SH 360 to SH 161	Widen to four general purpose lanes in each direction with three managed (toll) lanes in each direction for a total of 14 lanes with frontage roads for future traffic volumes.
IH 35W from IH 30 to SH 170	Widen to three/four general purpose lanes in each direction, along with two/three managed (toll) lanes in each direction in the median.
IH 820 East Corridor: SH 121/SH 183 to SH 121/SH 10	Reconstruction of the south interchange with SH 121. IH 820 would be widened and upgraded to 10 lanes with auxiliary lanes supplementing the freeway where needed. Continuous frontage roads and a single managed (toll) lane would be provided.
IH 820/U.S. 287 Southeast Corridor: IH 820 from Meadowbrook Drive to IH 20 and IH 20 from IH 820 to U.S. 287	Improvements include four lanes in each direction from Meadowbrook Drive to U.S. 287 with three-lane frontage roads in each direction, and five to six lanes in each direction from U.S. 287 to IH 20 with three-lane frontage roads in each direction and two-lane reversible managed (toll) lanes.
IH 820 from Beach Street to U.S. 377 (Denton Highway)	Construction of backage roads along the south side of IH 820
Other Actions	
City of Haltom City *Future Land Use*	An estimated 263 acres of undeveloped land within the project area would be converted to either multi-use buildings, including retail, office and service commercial properties or quasi-public land use, which includes facilities such as schools, churches, and hospitals.
City of Fort Worth *Future Land Use*	An estimated 305 acres of the undeveloped land within the project area would be converted to either urban or suburban residential use.
City of North Richland Hills *Future Land Use*	An estimated 81 acres of the undeveloped land within the project area would be converted to shopping centers and commercial strip centers.

Source: NCTCOG – Mobility 2030 MTP. NCTCOG – 2008-2011 Transportation Improvement Program 2007. Haltom City Comprehensive Land Use Plan 2002. Kimley-Horn Fort Worth Transportation Gap Analysis 2004. Kimley-Horn City of North Richland Hills, Loop 820 Corridor Plan 2005.

Effects from the actions listed in Table 27 were quantitatively determined if information from general development plans were available. However, site specific details are not always available for the time period covered by this analysis, specifically for transportation projects. Where effects could not be quantitatively determined, potential effects were only qualitatively assessed based on available information. Overall, it was found that effects from the reasonably foreseeable actions could include the following:

- The conversion of vacant and unused agricultural land for residential, commercial, institutional, industrial, and/or recreational use;
- Potential temporary and permanent degradation or loss of water resources from surface runoff;
- A change in the economic and social environment due to increased employment and housing opportunities;
- An increase in usage of park and recreational activities related to development; and
- Potential degradation of habitats and wildlife populations from construction and ongoing operation.

(vi) Step 6. Assess potential cumulative impacts to each resource and the results

The analysis on the potential for cumulative impacts to each specific resource category of interest is summarized in Table 25.

(vii) Step 7. Report the results

Land Use: With respect to the proposed project, direct impacts include the acquisition of 41.93 acres of land for the construction of the proposed widened roadway, interchanges and frontage roads, including land that is primarily undeveloped. As shown in the land use plans for the Cities of Fort Worth and Haltom City, a majority of the land surrounding the communities is currently undeveloped (approximately 568 acres) and planned for the future development of retail, commercial, light industrial and residential uses, public facilities, and parks/open space. In the City of North Richland Hills, land use changes would likely include the conversion of undeveloped land (which accounts for approximately 81 acres within the project area) to shopping centers and commercial strip centers as well as the redevelopment of already developed areas currently surrounding the project corridor.

Future patterns of residential and commercial growth could be concentrated around the Cities of Haltom City, Fort Worth, and North Richland Hills due to improved access between arterial streets and the communities. However, as urbanization continues, additional roadways needed to service new developments would require ROW from surrounding uses. Major thoroughfares planned for and anticipated by state and local governments (such as those depicted in Table 26) would likely encourage the intensification of land uses adjacent to the arterial streets. Although changes to land use would likely include the redevelopment of already developed areas as well as the conversion of undeveloped land to commercial and residential uses, it is not anticipated that substantial induced changes in the pattern of land use, population density or growth rate would occur from implementation of the proposed project.

Water Quality: Local and regional governments (including Tarrant County as well as the Cities of Fort Worth, Haltom City, and North Richland Hills) include the management of stormwater (SW3P) in their comprehensive planning efforts to control the discharge of pollutants. As urbanization in the project area continues at its current and projected rate and new roadway projects are constructed, stringent requirements for stormwater management as well as BMPs are enforced to prevent cumulative impacts on water quality and quantity.

With appropriate implementation of regulation and control strategies, as discussed in more detail in the Water Quality section of this EA, it is expected that future potential effects to the areas water quality would be substantially reduced. The proposed project would not contribute to significant cumulative impacts to the area's water quality.

Waters of the U.S., including Wetlands: Cumulative impacts to waters of the U.S., including wetlands, would include direct and indirect effects to the resource as discussed in Step 4, as well as effects caused by projects identified in Table 27. The most common cause and effect issue is land conversion from wetlands to other uses, primarily urban/developed land. As a result of such development, stresses on wetlands may include water quality effects, changes in water levels, and overall effects from urban development.

Effects to wetlands from construction and associated indirect development would be limited based on the current regulations as well as compensatory mitigation required from the USACE for wetland effects. Because of the federal mandate with regard to wetlands, "no net loss" of wetlands from future proposed land use would be anticipated. The proposed project would not contribute to significant cumulative impacts to the area's wetlands and waters of the U.S.

Vegetation: Cumulative impacts to vegetative communities would include direct and indirect effects to vegetation as discussed in Step 4, as well as effects caused by projects identified in Table 27. The conversion of vegetative communities to developed land primarily results from population and employment growth. Even without implementation of the proposed project, as Texas continues to grow, the conversion of vegetation to accommodate development would likely continue due to population and employment growth. Transportation projects may influence land conversion by inducing development in some locations.

Environmental Justice: Cumulative impacts to environmental justice populations would include direct and indirect effects to environmental justice populations as discussed in Step 4, as well as effects caused by projects identified in Table 27. Low-income populations will be affected from the proposed project due managed lanes as part of the project. Even without the implementation of the proposed project, the emerging tolling network in the DFW area would contribute more toll road lane-miles and would contribute to the impacts to low-income populations. Over the long term, as the toll network develops, the increased user cost may make transit a more competitive option. The proposed project would not contribute to significant impacts to environmental justice populations.

Air Quality: Air quality cumulative impacts are addressed at the regional level through the MTP and 2008-2011 STIP. The project is in the MTP and 2008-2011 STIP and is found to conform to the SIP. The EPA's vehicle and fuel regulations, coupled with fleet turnover, will cause substantial reductions of on-road emissions, including MSAT, CO, and ozone precursors. The proposed project would not contribute to significant cumulative impacts to the area's air quality.

(viii) Step 8. Assess and discuss mitigation issues for all adverse impacts

Consideration of potential mitigation measures, as specified in 40 CFR 1508.20, for this project included:

- Avoiding the impact altogether by not taking a certain action or parts of an action;
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and

- Compensating for the impact by replacing or providing substitute resources or environments.

Potential mitigation measures for all project resources have been discussed in Section VII of this EA. Step 8 of this cumulative impact analysis provides a general discussion of potential mitigation measures for those resources carried through this process.

Land Use: The proposed project was developed to be consistent with state and local government plans and policies on land use and growth within the project area. The project crosses three municipalities: the City of Fort Worth, the City of Haltom City, and the City of North Richland Hills. The City of Forth Worth identified their portion of the IH 820 corridor as consistent with their proposed future land use in their *2008 Comprehensive Plan* ranking the corridor in the highest group of compatibility (one to 15 percent incompatible with future land use plans). The City of Haltom City in their *Comprehensive Land Use Plan, 2002*, shows the future land use of the IH 820 corridor as office/commercial and quasi-public. Land use along the corridor is consistent with this plan. An additional objective for the IH 820 corridor for the City of Haltom City is the development of additional access and frontage roads along IH 820. The proposed project would expand the frontage road system to be continuous (with the exception at the FWWR) and provide additional access to properties within the corridor. The City of North Richland Hills *2007 Comprehensive Plan Update* has an entire section devoted to the IH 820 corridor. The specific IH 820 Corridor Plan was developed in 2005 and was based on the current proposed IH 820 improvements. The IH 820 Corridor Plan referenced numerous objectives included design elements, landscaping, signing, and current land use district enhancements. The plan states the continual coordination with the City of North Richland Hills and TxDOT to ensure a cooperative effort to improve the IH 820 corridor.

Direct land use effects were mitigated through avoidance and minimization. Such effects include reduction of vegetative communities, including forests and pastureland. Potential activities to minimize the effects to vegetative or undeveloped habitats from construction include: minimizing devegetation of the construction area wherever safety allows, decreasing the amount of fill placement, and implementation of BMPs, including an erosion and sedimentation control plan. Specific impact minimization to wetland, floodplain, and stream areas may include: the roadway design; the use of retention basins and revegetated swales to minimize runoff, sedimentation, turbidity, leaching of soil nutrients, and leaching of chemicals from petroleum products, pavement, and waste material; and maintaining flow patterns to ensure wetland hydrology in spite of roadway design requirements. Indirect effects to land use would be similar to that of the direct project effects, but would occur throughout the project area. As TxDOT and FHWA do not have the authority to implement zoning or planning regulations, mitigation for cumulative impacts to land use, redevelopment, or continued conversion of undeveloped land to developed land would require the collaborative efforts of local, county, and regional planners, the public, and private developers. These parties all have a stake in the ultimate landscape in which they reside and only proactive, cooperative interactions would provide the optimum blend of natural and developed communities.

Wetlands and Vegetation: Construction activities associated with the proposed project would directly affect aquatic systems to varying degrees. Land clearing during construction activities would remove vegetative cover. These activities may increase surface runoff during storm events and could lead to erosion. If runoff is allowed to flow into streams without erosion and sediment control measures, increased turbidity and sedimentation may modify water chemistry due to elevated levels of sediments, nutrients and pollutants, which would also diminish suitable habitat for aquatic species, including littoral zone plants. To aid in minimizing such effects, placement and monitoring of erosion control measures at the start of, during, and after construction would be incorporated into project plans according to SW3P guidelines. In addition, the proposed project

operates within a Municipal Separate Storm Sewer System (MS4) (Phase I and Phase II) area; therefore, a Phase II MS4 Permit is required for construction activity and the contractor would need to coordinate the proposed project with the appropriate MS4 operator and the TCEQ prior to any discharge into the MS4 system. Revegetation along the project ROW would adhere to TxDOT revegetation guidelines. Indirect and cumulative impacts to aquatic resources would be similar.

Effects to waters of the U.S., including wetlands, whether direct, indirect or cumulative, are regulated through the USACE Section 404 permit process. Natural resource agencies (including TPWD, USFWS, USACE, EPA, and TCEQ) would be involved in decisions regarding appropriate wetland mitigation ratios and the location, size, and character of the mitigation. A compensatory mitigation plan would be submitted to the USACE as part of the Section 404 permit review process, if required.

Environmental Justice: The proposed IH 820 project would not result in disproportionately high and adverse effects on minority and low-income populations when considering overall and system-level impacts; therefore, according to Executive Order 12898 regulation, mitigation associated with environmental justice is not currently proposed. Through the excess toll revenue that could be generated from the proposed IH 820 project, other transportation projects, including transit, could be programmed to benefit environmental justice populations. Transit options throughout the area could support and/or serve environmental justice populations in addition to serving the general population. Environmental justice populations may utilize these facilities and services. Transit options could reduce transportation cost to environmental justice populations utilizing the expanding toll road and managed/HOV lane system.

Air Quality: The evaluation for direct, indirect, and cumulative impacts from the proposed IH 820 project did not result in the identification of any negative impacts for which specific mitigation actions are necessary and required. A potential for localized degradation of air quality could occur from the movement of traffic closer to sensitive receptors. In an effort to reduce congestion, TxDOT and NCTCOG would continue to promote appropriate congestion reduction strategies through the CMAQ program, CMP, and the MTP. Overall, current federal, state, and local regulatory controls as well as local plans and projects have had, and will continue to have a beneficial impact to regional air quality.

Summary: The magnitude and significance of negative cumulative impacts are expected to be limited and controllable. Efforts have been made to avoid and minimize project effects to all resources during the alternative alignment development phase of the project. Mitigation measures would be implemented where practicable. When project alternatives were developed, several environmental issues were considered that influenced the location of the proposed alignment including the potential for involvement with Section 4(f) and 6(f) resources, avoiding and minimizing the filling of wetlands and floodplains, and sensitive biological communities. Other factors affecting the proposed project were also studied including compatibility with local land use plans/policies, housing and business displacements, socioeconomic issues, and community interests. The alternatives evaluation process was based on the philosophy of avoidance first, minimization second and mitigation last. Project-specific commitments and conditions of approval, including resource agency permitting, compliance, and monitoring requirements, are stated in Section VII of this EA. Mitigation monitoring would be conducted by TxDOT and other appropriate federal, state, and local agencies to ensure compliance with agreed upon mitigation measures.

Indirect and Cumulative Conclusion
Tarrant County and the Cities of Fort Worth, Haltom City, and North Richland Hills have experienced a substantial increase in growth over the last few years. This growth, accompanied by increased population density in Tarrant County as well as substantial increases in motor vehicle numbers utilizing present transportation facilities, is anticipated to continue through the year 2030 and beyond. Local and regional government agencies continue to plan for this growth and have adopted various land use and transportation plans for the area, such as the DFW MTP (Mobility 2030). These plans document consideration of the benefits and negatives effects of land development and prescribe patterns of development that are conducive to the goals of the community. Through zoning regulations, the entities can control the intensification of development and protection of agricultural land and open space from further development. Local transportation facilities are also guided by the comprehensive plans and are evaluated based on consistency with these plans.

At the scale of the DFW Metropolitan Area, particularly in the less developed but growing areas of Tarrant County, the proposed project, in combination with other land development and roadway projects, could result in the intensification of land use already in developed areas as well as the development of areas previously used for agricultural land and open space. These changes could affect habitat areas already under the protection of state and federal agencies. Planned roadway improvements along with improvements to existing transportation facilities would improve accessibility of these areas and eventually result in residential development, followed by commercial and industrial uses.

Rural character has been identified as a primary objective by many community comprehensive plans, which is often diminished by rapid urbanization. Without regulatory mechanisms in place (including land use controls, site plan/development controls, and off-system roadway access restrictions) to offset or minimize the adverse effects of social and economic growth, cumulative impacts could occur.

Cumulative Regional Toll and Managed/HOV System
The indirect impact section identified the need to study the impacts from the regional toll and managed/HOV lane network as it expands for the 2030 proposed transportation system. Each cumulative resource is studied from a regional perspective and addresses the impacts the proposed priced facility network would have on each resource. Because of the accessibility of data resources supplied by the NCTCOG, the RSA for the regional study is the MPA.

<u>Land Use</u>
Metropolitan areas have come under intense pressure to respond to federal mandates to link planning of land use, transportation, and environmental quality from persons concerned about managing the side effects of growth such as sprawl, congestion, housing affordability, and loss of open space. The planning models used by MPOs were not designed to address these questions, creating a gap in the ability of planners to systematically assess these issues.

The relationships between land use, transportation, and the environment are at the heart of growth management. The emerging concern that construction of new suburban highways induces additional travel, vehicle emissions, and land development, making it implausible to “build our way out” of congestion has reshaped the policy context for metropolitan transportation planning. Recognizing the effects of transportation on land use and the environment, the CAA and the Intermodal Surface Transportation Efficiency Act (ISTEA) mandated the MPOs integrate

metropolitan land use and transportation planning. Later, the Transportation Equity Act for the 21st Century (TEA-21) succeeded the ISTEA to refine this process.
The NCTCOG is promoting sustainable development as a specific objective of *Mobility 2030* because of the direct link between land use, transportation, and air quality. NCTCOG has defined sustainable development as:

- Land use and transportation practices that promote economic development while using limited resources in an efficient manner.
- Transportation decision making based on impacts on land use, congestion, VMT, and the viability of alternative transportation modes.
- Planning efforts which seek to balance access, finance, mobility, affordability, community cohesion, and environmental quality.

The essence of sustainable development is the wise use of scarce resources so that future generations may enjoy them. At the regional level, the key to maintaining sustainable patterns of development is to allow cities the option to present a variety of land use, zoning, mobility, and service packages to the development market and residents. This can be accomplished by providing planning support for a diverse range of mobility options such as rail, automobiles, bicycling, transit, and walking.

The DFW MPA is forecasted to grow to almost 8.5 million people and 5.3 million jobs by the year 2030, producing nearly a 63 percent increase in population and a 64 percent increase in employment. If not planned for and implemented in a responsible way, this type of rapid growth would have negative impacts on the region. If development continues to grow away from the urban core, the VMT would substantially rise per household, per person, and per employee. Higher densities, mixed-land uses, and increased transportation alternatives, which are characteristics of the urban core, reduce overall VMT. This leads to lower emissions of VOC and NOx, improving air quality. NCTCOG's analysis of travel patterns showed that mixing land uses has a similar beneficial impact on travel as density. There are five types that categorize all land in the DFW MPA: employment dominant, employment leaning, mixed, household leaning, and household dominant. The localized mixing and integration of land uses occur at a variety of densities in urban, suburban, and rural settings in the region.

The MTP land development policies were created by combining regional expectations with local government plans, including anticipated population growth and land use. NCTCOG relies on the information provided by municipalities as a basis for their land development policies. By understanding the municipalities' expectations, NCTCOG is better able to educate the public and municipalities on the best alternatives for regional land development. NCTCOG conducted a series of demographic sensitivity analyses scenarios to quantitatively assess the potential impacts of alternative growth scenarios on the region between 2010 and 2030. Historically, the DFW area has grown outward with new developments turning rural areas into suburban cities. Within the alternative growth scenarios presented by NCTCOG, households and employment locations were redistributed throughout the region to simulate alternative market assumptions; however the control numbers for population and employment remained the same. Table 28 is the statistics produced through the analysis of each scenario. Brief descriptions of each scenario are:

- Rail Scenario: NCTCOG redistributed population and employment growth occurring between 2010 and 2030, while maintaining the population and employment control totals for the region. Growth was taken from rural areas of the region and added primarily to passenger rail station areas.

- Infill Scenario: NCTCOG redistributed population and employment growth occurring between 2010 and 2030, while maintaining the population and employment control totals for the region. Growth was taken from rural areas of the region and added primarily to infill areas along existing freeways/tollways.
- Rail with County Control Totals (RCCT) Scenario: NCTCOG redistributed population and employment growth occurring between 2010 and 2030, while maintaining the population and employment control totals for the region and each individual county. Growth was taken from rural areas of the region and added primarily to passenger rail-oriented areas.
- Vision North Texas (VNT) Scenario: NCTCOG redistributed population and employment growth occurring between 2010 and 2030, while maintaining the population and employment control totals for the region. Growth was distributed based on overall VNT participant feedback.
- Forward Dallas Scenario: Created for the City of Dallas, NCTCOG redistributed population and employment growth occurring between 2010 and 2030 based on the final alternative demographic dataset created during the Forward Dallas! Comprehensive Plan process.

TABLE 28. ALTERNATIVE GROWTH SCENARIOS COMPARED TO HISTORICAL GROWTH MODEL

Data of Interest	Rail Scenario	Infill Scenario	RCCT Scenario	VNT Scenario	Forward Dallas!
MPA Average of Trip Length	- 8%	+ 3%	- 0.01%	- 10.85%	- 2.9%
MPA Rail Transit Boardings	+ 52%	+ 9%	+ 8%	+ 11.13%	+ 7.4%
MPA Non-Rail Transit Boardings	+ 29%	+ 11%	+ 5%	+ 15.98%	+ 11%
MPA Vehicle Miles Traveled	- 6%	- 5%	- 1.2%	- 9.43%	- 2.2%
MPA Vehicle Hours Traveled	- 9%	- 7%	- 1.7%	- 14.31%	- 5.7%
Total Vehicle Hours of Delay	- 24.0%	- 19.0%	- 4.0%	- 32.5%	- 14.5%
Lane Miles Needs	- 13.0%	- 10.0%	- 13.3%	- 30.90%	- 32.1%
Financial Needs (billions)	- $9.5	- $6.7	- $2.9	- $15.6	- $7.0
Roadway Pavement Needs	- 8.3 sq. mi.	- 6.5 sq. mi	- 0.7 sq. mi.	- 19.8 sq. mi.	- 1.6 sq. mi.
NOx Emissions	- 4.1%	- 3.9%	- 1.2%	- 8.47%	- 2.4%
VOC Emissions	- 5.3%	- 5.2%	- 1.5%	- 11.02%	- 3.0%

The results of the analysis show a strong correlation between passenger rail and VNT scenarios, both reducing the greatest amount of ozone emissions and the amount of MPA vehicle miles traveled and hours of delay.

Mobility 2030 does not pick, favor, or choose any regional land use scenario. This data is provided by NCTCOG as an educational guide for the cities and municipalities that comprise the DFW area. The alternative growth scenarios area presented as suggested alternatives the municipalities could incorporate into their land use policies in order to improve regional transportation and environmental issues. Because NCTCOG has no power to control regional growth and land development, the MTP provides these alternatives as guidance to city planers and developers as the most efficient way to grow. By presenting these options, NCTCOG's transportation goals are better served.

The RTC is an independent transportation policy body of the MPO and is comprised of elected officials representing the region's counties and municipalities as well as the region's transportations providers (DART, TxDOT, NTTA, etc.). The RTC is responsible for overseeing the 2030 MTP as it relates to transportation and creates policies for regional transportation including toll policies, managed lane policies, CDA policies, and other transportation related issues.

The RTC has taken a proactive approach to improving regional traffic congestion and air quality through its Sustainable Development Policy adopted in 2001. The RTC established basic policy directions which serve as strategies to meet finance constraints, diversify mobility, and improved air quality. The objectives of these practices are to:

- Respond to local initiatives for town centers, mixed-use growth centers, transit-oriented developments, infill/brownfield developments, and pedestrian-oriented projects.
- Complement rail investments with coordinated investments in park-and-ride, bicycle, and pedestrian facilities.
- Reduce the growth in VMT per person.

Although the 2030 MTP and the RTC states these practices should be followed, the local municipalities have direct jurisdiction over land use and public agencies such as DART, TxDOT, and NTTA have jurisdiction over the regional transportation system. These agencies and municipalities would need to work with the NCTCOG and the RTC to implement these sustainable development policies. These policies represent an important new trend in local development patterns that are based an increased desire for a greater variety of transportation options, mixed-use developments, and unique communities with a sense of place. This trend contributes to the region's increasing emphasis on sustainable development and the ability to attain federal air quality attainment.

This sustainable land use is one tool the NCTCOG uses to reduce the need for new infrastructure (utilities, transportation, emergency response, government facilities, water, etc.). This ability for sustainable land use helps reduce the need for new infrastructure, such as priced facilities, for the region. Without sustainable land use, the addition cost of new infrastructure items would increase beyond the current cost.

Sustainable land use is a tool for the NCTCOG, but it is only one part of the solution. The cost of implementation of a full sustainable land use plan is expensive and only municipalities have the power in the state of Texas to affect and implement land use zoning, codes, and enforcement. Furthermore, no government entity has the authority or power to force developers or people where to develop or live.

The current future roadway facility outlined in the 2030 MTP is in support of the predicted land use changes and growth in the region. To meet the demand of the expansive growth and changes to land use from development, the 2030 transportation network would supply the transportation portion of infrastructure requirements for the expanding growth and development. Current and future predicted available funds from the federal government for transportation will not meet the demands for the transportation infrastructure needed to support the predicted land use changes. Toll roads and managed lanes are the methods that the MTP employs to ensure the transportation demands from future growth are met based on limited transportation funds.

The development of a priced facility system is consistent with the land use policies discussed in the MTP. One component of the managed lane/HOV system is planned access to high density development areas. As more mixed-use development centers are planned in the region, managed lane/HOV facilities would continue to connect to these centers, allowing HOV and transit vehicles access to the transportation system. This would help remove SOV users from the main lanes and increase mobility, efficiency, and reliability on all traffic facilities.

The proposed 2030 priced facility network may affect land use within the MPA boundaries by helping to enhance land development opportunities. However, priced facility network is only one factor in creating favorable land development conditions; other prerequisites for growth in the region include demand for new development, favorable local and regional economic conditions, adequate utilities, and supportive local land development regulations and policies. The proposed 2030 priced facility network as currently envisioned may, with the right conditions, help influence and facilitate the additional planned regional land use conversion, redevelopment, and growth.

Environmental Justice

Mobility 2030 presents a system of transportation improvements needed to maintain mobility in the DFW area over the next 20 plus years and serves as a guide for the expenditure of state and federal funds for the region. Its development was coordinated among local governments, transit authorities, TxDOT, FHWA, and FTA. The plan is based on regional transportation needs through the process of forecasting future travel demand, evaluating system scenarios, and selecting those options which best meet the mobility needs of the region. It also serves as a guide for the implementation of multi-modal transportation improvements, policies, and programs through the year 2030.

As part of the development of *Mobility 2030*, the current MTP, the NCTCOG conducted an environmental justice study for the existing transportation facilities compared to the 2030 proposed transportation system in the MTP. NCTCOG concluded that the *Mobility 2030* transportation improvements and recommendations for the NCTCOG region would not cause adverse impacts to environmental justice populations. However, it did not account for the impact of tolls on environmental justice populations.

To further analyze the effects of expansion of toll roads and managed lanes in the NCTCOG region, a regional study was performed for environmental justice populations comparing regional build and no build scenarios. The regional no build scenario utilized the existing roadway network in 2009 with 2030 population demographics. The regional build scenario used the proposed MTP roadway network in 2030 with 2030 population demographics.

Regional traffic analysis performance reports and regional origin-destination studies were conducted for the NCTCOG's MPA transportation network for the regional build and no build regional toll/managed lane scenarios. The analysis was conducted to investigate the possible cumulative impacts from the construction of toll roads and managed lanes to environmental justice populations and to determine if there would be disproportionately high and adverse cumulative impacts to these populations.

Traffic Analysis Performance Reports

Traffic analysis performance reports were developed for the regional build and no build scenarios for the entire MPA transportation network. The average daily vehicle trips for both scenarios are 24,912,520.

A comparison of the average loaded speed per roadway classification is shown in Table 29. Average loaded speed, based on the NCTCOG's performance reports, is defined as "the average speed on roadways with traffic on the road; it is the volume-weighted average of loaded speed." The average loaded speed is the average speed a vehicle is traveling along a specific roadway classification during traffic. This is calculated using the miles traveled divided by the time it took to travel a fixed distance. This calculation illustrates the usage of the roadway system by roadway

classification. The results show that the regional build scenario would result in an increase in roadway speed for all roadway classifications.

TABLE 29. 2030 AVERAGE LOADED SPEED (MPH)									
Roadway Classification	Build Scenario			No Build Scenario			Percent Change		
	AM	PM	Daily	AM	PM	Daily	AM	PM	Daily
Freeways (includes toll roads)	52.88	54.16	57.11	38.92	44.49	50.10	26.40%	17.85%	12.27%
Major Arterials	27.14	28.83	31.82	20.69	22.00	26.52	23.77%	23.69%	16.66%
Minor Arterials	24.01	25.55	27.38	20.45	22.09	25.21	14.83%	13.54%	7.93%
Collectors	20.14	21.62	23.00	17.54	18.93	21.22	12.91%	12.44%	7.74%
Frontage Roads	25.65	27.48	29.61	19.63	21.22	24.67	23.47%	22.78%	16.68%
HOV Lanes (includes managed lanes)	49.73	51.78	52.81	44.37	47.72	50.37	10.78%	7.84%	4.62%

Source: NCTCOG TransCAD® data for 2030 regional build and no build scenarios (April 2008 Performance Reports)

In addition, an evaluation of the regional no build scenario versus the regional build scenario was conducted for the MPA using LOS per lane mile by roadway classification. The results are shown in Table 30. The regional no build scenario shows an increase in roadway miles in LOS F for all roadway classifications with the exception of HOV/managed lanes.

TABLE 30. LEVEL OF SERVICE FOR THE TRAFFIC STUDY AREA (2030)				
	Build Scenario		No Build Scenario	
Roadway Classification	Lane-Miles	LOS	Lane-Miles	LOS
Freeways (includes toll roads)	7,602	A-B-C (3,826 lane-miles) 50%	4,486	A-B-C (890 lane-miles) 20%
		D-E (2,264 lane-miles) 30%		D-E (1,220 lane-miles) 27%
		F (1,512 lane-miles) 20%		F (2,376 lane-miles) 53%
Major Arterials	8,739	A-B-C (4,793 lane-miles) 55%	4,085	A-B-C (1,120 lane-miles) 17%
		D-E (1,848 lane-miles) 21%		D-E (640 lane-miles) 16%
		F (2,098 lane-miles) 24%		F (2,325 lane-miles) 57%
Minor Arterials	7,568	A-B-C (5,407 lane-miles) 71%	9,282	A-B-C (3,654 lane-miles) 39%
		D-E (829 lane-miles) 11%		D-E (1,574 lane-miles) 17%
		F (1,332 lane-miles) 18%		F (4,054 lane-miles) 44%
Collectors	9,007	A-B-C (6,992 lane-miles) 78%	8,217	A-B-C (4,568 lane-miles) 56%
		D-E (724 lane-miles) 8%		D-E (914 lane-miles) 11%
		F (1,291 lane-miles) 14%		F (2,735 lane-miles) 33%
Frontage Roads	4,152	A-B-C (3,182 lane-miles) 76%	2,622	A-B-C (1,254 lane-miles) 48%
		D-E (402 lane-miles) 10%		D-E (375 lane-miles) 14%
		F (568 lane-miles) 14%		F (993 lane-miles) 38%
HOV Lanes (includes managed lanes)	898	A-B-C (612 lane-miles) 68%	182	A-B-C (76 lane-miles) 42%
		D-E (190 lane-miles) 21%		D-E (45 lane-miles) 25%
		F (96 lane-miles) 11%		F (61 lane-miles) 33%

Source: NCTCOG TransCAD® data for 2030 regional build and no build scenarios (April 2008 Performance Reports)

Regional Origin-Destination Study

An origin-destination study was conducted by NCTCOG for the MPA toll road/managed lane network for environmental justice populations. The assumptions and limitations of origin-destination studies are discussed in Section VII.F.5. Exhibits 12g and 12h show the basis of the NCTCOG analysis and the identified TSZ that contain environmental justice populations (i.e. TSZs that contain greater than 50 percent minority and low-income populations) and the existing and future toll roads and managed lanes used in the origin-destination analysis. The figure shows the majority of environmental justice communities within IH 635 and IH 820 loops in Dallas and Fort Worth and in the southern section of MPA.

The entire MPA was evaluated for the existing and future toll network. The total TSZs that comprise the origin-destination study area within the MPA is 4,813. A total of 1,542 these are considered environmental justice TSZs.

For the regional no build scenario, 4,720 TSZs are anticipated to regularly utilize the existing toll roads in the MPA in 2030 (originating at least one trip per day); this represents 98.1 percent of the totally TSZs in the MPA. Under the regional no build scenario, 1,530 environmental justice TSZs are anticipated to regularly utilize the existing toll facilities (originating at least one trip per day); this represents 99.2 percent of the environmental justice TSZs in the MPA. Data analysis indicates that from the 246,462 total trips which originated from all of the TSZs that would utilize the existing toll facilities in the MPA, approximately 14.8 percent (36,400 trips) of the total trips originated from environmental justice TSZs.

The Build scenario is anticipated to contain 4,770 TSZs that would regularly utilize the future toll facilities in the MPA in 2030 (originating at least one trip per day); this represents 99.1 percent of the total TSZs in the MPA. From the total environmental justice TSZs identified in the MPA, 1,541 are anticipated to regularly utilize the proposed toll facilities in 2030 (originating at least one trip per day) for the Build scenario; this represents 99.9 percent of the total TSZs in the MPA. Data analysis indicates that from the 516,988 total trips which originated from TSZs that would utilize the future proposed toll roads, approximately 16.4 percent (85,011 trips) originate from environmental justice TSZs.

Table 31 outlines the origin-destination results for the MPA study area. The analysis was divided into three networks, the No Build scenario which is the existing toll facilities in 2009, the Build scenario which is the future toll facilities that would be built, and the total toll network which is the existing network plus the future network that would be built.

TABLE 31. ORIGIN-DESTINATION RESULTS

	2030 No Build Scenario (existing toll facilities)	**2030 Build Scenario (future toll facilities)**
Total TSZs in the MPA	4,813	4,813
Total environmental justice TSZs in the MPA	1,542	1,542
TSZs utilizing toll facilities	4,720 (98.1%)	4,770 (99.1%)
Environmental justice TSZs utilizing toll facilities	1,530 (99.2%)	1,541 (99.9%)
Trips from TSZs utilizing toll facilities	246,462	516,988
Trips from environmental justice TSZs utilizing toll facilities	36,400 (14.8% of total trips)	85,011 (16.4% of total trips)

Source: NCTCOG TransCAD® data for 2030 regional build and no build scenarios (April 2008 Origin-Destination data)

Results and Conclusions

The origin-destination results show an increase in usage for toll roads from the 2030 No Build scenario and the 2030 Build scenario for the NCTCOG MPA region. Both the Build and No Build scenarios showed trips generated from the majority of the TSZs in the MPA (98.1 to 99.1 percent), including the majority of environmental justice TSZs (99.2 to 99.9 percent).

Trips for future proposed toll facilities in the Build scenario would experience an increase of 110 percent from the current toll road facilities. Environmental justice TSZs trips would increase 134 percent. Because of the increase in trips generated by environmental justice populations, these populations would receive cumulative impacts by the regional increase in toll facilities because low-income populations would use a greater amount of their income for toll road and managed lane usage. As shown in Exhibits 12g and 12h, existing toll roads and managed lanes are not adjacent to the majority of environmental justice TSZs, but future proposed toll roads and managed lane facilities would be built closer to environmental justice populations.

Results from the performance reports conducted for the MPA showed an increased in roadway speed and an improvement in LOS for the majority of the roadway classifications in the Build scenario in comparison to the No Build scenario. The Build scenario for the MPA would create a cumulative improvement for roadway conditions throughout the NCTCOG region by increasing roadway speed and improving the LOS on the roadway network.

Although environmental justice populations would see an increase in spending for toll facilities, the entire MPA region would also see an increase in spending and usage as the toll road and managed lane system expands. The majority of environmental justice populations were identified by the NCTCOG travel demand model to potentially make trips along existing and future toll facilities. In addition, for populations (including environmental justice populations) who would opt to use non-toll options, the Build scenario for 2030 (which includes all proposed toll facilities and managed lanes) would provide a roadway network that would operate at better traffic conditions (greater speeds and an improved LOS) than the No Build scenario and would provide an increased benefit for these users over the No Build scenario.

Based on the previous discussion and analysis, the Build scenario for the NCTCOG MPA would not cause cumulative disproportionately high and adverse effects on any minority or low-income populations as per Executive Order 12898 regarding environmental justice.

As discussed, the analysis does not show any disproportionately high and adverse impacts to environmental justice populations; therefore, no project-specific mitigation measures are appropriate for cumulative impacts in this document. However, NCTCOG will continue its efforts to work with all communities in the planning process to identify transportation challenges and explore and develop the appropriate strategies to respond to the issues. Examples include programs and projects to improve availability and accessibility to alternate transportation options including discounted transit fares and tolls, HOV discounts on toll roads and managed lanes, better accessibility to regional transportation systems, and community level congestion management. Specific strategies and projects will be developed through discussions with local governments and community representatives.

Air Quality

The NCTCOG serves as the MPO for the Dallas-Fort Worth area. It serves a 16-county metropolitan region centered on Dallas and Fort Worth. Since the early 1970s, MPOs have had the responsibility of developing and maintaining a MTP. The MTP is federally mandated; it serves to identify transportation needs; and guides federal, state, and local transportation expenditures.

ISTEA strengthened the role of the MTP and made it the central mechanism for the decision-making process regarding transportation investments. The passage of the TEA-21 in 1998 continued this emphasis. The Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU) was signed into law on August 10, 2005. SAFETEA-LU

addresses the challenges on our transportation system such as improving safety, reducing traffic congestion, improving efficiency in freight movement, increasing intermodal connectivity, and protecting the environment. Both SAFETEA-LU and the CAAA impose certain requirements on an urbanized area's long-range transportation plan.

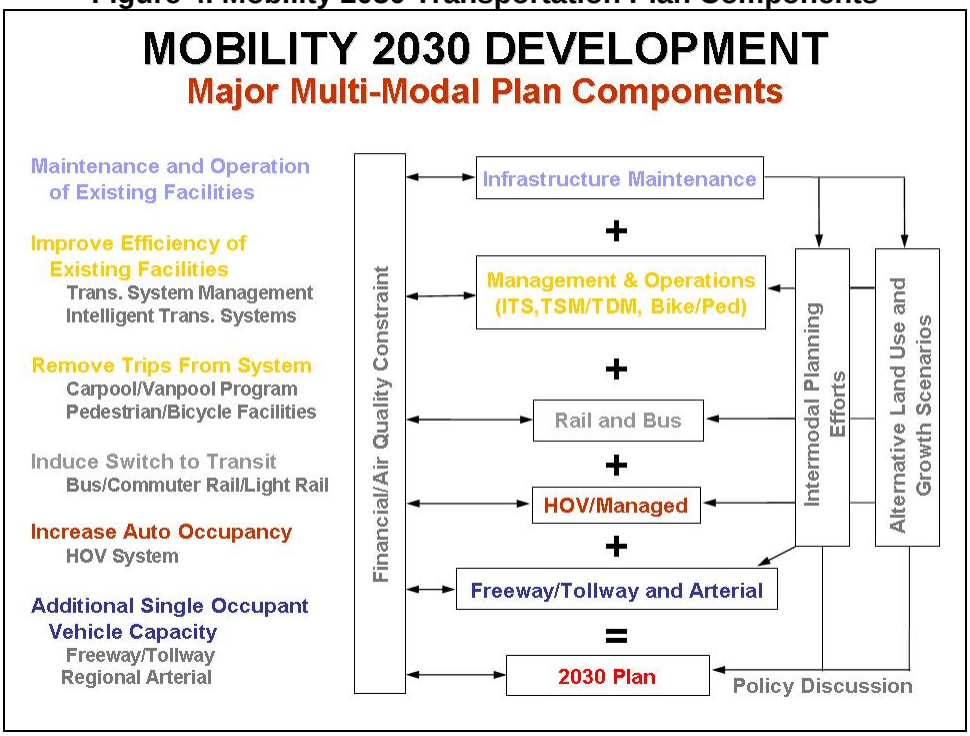
Transportation plans such as *Mobility 2030*, according to SAFETEA-LU metropolitan planning regulations, must be "fiscally constrained," that is, based on reasonable assumptions about future transportation funding levels. Because the Dallas-Fort Worth area is designated as a nonattainment area for the eight-hour ozone standard, the CAAA require the transportation plan to be in conformity with the SIP for air quality to demonstrate that projects in the MTP meet air quality goals. *Mobility 2030* specifically addresses regional ozone in addition to its studies of general regional air quality and the final result showed that the regional roadway network (including toll roads and managed lanes) would show a decrease in nitrogen oxides and emissions of volatile organic compounds.

Transportation conformity is a process which ensures federal funding and approval goes to transportation activities that are consistent with air quality goals. Transportation activities that do not conform to state air quality plans cannot be approved or funded.

The CAAA established specific criteria which must be met for air quality non-attainment areas. The criteria are based on the severity of the air pollution problem. Transportation conformity is a CAAA requirement that calls for the EPA, U.S. Department of Transportation (U.S. DOT), and various regional, state, and local government agencies to integrate air quality and transportation planning development processes. Transportation conformity supports the development of transportation plans, programs, and projects that enable areas to meet and maintain national air quality standards for ozone, PM, and CO, which impact human health and the environment. Through the SIP, the air quality planning process ties transportation planning to the conformity provisions of the CAAA. This ensures that transportation investments are consistent with state and local air quality objectives. The NCTCOG is responsible for the conformity analysis in the Dallas-Fort Worth area. If the criteria are not met, EPA can then impose sanctions on all or part of the state. Sanctions include stricter industrial controls and the withholding of federal highway and transit funds.

The EPA has designated a nine-county nonattainment area for the eight-hour ozone criteria which includes Dallas, Collin, Denton, Rockwall, Kaufman, Ellis, Johnson, Tarrant and Parker Counties. In accordance with the metropolitan planning regulations, *Mobility 2030* must include a CMP to systematically address congestion. The evaluation of additional transportation system improvements beyond the committed system began with a detailed assessment of transportation improvements that would not require building additional facilities for SOV. Various improvements/modes including congestion management strategies, bicycle and pedestrian facilities, rail facilities, HOV lanes, managed lanes, and toll road facilities were investigated prior to determining the need for additional freeway capacity improvements. Figure 4 shows the implementation of these resources and how they are integrated into the MTP.

Figure 4. Mobility 2030 Transportation Plan Components



Transportation system performance information was developed as a product of the Dallas-Fort Worth Regional Transportation Model (DFWRTM) travel model throughout the MTP development process. This information guided development of the system alternatives and indicated the impact of various improvements. The improvements recommended in *Mobility 2030* include regional congestion management strategies, bicycle and pedestrian facilities, managed HOV lanes, light/commuter rail and bus transit improvements, ITS technology, freeway and tollway lanes, and improvements to the regional arterial and local thoroughfare system such as intersection improvements and signal timing. Because *Mobility 2030* is financially and air quality constrained, other more cost effective methods are reviewed before SOV lanes (freeways and toll roads) are added into the roadway system. ITS, mass transit, and Managed/HOV lanes are ways to meet regional transportation demands under the financially constrained MTP while improving regional air quality.

The additional introduction of priced facilities into the existing roadway network would not cause any cumulative impacts to air quality. The regional priced facility system would provide additional travel capacity to the roadway network which would allow a greater flow of traffic throughout the region, decreasing the amount of cars traveling at lower speeds or idling conditions. This would result in less fuel combustion and lower emissions including MSATs, CO, and ozone. As noted in the direct, indirect, and system cumulative analysis discussions, EPA's vehicle and fuel regulations, coupled with fleet turnover, are expected to result in substantial reductions of on-road emissions, including MSATs, CO, and ozone precursors.

<u>Water Quality</u>

Water quality is regulated on the state level by TCEQ. TCEQ monitors all major water bodies (rivers, lakes and streams) and reports the conditions of these streams in a biennial Texas Water

Body Inventory report. Section 303(d) of this report details those water bodies TCEQ has identified as impaired due to water contamination.
The 303(d) list identifies five major water systems as impaired with pollutants and bacteria in the MPA. These major water bodies are the Upper Trinity River, the West Fork Trinity River, the East Fork Trinity River, the Elm Fork Trinity River, and the Clear Fork Trinity River. The construction of the proposed priced facility system would cross and impact these water bodies at multiple locations and could cause water quality impacts.

As stated previously, TCEQ regulates water quality through SW3P, MS4, and BMPs. All construction of these priced facilities would follow these water quality permits that would prevent further pollution to these impaired waters and to waters that are not impaired. Additionally any indirect land use development that would occur from the construction of these facilities would follow TCEQ's regulations for water quality through SW3P and MS4. Therefore, the regional priced facility network would not have a cumulative impact to water quality.

Waters of the U.S.

The USACE regulates waters of the U.S. in the state of Texas. The MPA is under the jurisdiction of the Forth Worth District of the USACE. Fill of any jurisdictional waters of the U.S. is required to be permitted through the USACE.

While the USACE has specific guidelines for identifying waters of the U.S., several methods exist to preliminary identify these waters. USGS topography maps and TCEQ's Water Quality Inventory database provides information for the location of larger rivers and streams that would fall under the USACE jurisdiction. The National Wetlands Inventory maps created and maintained by the USFWS attempts to identify potential wetlands through the use of infrared aerial photography (Digital Ortho Quarter Quads). The current status for the National Wetland Inventory maps for the MPA consist digital formats and hard copy formats; some areas are currently not mapped.

Although this data is incomplete, it only serves as a background for the identification of waters of the U.S. Government and private developments must permit any fill into waters of the U.S. and the identification of these waters of the U.S. is completed at the project level with field surveys.

From the available data, the regional priced facility system would impact and cause fill to waters of the U.S., both streams and potential wetlands. These roadway projects would be required to comply with permitting and mitigation for the fill of these waters of the U.S. Any land use change or development that would occur from this regional priced facility system would also be required to permit and mitigation for fill and loss of waters of the U.S.

Through the permitting and mitigation process the USACE has implemented a "no net loss" policy for permanent impacts to wetlands and waters of the U.S. This ensures that loss of these waters would require mitigation that is equal or greater than the loss. Because the USACE would regulate and require mitigation for loss of these waters of the U.S., the priced facility network would not cause a cumulative impact to waters of the U.S.

Vegetation

An inventory of regional vegetation is not available for the MPA. General vegetation descriptions identifying regions and ecological areas are available from many resources. These resources (e.g. the *Vegetation Types of Texas*, etc.) vary in description of areas of regions and do not update their descriptions from the original publications. Project specific vegetation descriptions are the best method to map the vegetation that would be affected by a project.

Currently, the MPA lies in the Blackland and Cross Timbers prairies ecological regions identified by TPWD. The construction of most of the proposed priced facility system would occur in areas already developed and contain urban type vegetation. The projects outside the urban areas could impact natural vegetation and the changes in land use and development that may be caused by these facilities would impact vegetation surrounding these projects.

The NCTCOG does not address impacts to vegetation or mitigation for loss of vegetation in the MTP. TxDOT districts can mitigate for loss of vegetation based on the MOU and MOA with TPWD, which focuses on special habitat types of wildlife and protected species. Wetlands are under the jurisdiction of the USACE and mitigation for the loss of these wetlands (which includes the vegetation) would occur through the permitting process. The USFWS can regulate and require mitigation for loss of vegetation that is designated habitat for a threatened or endangered species. Finally, cities can implement ordinances to protect trees, natural land, or open green spaces.

Although impacts to vegetation would occur from the priced facility system, these impacts would be regulated at the project level for each individual roadway project. Because of this project mitigation, there would be no cumulative impacts to vegetation from the priced facility system.

Conclusion

The regional priced facility system would cause minor impacts to some of the identified resources in this section. Regional mitigation for some of these resources would be addressed by the NCTCOG. As part of *Mobility 2030*, NCTCOG address two issues related to air quality and environmental justice populations. The Transportation Planning Process, at a regional level, provides ways to mitigate for any potential impacts that could occur. The priced facility projects would be included in the STIP/TIP and MTP, and the STIP/TIP and MTP would conform to the SIP. This assurance addresses each project is in compliance with the TIP/STIP and the MTP for air quality under the CAA and environmental justice under Title VI of the Civil Rights Act of 1964 and Executive Order 12898.

Land use impacts cannot be mitigated at a regional level, but at a municipality level because these entities have direct control over land use. These municipalities would work with NCTCOG to address regional infrastructure changes in their comprehensive plans. State and federal regulatory agencies that have direct jurisdiction over natural and cultural resources would be responsible for requiring avoidance, minimization, and mitigation from any entity whose proposed project (transportation or other type) has a direct impact to any of these resources on their project.

Finally as required by NEPA, mitigation for impacts would occur at the project level. Because of these potential mitigation measures, the regional proposed priced facility system would not have a cumulative impact to these resources.

VIII. SUMMARY

The proposed Preferred Alternative best meets the need and purpose of the project, which is to:

- improve mobility throughout the corridor to relieve existing traffic congestion
- accommodate anticipated population and local traffic growth
- improve condition and safety of facility

North Richland Hills Community Center

All reasonable attempts were made to minimize the amount of ROW required from the NRHCC. The following measures to minimize impacts were implemented:

- Flexibility in the application of the AASHTO geometric design standards was incorporated in the design of the Preferred Alternative to reduce the amount of ROW required at the NRHCC. For example, the eastbound entrance ramp from Rufe Snow Boulevard was designed using minimum geometric design standards by modifying the geometry of the gore (area between ramp and main lanes).
- The frontage road alignment was shifted closer to the main lanes of IH 820 to reduce the amount of ROW required.
- The length of the entrance ramp from Rufe Snow Drive to eastbound IH 820 was shortened so that less ROW was needed in front of the NRHCC.
- The control of access line was moved so that a driveway to the NRHCC was allowed east of the NRHCC building and west of the Rufe Snow Boulevard entrance ramp.
- The width of the parkway between the back of curb and the ROW line was reduced from 19.7 feet to 15.0 feet at the NRHCC. This allows circulation of traffic on the property between the facility and IH 820, as indicated by the City of North Richland Hills as essential to the facility.

When the ROW acquisition process begins, the property would be appraised to determine fair market value and the City of North Richland Hills would be offered this value as compensation. Fair market value would include not only amounts for the land needed for the project but also damages associated with reduced parking and the full restoration of the facility function including compliance with the Americans with Disabilities Act requirements. The Recreation Center would remain a viable public facility after the highway needs are imposed on the property and the damage items are corrected.

North Richland Hills Tennis Center

All reasonable attempts were made to minimize the amount of ROW required from the TC. The following measures to minimize impacts were implemented:

- Flexibility in the application of the AASHTO geometric design standards was incorporated into the design of the Preferred Alternative to reduce the amount of ROW required by the TC. For example, the width of the ramp gore areas was reduced, retaining walls instead of side slopes were utilized and the frontage road alignment was modified to follow the main lanes and ramps very closely
- To comply with the TPWD grant that partially funded construction of the TC, there would be a 1:1 substitution of land for all property converted from recreation use. The property replacement may occur at another city facility besides the TC. The location of the substituted land recommended by the City of North Richland Hills is the vacant lot east of the NRHCC.
- A wall 10 feet in height and approximately 800 feet long would be constructed in the grassy area between the tennis courts and the proposed ROW line near the westbound frontage road. This wall would parallel the existing fence line of the tennis courts, be placed on Birdville Independent School District (BISD) property, and would have the ability to have artwork molds built into it. With the barrier located on school property, the city would be able to maintain the barrier and place banners of events, etc. should they desire. The city has indicated this wall would relieve safety issues concerning potential conflicts of increased traffic along the frontage road with personnel or users of the facility that gather errant balls. It would also provide a visual barrier for players that may be distracted by increased moving traffic on the frontage road that would be closer to the courts. The perception of increased noise levels that patrons to the TC may feel, because the main lanes and frontage roads would be closer, may also be lessened. The wall provides a visual screen that utilizes eye perception over hearing. In addition, the city would be allowed to fund a visual barrier up to six feet in height along the main lanes between stations 910+00 and 920+00. The city would fund the cost of the difference in the two-foot

eight-inch traffic rail and the six-foot barrier if it chooses to have it built. This action is proposed to resolve their concerns the TC may not remain an economically viable facility because of the perceived impacts of traffic generated noise levels.

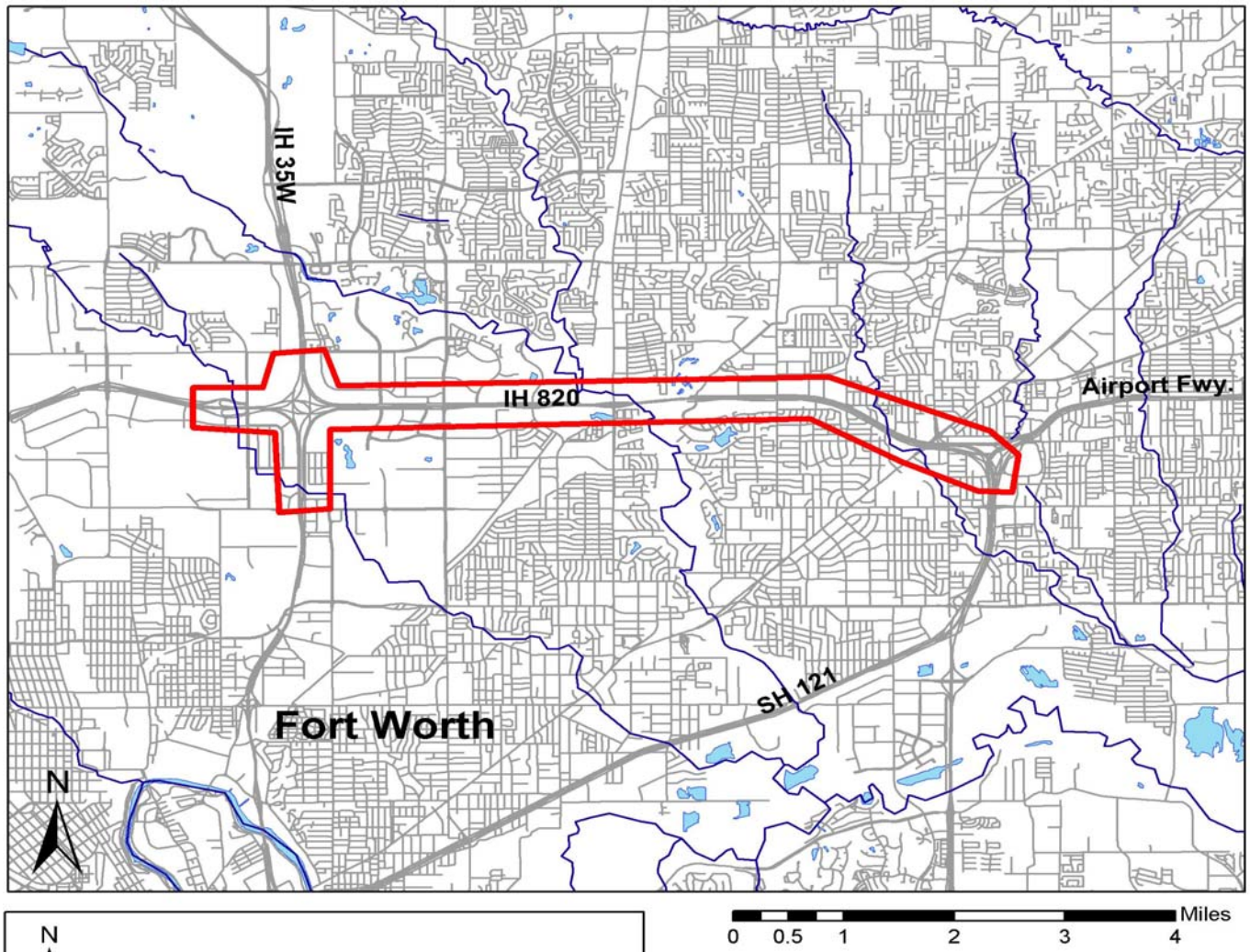
- The irrigation system would be modified for the new configuration and the vegetative materials lost in the area of concern would be mitigated with similar species with which the city is in agreement.

The property would be appraised at fair market value and BISD would be offered this compensation. The compensation would include not only fair market value for the land acquired, but also for damages.

IX. CONCLUSION

The engineering, social, and environmental investigations conducted thus far on this proposed project indicate that the proposed project would result in no significant impacts to the quality of the human environment. A Finding of No Significant Impact (FONSI) is anticipated.

Exhibit 1: Site Location Map



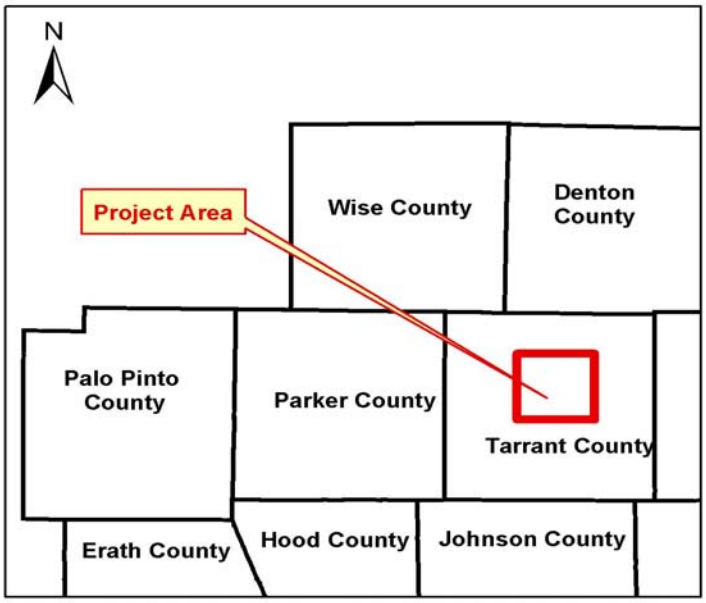
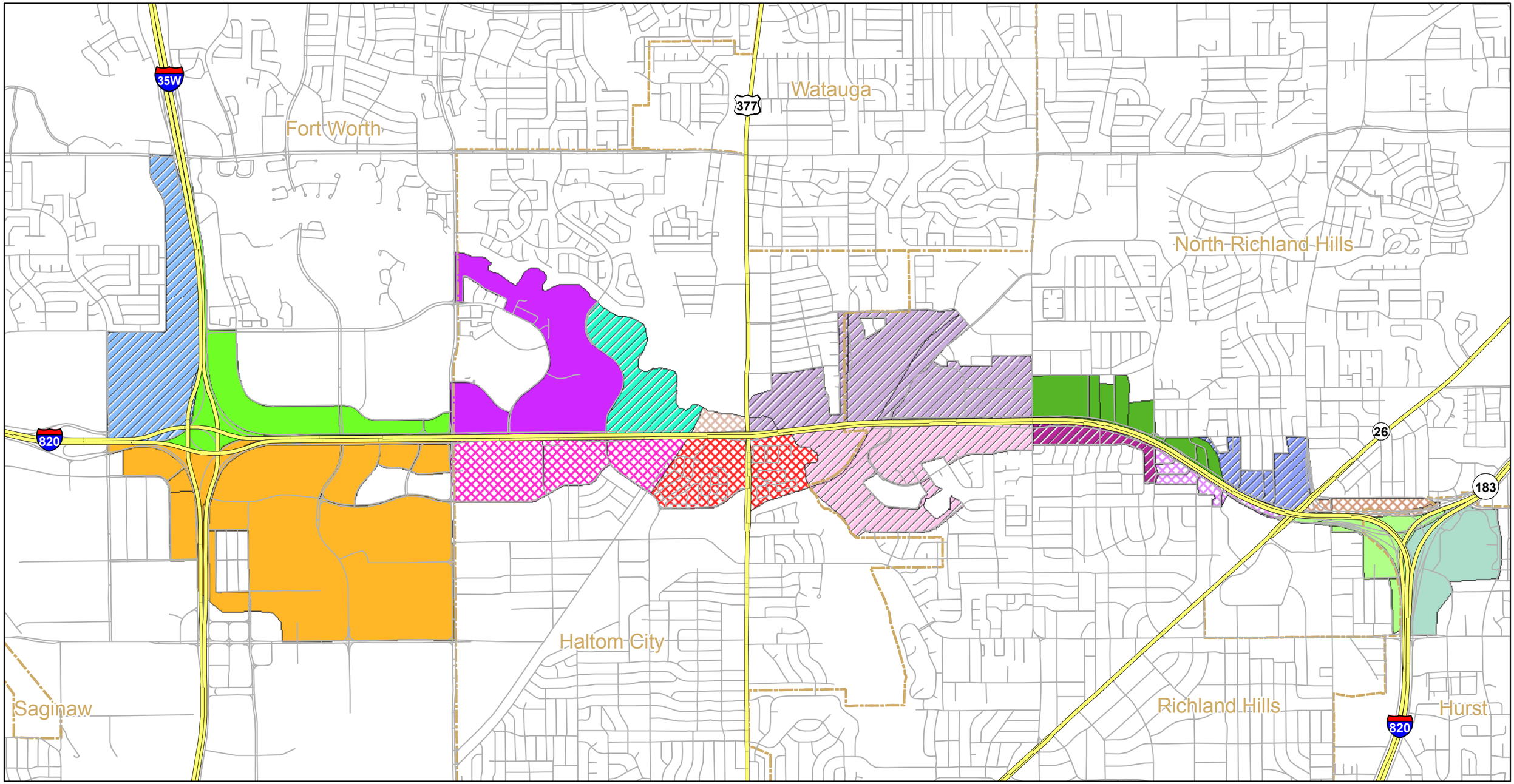


Exhibit 1a: Site Location Map

IH 820 from IH 35W to SH 121/SH 183
Tarrant County, Texas



Legend

- Freeway
- Roads
- City Limits
- 2000 U.S. Census Blocks

2000 U.S. Census Block Group

- 1050.051
- 1050.052
- 1050.061
- 1101.011
- 1102.031
- 1102.032
- 1102.041
- 1132.121
- 1132.131
- 1132.132
- 1132.133
- 1132.173
- 1132.174
- 1132.192
- 1134.032
- 1138.111
- 1138.112

N

0 0.5 1 2 Miles

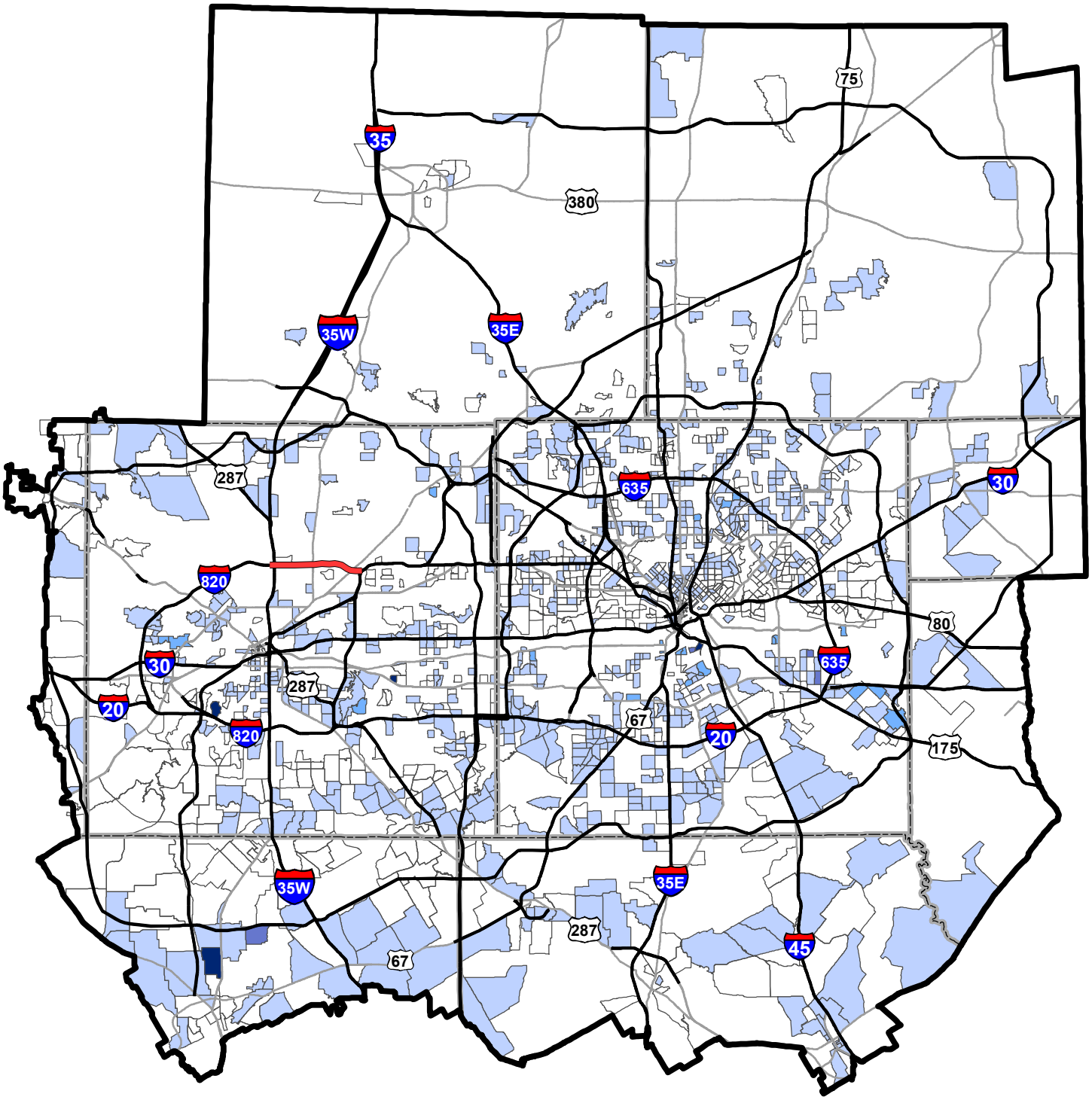
Exhibit 1b: 2000 Census Tracts

IH 820 from IH 35W to SH 121/SH 183
Tarrant County, Texas

Map Created: March 2008

Exhibit 1: Site Location Map
March 2008

IH 820 Environmental Assessment
CSJ Nos: 0008-14-058, 059 & 0014-16-194



Legend

- Proposed Project
- Mobility 2030 Roadway Network
- MPA Boundary
- County Boundaries

Environmental Justice TSZs

Trips

- <1 Trip
- 1-25 Trips (3,064 EJ Trips, 52% of total EJ Trips
- 26-75 Trips (1,043 EJ Trips, 18% of total EJ Trips
- 76-150 Trips (620 EJ Trips, 11% of total EJ Trips
- >150 Trips (1,131 EJ Trips, 19% of total EJ Trips

0 5 10 20 Miles

N

Texas Department of Transportation

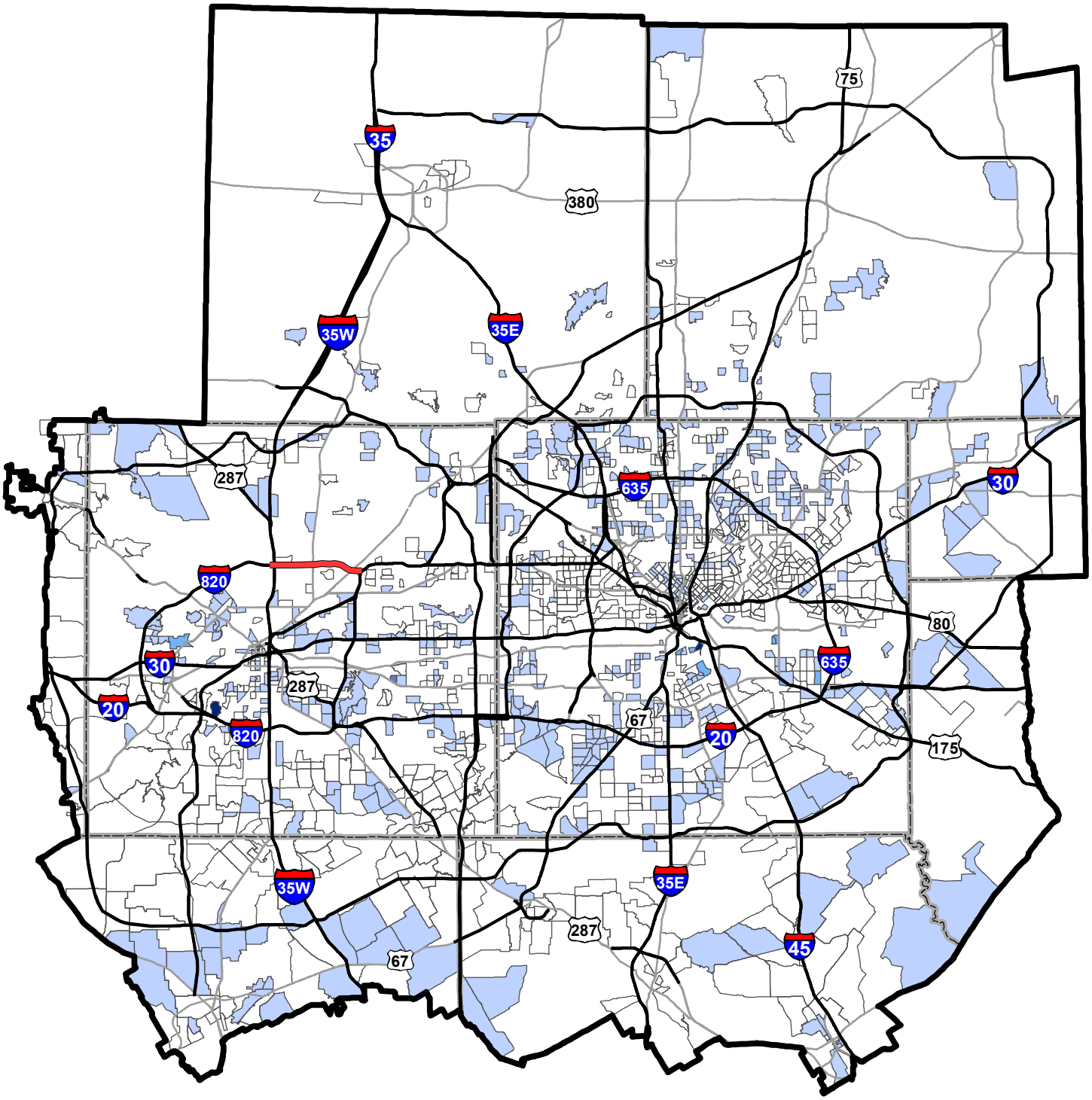
Texas Department of Transportation
Tarrant County

Environmental Justice
Traffic Survey Zones:
2030 Daily Trips on Build Alternative

IH 820 from IH 35W to SH 121/183

Exhibit 1c

Date Created: May 2008



Legend

- Proposed Project
- Mobility 2030 Roadway Network
- MPA Boundary
- County Boundaries

Environmental Justice TSZs

Trips

- <1 Trip
- 1-25 Trips (1,936 EJ Trips, 68% of total EJ Trips)
- 26-75 Trips (397 EJ Trips, 14% of total EJ Trips)
- 76-150 Trips (149 EJ Trips, 5% of total EJ Trips)
- >150 Trips (384 EJ Trips, 13% of total EJ Trips)

0 5 10 20 Miles

N

Texas Department of Transportation

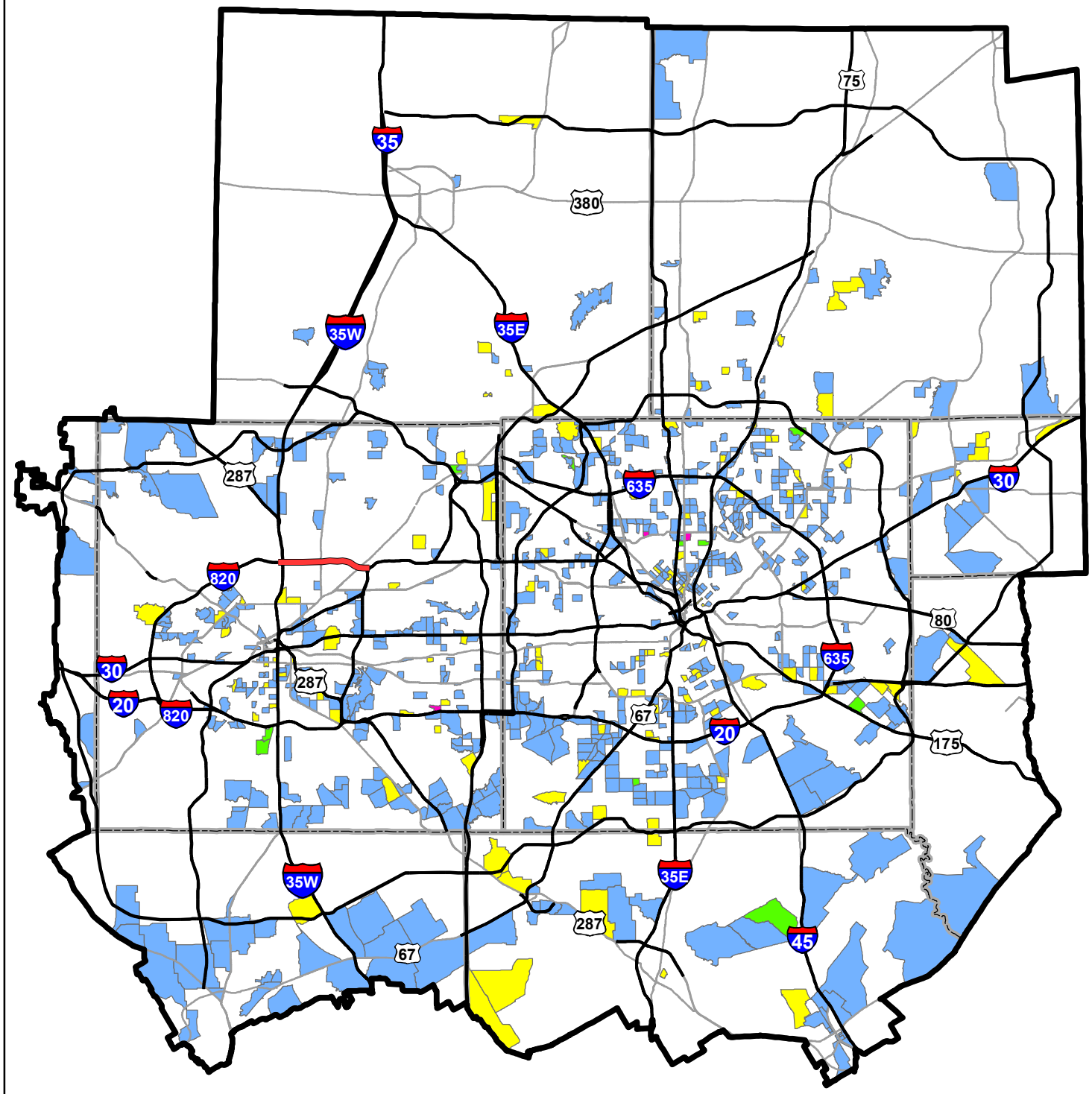
Texas Department of Transportation
Tarrant County

Environmental Justice
Traffic Survey Zones:
2030 Daily Trips on No-Build Alternative

IH 820 from IH 35W to SH 121/183

Exhibit 1d

Date Created: May 2008



Legend

- Proposed Project
- Mobility 2030 Roadway Network
- MPA Boundary
- County Boundaries

Environmental Justice TSZs Generating 1 or more Trips on IH 820

- Low Income >50%
- Minority >50%
- Minority (<50%) and Low-income (<50%) combined >50%
- Minority >50% and Low-income >50%

0 5 10 20 Miles

N

Texas Department of Transportation

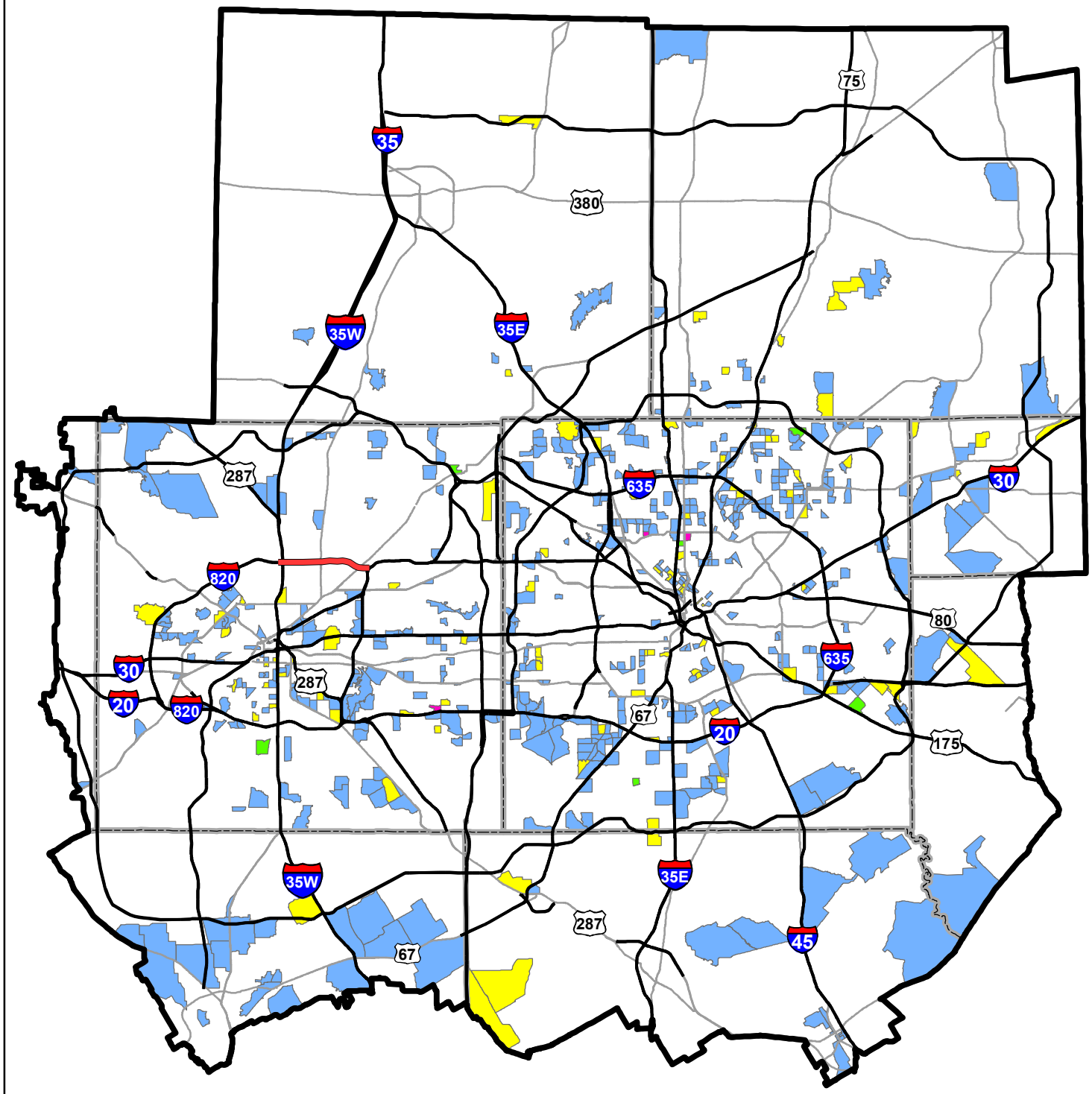
Texas Department of Transportation
Tarrant County

Environmental Justice
Traffic Survey Zones:
2030 Build Alternative

IH 820 from IH 35W to SH 121/183

Exhibit 1e

Date Created: May 2008



Legend

- Proposed Project
- Mobility 2030 Roadway Network
- MPA Boundary
- County Boundaries

Environmental Justice TSZs Generating 1 or more Trips on IH 820

- Low Income >50%
- Minority >50%
- Minority (<50%) and Low-income (<50%) combined >50%
- Minority >50% and Low-income >50%

0 5 10 20 Miles

N

Texas Department of Transportation

Texas Department of Transportation
Tarrant County

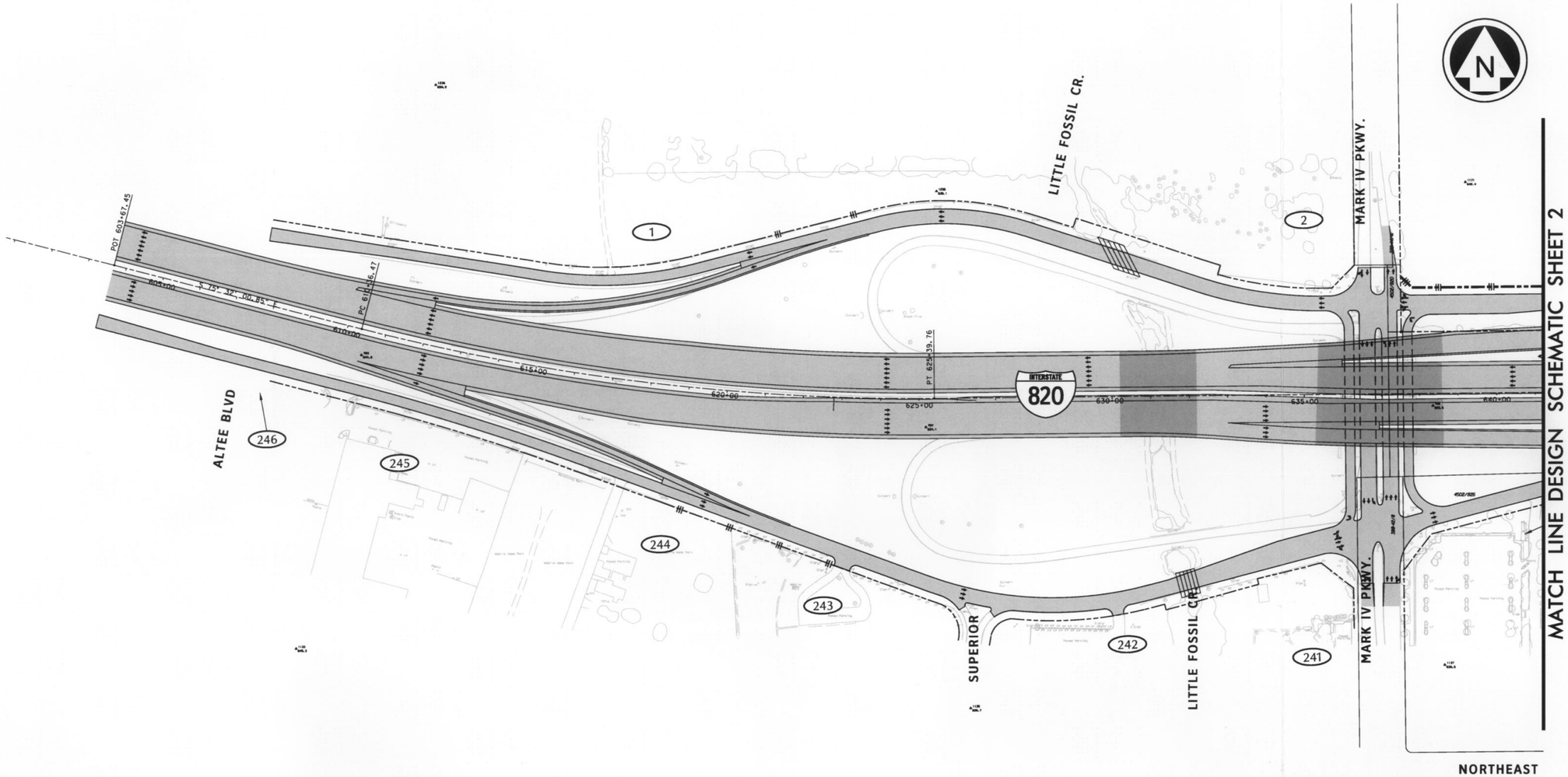
Environmental Justice
Traffic Survey Zones:
2030 No Build Alternative

IH 820 from IH 35W to SH 121/183

Exhibit 1f

Date Created: May 2008

Exhibit 2: Project Schematic



PRELIMINARY

0 300 600

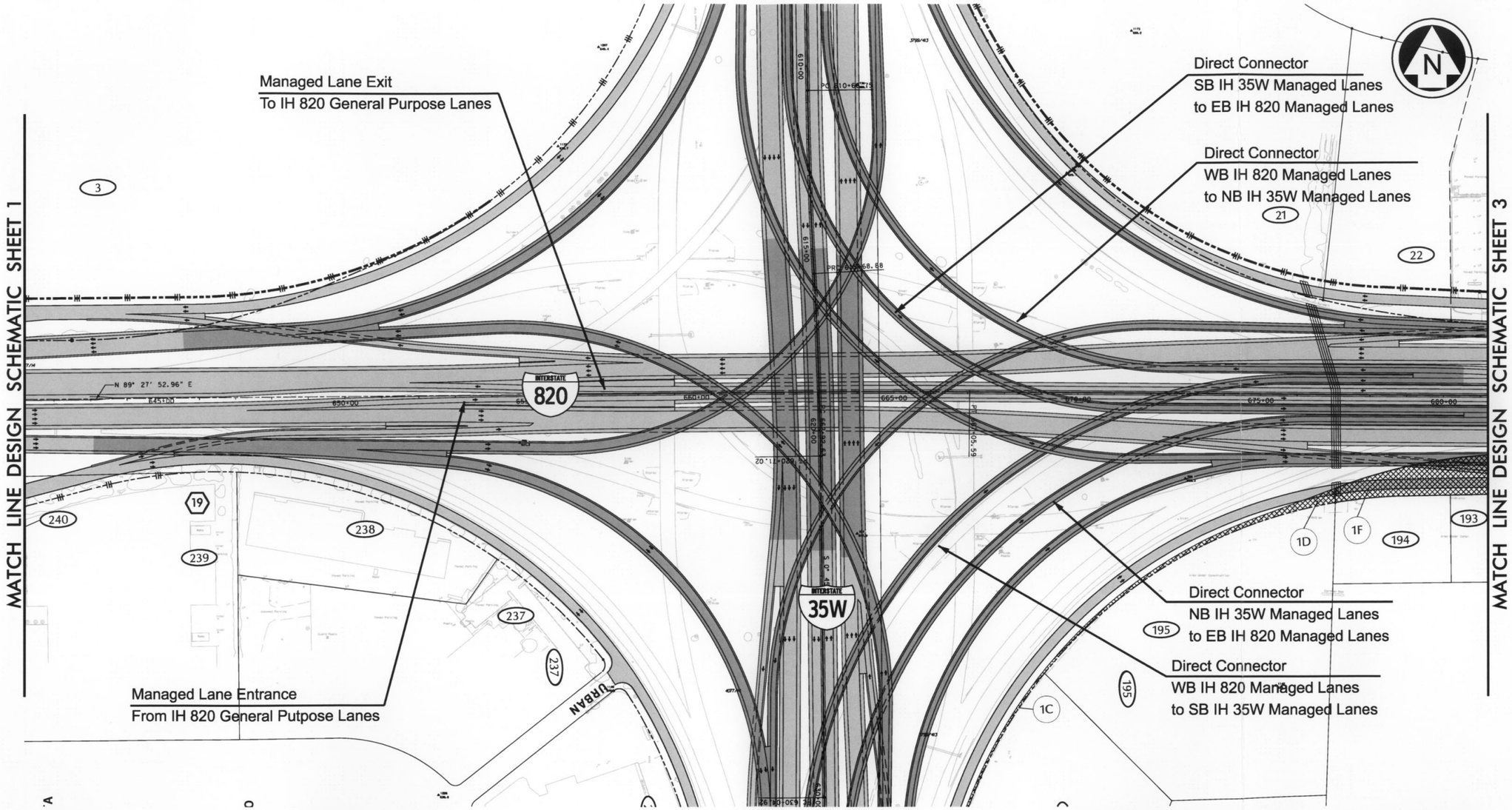
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 1 OF 15



PRELIMINARY

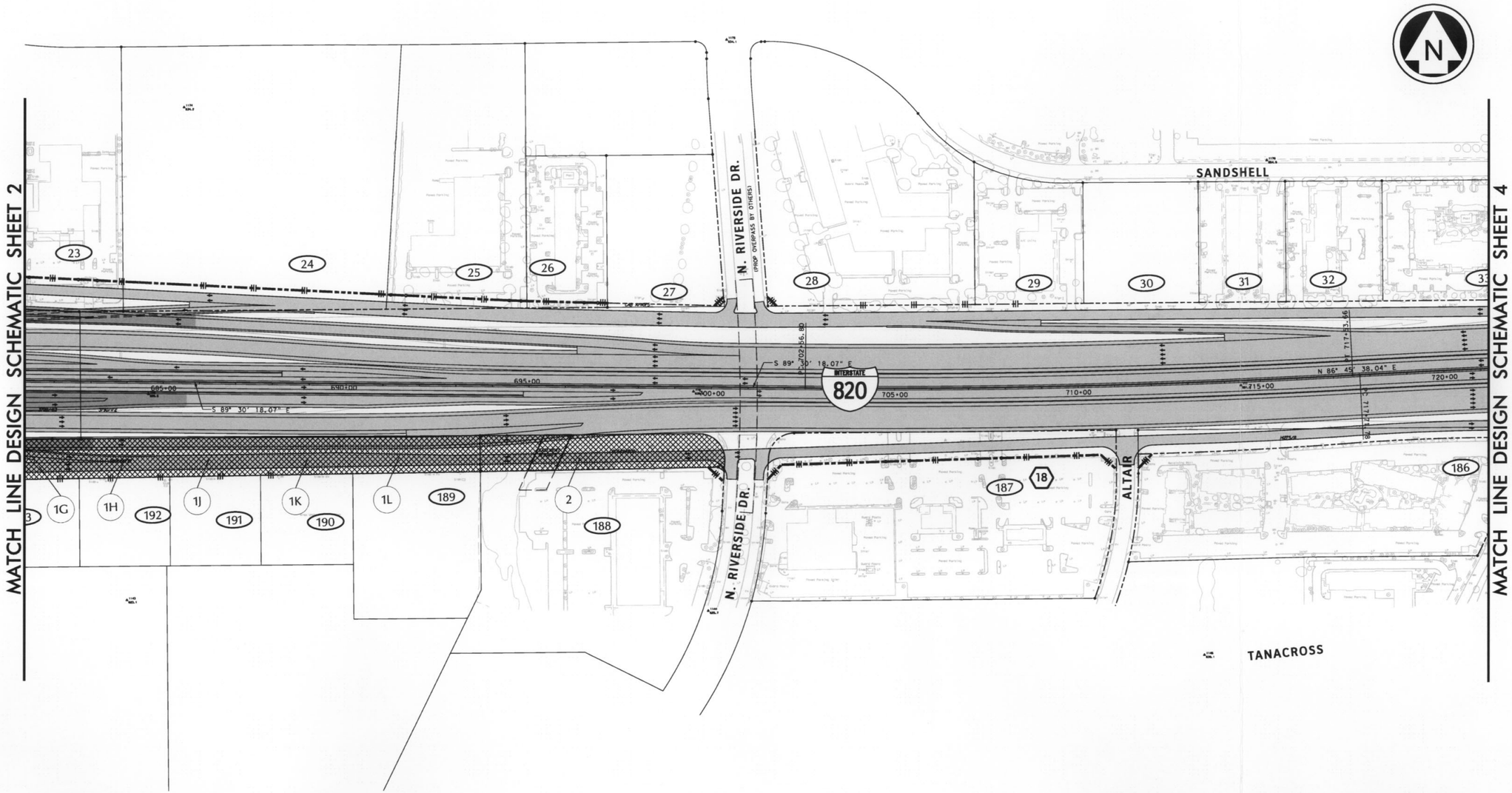
0 300 600
GRAPHIC SCALE IN FEET

LEGEND

- PARCEL NUMBER
- EARLY ACQUISITION
- NOISE RECEPTOR
- NOISE WALL
- HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 2 OF 15



PRELIMINARY

0 300 600

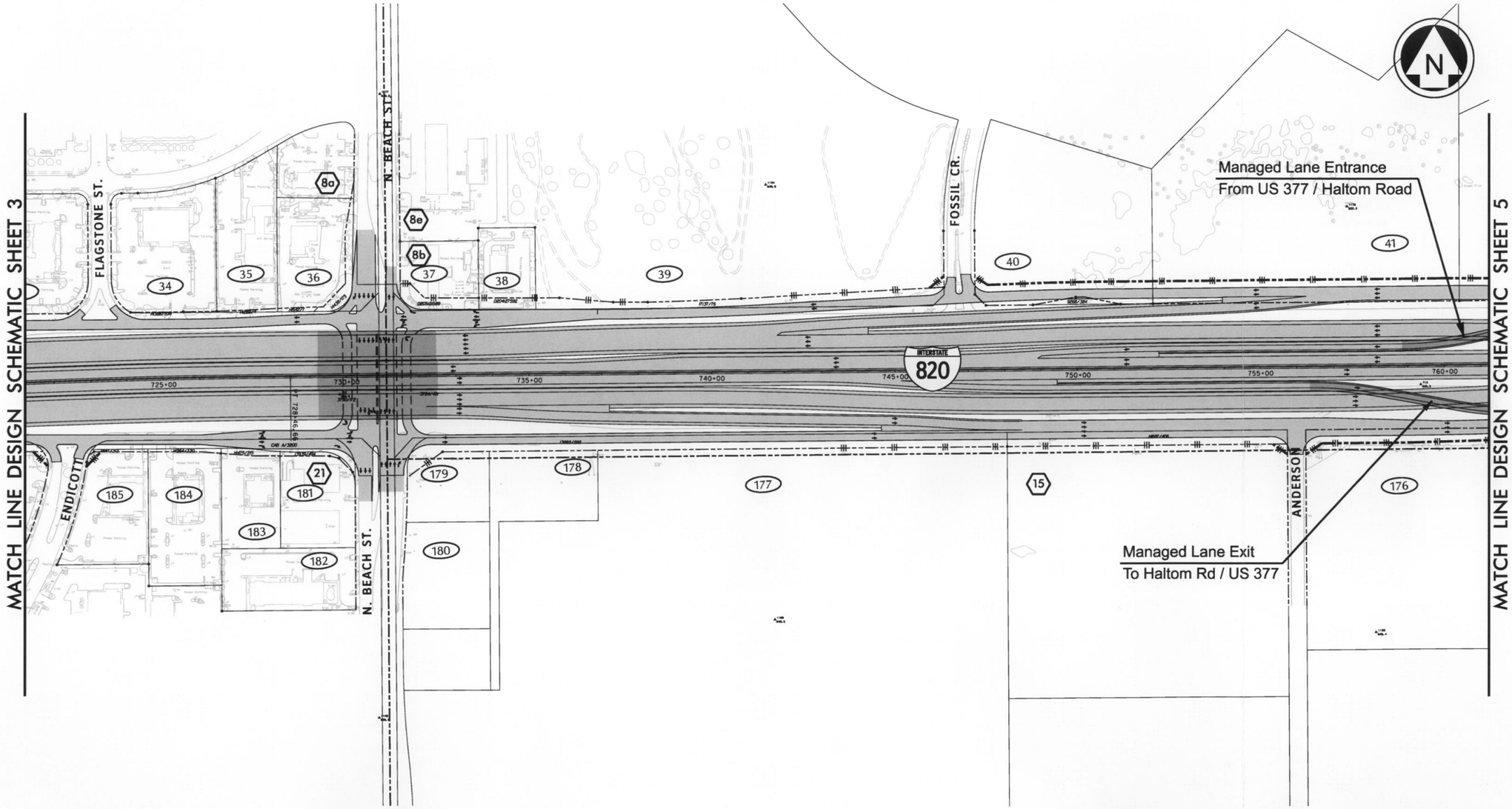
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 3 OF 15



PRELIMINARY

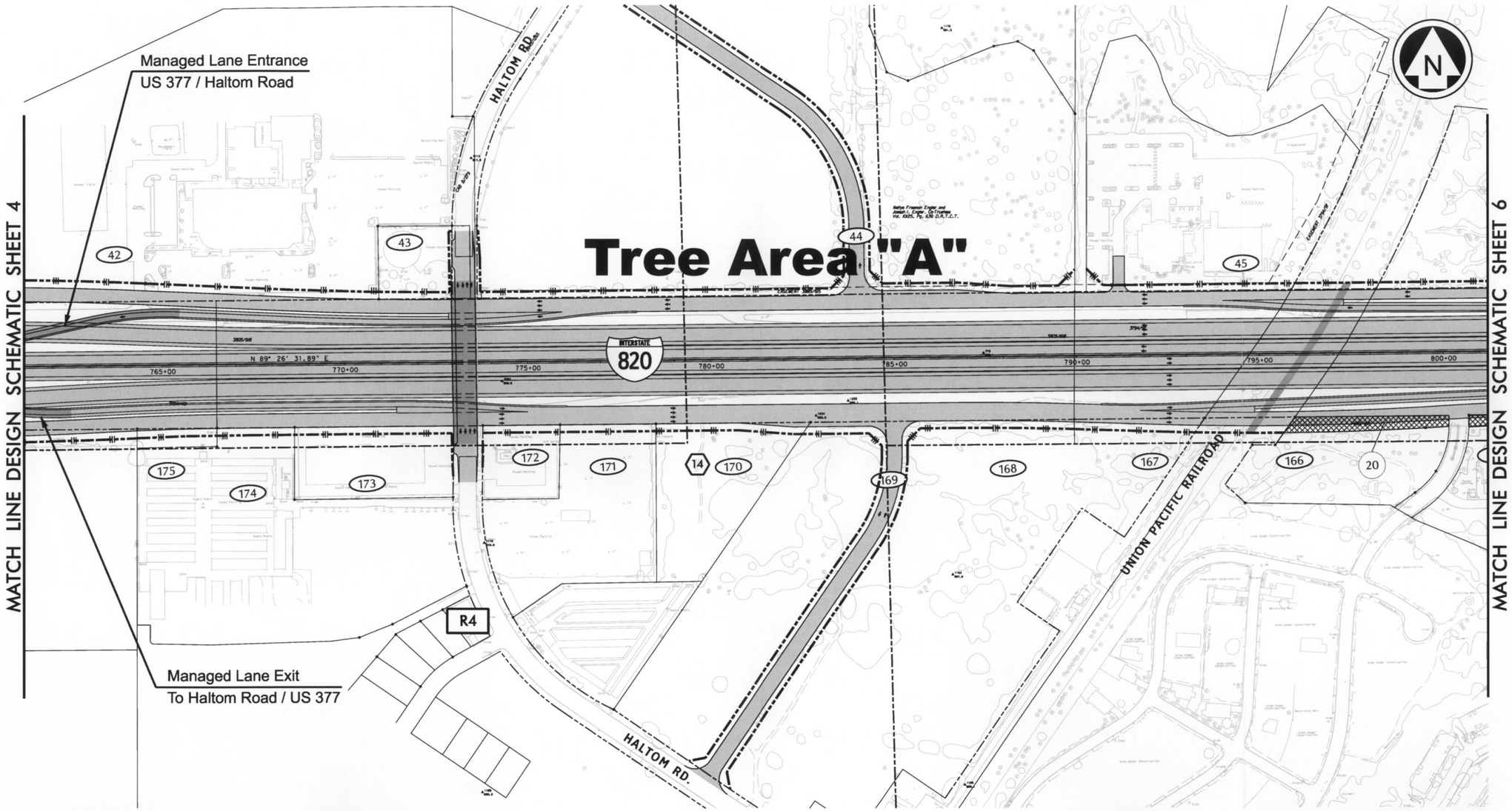
0 300 600
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 4 OF 15



PRELIMINARY

0 300 600
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 5 OF 15

MATCH LINE DESIGN SCHEMATIC SHEET 5

US 377 / DENTON HWY

BIG FOSSIL CR.

NORTH PARK

Managed Lane Exit
To US 377

Tree Area "C"

R5

INTERSTATE 820

Tree Area "B"

IRON HORSE GOLF COURSE

Managed Lane Entrance
From US 377

US 377 / DENTON HWY

MATCH LINE DESIGN SCHEMATIC SHEET 7

PRELIMINARY

0 300 600
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 6 OF 15

MATCH LINE DESIGN SCHEMATIC SHEET 6

Managed Lane Exit
To Iron Horse Drive

DART RAIL

IRON HORSE DR.

BOULDER ST.

INTERSTATE 820

845+00 850+00 855+00 860+00 865+00 870 875+00 880+00

61 62 63 64 65 66 67 68 151 152 153 154 155 156 157 158 159

10c–d 10a–b 11 13i

DART RAIL

IRON HORSE DR.

Managed Lane Entrance
From Iron Horse Drive

MATCH LINE DESIGN SCHEMATIC SHEET 8

N

PRELIMINARY

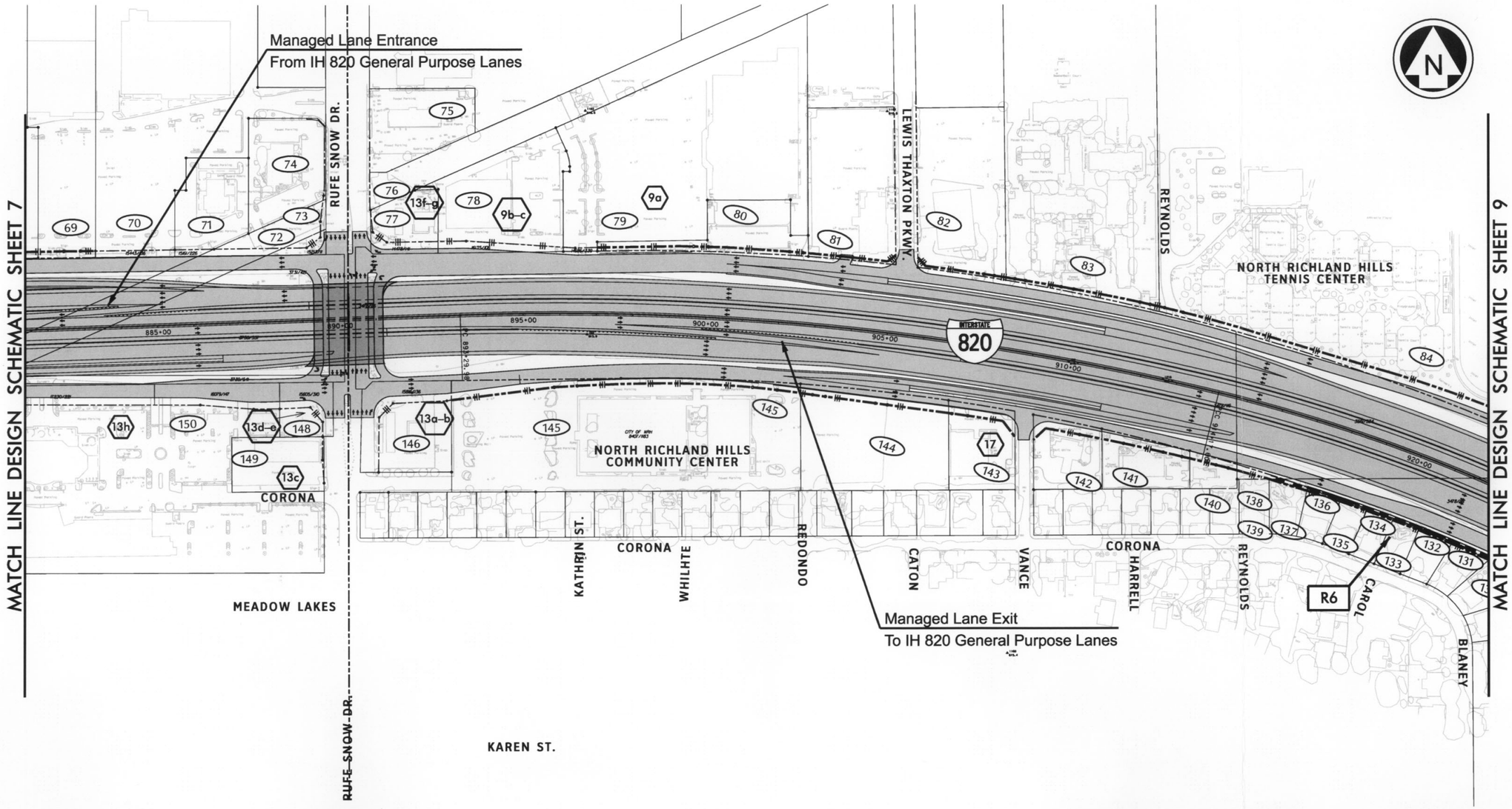
0 300 600
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 7 OF 15



PRELIMINARY

0 300 600
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 8 OF 15

MATCH LINE DESIGN SCHEMATIC SHEET 8

MATCH LINE DESIGN SCHEMATIC SHEET 10

MAPLEWOOD

LAUREL

KAREN

CUMMINGS

GENTLINE

MAPLEWOOD

MARILYN

CUMMINGS

CALLOWAY BRANCH

MARYANNA

SHORT

CLOYCE

SUSAN LEE

NANCY

HOLIDAY LN.

KAREN

MARILYN

OAKLAND

CUMMINGS

WINNEL

EDISON

INTERSTATE 820

R7

R8

R9

R10

R11

N

PRELIMINARY

0 300 600

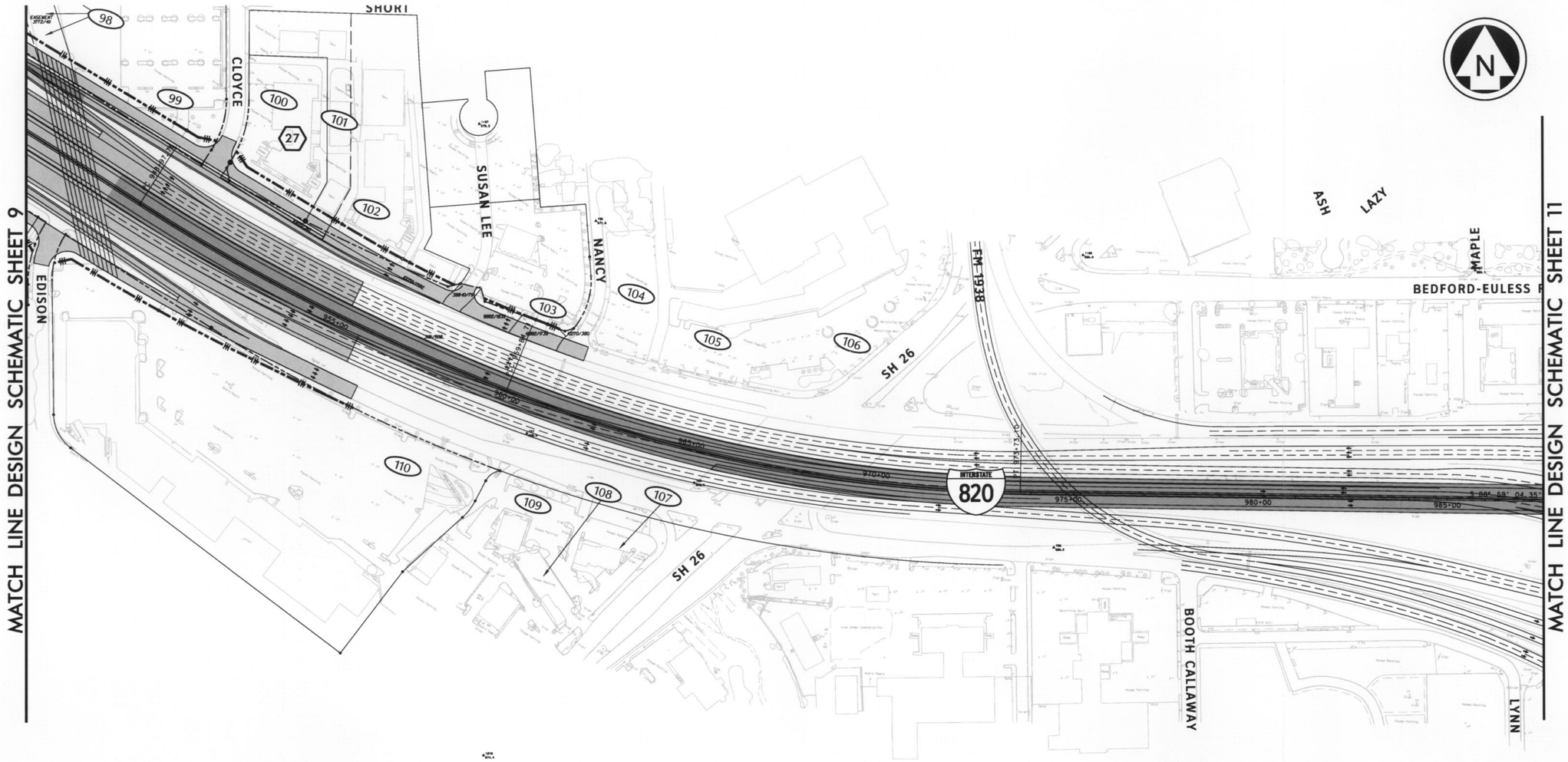
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.
- DISPLACED RESIDENCE

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 9 OF 15



PRELIMINARY

0 300 600

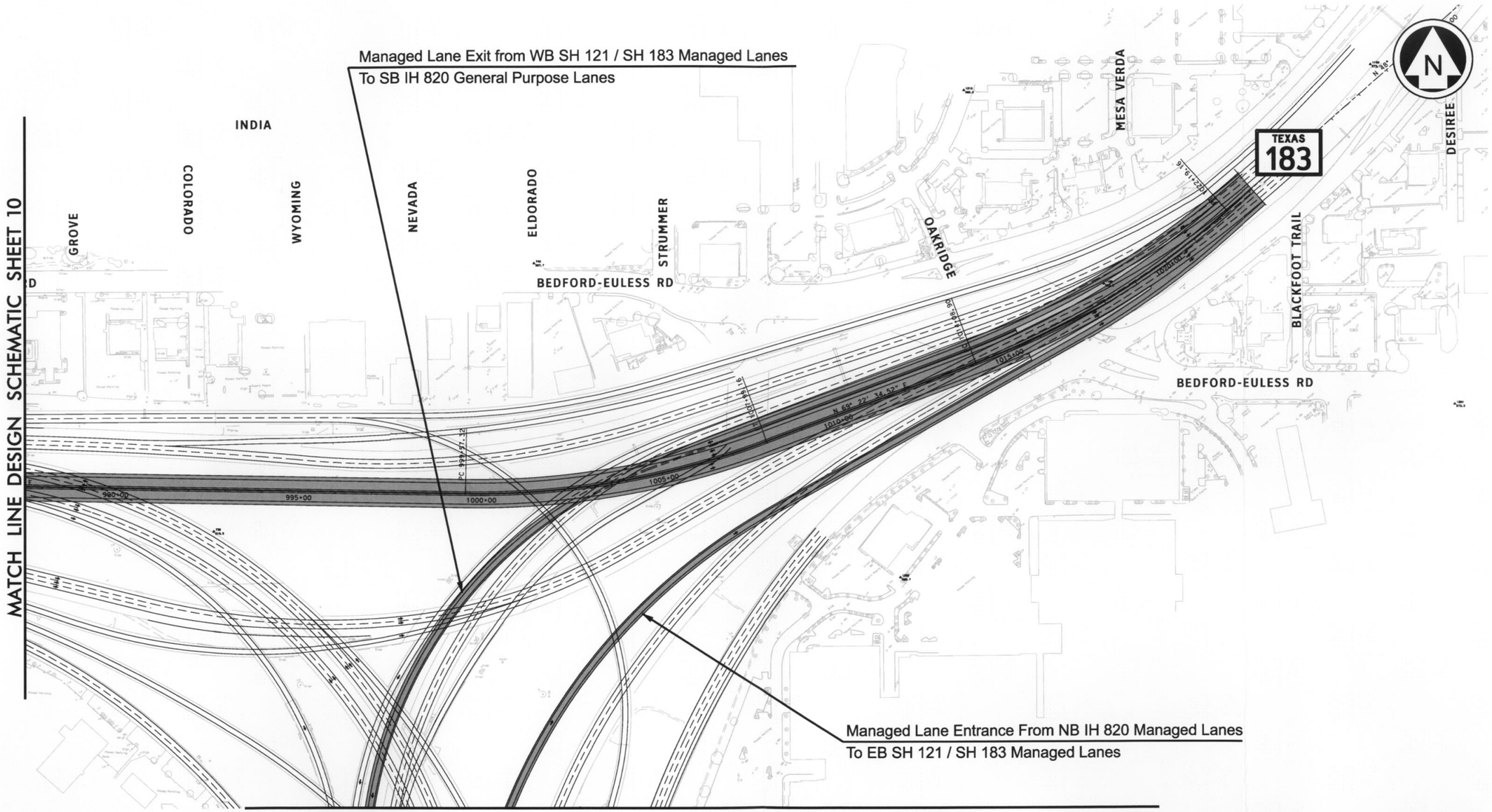
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 10 OF 15



MATCH LINE DESIGN SCHEMATIC SHEET 12

PRELIMINARY

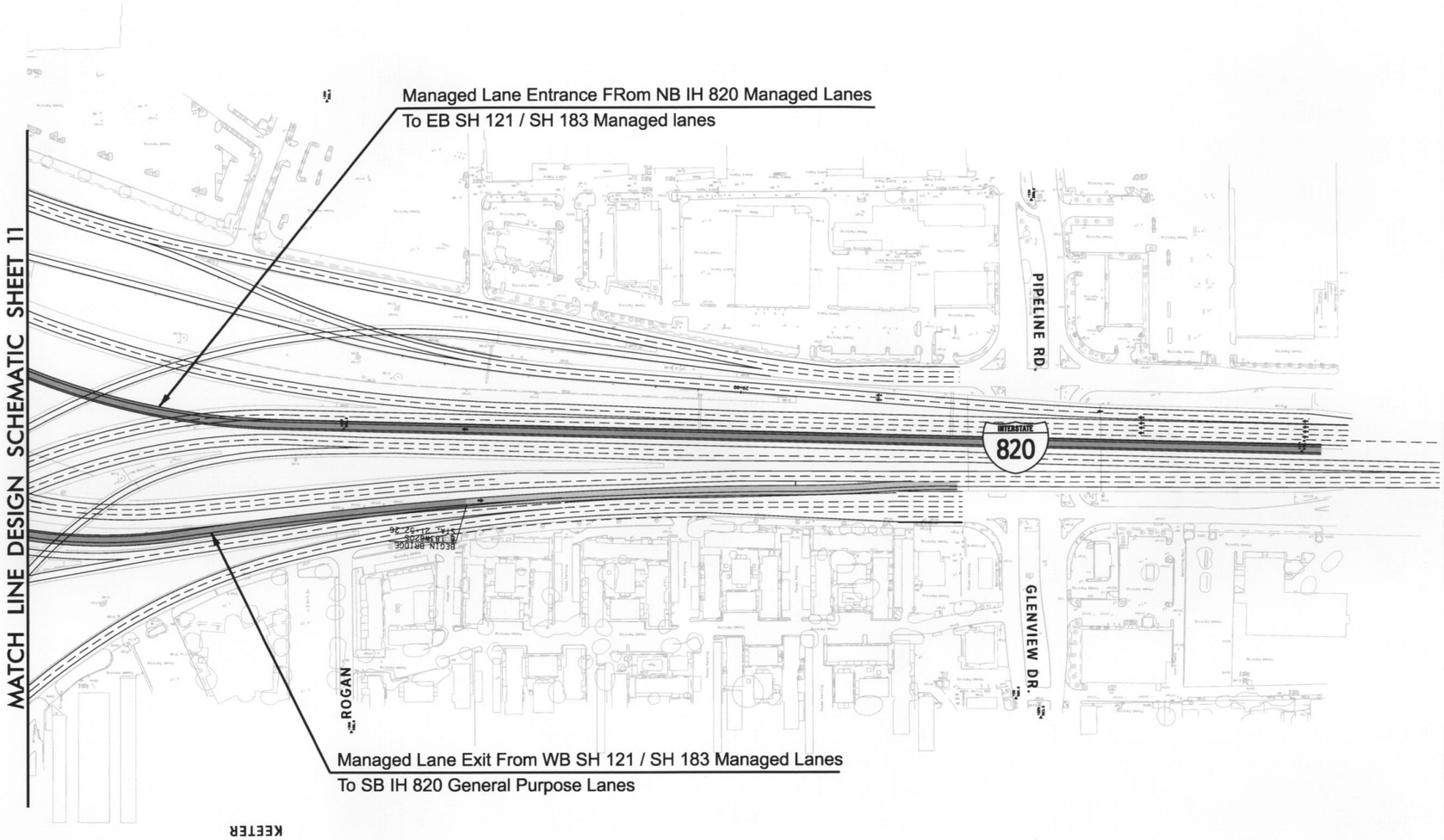
0 300 600
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 11 OF 15



PRELIMINARY

0 300 600

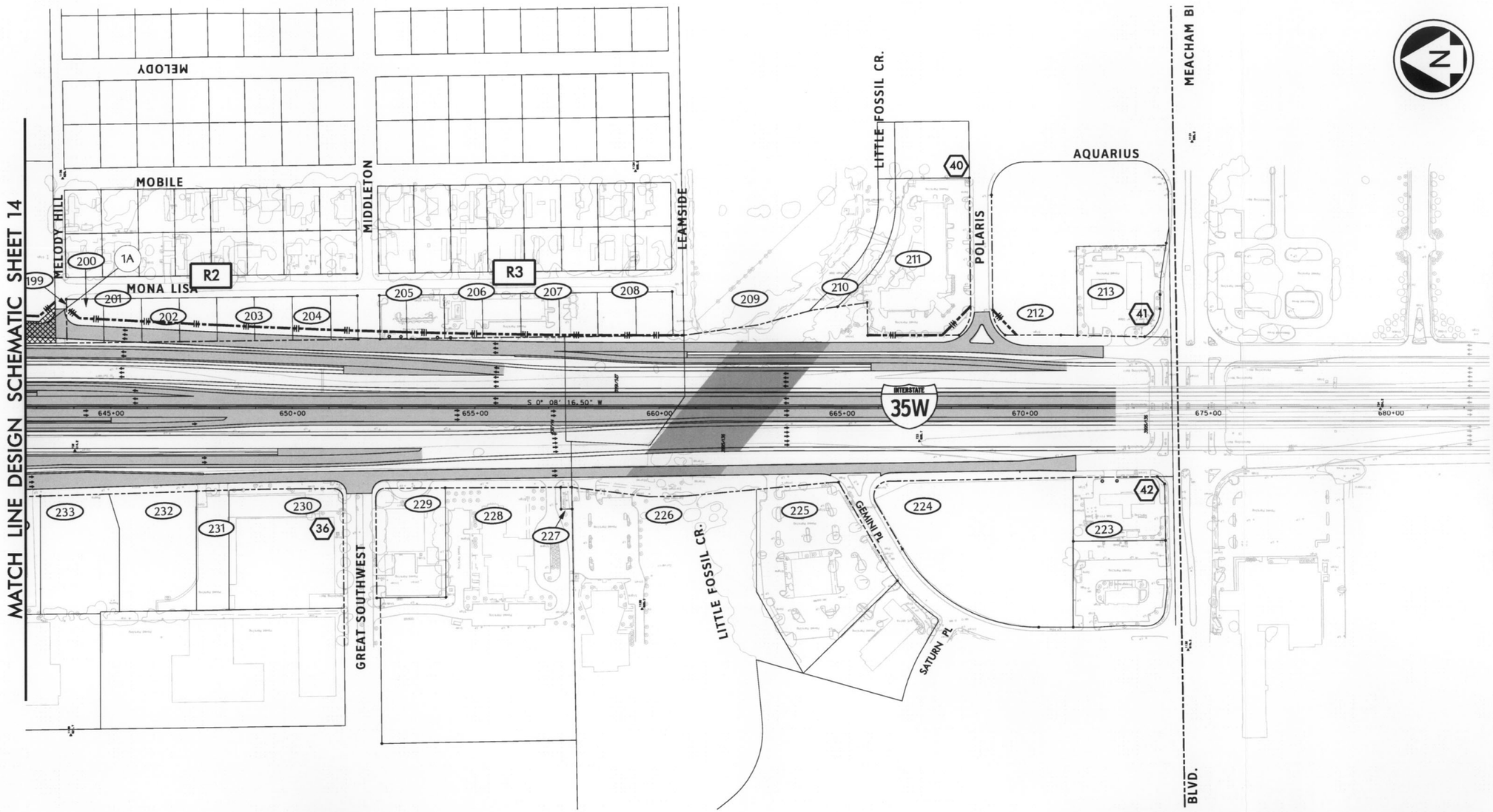
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 12 OF 15



PRELIMINARY

0 300 600

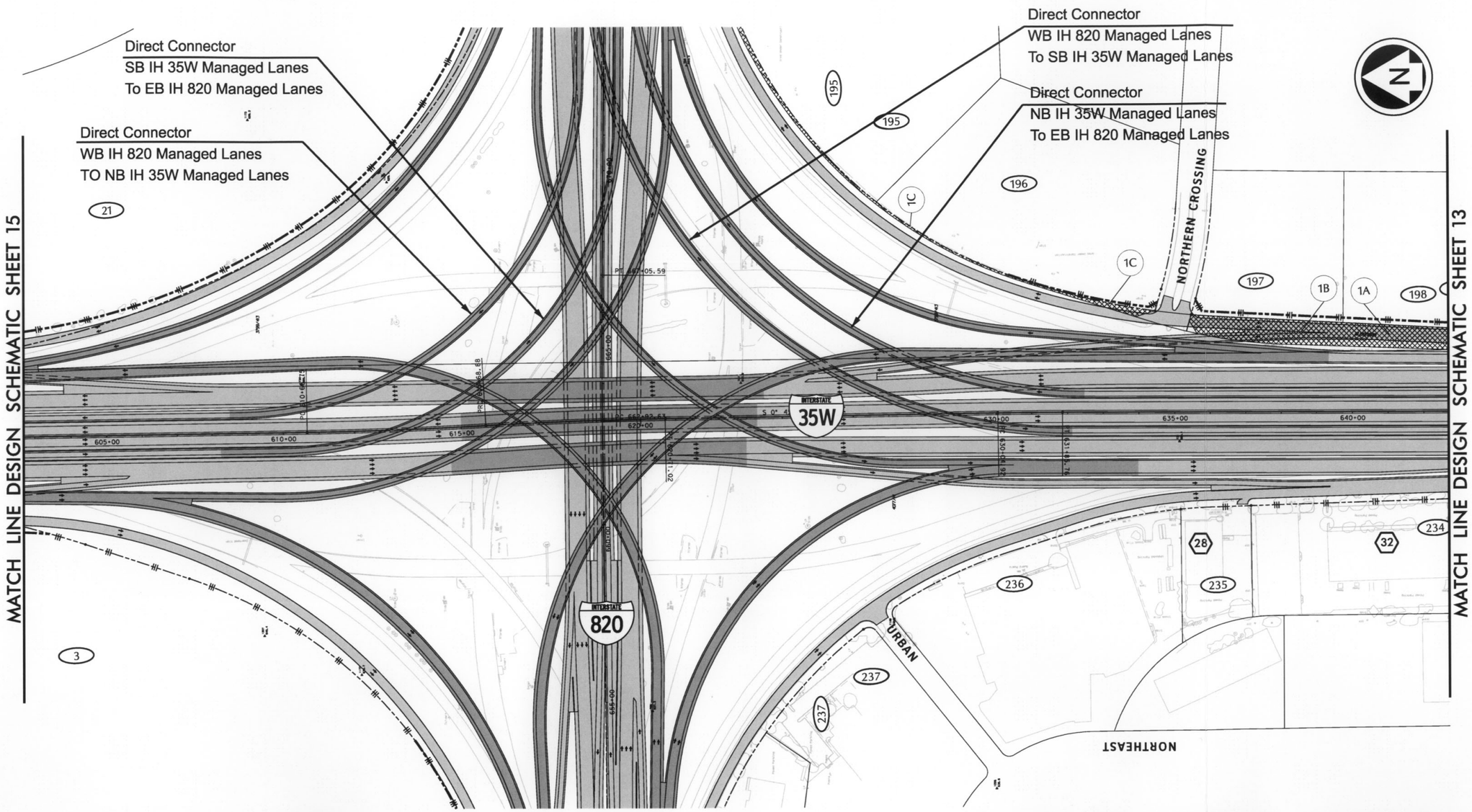
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 13 OF 15



PRELIMINARY

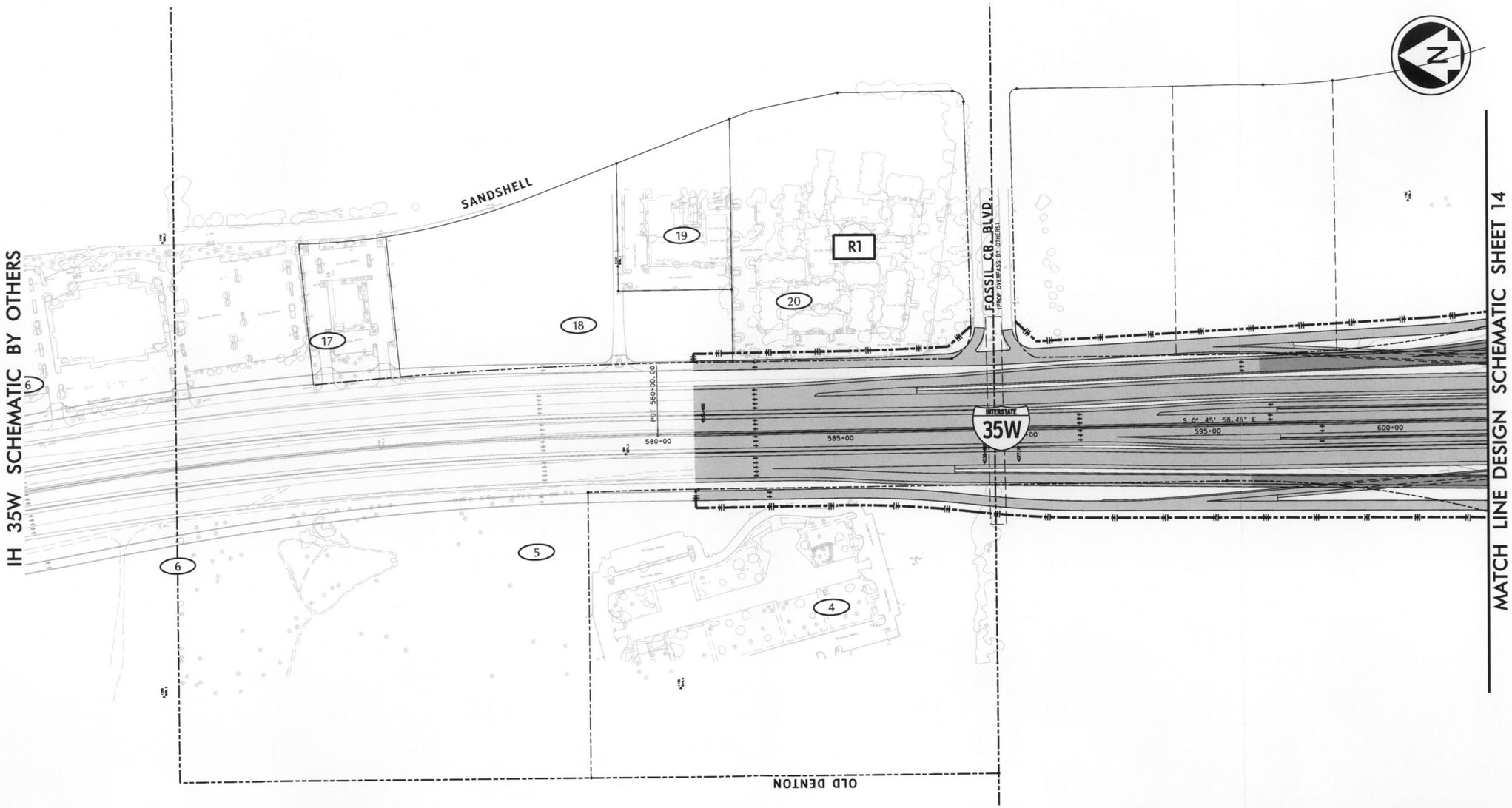
0 300 600
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 14 OF 15



PRELIMINARY

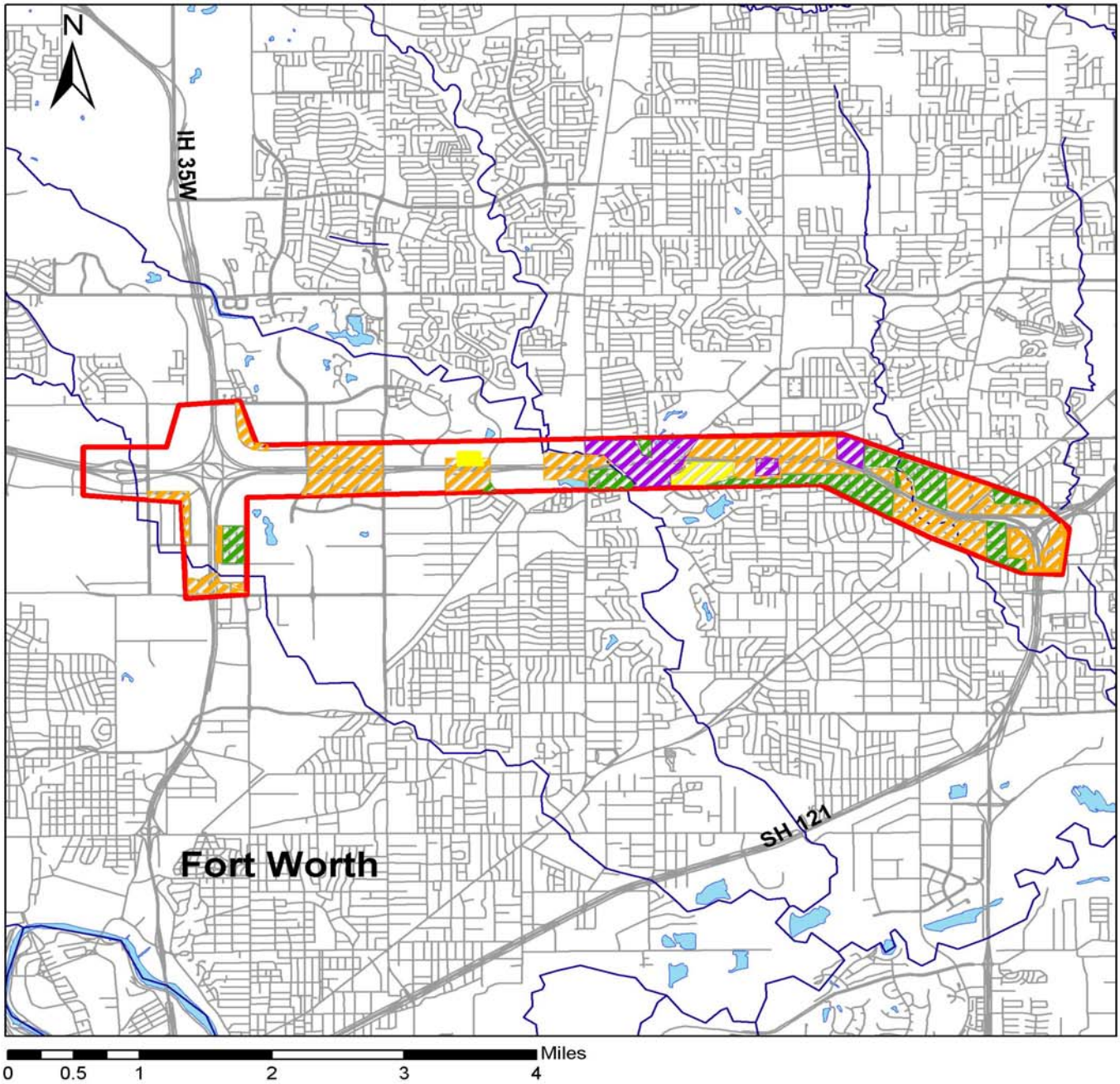
0 300 600
GRAPHIC SCALE IN FEET

LEGEND

- ### PARCEL NUMBER
- ## EARLY ACQUISITION
- R# NOISE RECEPTOR
- NOISE WALL
- ## HAZMAT SITE
- EXISTING R.O.W.
- PROPOSED R.O.W.

EXHIBIT 2: DESIGN SCHEMATIC

SHEET 15 OF 15



LAND USE LEGEND

- Project Vicinity
- Commercial
- Residential
- Section 4(f) Properties
- Church

Exhibit 3a: Existing Land Use Map

IH 820 from IH 35W to SH 121/SH 183
Tarrant County, Texas

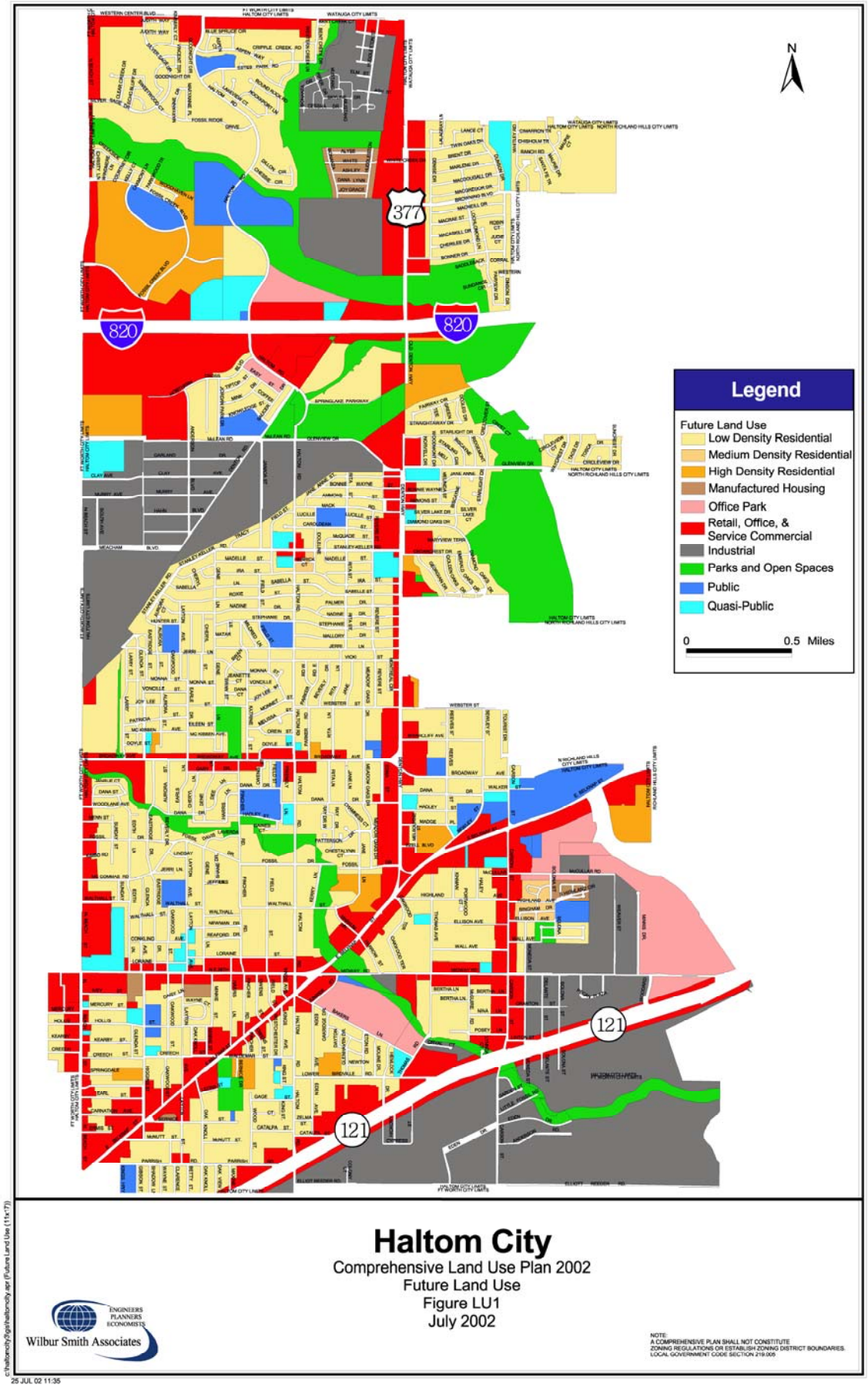


Exhibit 3b: Haltom City Future Land Use Map

Degree of Urbanization

Degree of Urbanization is a measure of the population and employment density developed by the NCTCOG. Areas are subdivided into five categories from least to most dense: rural, suburban residential, urban residential, outer business district, and central business district.

The CBD, Cultural District, and Medical District are now and are projected to be the most urbanized (densest) sections of the study area. Development density within the CBD area is likely to increase by 2030. Growth in these areas will provide opportunities for reduced trips, both in number and in length.

Looking at the remaining study area, however, there are not a significant number of densely urbanized areas except in parts of North Arlington in and around the UT-Arlington campus. Future growth outside of the Central City is projected to consist primarily of suburban and urban residential densities.

2000 Degree of Urbanization *2030 Degree of Urbanization*

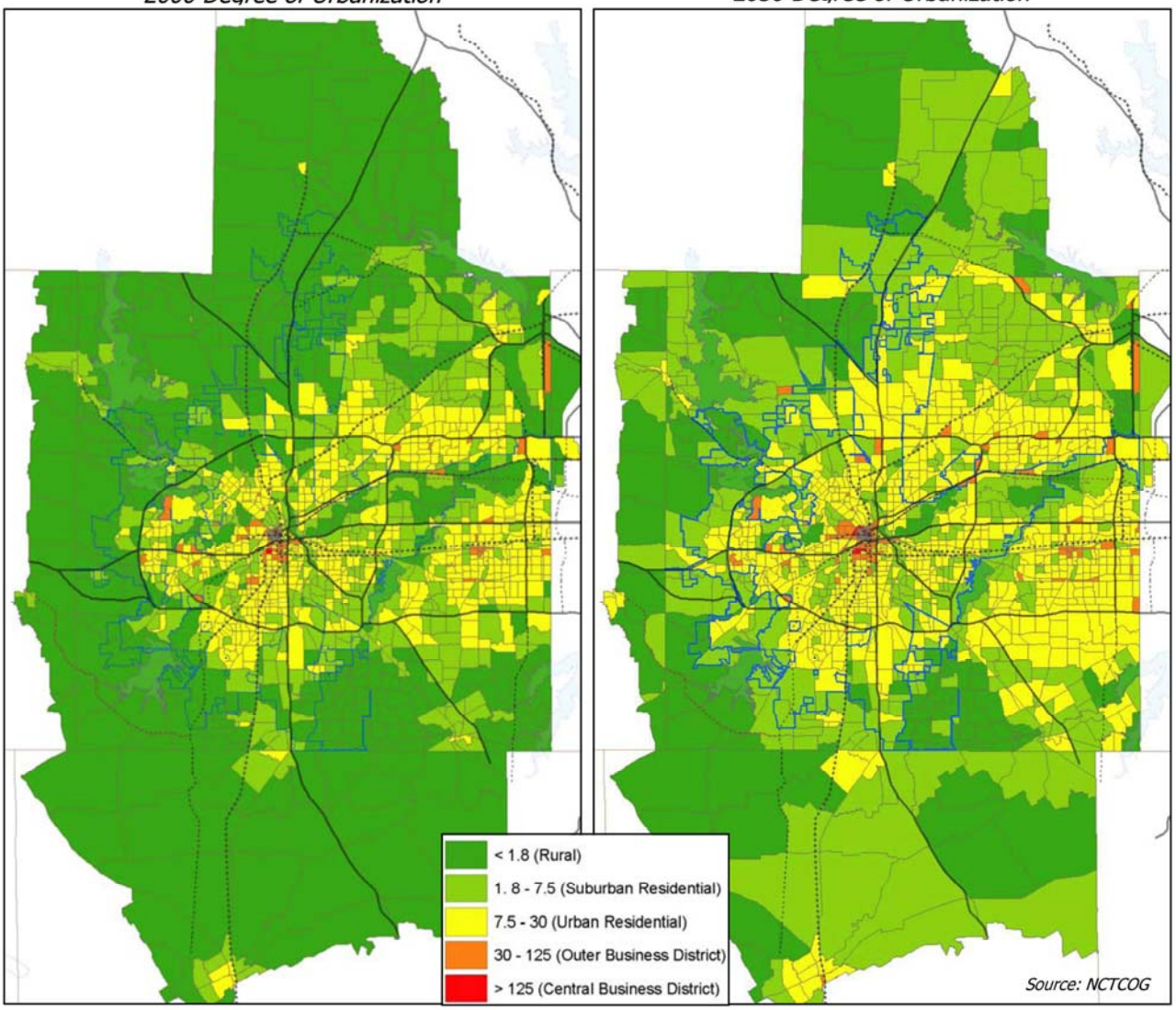


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Exhibit 3c: Fort Worth Transportation Gap Analysis

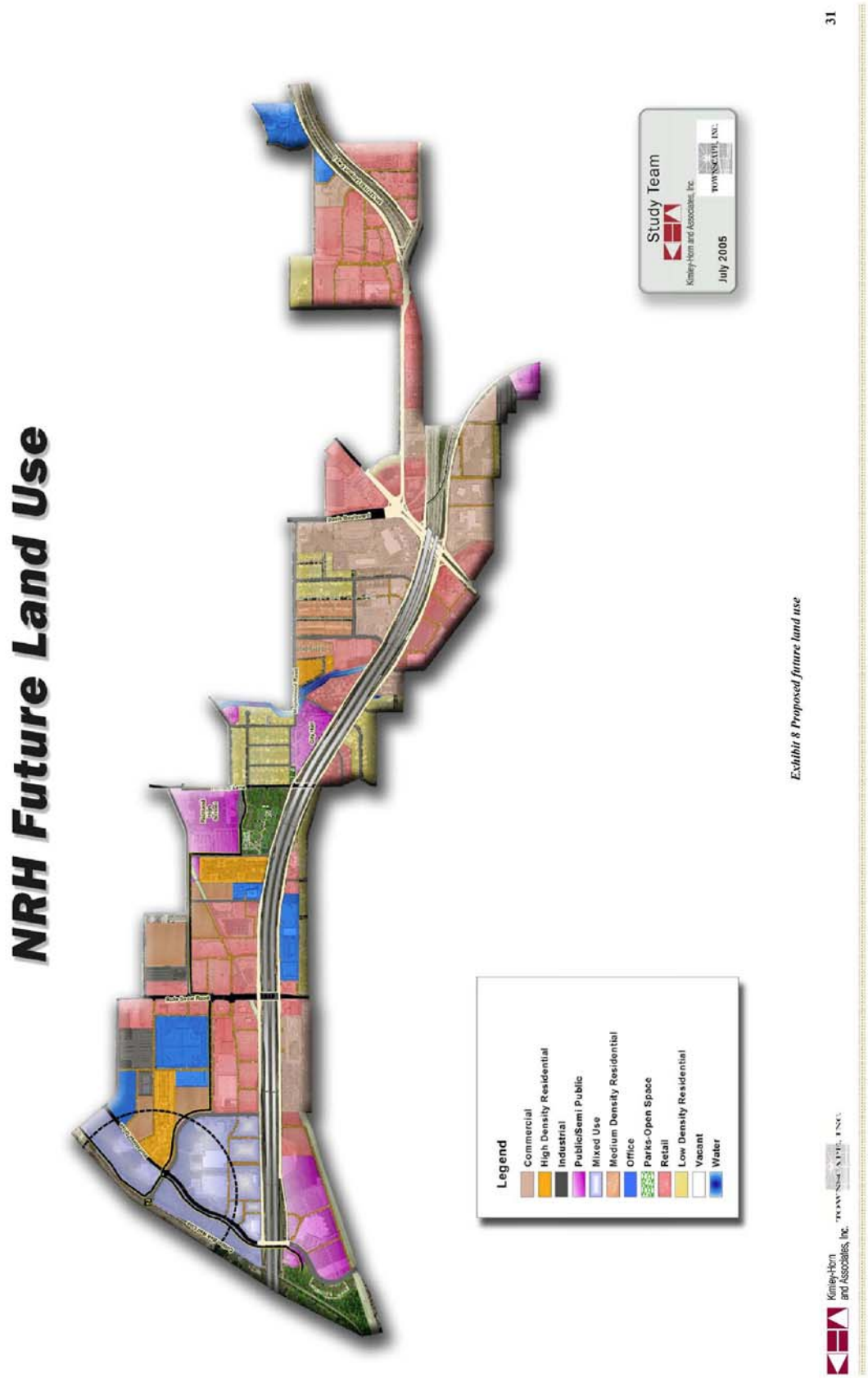


Exhibit 3d: North Richland Hills Future Land Use Map

Exhibit 4: Topographic Map

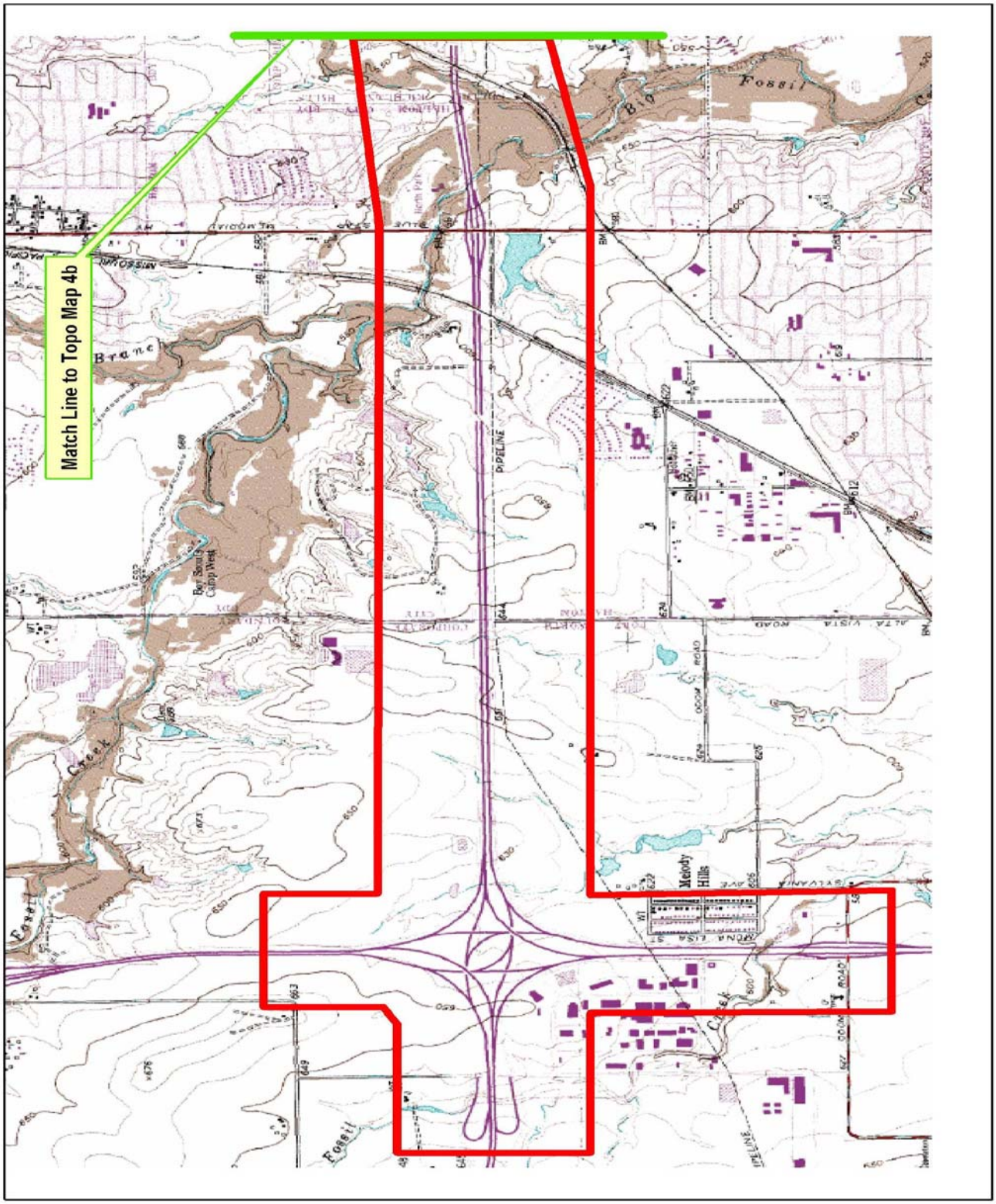


Exhibit 4a: Topographic Map

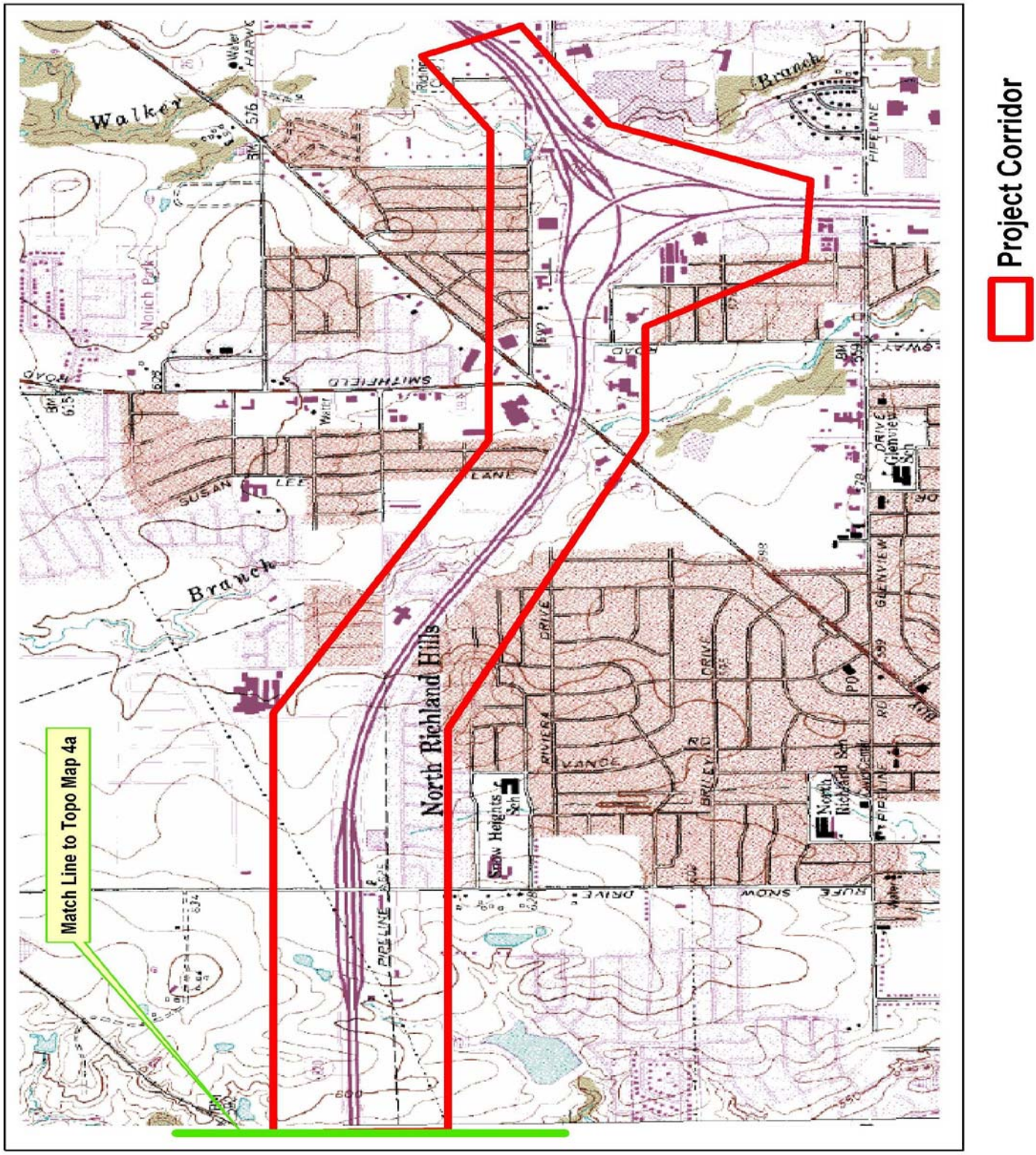
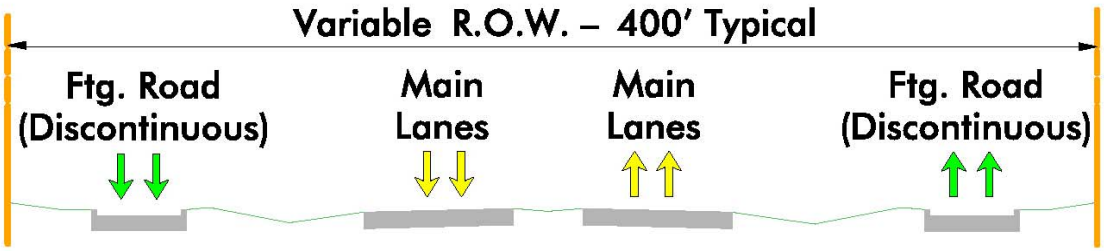
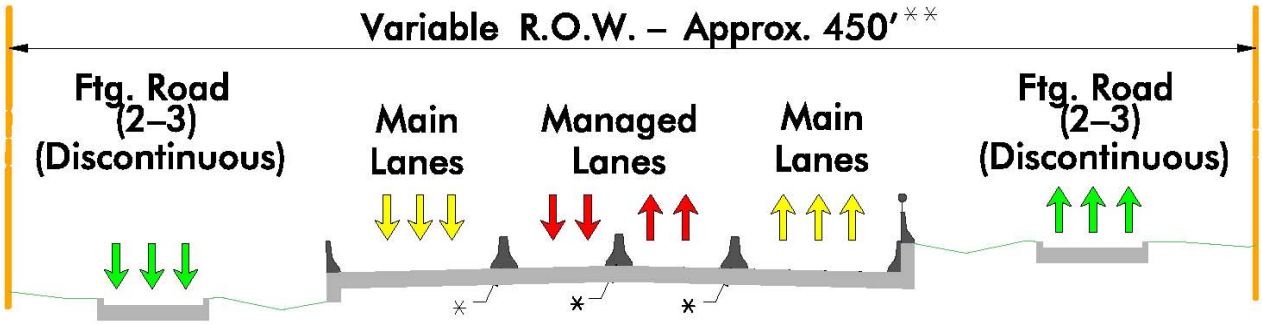


Exhibit 4b: Topographic Map

Exhibit 5: Typical Sections



Existing Facility



*Concrete Traffic Barrier
**Will be Widened at Interchanges

Proposed Facility

Exhibit 6: Representative Project Photographs

Photo 1: Western project limits, facing west.

Photo 2: Western project limits, facing east.

Photo 3: Typical existing frontage road, facing east.

Photo 4: View of existing IH 820 lanes, facing west.

Photo 5: View of existing IH 820 lanes, facing east.

Photo 6: Drainage culvert off Little Fossil Creek, facing west.

Photo 7: Little Fossil Creek culvert at Mark IV Parkway, facing north.

Photo 8: Little Fossil Creek under IH 820, facing south.

Photo 9: Downstream view of Big Fossil Creek north of IH 820, facing south.

Photo 10: North Richland Hills Community Center adjacent to IH 820, facing southeast.

Photo 10: Eastern project limits, facing west.

Photo 12: Eastern project limits, facing east.

Exhibit 7: Access Comparison

Existing and Proposed

Westbound		
Proposed		
	General Purpose Lanes	Managed Lanes
Exit Ramps:		
		WB SH 121/183/26 ML to SB IH 820 GP Lanes
	Holiday Lane	
	Rufe Snow Drive	
	Iron Horse Drive	Iron Horse Drive
	U.S. 377	U.S. 377
	Haltom Road / North Beach Street	
	IH 35W - NB Frontage Road	
	NB IH 35W / SB IH 35W	NB IH 35W / SB IH 35W
		IH 820 GP Lanes West of IH 35W
	Mark IV Parkway	
Entrance Ramps:		
	SH 26	IH 820 ML west of Rufe Snow Drive
	Holiday Lane/ Rufe Snow Drive	
		U.S. 377/Haltom Road
	U.S. 377 / Haltom Road	
	North Beach Street	
	NB IH 35W / SB IH 35W	
	Mark IV Parkway	

Eastbound		
Proposed		
	General Purpose Lanes	Managed Lanes
Exit Ramps:		
	SH 26	IH 820 GP West of Holiday Lane
	Rufe Snow Drive/Holiday Lane	
	Haltom Road/U.S. 377	Haltom Road/U.S. 377
	North Beach Street	
	NB IH 35W/SB IH 35W	
	Mark IV Pkwy	
Entrance Ramps:		
		NB IH 820 ML to EB SH 121/183/26 ML
	Rufe Snow Drive	
	Iron Horse Drive	Iron Horse Drive
	U.S. 377	U.S. 377
	N Beach Street / Haltom Road	
	NB IH 35W/SB IH 35W	NB IH 35W/SB IH 35W
	Mark IV Parkway	

Notes:
GP = General Purpose (FREE) Lanes
ML = Managed (TOLL) Lanes

Exhibit 8: Programmatic Section 4(f) Evaluation - City of North Richland Hills Community Center

CITY OF NORTH RICHLAND HILLS
TARRANT COUNTY, TEXAS

INTRODUCTION

The Texas Department of Transportation (TxDOT) is preparing this document in response to Section 4(f) of the U.S. Department of Transportation Act (49 USC 303), which states...

> ...the Secretary [of Transportation] may approve a transportation program or project... requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if - (1) there is no feasible and prudent alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use.

The regulations implementing Section 4(f) state that..."The potential use of land from a Section 4(f) property shall be evaluated as early as practicable in the development of the action when alternatives to the proposed action are under study" [23 CFR774.9 (a)]. The evaluation..."shall include sufficient supporting documentation to demonstrate why there is no feasible and prudent avoidance alternative and shall summarize the results of all possible planning to minimize harm to the Section 4(f) property" [23 CFR 774.7 (a)]. "… a "use" of a Section 4(f) property occurs "(1) When land is permanently incorporated into a transportation facility (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose...or (3) when there is a constructive use of a Section 4(f) property …" [23 CFR 774.17].

This programmatic 4(f) evaluation discusses the North Richland Hills Community Center (NRHCC) in North Richland Hills, Texas, which houses a Recreation Center (RC) that is a Section 4(f) property. The Community Center's parking lot is adversely affected by the proposed expansion of Interstate Highway (IH) 820 in North Richland Hills. The programmatic approach [as opposed to an Individual Section 4(f) evaluation] is based on the existence of a recurring set of circumstances that allows for the requisite Section 4(f) determinations to be made on a programmatic rather than a project-by-project basis. This nationwide evaluation can be used for minor involvements with public parks and recreational areas when an existing highway facility is being improved; only minor amounts of parkland adjacent to the existing highway are proposed for use; and the official with jurisdiction over the Section 4(f) land agrees, in writing, with the assessment of the project impacts and mitigation measures.

When parkland has been acquired or developed with funds from the Land and Water Conservation Fund Act of 1965, and this land is required for the highway improvements, a Section 6(f) evaluation must also be performed. Special coordination and approval from the National Park Service (NPS) and the Department of the Interior (DOI) is necessary to satisfy Section 6(f) requirements. No Land and Water Conservation Fund Act monies were used for purchase of or improvements to the Recreation Center.

I. PROPOSED ACTION

The proposed action is the expansion of IH 820 in Tarrant County, Texas between IH 35W (western terminus) and SH 121/SH 183/SH 26 (eastern terminus), a distance of approximately six miles (see Exhibit 1a: Site Location Map). This portion of IH 820 is the northeast quadrant of a loop that encircles the City of Fort Worth and is known locally as the "Northeast Loop."

The project would widen the existing four-lane roadway to six general purpose lanes and four managed (toll) lanes, with one to two ramp auxiliary lanes and include the complete reconstruction of the IH 820/IH 35W interchange, as well as the reconstruction of grade separations at several cross streets. In addition, two railroad bridges that cross over IH 820 would be reconstructed.

The Preferred Alternative would provide for two 12-foot wide eastbound and westbound frontage lanes. There would be six 12-foot wide general purpose lanes with one to two ramp auxiliary lanes and 10-foot wide inside and outside shoulders. Four managed (toll) lanes would be provided in the median from west of IH 35W to the east end of the project. The managed (toll) lanes would have 12-feet wide lanes with a four-foot inside shoulder and a 10-foot wide outside shoulder.

II. NEED AND PURPOSE

Transportation improvements are needed on IH 820 to address current and projected traffic demands and facility deficiencies. The traffic demand on IH 820 results from many causes, including high population growth [see Table 1 in the Environmental Assessment (EA)], proximity to employment centers, lack of sufficient alternative routes, and high use of SOV's. There are insufficient lanes on IH 820 to carry the existing and projected east-west traffic demand (see Table 2 in the EA). The high traffic volumes on the highway result in many effects, including slow travel speeds and extended hours of congestion, increased accidents, (see Table 3 in the EA) and increased air pollution.

The purpose of the proposed project is to improve mobility throughout the corridor to relieve existing traffic congestion, improve local traffic circulation, and accommodate future travel demand. The project is needed for the following reasons describing in the following sections.

A. Projected Population and Employment Growth

The cities of Haltom City, North Richland Hills, Fort Worth, and other communities in northeastern Tarrant County have experienced steady population and employment growth. This growth is accompanied by increased population density in Tarrant County, as well as substantial increases in motor vehicle numbers utilizing present transportation facilities. The proposed project is needed to accommodate this increase and expected increase in population for northeastern Tarrant County and the Dallas-Fort Worth (DFW) Metropolitan Area.

According to the *Mobility 2030* and the 2000 Census, the year 2000 population for the DFW Metropolitan Area, which includes Collin, Dallas, Denton, Rockwall and Tarrant Counties, and portions of Ellis, Johnson, Kaufman, and Parker Counties, was approximately 4.87 million, an increase of 29 percent since 1990. By 2030, the DFW Metropolitan Area population is expected to be approximately 9.09 million persons, an increase of 187 percent from 2000. On average, the region is anticipated to add population at a rate of approximately 140,000 persons per year. Growth in the region is predicted to continue in a northerly direction with the IH 820 corridor experiencing moderately-high to high population density by 2030.

B. Changing Land Use

The proposed project is needed to accommodate changes in land use in the project vicinity. Land use changes along IH 820 are more pronounced in the western end of the project, in Haltom City and especially Fort Worth, where vacant land abutting the project is being developed with commercial uses such as restaurants, hotels, and office buildings. At the eastern end of the project in North Richland Hills, land use is typical of development along a major urban highway, with a variety of land uses including commercial, light industrial, residential, and park/open space. Although land use adjacent to the project area in the eastern end is not changing rapidly, vacant properties are being developed and other properties are being redeveloped.

Changes in land use along the project are determined by the existing zoning. It is not anticipated that the project would substantially change the adjacent land usage as it is planned for future development. The project is consistent with local planning efforts. Exhibits 3b, 3c, and 3d show future land uses.

C. Traffic Projections

Traffic volumes continue to increase as a result of area growth. Traffic is particularly congested because the capacity of the existing IH 820 facility is being exceeded by the current travel demand.

D. Changing Access Needs

Population and land use changes have occurred in the study area. Local access is needed to accommodate the commercial, light industrial and residential land uses along the corridor. This would be done by providing some frontage roads in most areas that currently do not have access. In addition to adding frontage roads to the existing facility, ramps would be added, lengthened, or removed, and braided ramps (one ramp bridging over second ramp) would be used in some locations to relieve congestion along IH 820 and IH 35W. The addition of managed (toll) lanes would facilitate through traffic flow through the project area without increasing access needs.

E. Current Condition of Facility

The existing four-lane facility was constructed from approximately 1963 through 1967 (see Exhibit 5: Typical Sections). The facility does not meet current urban freeway design standards as described in the *Texas Department of Transportation Roadway Design Manual* (October 2006) and in *A Policy on Geometric Design of Highways and Streets* (5th Edition, 2004) published by the American Association of State Highway and Transportation Officials. Specifically, the current condition of the facility does not meet the urban freeway standards in the following ways:

- Left hand exits at the IH 35W interchange go against driver expectancy. Typically, drivers anticipate right hand exits.
- Due to the increased travel demand on the facility since it was built, the distance from the ramps to the cross street intersections is too short in some instances, causing traffic to back up onto the main lanes due to merges.
- There is inadequate capacity for the existing and projected 2030 traffic volumes. Inadequate capacity results in frequent starts and stops along the roadway decreasing air quality and increasing the likelihood of accidents.
- Vertical bridge clearances are less than 16.5 feet in some instances. Inadequate bridge clearances could result in damaged bridge structures, lodged vehicles, and temporary closure of the roadway for repairs.
- Vertical curvature along IH 820 does not meet minimum standards for a 60 mph design speed (the facility is currently posted at 60 mph)

F. Accident Rates

As shown in Table 3, the traffic accident data for IH 820 shows the number of reported accidents that occurred between IH 35W to SH 26 during the period of 1992 to 2000 and 2005 to 2006. Of these, 2,208 (56 percent) resulted in injuries. The traffic accident data reports indicated 23 fatal accidents occurred during these time frames. This data shows neither an increasing nor decreasing trend over the period. As traffic volumes increase in the study area roadways, the number of accidents is likely to increase. This is because increased congestion interrupts normal traffic flow, leading to a greater number of vehicle conflicts and accidents. Without improvements, study area roadways and intersections are likely to have higher accident rates in the future. In addition, as traffic continues to spread to other secondary roads to avoid highway congestions, the secondary roads are likely to experience deterioration in operating conditions.

The purpose of the project is to improve mobility throughout the corridor to relieve existing traffic congestion, promote local traffic circulation, and accommodate both future single occupancy and high occupancy vehicular users.

III. THE SECTION 4(f) PROPERTY

A. Description of the Property

The NRHCC at 6720 Northeast Loop is a 6.7-acre parcel on the southeast corner of IH 820 and Rufe Snow Drive. It is bounded by a Mobil service station to the west, residences to the south, an empty lot used for parking to the east, and the IH 820 eastbound frontage road to the north. The mixed-use facility includes a public library, municipal court, the City of North Richland Hill's Parks Department administrative offices, City Cable offices, and a RC. Table 8-1 presents the area for each use in the NRHCC facility.

Table 8-1
Building Areas

Occupant	Square Feet (SF)	Percent
Library	31,000	35
City Cable	3,700	4
Courts	9,050	10
Parks Administration	9,050	10
Recreation Center	36,000	41
Total	88,800 SF	100%

B. Current Ownership and Use

A City of North Richland Hills Bond Election provided funding for the acquisition of the Community Center in 1985. Approximately $4.3 million was allocated for acquisition and $700,000 for remodeling. There were no Land and Water Conservation Fund Act monies used in the purchase. The Community Center was purchased from the Richland Hills Church of Christ after they built a new facility on a new location. The Richland Hills Church of Christ retained ownership of the empty lot adjacent to the eastern boundary of the NRHCC. This lot is used by patrons of the RC for parking. The former church building was remodeled to accommodate its present mixed uses and now consists of two brick buildings attached by a courtyard and covered breeze way. The western

building houses the library, municipal court, city cable, and Parks Department administrative offices, while the eastern building houses the RC. The RC opened in September 1987.

The RC is used as a recreational type of Section 4(f) resource. Existing facilities at the RC consist of a gymnasium, an aerobics room, a fitness room, a free weight room, a lounge, a preschool room, a dance room, a children's multi-purpose room, a martial arts room, four multi-purpose classrooms, an assembly room, a massage room, two offices, a registration, check-in, control center, and storage closets. The City of North Richland Hills Department of Parks & Recreation has no plans to expand or reduce the facilities or activities offered at the current RC site. A new RC is planned for design in Winter 2007 with completion in Fall 2010.

Available activities that occur at the RC consist of multiple classes or activities under each of the specific areas (health and wellness, youth and family programs, cultural arts, etc.) include:

- Youth Programs - arts/crafts, educational, general programs, kids in nature, physical development, one day programs, gymnastics, dance, and youth camps.
- Family – open play time, activity nights, movie nights, outdoor adventure.
- Cultural Arts Summer Series – multimedia classes, mosaics, ceramics, photography, theatre camp.
- Adult Enrichment - pets, arts/crafts, business/finance, dance, educational, parenting, physical development, healthy lifestyle choices.
- Health & Wellness – SilverSneakers, fencing, tae kwon do, yoga, Pilates, group fitness classes, massage therapy, personal training, and jazzercise.
- Athletics - adult volleyball, adult basketball, youth sport camps, youth volleyball, special events.

Registration for all programs, classes, and events listed takes place in the control center/registration area of the RC. In addition to the regularly scheduled, on-going activities previously listed, special events are also held at the RC:

- Rec Expo/Open House - 800 participants
- Companies in Action – 1,000 participants
- Health & Wellness Weeks – 1,500 participants
- Customer Service Week - 800 participants
- Generation Next Art Show – 200 participants
- Artists At Work Employee Art Show – 200 participants
- Membership Visit Drivers – 1,200 participants
- Summer Theatre Camp Performance – 500 participants
- Volleyball Leagues - 100 teams, 1,280 participants
- Basketball Leagues - 20 teams, 240 participants
- TV Off …. Family On – 100 participants
- Reel Time Family Holiday Movie Night - 200 participants

The courtyard between the buildings is the only outside area for activities and classes associated with the RC. The Courtyard is used for dog obedience classes, dance classes, preschool activities, youth camps, and family activity nights.

The regular hours of operation at the RC are Monday - Thursday 8 am - 10 pm; Friday 8 am - 6 pm; Saturday 9 am - 5 pm; and Sunday 12:30 pm - 4:30 pm.

C. Access

Citizens of North Richland Hills and surrounding communities use the RC. Approximately 260,300 people use the facility on an annual basis, including the previously mentioned special events. In addition to this number, 2,200 reservation hours were booked in 2006, totaling another 31,126 reservation participants.

Vehicular access to the RC is provided from the west, north and south entrance points. Autos traveling east on the frontage road may enter the facility from the north through four existing curb cuts, directly into the parking lots. Two of these curb cuts directly access the NRHCC property and would remain open with the proposed design. The two eastern curb cuts allow entry to the empty church lot used for parking. Curb cuts to the empty lot at their current location would not be allowed due to required access control for the relocation of the eastbound entrance ramp in the proposed design. Access to this property would be allowed by relocating one curb cut to the eastern boundary. Autos on Rufe Snow Drive may enter from the west via an east-west oriented driveway access road that joins Rufe Snow Drive just south of the Mobil service station. In addition, autos from the neighborhood to the south of the facility may enter from the south via Redondo Street, directly into the parking lot.

Parking spaces are provided on the north, west, south, and east sides of the facility. There are approximately 337 parking spaces and 12 handicapped spaces, for a total of 349 spaces. Most of the parking spaces are angled to allow for easier entry and exit, but this requires “one way” flow of traffic in the parking lot.

A drive-through canopy on the north side of the facility provides covered access at the courtyard between the two buildings. Parking access to the various departments within the buildings is functional but not evenly distributed throughout the parking lot. The Library has excess parking on the west side, but security requirements preclude the Library from being used for pedestrian “flow through” access to other departments. The RC’s public entrance is on the north side of the building where minimal parking is available. During peak hours, the north side parking fills first and then the majority of patrons park on the east side of the building and walk to the north entry.

A large sign pole identifying the facility is located in a parking island on the north property line. Six light poles in the west portion of the parking area and two in the east portion provide parking illumination. A 25-foot wide pipeline easement that contains a fuel pipeline extends along the entire length of the facility within the south property line, restricting the use of land within the easement to uses that do not require below grade penetration, such as parking. Small to medium sized trees are planted on parking islands, courtyards, and along the north side within the IH 820 right-of-way (ROW). Planting areas are also landscaped with shrubs and grasses throughout. Two trash dumpsters are provided with brick screening walls and the third is unscreened. The dumpsters are located on the south side of the buildings.

D. Relationship to Other Similarly Used Lands

The closest comparable facility is five to ten miles away in the City of Hurst. The RC also houses the Parks and Recreation Department’s Administrative Offices where all park system planning, development, maintenance, and operations and management occur. All of the city’s recreational activities and special events are programmed and coordinated by staff who office in the RC.

E. Applicable Clauses About Ownership

There are none known.

F. Unusual Characteristics of the Property that Reduces or Enhances Value

The property is enhanced by its location on IH 820 in its existing configuration, which provides a good location, ease of access, marketability, visibility, and geographic proximity to the many people who travel the freeway. This situation allows the RC to function more like a regional facility than a neighborhood recreational facility.

IV. IMPACTS ON THE SECTION 4(f) PROPERTY

At station 900+00 where the NRHCC is located, the Preferred Alternative provides for two 12-foot wide eastbound and two 12-foot wide westbound frontage lanes with auxiliary lanes. There would be three westbound and eastbound general purpose lanes with 10-foot wide inside and outside shoulders. The main lanes are below grade at the west end of the property and then come up to grade level with the facility as the road continues east. Also, four managed (toll) lanes would be provided at this location. The managed (toll) lanes would be 12 feet wide with four-foot wide inside shoulders and 10-foot outside shoulders. Additional detail about the advantages and disadvantages of the Preferred Alternative is provided in Section V of the EA.

Flexibility in the application of the American Association of State Highway and Transportation Officials (AASHTO) geometric design standards has been incorporated into the design of the Preferred Alternative to reduce the impacts to the NRHCC. To reduce the footprint of the Preferred Alternative at the NRHCC, the eastbound entrance ramp from Rufe Snow Drive was designed using the flexibility of the geometric design standards for providing a safe facility.

The portion of the NRHCC that would be required for the proposed project is immediately adjacent to the south side of IH 820. This area is currently parking lot and landscaping. The amount of ROW needed varies from 15 feet to 55 feet in width and extends the entire length of the north property line. Approximately 22,694 square feet or 0.521 acres would be acquired.

Total Size of Section 4(f) Site	Maximum to be Acquired
6.7 acres	0.521 acres or 7.77%

The eastbound frontage road for IH 820 would be approximately 18 to 24 feet closer to the NRHCC than with the No Build. The drive-through canopy and the sign pole north of the buildings would be removed. Approximately 70 parking spaces are located along the entire frontage of the NRHCC and would be eliminated. Of the 70 spaces approximately 43 service the RC (three are handicapped spaces) and the remainder service the municipal courts, City Parks and Recreation Department, and library. The loss of handicapped parking spaces on the north side would require the RC entrance to be relocated and the first floor remodeled to insure property entrance control and access meeting the requirements of the Americans with Disabilities Act.

V. AVOIDANCE ALTERNATIVES

A. No-Build

The No-Build alternative would result in no improvements being made to IH 820 and no impacts to the NRHCC, including the RC. This alternative is not feasible or prudent because it would not: 1) address the capacity required for existing and future travel demand due to the rapid population growth in the general area and in the communities adjacent to IH 820, 2) address the changes in land use that the project area has experienced as the population has increased, 3) meet the additional access needs that the changes in land use and growing population have caused, and 4) upgrade the roadway to meet current design and safety standards.

B. Shifting the Road North

Shifting the project north to avoid the NRHCC was considered and eliminated. The Preferred Alternative encroaches upon six properties on the north side of the existing facility. Shifting further north would experience worse impacts than the Preferred Alternative. Some properties adjacent that would require consideration are: Quentin's Crossing apartments, Ryan's Family Restaurant, Northwood Plaza strip mall, Pep Boys, Chevron, and the North Richland Hills Tennis Center (a 4(f) property). Although additional ROW is required from the parking lots or edges of these properties under the Preferred Alternative, the facilities would not be displaced. A programmatic 4(f) evaluation of the Tennis Center is provided as Exhibit 9 of the EA. The Preferred Alternative would result in shaving the southern edge of the Tennis Center but no tennis courts would be affected. Shifting the road north would cause the relocation of at least Ryan's Family Restaurant, Northwood Plaza strip mall, and four to six tennis courts at the Tennis Center. In addition, shifting the road north would require the relocation of two high-voltage electric transmission towers, whereas the Preferred Alternative requires relocation of only one tower. This avoidance alternative would result in unique problems in that the unusual situation of avoiding one Section 4(f) facility (the NRHCC) would lead to greater impacts at another Section 4(f) facility (the Tennis Center). Other unique problems associated with this avoidance alternative are the cost and community disruption caused by relocating Ryan's Family Restaurant, Northwood Plaza strip mall, and four to six tennis courts at the Tennis Center.

C. New Location

Two new location avoidance alternatives that bypass the NRHCC were considered. Both were discarded because the cost, environmental impact, and community disruption would reach extraordinary magnitudes and present unique problems. Neither new location avoidance alternative was considered prudent or feasible because of the impacts it would cause.

New location avoidance alternative #1 (the south alternative) would depart the existing alignment on the west end at approximately Industrial Park Drive at station 855+00. It would tie back into the existing alignment near Cummins Drive at station 940+00. It was discarded because it would require the relocation of 89 single-family residences and eight commercial/industrial buildings.

New location avoidance alternative #2 (the north alternative) would depart the existing alignment on the west end at the Fort Worth and Southwestern Rail Road at station 845+00. It would tie back into the existing alignment east of SH 26 at approximately station 975+00. It was discarded because it would require the relocation of 170 single-family residences, 16 multi-family buildings (units per building unknown) and seven commercial/industrial buildings.

D. Reduced Width Roadway

A reduced width roadway was considered and eliminated. Flexibility in the AASHTO design standards has already been applied in the design of the Preferred Alternative. Reducing the width of the roadway even more than the reduction already incorporated into the Preferred Alternative would result in a roadway that would not meet the purpose and need because it would not accommodate: 1) the projected population growth in the area, 2) Year 2030 traffic projections, 3) changes in land use, 4) changing access needs, and 5) current design and safety standards.

Reducing the width by eliminating the shoulders or employing narrower lanes would reduce the capacity of the lanes and degrade the level of service, thereby increasing the level of congestion along the roadway. Reducing the width by eliminating one lane in each direction would also increase the level of congestion. Because the project is in a non-attainment area, a reduction in capacity would not fulfill the project's purpose and need.

VI. MEASURES TO MINIMIZE HARM

All reasonable attempts were made to minimize the amount of right-of-way (ROW) required from the NRHCC. The following measures to minimize harm were implemented:

- Flexibility in the application of the AASHTO geometric design standards was incorporated into the design of the Preferred Alternative to reduce the amount of ROW required at the NRHCC. For example, the eastbound entrance ramp from Rufe Snow Drive was designed using less than desirable geometric design standards by modifying the geometry of the gore (area between the ramp and main lanes or auxiliary lane).
- The frontage road alignment was modified to curve in closer to the main lanes of IH 820 to reduce the amount of ROW required.
- The entrance ramp from Rufe Snow Drive to eastbound IH 820 was shortened so that less ROW was needed in front of the NRHCC.
- The control-of-access (COA) line was moved so that a driveway to the NRHCC was allowed east of the NHRCC building and west of the Rufe Snow Drive entrance ramp.
- The width of the parkway between the back of curb and the ROW line was reduced from 19.7 feet to 15.0 feet at the NRHCC. This allows circulation of traffic on the property between the facility and IH 820, as indicated by the City of North Richland Hills as essential to the facility.

When the ROW acquisition process begins, the property would be appraised to determine fair market value and the City of North Richland Hills would be offered this value as compensation. Fair market value would include not only amounts for the land needed for the project but also damages associated with reduced parking and the full restoration of facility function including compliance with Americans with Disabilities Act requirements. The RC would remain a viable public facility after the highway needs are imposed on the property and the damage items are corrected.

VII. AGENCY COORDINATION

Communication with the City of North Richland Hills concerning the Recreation Center has been ongoing since August of 1998. Very informal contact (telephone calls) was made with the Parks and Recreation Department to determine uses of the facility. In 1999, to gain a more official accounting of the facility uses, a letter was sent to the City of North Richland Hills requesting their input as to the primary use of the North Richland Hills Community Center. In 2000, additional information concerning uses of the facility was requested from the city. In March 2001, TxDOT representatives met with city representatives to discuss ways to resolve outstanding issues concerning the Recreation Center. At that time, the city indicated that the proposal so badly damaged building access and traffic circulation as to render the building and its use dysfunctional and if corrected, the remaining impacts could be addressed without causing the loss of building use. TxDOT revised the ramp configuration in the area of the Recreation Center to allow for the desired circulation and indicated the parking spaces and remaining building functionality issues would be compensated for/mitigated during the ROW acquisition phase of the project. City representatives indicated that the redesign as proposed by TxDOT did meet their concerns and that their final concern regarding this Section 4(f) was that the issues of impact were properly addressed during the ROW acquisition phase (see Attachment 8-A). Continual coordination has been done in the preparation of the Section 4(f) evaluation to refine it to cover the concerns of all parties involved.

Attachment 8-A: Correspondence from the City of North Richland Hills

RESOLUTION NO. 2003-025

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTH RICHLAND HILLS, TEXAS, that:

1.

The City Manager be, and is hereby, authorized to execute the Acceptance of 4(F) Reports for Community Center and Richland Tennis as the act and deed of the City.

PASSED AND APPROVED this 13th day of March, 2003.

APPROVED:

Oscar Trevino, Mayor

ATTEST:

Patricia Hutson, City Secretary

APPROVED AS TO FORM AND LEGALITY:

George A. Staples, City Attorney

NRH
CITY OF NORTH RICHLAND HILLS

Office of the City Manager

DIST 02 FT. WORTH
TXDOT MAILROOM
MAR 2 0 2003

March 18, 2003

Curtis Hannon, P.E.
Transportation Engineer
Fort Worth District
Texas Department of Transportation
P. O. Box 6868
Fort Worth, Texas 76115

Dear Joe:

I wanted to let you know that the North Richland Hills City Council accepted the 4F's for the Community Center and the Tennis Center at the March 13 City Council Meeting. We appreciate very much your assistance with the preparation of these items for the Council's consideration.

We look forward to working with you on the 820 project in the future. Please do not hesitate to contact me if you need any information or have any questions.

Sincerely,

Greg Vick
Assistant City Manager

GV/ag

CML 2003-065

P.O. Box 820609 ★ North Richland Hills, Texas ★ 76182-0609
7301 Northeast Loop 820 ★ (817) 427-6003 ★ Fax (817) 427-6016

Attachment 8-B: Section 4(f) Checklist

Federal Highway Administration - Texas Division
Programmatic Section 4(f) Evaluation for Projects with Minor Involvements with Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges

Project # NH( ) IH820 **Description** North Richland Hills Community Center

CSJ 0008-14-058 & 059; 0014-16-194

		YES	NO
1.	Is the 4(f) site adjacent to the existing highway?	X	[ ]
2.	Does the amount and location of the taking impair the use of the remaining section 4(f) lands for its intended purposes?	[ ]	X
3.	a. If the total 4(f) site is less than 10 acres, is the taking less than 1 acre?	X	[ ]
	b. If the total 4(f) site is from 10-100 acres, is the taking less than 1 acre?		[ ]
	c. If the total 4(f) site is greater than 100 acres, is the taking less than 1% of the site?		[ ]
4.	Are there any proximity impacts which would impair the use of the 4(f) lands for their intended purpose?	[ ]	X
5.	Have the officials with jurisdiction over the property agreed in writing with the assessment of impacts and proposed mitigation?	X	[ ]
6.	Have Federal funds been used in the acquisition or improvements of the 4(f) site?	[ ]	X
	If yes, has the land conversion/transfer been coordinated with the appropriate Federal agency, and are they in agreement?		[ ]
7.	Does the project require the preparation of an EIS?	[ ]	X
8.	Is the project on new location?	[ ]	X
9.	The scope of the project is one of the following: a. Improved traffic operation. b. Safety Improvements c. 4R d. Bridge Replacement or essentially same alignment e. Addition of lanes	X	[ ]

ALTERNATIVES CONSIDERED

1. The do nothing alternative has been evaluated and is considered not to be feasible and prudent?	X	[ ]
2. An alternative has been evaluated which improves the highway without any 4(f) taking and it is considered not to be feasible and prudent?	X	[ ]
3. An alternative on new location avoiding 4(f) taking has been evaluated and is considered not to be feasible and prudent?	X	[ ]

MINIMIZING HARM

1. The project includes all possible planning to minimize harm?	X	[ ]
2. Measures to minimize harm include the following:		
a. Replacement of lands used with lands of reasonably equivalent usefulness and location, and of at least comparable values.		
b. Replacement of facilities impacted including sidewalks, paths, benches, lights, trees, and other facilities.		
c. Restoration and landscaping of disturbed areas.	X	
d. Special design features.		
e. Payment of the fair market value.	X	
f. Improvements to the remaining 4(f) lands equal in cost to the fair market value.		
g. Other measures		

	YES	NO
COORDINATION		
1. The proposed project has been coordinated with the Federal, State, and/or local officials have jurisdiction over the 4(f) lands?	X	[ ]
2. In the case of non-Federal 4(f) lands, the official with jurisdiction has been asked to identify and Federal encumbrances and there are none?	X	[ ]
3. For bridge replacement project, coordination with the U.S. Coast Guard has been completed (if applicable)?		[ ]

NOTE: Any response in a [ ] requires additional information prior to approval. Consult Nationwide 4(f) evaluation.

SUMMARY AND APPROVAL

The project meets all criteria included in the programmatic 4(f) evaluation approved on December 23, 1986.

All required alternatives have been evaluated and the findings made are clearly applicable to this project.

The project includes all possible planning to minimize harm and that there are assurances that the measures to minimize harm will be incorporated in the project.

12/5/08
Date

Approved Salvat Dancy
for the Division Administrator

Exhibit 9: Programmatic 4(f) Evaluation – City of North Richland Hills Tennis Center

CITY OF NORTH RICHLAND HILLS
TARRANT COUNTY, TEXAS

INTRODUCTION

The Texas Department of Transportation (TxDOT) is preparing this document in response to Section 4(f) of the U.S. Department of Transportation Act (49 USC 303), which states...

> ...the Secretary [of Transportation] may approve a transportation program or project... requiring the use of publicly owned land of a public park, recreation area, or wildlife and waterfowl refuge of national, State, or local significance, or land of an historic site of national, State, or local significance (as determined by the Federal, State, or local officials having jurisdiction over the park, area, refuge, or site) only if - (1) there is no feasible and prudent alternative to using that land; and (2) the program or project includes all possible planning to minimize harm to the park, recreational area, wildlife and waterfowl refuge, or historic site resulting from such use.

The regulations implementing Section 4(f) state that..."The potential use of land from a Section 4(f) property shall be evaluated as early as practicable in the development of the action when alternatives to the proposed action are under study" [23 CFR774.9 (a)]. The evaluation..."shall include sufficient supporting documentation to demonstrate why there is no feasible and prudent avoidance alternative and shall summarize the results of all possible planning to minimize harm to the Section 4(f) property" [23 CFR 774.7 (a)]. "… a "use" of a Section 4(f) property occurs "(1) When land is permanently incorporated into a transportation facility (2) when there is a temporary occupancy of land that is adverse in terms of the statute's preservation purpose...or (3) when there is a constructive use of a Section 4(f) property …" [23 CFR 774.17].

This programmatic 4(f) evaluation discusses the Richland Tennis Center (TC) in North Richland Hills, Texas. The TC is directly impacted by the proposed expansion of Interstate Highway (IH) 820 in North Richland Hills. The programmatic approach [as opposed to an Individual Section 4(f) evaluation] is based on the existence of a recurring set of circumstances that allows for the requisite Section 4(f) determinations to be made on a programmatic rather than a project-by-project basis. This nationwide evaluation can be used for minor involvements with public parks and recreational areas when an existing highway facility is being improved; only minor amounts of parkland adjacent to the existing highway are proposed for use; and the official with jurisdiction over the Section 4(f) land agrees, in writing, with the assessment of the project impacts and mitigation measures.

When parkland has been acquired or developed with funds from the Land and Water Conservation Fund Act of 1965, and this land is required for the highway improvements, a Section 6(f) evaluation must also be performed. Special coordination and approval from the National Park Service (NPS) and the Department of the Interior (DOI) is necessary to satisfy Section 6(f) requirements. No Land and Water Conservation Fund Act monies were used on the TC.

I. PROPOSED ACTION

The proposed action is the expansion of IH 820 in Tarrant County, Texas between IH 35W (western terminus) and SH 26 (eastern terminus), a distance of approximately six miles (see Exhibit 1, Site

Location Map). This portion of IH 820 is the northeast quadrant of a loop that encircles the City of Fort Worth and is known locally as the "Northeast Loop." The project would widen the existing four-lane roadway to six general purpose lanes with one to two ramp auxiliary lanes four managed (toll) lanes and include the complete reconstruction of the IH 820/IH 35W interchange, as well as the reconstruction of grade separations at several cross streets. In addition, two railroad bridges that cross over IH 820 would be reconstructed.

The Preferred Alternative would provide for two 12-foot wide eastbound and westbound frontage lanes. There would be six 12-foot wide general purpose lanes with one to two ramp auxiliary lanes and 10-foot wide inside and outside shoulders. Four managed lanes would be provided in the median from west of IH 35W to the east end of the project. The managed (toll) lanes would have 12-foot wide lanes with a four-foot inside shoulder and a 10-foot wide outside shoulder.

II. NEED AND PURPOSE

Transportation improvements are needed on IH 820 to address current and projected traffic demands and facility deficiencies. The traffic demand on IH 820 results from many causes, including high population growth [see Table 1 in the Environmental Assessment (EA)], proximity to employment centers, lack of sufficient alternative routes, and high use of SOV's. There are insufficient lanes on IH 820 to carry the existing and projected east-west traffic demand (see Table 2 in the EA). The high traffic volumes on the highway result in many effects, including slow travel speeds and extended hours of congestion, increased accidents (see Table 3 in the EA) and increased air pollution.

The purpose of the proposed project is to improve mobility throughout the corridor to relieve existing traffic congestion, improve local traffic circulation, and accommodate future travel demand. The project is needed for the following reasons:

A. Projected Population and Employment Growth

The cities of Haltom City, North Richland Hills, Fort Worth, and other communities in northeastern Tarrant County have experienced steady population and employment growth. This growth is accompanied by increased population density in Tarrant County, as well as substantial increases in motor vehicle numbers utilizing present transportation facilities. The proposed project is needed to accommodate this increase and expected increase in population for northeastern Tarrant County and the Dallas-Fort Worth (DFW) Metropolitan Area.

According to the *Mobility 2030* and the 2000 Census, the year 2000 population for the DFW Metropolitan Area, which includes Collin, Dallas, Denton, Rockwall, and Tarrant Counties, and portions of Ellis, Johnson, Kaufman, and Parker Counties, was approximately 4.87 million, an increase of 29 percent since 1990. By 2030, the DFW Metropolitan Area population is expected to be approximately 9.09 million persons, an increase of 187 percent from 2000. On average, the region is anticipated to add population at a rate of approximately 140,000 persons per year. Growth in the region is predicted to continue in a northerly direction with the IH 820 corridor experiencing moderately-high to high population density by 2030.

B. Changing Land Use

The proposed project is needed to accommodate changes in land use in the project vicinity. Land use changes along IH 820 are more pronounced in the western end of the project, in Haltom City and especially Fort Worth, where vacant land abutting the project is being developed with commercial uses such as restaurants, hotels, and office buildings. At the eastern end of the project in North Richland Hills, land use is typical of development along a major urban highway, with a

variety of land uses including commercial, light industrial, residential, and park/open space. Although land use adjacent to the project area in the eastern end is not changing rapidly, vacant properties are being developed and other properties are being redeveloped.

Changes in land use along the project are determined by the existing zoning. It is not anticipated that the project would substantially change the adjacent land usage as it is planned for future development. The project is consistent with local planning efforts. Exhibits 3b, 3c, and 3d show future land uses.

C. Traffic Projections

Traffic volumes continue to increase as a result of area growth. Traffic is particularly congested because the capacity of the existing IH 820 facility is being exceeded by the current travel demand.

D. Changing Access Needs

Population and land use changes have occurred in the study area. Local access is needed to accommodate the commercial, light industrial and residential land uses along the corridor. This would be done by providing some frontage roads in most areas that currently do not have access. In addition to adding frontage roads to the existing facility, ramps would be added, lengthened, or removed, and braided ramps (one ramp bridging over second ramp) would be used in some locations to relieve congestion along IH 820 and IH 35W. The addition of managed (toll) lanes would facilitate through traffic flow through the project area without increasing access needs.

E. Current Condition of Facility

The existing four-lane facility was constructed from approximately 1963 through 1967 (see Exhibit 5: Typical Sections). The facility does not meet current urban freeway design standards as described in the *Texas Department of Transportation Roadway Design Manual* (October 2006) and in *A Policy on Geometric Design of Highways and Streets* (5th Edition, 2004) published by the American Association of State Highway and Transportation Officials. Specifically, the current condition of the facility does not meet the urban freeway standards in the following ways:

- Left hand exits at the IH 35W interchange go against driver expectancy. Typically, drivers anticipate right hand exits.
- Due to the increased travel demand on the facility since it was built, the distance from the ramps to the cross street intersections is too short in some instances, causing traffic to back up onto the main lanes due to merges.
- There is inadequate capacity for the existing and projected 2030 traffic volumes. Inadequate capacity results in frequent starts and stops along the roadway decreasing air quality and increasing the likelihood of accidents.
- Vertical bridge clearances are less than 16.5 feet in some instances. Inadequate bridge clearances could result in damaged bridge structures, lodged vehicles, and temporary closure of the roadway for repairs.
- Vertical curvature along IH 820 does not meet minimum standards for a 60 mph design speed (the facility is currently posted at 60 mph).

F. Accident Rates

As shown in Table 3, the traffic accident data for IH 820 shows the number of reported accidents that occurred between IH 35W to SH 26 during the period of 1992 to 2000 and 2005 to 2006. Of these, 2,208 (56 percent) resulted in injuries. The traffic accident data reports indicated 23 fatal accidents occurred during these time frames. This data shows neither an increasing nor decreasing trend over the period. As traffic volumes increase in the study area roadways, the

number of accidents is likely to increase. This is because increased congestion interrupts normal traffic flow, leading to a greater number of vehicle conflicts and accidents. Without improvements, study area roadways and intersections are likely to have higher accident rates in the future. In addition, as traffic continues to spread to other secondary roads to avoid highway congestions, the secondary roads are likely to experience deterioration in operating conditions.

The purpose of the project is to improve mobility throughout the corridor to relieve existing traffic congestion, promote local traffic circulation, and accommodate both future single occupancy and high occupancy vehicular users.

III. THE SECTION 4(f) PROPERTY

A. Description of the Property

The TC at 7111 North East Loop is part of a 41.4-acre parcel on the northwest corner of IH 820 and Holiday Lane. The parcel consists of Richland High School and the TC. The school surrounds the TC to the north and east, while the IH 820 westbound frontage road abuts the TC to the south. Quentin's Crossing apartments are adjacent to the TC on the west. Most of the 41 acres are devoted to the school and its associated grounds including a running track, but the TC comprises 7.6 acres.

B. Current Ownership and Use

Birdville Independent School District (BISD) owns the land where the TC is located. The City of North Richland Hills leases the land from BISD through a long-term (approximately 25-30 year) lease. The improvements were designed and constructed by the city and are owned by the city and BISD. BISD and the TC have a close, cooperative relationship. The three funding sources were: state funds [Texas Parks and Wildlife Department (TPWD) grant, utilizing local park funds], BISD funds, and sales tax revenue. The cost of the TC was approximately $2 million, of which BISD paid approximately $300,000. The facility was constructed in 1996 and opened in January 1997.

The TPWD funds were in the form of a grant that was used for several items including the TC. The grant provided funding towards TC construction, development of nearby athletic fields, and construction of an observation deck at a nearby wetland that BISD donated to the city. The athletic fields and wetland are not on the TC site and would not be affected by the IH 820 expansion. They are located on Calloway Branch northeast of the TC/school complex. The TPWD grant requires a 1:1 substitution of land for all property converted from recreational use.

The TC is used as a recreational type of Section 4(f) resource. Existing facilities at the TC consist of: 16 tennis courts including a sunken championship court; a 3,000-square foot building with a pro shop, rest rooms, locker areas, three offices, a meeting room; and two storage sheds. There is also a playground at the east end of the facility. The playground contains three slides, four climbing structures, one tic-tac toe game with rotating blocks, and two benches.

Available activities that occur at the TC consist of programs, leagues, drill sessions, tournaments, matches, clinics, and group and private lessons. The TC hosts three U.S. Tennis Association sanctioned tournaments each year. The TC is also a site for tournaments hosted by the Fort Worth Tennis Association as well as numerous Mid Cities Circuit tournaments through out the year.

Most of the activities and special events are tennis related. In addition to the usual summer programs, TC offers ten one-week children's tennis camps in the summer for kids 6-16 years old. The hours are 9:00 am to 1:30 pm. The camps include drills, conditioning, match play, and

tournament play. The campers bring a sack lunch every day and on one of the five days, take a trip to the NRH_20 Family Water Park, located approximately four miles away on SH 26.

The regular hours of operation at the TC are Monday - Thursday 8:00 am - 9:30 pm; Friday and Saturday 8:00 am – 5:00 pm; and Sunday 1:00 pm - 5:00 pm.

The North Richland Hills Park and Recreation Department does not have plans to expand the facilities offered at the TC.

C. Access

Citizens of North Richland Hills and the surrounding communities use the TC. In fiscal year 2006/2007, 10,137 people were either enrolled in facility programs or used the facility. Frequency of use figures for the same time period were 39,463 people. Vehicular access to the TC is provided from Reynolds Drive off the westbound IH 820 frontage road. There are 58 parking spaces at the TC, as well as shared parking with the high school to the north. Primary public access to the facility is through the pro shop and the gates on both sides of the TC.

Pedestrians from the adjacent high school also access the facility. Trail access to the TC is provided by the North Electric Trail, a two-mile concrete multi-use trail within the TXU transmission easement that connects the high school/TC complex with the NRH_2O Family Water Park. The trail/ transmission easement is adjacent to the school's north property line on Dick Lewis Drive. The trailhead is at the northeast corner of Dick Lewis Drive and Holiday Lane. The North Electric Trail connects the TC to a complete network of off-road trails in accordance with the City-Wide Trail System Master Plan.

The tennis courts are physically and visually separated from the westbound frontage road by a grassy strip of land and fencing. The grassy strip contains several young trees and an irrigation system. The fencing consists of a ten-foot high, black, vinyl-coated chain link fence. A black vision screen is mounted on the inside of the fence so that tennis court activity cannot be observed from outside the courts. There are five padlocked pedestrian gates from some of the courts to the grassy strip. According to the city, tennis players and TC staff use the gates for ball retrieval. The gates are not used for public access to the courts from the frontage road. The grassy strip of land is essentially an un-used portion of the facility and is not for watching games or access from the frontage road.

D. Relationship to Other Similarly Used Lands

The NRH_20 Family Water Park allows tennis campers to visit the water park one day as part of their tennis camp experience.

TC has a very strong cooperative relationship with the BISD. TC's BISD Middle School Program is a before-school program that meets at 7:30 am five days a week when school is in session. Richland High School reserves eight tennis courts for use during normal school hours for varsity and junior varsity practices and matches. The high school also hosts numerous high school tournaments at the TC, as previously discussed under Section III. B Current Ownership and Use.

Four tennis centers are within 10-15 miles of the TC, including the Hurst Tennis Center, Lifetime Fitness, Colleyville Tennis Courts, and Southlake Tennis Courts. TC cooperates with these centers when there are court conflicts or tournament numbers warrant use of additional courts.

E. Applicable Clauses About Ownership

The city and BISD are party to a joint ownership agreement. The agreement specifically states that BISD uses eight courts throughout the school year and hosts several tournaments each year at the facility. BISD is also obligated for maintenance resurfacing of four courts. The city has ultimate decision on use of the facility.

F. Unusual Characteristics of the Property that Reduce or Enhance Value

There are none known.

IV. IMPACTS ON THE SECTION 4(f) PROPERTY

The portion of the TC required for the proposed project is immediately adjacent to the existing westbound frontage road, on the south side of the facility. This area is a grassy strip of land between the frontage road and the TC's chain link fence, where errant balls hit from adjacent tennis courts land. The gates in the southernmost courts provide access for ball retrieval. The amount of right-of-way (ROW) to be acquired varies from 11.7 feet to 27.7 feet in width and extends the entire length of the property along the south side of the TC. The ROW would be required to allow the westbound frontage road to be reconstructed near this location. The frontage road would be closer to the tennis courts, than the existing frontage road, by approximately the same distances as the width of ROW to be acquired. The border width between the frontage road and ROW line would remain approximately 20 feet. The westbound entrance ramp located near the eastern limits of the TC would be removed with the plan. Traffic movements from the cross street of Holiday Lane currently using this ramp, would travel the frontage road adjacent the entire length of the facility, and enter the freeway further west of the TC. The grassy area contains several small trees and an irrigation system. The total acreage of the facility that is needed for the proposed project is 0.58 acre or 7.6 % of the TC grounds.

Total Size of Section 4(f) Site	Maximum to be Acquired
7.6 acres	0.58 acre, or 7.6%

If the school is included in the acreage calculation, the total size of the Section 4(f) resource is 41.4 acres and the maximum to be acquired is 0.58 acre and adjacent to the roadway would not impair the use of the facility. No tennis courts or other facilities would be required and the TC would still be useable by the public.

Concerns were raised by North Richland Hills staff members regarding the economic viability of the facility based on the potential for traffic generated noise impacts. Therefore, a traffic noise analysis was performed. The analysis for the TC included calculations of the existing (2010) and predicted (2030) noise levels at representative worst-case locations. The results of the analysis indicate the proposed project would result in no perceptible increase in noise levels at the TC. This can be attributed to proposed design elements that include an increase in the elevation of the main lanes and an increase in the number of solid concrete traffic rail that act as barriers. The barriers serve to offset/minimize the harm that may otherwise have resulted from an increase in noise levels due to the projected increase in traffic volumes.

While the noise study indicates no perceptible increase, the city was still concerned with the perception of the patrons to the TC because the frontage road and main lanes would be closer than what is the current scenario. Therefore, there is a perceived noise impact based on utilizing the sense of eyesight over hearing.

V. AVOIDANCE ALTERNATIVES

A. No-Build

The No-Build alternative would result in no improvements being made to IH 820 and no impacts to the TC. This alternative is not feasible or prudent because it would not: 1) address the additional capacity required for existing and future traffic demands due to the rapid population growth in the general area and in the communities adjacent to IH 820; 2) address the changes in land use that the project area has experienced as the population has increased; 3) meet the additional access needs that the changes in land use and growing population have caused; and 4) upgrade the roadway to meet current design and safety standards.

B. Shifting the Road South

Shifting the project south to avoid the TC was considered and eliminated because it would affect properties on the south side of IH 820, including the North Richland Hills Community Center, which contains the North Richland Hills Recreation Center (NRHCC), a Section 4(f) resource. This avoidance alternative would result in unique problems in that the unusual situation of avoiding one Section 4(f) facility (the TC on the north side of the roadway) would lead to greater impacts at another Section 4(f) facility (the NRHCC on the south side of the roadway). Other unique problems associated with this avoidance alternative are the cost and community disruption caused by relocating the properties that would be affected on the south side. Exhibit 2, Sheet 8 shows the proximity of the two Section 4(f) facilities.

C. New Location

Two new location avoidance alternatives that bypass the NRHCC were considered. Both were discarded because the cost, environmental impact, and community disruption would reach extraordinary magnitudes and present unique problems. Neither new location avoidance alternative was considered prudent or feasible because of the impacts it would cause.

New location avoidance alternative #1 (the south alternative) would depart the existing alignment on the west end at approximately Industrial Park Drive at station 855+00. It would tie back into the existing alignment near Cummins Drive at station 940+00. It was discarded because it would require the relocation of 89 single-family residences and eight commercial/industrial buildings.

New location avoidance alternative #2 (the north alternative) would depart the existing alignment on the west end at the Fort Worth and Southwestern Rail Road at station 845+00. It would tie back into the existing alignment east of SH 26 at approximately station 975+00. It was discarded because it would require the relocation of 170 single-family residences, 16 multi-family buildings (units per building unknown) and seven commercial/industrial buildings.

D. Reduced Width Roadway

A reduced width roadway was considered and eliminated. Flexibility in the American Association of State Highway and Transportation Officials (AASHTO) design standards has already been applied in the design of the Preferred Alternative. Reducing the width of the roadway even more than the reduction already incorporated into the Preferred Alternative would result in a roadway that would not meet the purpose and need because it would not accommodate: 1) the projected population growth in the area; 2) Year 2030 traffic projections; 3) changes in land use; 4) changing access needs; and 5) current design and safety standards.

Reducing the width by eliminating the shoulders or employing narrower lanes would reduce the capacity of the lanes and degrade the level of service, thereby increasing the level of congestion

along the roadway. Reducing the width by eliminating one lane in each direction would also increase the level of congestion. Because the project is in a non-attainment area, a reduction in capacity would not fulfill the project's purpose and need.

VI. MEASURES TO MINIMIZE HARM

All reasonable attempts were made to minimize the amount of right of way (ROW) required from the TC. The following measures to minimize harm were implemented:

- Flexibility in the application of the AASHTO geometric design standards was incorporated into the design of the Preferred Alternative to reduce the amount of ROW required at the TC. For example, the width of the ramp gore areas was reduced, retaining walls instead of side slopes were utilized, and the frontage road alignment was modified to follow the main lanes and ramps very closely.
- To comply with the TPWD grant that partially funded construction of the TC, there would be a 1:1 substitution of land for all property converted from recreation use. The property replacement may occur at another city facility besides the TC. The location of the substituted land recommended by the City of North Richland Hills is the vacant lot east of the North Richland Hills Recreation Center.
- A wall of 10 feet in height and approximately 800 feet long would be constructed in the grassy area between the tennis courts and the proposed right of way line near the westbound frontage road. To provide continuity, the wall will be extended approximately an additional 300 feet from the NRHTC property line to Holiday Lane in the grassy area between high school athletic facility and the proposed right of way line. With the barrier located on school property, NRH and BISD would be able to maintain the barrier and place banners of events, etc. should they desire. NRH and BISD have indicated this wall would relieve safety issues concerning potential conflicts of increased traffic along the frontage road with personnel or users of the facility or school athletic facility that gather errant balls. It would also provide a visual barrier for players that may be distracted by increased moving traffic on the frontage road that would be closer to the courts and athletic facility. The perception of increased noise levels that patrons to the NRHTC and surrounding athletic facilities may feel, because the main lanes and frontage roads would be closer, may also be lessened. The wall provides a visual screen that utilizes eye perception over hearing. In addition, the city would be allowed to fund a visual barrier up to six feet in height along the main lanes between stations 910+00 and 922+00. This action is proposed to resolve concerns the NRHTC may not remain an economically viable facility because of perceived impacts of traffic generated noise levels.
- A new Light Emitting Diode (LED) sign to replace the existing electronic billboard serving BISD located near the northwest corner of IH 820 and Holiday Lane. TxDOT will provide a two pole sign, 50' in total height, with two sided LED display measuring 25'x 6'x 6". BISD will provide TxDOT with an estimate for the cost of the LED sign and installation. TxDOT will install the LED sign on the BISD remainder property (outside TxDOT's taking) at a location chosen by BISD, but near the current location.
- The irrigation system would be modified for the new configuration and the vegetative materials lost in the area of concern would be mitigated with similar species with which the city is in agreement.

In addition to the mitigation measures to resolve the Section 4(f) issue at the NRHTC, BISD would be compensated for the additional right of way needed at Richland HS based on the Uniform Relocation Assistance and Real Property Acquisition Act of 1970. The property would be appraised at fair market value as determined by an independent appraiser and BISD would be offered this compensation. The compensation would include not only fair market value for the land acquired

and any improvements within the taking, but also for damages to the remainder. This compensation would be provided independently of any measures to mitigate Section 4(f) damages.

VII. AGENCY COORDINATION

Communications with the city of North Richland Hills concerning the TC have been ongoing since December 1999. With the issues of the North Richland Hills Recreation Center just southwest of the TC, it was not realized until 1999 that this property would also be a Section 4(f). In early 2000, an informal request for information was made concerning the TC. Since then, TxDOT has been communicating with the city about both the TC and the Recreation Center at the same time. In March 2001, TxDOT representatives presented the city with a proposal that would take property from the TC location and the Recreation Center. TxDOT indicated that, due to the geometry changes of the main lanes and the added barriers to the proposed facility, noise levels at the TC would actually decrease slightly but not enough to be perceivable. The city felt that there should be some type of protection between the tennis court fences and the curb of the frontage roads.

In June 2001, TxDOT met with city representatives again and indicated that an eight-foot high wall as a safety/visual barrier and some aesthetics along the wall would be provided. The wall would be at the proposed ROW line. The city appeared to be pleased with the plan. Since the last meeting, the city has indicated it is having a noise study performed to determine the impacts due to sound on the TC. On December 12, 2001, a meeting was held to explain in detail the results of the noise analysis performed by TxDOT to city personnel. This study compares modeled existing and future noise levels and depicts that future noise levels are not expected to increase over existing levels. The results of the city's noise analysis were presented to TxDOT on April 10, 2002. Their analysis compared measured existing levels with modeled future levels. The results greatly mimic the noise study performed by TxDOT, in that future levels would remain the same or decrease when compared to existing levels for noise receptors representing a majority of the courts.

After the meeting in April of 2002, discussions with city personnel centered on ways to resolve the issues between the two noise studies. The city staff members were still concerned with the visual appearance of the elevated main lanes and the perceived noise impact. A proposal to extend the wall near the ROW to 10 feet in height was offered and the city requested the option of funding a visual barrier along the main lanes. The barrier along the main lanes could extend up to approximately 330 feet beyond the western and eastern limits of the tennis courts. In July 2002, the city verbally agreed with the proposed wall of 10 feet in height at the ROW and indicated they are willing to fund a visual barrier along the main lanes. They also verbally agreed to maintain the wall adjacent to the ROW if it is constructed on their property. City representatives have indicated that this Section 4(f) was acceptable (see Attachment 9-A). To comply with the TPWD grant that partially funded the construction of the TC, there would be a 1:1 substitution of land for all property converted from recreation use. The property replacement may occur at another city facility besides the TC. The location of the substituted land recommended by the City of NRH is the vacant lot east of the NRHCC. As a result of co-ownership, BISD has agreed to the measures to minimize harm, (see Attachment 9-A). Meetings to resolve conflicts were initially coordinated by the City in the 2000-2001 time frame and have been formalized with TxDOT in September 2008.

Attachment 9-A: Correspondence from the City of North Richland Hills

RESOLUTION NO. 2003-025

BE IT RESOLVED BY THE CITY COUNCIL OF THE CITY OF NORTH RICHLAND HILLS, TEXAS, that:

1.

The City Manager be, and is hereby, authorized to execute the Acceptance of 4(F) Reports for Community Center and Richland Tennis as the act and deed of the City.

PASSED AND APPROVED this 13th day of March, 2003.

APPROVED:

Oscar Trevino, Mayor

ATTEST:

Patricia Hutson, City Secretary

APPROVED AS TO FORM AND LEGALITY:

George A. Staples, City Attorney

NRH
CITY OF NORTH RICHLAND HILLS

Office of the City Manager

DIST 02 FT. WORTH
TXDOT MAILROOM
MAR 2 0 2003

March 18, 2003

Curtis Hannon, P.E.
Transportation Engineer
Fort Worth District
Texas Department of Transportation
P. O. Box 6868
Fort Worth, Texas 76115

Dear Joe:

I wanted to let you know that the North Richland Hills City Council accepted the 4F's for the Community Center and the Tennis Center at the March 13 City Council Meeting. We appreciate very much your assistance with the preparation of these items for the Council's consideration.

We look forward to working with you on the 820 project in the future. Please do not hesitate to contact me if you need any information or have any questions.

Sincerely,

Greg Vick
Assistant City Manager

GV/ag

CML 2003-065

P.O. Box 820609 ★ North Richland Hills, Texas ★ 76182-0609
7301 Northeast Loop 820 ★ (817) 427-6003 ★ Fax (817) 427-6016

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February 13, 2003

Mr. Gregory T. Vick
Assistant City Manager
7301 NE Loop 820
North Richland Hills, TX 76180

Re: North Richland Hills Athletic Center - Conversion
Project Number 50-00059

Dear Mr. Vick:

We have reviewed your e-mail correspondence of January 27, 2003 and the attached Programmatic 4(f) Evaluation for the City of North Richland Hills Tennis Center. The Tennis Center was supported with a Texas Recreation and Park Account grant under the project referenced above and will be impacted by the proposed widening of Interstate Highway 820, resulting in the loss of approximately 0.58 acre of parkland. None of the fund supported recreational elements will be eliminated.

Several alternatives for the highway project were evaluated to avoid the park site, but were not feasible. Proposed measures to minimize impacts to the park include road design considerations, construction of an enhanced barrier wall between the road and park (as well as a visual barrier placed at either end of the wall), and irrigation system modifications and vegetation replacement in and adjacent to the construction area. Replacement of the property used for highway purposes will occur at the North Richland Hills Recreation Center or another site mutually agreed upon by the City of North Richland Hills and TxDOT.

We concur that the proposed mitigation measures are acceptable for the project, and ask that you keep us advised on the project status. If you have any questions, please contact Jeff Hauff, Grants Administrator at 512/912-7109. Thank you for advising us on this matter.

Sincerely,

Tim Hogsett, CPRP
Director
Recreation Grants Branch

TH:JH

To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.

TEXAS PARKS & WILDLIFE

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AUSTIN, TEXAS 78744-3291
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Attachment 9-B: Correspondence from the Birdville ISD

Birdville Independent School District
6125 East Belknap Haltom City, Texas 76117-4296 817-547-5722 Fax 817-831-5755 www.birdville.k12.tx.us

Stephen F. Waddell, Ed.D
Superintendent

October 2, 2008

William C. Riley, P.E.
Director of Transportation Planning & Development
Texas Department of Transportation
P.O. Box 6868
Fort Worth, Texas 76115-0868

Re: Section 4(f) Concurrence
IH 820 Northeast Loop at the Richland High School Property

Dear Mr. Riley:

It is our understanding that the Texas Department of Transportation (TxDOT) is currently planning long-term transportation improvements to IH 820 northeast loop in the vicinity of Richland High School (Richland HS) and the North Richland Hills Tennis Center (NRHTC). Richland HS is a part of the Birdville Independent School District (BISD). The NRHTC is funded and operated pursuant to a joint use agreement and lease agreement between BISD and the City of North Richland Hills (NRH) on land leased from BISD.

Based on the current plan, the area of right-of-way acquisition required is located along the Richland HS southern boundary which parallels IH 820 (see attached Exhibit 1). The NRHTC is located along the southern boundary. TxDOT has met with BISD and the NRH to discuss the proposed project, potential right-of-way impacts and Section 4(f) mitigation. The parties have come to an agreement as to the mitigation associated with the NRHTC Section 4(f). This letter addresses BISD's understanding of the project impacts to NRHTC and the agreed mitigation measures necessary to minimize said project impacts.

The total area of right-of-way required from the school property at the NRHTC would be approximately 0.58 acres. This is approximately 7.6% of the total school property area which is approximately 7.6 acres. BISD understands that TxDOT has considered various alternatives in an effort to avoid and minimize the impacts to the Richland HS property, the NRHTC, and the surrounding community.

BISD supports the transportation improvements to IH 820 Northeast Loop and understands all reasonable attempts were made to minimize the amount of right of way required from the NRHTC to improve the IH 820 Northeast Loop facility. BISD

supports the mitigation measures listed below and in the draft Programmatic Section 4(f) (see attached).

- A wall of 10 feet in height and approximately 800 feet long would be constructed in the grassy area between the tennis courts and the proposed right of way line near the westbound frontage road. To provide continuity, the wall will be extended approximately an additional 300 feet from the NRHTC property line to Holiday Lane in the grassy area between high school athletic facility and the proposed right of way line. With the barrier located on school property, NRH and BISD would be able to maintain the barrier and place banners of events, etc. should they desire. NRH and BISD have indicated this wall would relieve safety issues concerning potential conflicts of increased traffic along the frontage road with personnel or users of the facility or school athletic facility that gather errant balls. It would also provide a visual barrier for players that may be distracted by increased moving traffic on the frontage road that would be closer to the courts and athletic facility. The perception of increased noise levels that patrons to the NRHTC and surrounding athletic facilities may feel, because the main lanes and frontage roads would be closer, may also be lessened. The wall provides a visual screen that utilizes eye perception over hearing. In addition, the city would be allowed to fund a visual barrier up to six feet in height along the main lanes between stations 910+00 and 922+00. This action is proposed to resolve concerns the NRHTC may not remain an economically viable facility because of perceived impacts of traffic generated noise levels.

- A new Light Emitting Diode (LED) sign to replace the existing electronic billboard serving BISD located near the northwest corner of IH 820 and Holiday Lane. TxDOT will provide a two pole sign, 50' in total height, with two sided LED display measuring 25'x 6'x 6". BISD will provide TxDOT with an estimate for the cost of the LED sign and installation. TxDOT will install the LED sign on the BISD remainder property (outside TxDOT's taking) at a location chosen by BISD, but near the current location.

In addition to the mitigation measures to resolve the Section 4(f) issue at the NRHTC, BISD would be compensated for the additional right of way needed at Richland HS based on the Uniform Relocation Assistance and Real Property Acquisition Act of 1970. The property would be appraised at fair market value as determined by an independent appraiser and BISD would be offered this compensation. The compensation would include not only fair market value for the land acquired and any improvements within the taking, but also for damages to the remainder. This compensation would be provided independently of any measures to mitigate Section 4(f) damages.

BISD concurs that the proposed right-of-way acquisition would not adversely affect the activities, features, or attributes of the NRHTC and the proposed project includes all possible planning and mitigation measures to minimize harm to NRHTC.

Sincerely,

Dr. Stephen F. Waddell
Superintendent

Attachment
SFW/CMC

Attachment 9-C: Section 4(f) Checklist

Federal Highway Administration - Texas Division
Programmatic Section 4(f) Evaluation for Projects with Minor Involvements with Public Parks, Recreation Lands, and Wildlife and Waterfowl Refuges

Project # NH( ) IH820 **Description** North Richland Hills Tennis Center

CSJ 0008-14-058 & 059; 0014-16-194

		YES	NO
1.	Is the 4(f) site adjacent to the existing highway?	X	[ ]
2.	Does the amount and location of the taking impair the use of the remaining section 4(f) lands for its intended purposes?	[ ]	X
3.	a. If the total 4(f) site is less than 10 acres, is the taking less than 1 acre?	X	[ ]
	b. If the total 4(f) site is from 10-100 acres, is the taking less than 1 acre?		[ ]
	c. If the total 4(f) site is greater than 100 acres, is the taking less than 1% of the site?		[ ]
4.	Are there any proximity impacts which would impair the use of the 4(f) lands for their intended purpose?	[ ]	X
5.	Have the officials with jurisdiction over the property agreed in writing with the assessment of impacts and proposed mitigation?	X	[ ]
6.	Have Federal funds been used in the acquisition or improvements of the 4(f) site?	[ ]	X
	If yes, has the land conversion/transfer been coordinated with the appropriate Federal agency, and are they in agreement?		[ ]
7.	Does the project require the preparation of an EIS?	[ ]	X
8.	Is the project on new location?	[ ]	X
9.	The scope of the project is one of the following: f. Improved traffic operation. g. Safety Improvements h. 4R i. Bridge Replacement or essentially same alignment j. Addition of lanes	X	[ ]

ALTERNATIVES CONSIDERED

1. The do nothing alternative has been evaluated and is considered not to be feasible and prudent?	X	[ ]
2. An alternative has been evaluated which improves the highway without any 4(f) taking and it is considered not to be feasible and prudent?	X	[ ]
3. An alternative on new location avoiding 4(f) taking has been evaluated and is considered not to be feasible and prudent?	X	[ ]

MINIMIZING HARM

1. The project includes all possible planning to minimize harm?	X	[ ]
2. Measures to minimize harm include the following:		
h. Replacement of lands used with lands of reasonably equivalent usefulness and location, and of at least comparable values.		
i. Replacement of facilities impacted including sidewalks, paths, benches, lights, trees, and other facilities.		
j. Restoration and landscaping of disturbed areas.	X	
k. Special design features.		
l. Payment of the fair market value.	X	
m. Improvements to the remaining 4(f) lands equal in cost to the fair market value.		
n. Other measures		

	YES	NO
COORDINATION		
1. The proposed project has been coordinated with the Federal, State, and/or local officials have jurisdiction over the 4(f) lands?	X	[ ]
2. In the case of non-Federal 4(f) lands, the official with jurisdiction has been asked to identify and Federal encumbrances and there are none?	X	[ ]
3. For bridge replacement project, coordination with the U.S. Coast Guard has been completed (if applicable)?		[ ]

NOTE: Any response in a [ ] requires additional information prior to approval. Consult Nationwide 4(f) evaluation.

SUMMARY AND APPROVAL

The project meets all criteria included in the programmatic 4(f) evaluation approved on December 23, 1986.

All required alternatives have been evaluated and the findings made are clearly applicable to this project.

The project includes all possible planning to minimize harm and that there are assurances that the measures to minimize harm will be incorporated in the project.

12/5/08
Date

Approved Salvador Deya
for the Division Administrator

EXHIBIT 10: EARLY RIGHT-OF-WAY ACQUISITION INFORMATION

The Preferred Alternative for the IH 820 project would require the purchase of right of way (ROW) from approximately 136 properties. The Texas Department of Transportation (TxDOT) has acquired ROW for 18 properties through the early ROW acquisition process. The general location, legal description, acreage acquired, type of property, and date purchased are listed in Table 10-1 for these properties. These properties are shown on Exhibit 2.

TABLE 10-1. PROPERTIES ACQUIRED THROUGH EARLY ACQUISITION

General Parcel Location	Legal description	Area of Property Acquired	Property Type/Land Use	Date Purchased	Date of CE/ CSJ
Parcel 1A Northeast Corner of IH 35W and Melody Hills Drive Fort Worth, TX (see Exhibit 2, Sheets 13 & 14)	Lot 2, Block 1 Northern Crossing West	24,640 Square Feet	vacant/ commercial	10/9/2006	1/2004 0008-14-058
Parcel 1B Southeast Corner of IH 35W and Northern Cross Boulevard Fort Worth, TX (see Exhibit 2, Sheet 14)	Lot 1, Block 1 Northern Crossing West	27,737 Square Feet	vacant/ commercial	10/9/2006	1/2004 0008-14-058
Parcel 1C Northeast Corner of IH 35W and Northern Cross Boulevard Fort Worth, TX (see Exhibit 2, Sheets 2 & 14)	Lot 2, Block 2 Northern Crossing West	6,619 Square Feet	vacant/ commercial	10/9/2006	1/2004 0008-14-058
Parcel 1D Southeast Quadrant of IH 35W and IH 820 interchange Fort Worth, TX (see Exhibit 2, Sheet 2)	Lot 3, Block 2 Northern Crossing West	11,494 Square Feet	vacant/ commercial	10/9/2006	1/2004 0008-14-058
Parcel 1F Southeast Quadrant of IH 35W and IH 820 interchange Fort Worth, TX (see Exhibit 2, Sheet 2)	Lot 4, Block 2 Northern Crossing West	22,345 Square Feet	vacant/ commercial	10/9/2006	1/2004 0008-14-058
Parcel 1G Southeast Quadrant of IH 35W and IH 820 interchange Fort Worth, TX (see Exhibit 2, Sheets 2 & 3)	Lot 5, Block 2 Northern Crossing West	26,635 Square Feet	vacant/ commercial	10/9/2006	1/2004 0008-14-058
Parcel 1H Southeast Quadrant of IH 35W and IH 820 interchange Fort Worth, TX (see Exhibit 2, Sheet 3)	Lot 6, Block 2 Northern Crossing West	26,747 Square Feet	vacant/ commercial	10/9/2006	1/2004 0008-14-058
Parcel 1J Southeast Quadrant of IH 35W and IH 820 interchange Fort Worth, TX (see Exhibit 2, Sheet 3)	Lot 7, Block 2 Northern Crossing West	26,205 Square Feet	vacant/ commercial	10/9/2006	1/2004 0008-14-058

TABLE 10-1. PROPERTIES ACQUIRED THROUGH EARLY ACQUISITION					
General Parcel Location	**Legal description**	**Area of Property Acquired**	**Property Type/Land Use**	**Date Purchased**	**Date of CE/ CSJ**
Parcel 1K Southeast Quadrant of IH 35W and IH 820 interchange Fort Worth, TX (see Exhibit 2, Sheet 3)	Lot 8, Block 2 Northern Crossing West	25,663 Square Feet	vacant/ commercial	10/9/2006	1/2004 0008-14-058
Parcel 1L Southeast Quadrant of IH 35W and IH 820 interchange Fort Worth, TX (see Exhibit 2, Sheet 3)	Lot 9, Block 2 Northern Crossing West	35,016 Square Feet	vacant/ commercial	10/9/2006	1/2004 0008-14-058
Parcel 2 Southwest quadrant of IH 820 and North Riverside Drive Haltom City, TX (see Exhibit 2, Sheet 3)	Lot 10, Block 2 Northern Crossing West	1.442 acres	vacant/ commercial	8/3/2005	3/1998 0008-14-058, 059
Parcel 20 South of IH 820 and east of the Union Pacific Railroad and west of Westgrove Boulevard Haltom City, TX (see Exhibit 2, Sheet 5)	Lot 1R, Block 1 Springlake Village Revised	16,805 square feet	vacant/ commercial	1/3/2000	3/1998 0008-14-058, 059
Parcel 21 Southeast quadrant of IH 820 and Westgrove Boulevard Haltom City, TX (see Exhibit 2, Sheets 5 & 6)	Lot 5, Block 2 Springlake Village Revised	10,307 square feet (whole take)	vacant/ commercial	1/3/2000	3/1998 0008-14-058, 059
Parcel 22 South of IH 820 and east of Westgrove Boulevard Haltom City, TX (see Exhibit 2, Sheet 6)	Lot 4, Block 2 Springlake Village Revised	3,527 square feet	vacant/ commercial	1/3/2000	3/1998 0008-14-058, 059
Parcel 23 South of IH 820 and west of U.S. 377 Haltom City, TX (see Exhibit 2, Sheet 6)	Lot 3, Block 2 Springlake Village Revised	4,052 square feet	vacant/ commercial	1/3/2000	3/1998 0008-14-058, 059
Parcel 24 Southwest quadrant of IH 820 and U.S. 377 Haltom City, TX (see Exhibit 2, Sheet 6)	Lot 1R, Block 2 Springlake Village Revised	6,479 square feet	vacant/ commercial	1/3/2000	3/1998 0008-14-058, 059
Parcel 128 4933 Holiday Lane North Richland Hills, TX (see Exhibit 2, Sheet 9)	Lot 10, Block 27A Richland Terrace Addition	1,791 square feet (whole take)	residential	7/28/2004	2/2003 0008-14-058, 059

TABLE 10-1. PROPERTIES ACQUIRED THROUGH EARLY ACQUISITION					
General Parcel Location	**Legal description**	**Area of Property Acquired**	**Property Type/Land Use**	**Date Purchased**	**Date of CE/ CSJ**
Parcel 149 Holy Trinity Charismatic Episcopal Church 4900 Cummings North Richland Hills, TX (see Exhibit 2, Sheet 9)	Lot 14, Block 34 Richland Terrace Addition	8,314 square feet	religious	7/21/2004	2/2003 0008-14-058, 059

Parcels 1A, 1B, 1C, 1D, 1F, 1G, 1H, 1J, 1K, and 1L were acquired from TRBP Limited in January 2004 because of development action by the property owner; the owner had begun site development construction. These parcels were vacant; therefore, no residential or commercial buildings were displaced and there were no impacts to low-income or minority communities.

Parcel 2 was acquired from Mercantile Partners, L.P. in August 2005 because of financial hardships that resulted from the inability to sell or develop the property for an extended period during the development and approval of the IH 820 project. This parcel was vacant; therefore, no residential or commercial buildings were displaced and there were no impacts to low-income or minority communities.

Parcels 20, 21, 22, 23, and 24 were acquired from the Yogi Development Limited, Company in March 1998 because of financial hardships that resulted from the inability to sell or develop the property for an extended period of time during the development and approval of the IH 820 project. These parcels were vacant; therefore, no residential or commercial buildings were displaced and there were no impacts to low-income or minority communities.

Parcel 128 was acquired from Colonna Custom Homes in July 2004 because of development action by the property owner; the owner had begun construction of a single-family home. Though a residential building was displaced, there were no relocations because the house was not sold by the developer to an individual and no one lived in the home. Therefore, there were no impacts to low-income or minority communities.

Parcel 149 was acquired from the Holy Trinity Charismatic Episcopal Church in July 2004 because of financial hardships that resulted from the inability to sell the property for an extended period of time during the development and approval of the IH 820 project. The Preferred Alternative for the project required the displacement of the church building. The church has relocated about four miles to 785 Treadwell Drive in Hurst, Texas. There were no impacts to low-income or minority communities.

None of the parcels purchased were Section 4(f) properties.

TxDOT initiated the study of IH 820 in 1992. Some of the goals throughout the alternative development process were: 1) to bring the facility to current urban freeway design standards as described in the *Texas Department of Transportation Roadway Design Manual* and in *A Policy on Geometric Design of Highways and Streets* published by the American Association of State Highway and Transportation Officials; 2) avoiding and minimizing the need for additional ROW and displacements; and 3) avoiding and minimizing impacts the four Section 4(f) properties adjacent to IH 820.

A preliminary engineering design for three build alternatives was prepared and presented at a public meeting on June 3, 1993. Based on comments from that public meeting, Alternative I became the Preferred Alternative. This recommended Preferred Alternative developed was revised to include the proposed High Occupancy Vehicle (HOV) lanes in 1994 and updated to accommodate the 2020 traffic volumes. Additional design modifications were made to the Preferred Alternative based upon coordination meetings with local public officials and a Value Engineering Study completed in November 1997. These modifications in 1997 included two lane direct connectors in the IH 35W/IH 820 interchange and additional HOV access from Iron Horse Boulevard. Because of funding shortfalls, TxDOT changed the proposed HOV lanes to managed (toll) lanes to expedite the proposed improvements in 2004. The change to managed (toll) lanes did not increase the amount of right-of-way needed. The advance purchases of the 18 parcels occurred in 1998, 2003, and 2004, after the Preferred Alternative was developed. The advance purchase of these parcels does not preclude the further evaluation of No Build or Preferred Alternatives as described in Section V of the Environmental Assessment.

TxDOT acquired these 18 parcels following the Uniform Act; none of the parcels were purchased by local governmental agencies. TxDOT Fort Worth coordinated the purchase of these parcels with the TxDOT ROW Division in Austin. The U.S. Constitution and Texas Constitution require that just compensation is afforded for any displacee in accordance with the Uniform Act of 1970, as amended. Relocation assistance is available to all individuals, families, businesses, and non-profit organizations displaced by public transportation projects, in accordance with Title VIII of the Civil Rights Act of 1968, Title VI of the Civil Rights Act of 1964, and the Housing and Urban Development Amendment Act of 1974. Relocation benefits and assistance are available to persons without regard to race, color, religion, national origin, sex, age, or handicap. The benefits of the Relocation Assistance Program are in addition to the normal payment of fair market value for land and improvements involved in ROW acquisitions.

Four Categorical Exclusions were prepared for the early acquisition of these parcels. Table 10-1 lists the dates and Control-Section-Job numbers associated with these documents. These documents and other ROW documentation related to the purchase of these properties are available for inspection by FHWA at the TxDOT Fort Worth District Office located at 2501 Southwest Loop, Fort Worth, Texas 76133.

Exhibit 11: MSAT Sensitive Receptors

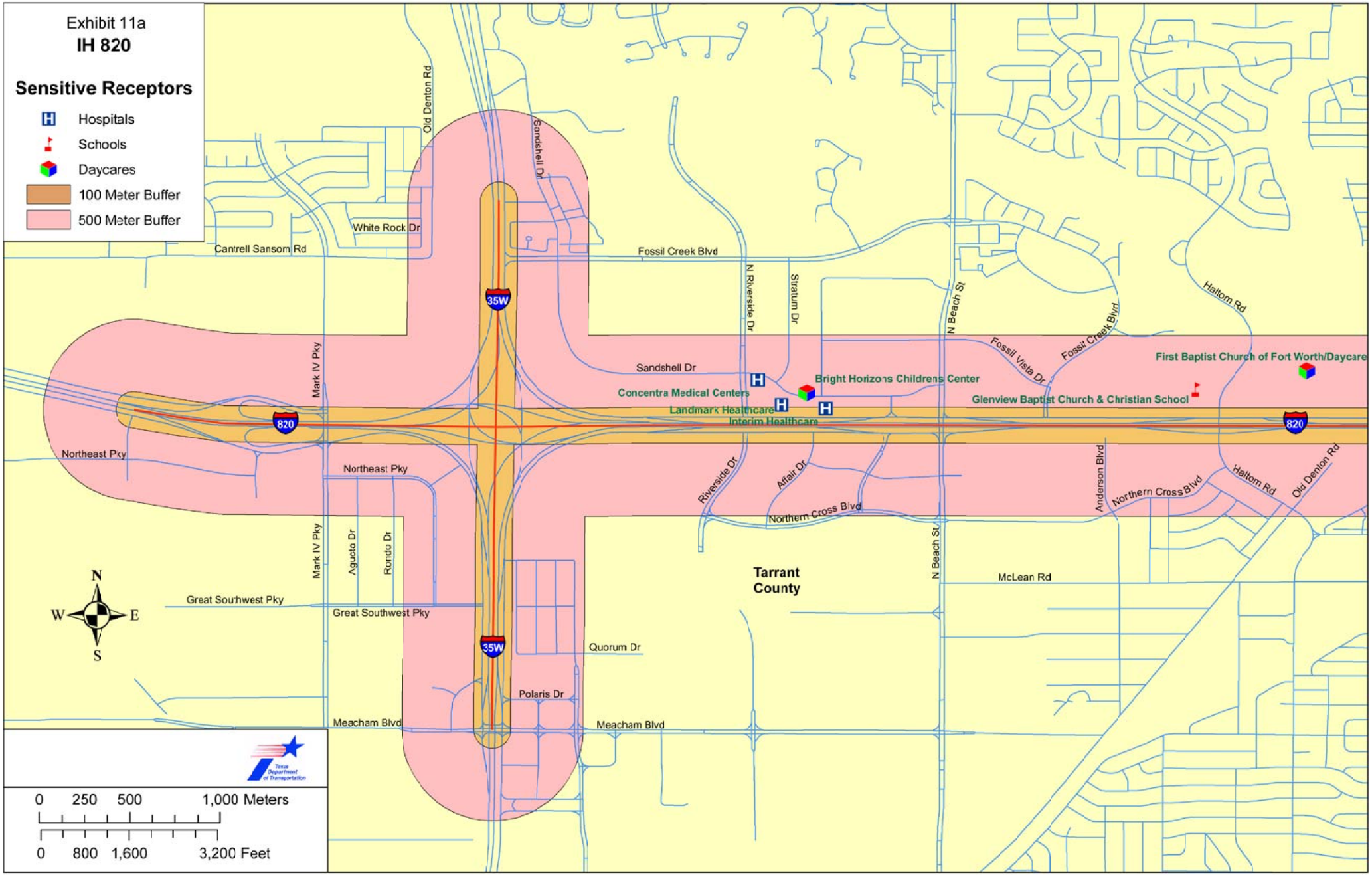


Exhibit 11a
IH 820
Sensitive Receptors
Hospitals
Schools
Daycares
100 Meter Buffer
500 Meter Buffer
Old Denton Rd
Sandshell Dr
White Rock Dr
Cantrell Sansom Rd
Fossil Creek Blvd
N Riverside Dr
Stratum Dr
N Beach St
Fossil Vista Dr
Fossil Creek Blvd
Haltom Rd
First Baptist Church of Fort Worth/Daycare
Sandshell Dr
Bright Horizons Childrens Center
Concentra Medical Centers
Glenview Baptist Church & Christian School
Landmark Healthcare
Interim Healthcare
Mark IV Pky
35W
820
Northeast Pky
Northeast Pky
Riverside Dr
Affair Dr
Northern Cross Blvd
Anderson Blvd
Northern Cross Blvd
Haltom Rd
Old Denton Rd
Mark IV Pky
Augusta Dr
Rondo Dr
Tarrant County
N Beach St
McLean Rd
Great Southwest Pky
Great Southwest Pky
Quorum Dr
Polaris Dr
Meacham Blvd
Meacham Blvd
N
W
E
S
0 250 500 1,000 Meters
0 800 1,600 3,200 Feet

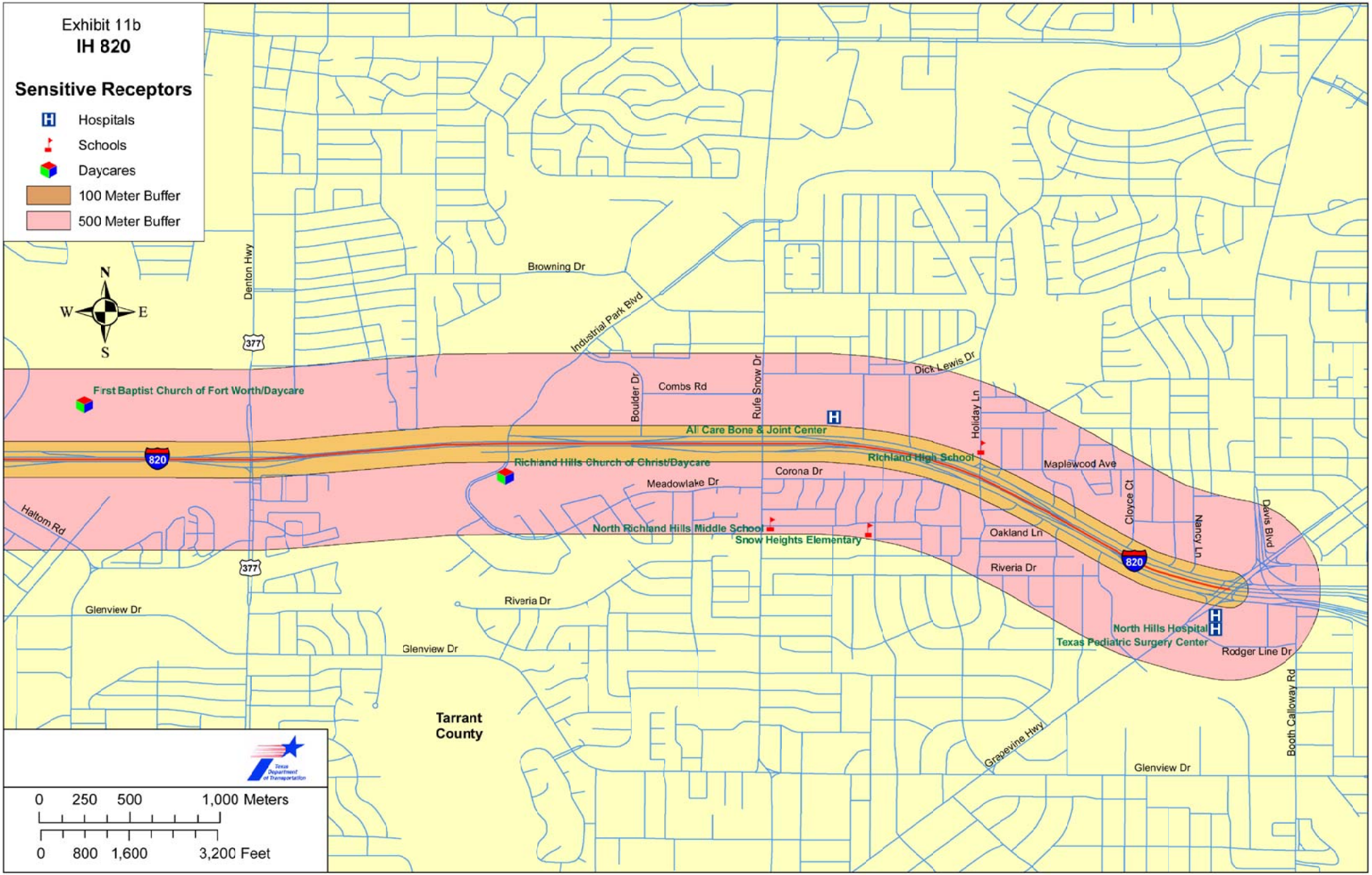


Exhibit 11b
IH 820
Sensitive Receptors
Hospitals
Schools
Daycares
100 Meter Buffer
500 Meter Buffer
N
W
E
S
Denton Hwy
377
Browning Dr
Industrial Park Blvd
First Baptist Church of Fort Worth/Daycare
Boulder Dr
Combs Rd
Rufe Snow Dr
Dick Lewis Dr
Holiday Ln
All Care Bone & Joint Center
820
Richland Hills Church of Christ/Daycare
Richland High School
Maplewood Ave
Corona Dr
Meadowlake Dr
Cloyce Ct
Nancy Ln
Davis Blvd
Haltom Rd
North Richland Hills Middle School
Snow Heights Elementary
Oakland Ln
Riveria Dr
Glenview Dr
North Hills Hospital
Texas Pediatric Surgery Center
Rodger Line Dr
Tarrant County
Grapevine Hwy
Booth Calloway Rd
0 250 500 1,000 Meters
0 800 1,600 3,200 Feet

Exhibit 12: Regional Toll Road and Managed/HOV Lane System

Mobility 2030 The Metropolitan Transportation Plan

Funded Roadway Recommendations

Legend

- New Freeway Facilities
- New Tollway Facilities
- Additional Capacity To Existing Freeway/Tollway
- HOV/Managed Lanes
- Improvements to Existing Freeway and HOV/Managed Lanes
- Selected New/Improved Regionally Significant Arterials
- Freeways/Tollways

Fort Worth CBD

Dallas CBD

Corridor specific design and operational characteristics for the Freeway/Tollway system will be determined through ongoing project development.

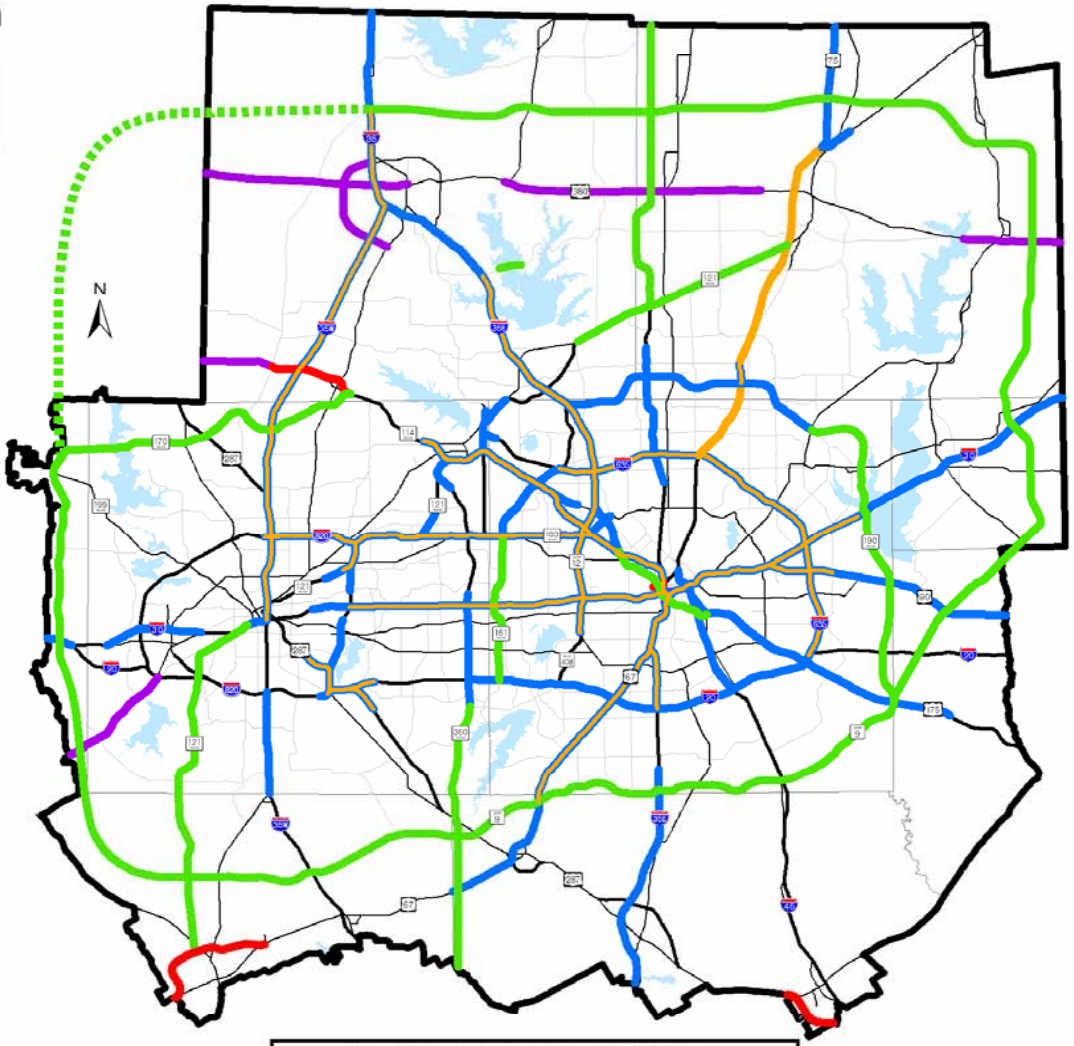
Additional and improved Freeway/Tollway interchanges and service roads should be considered on all Freeway/Tollway facilities in order to accommodate a balance between mobility and access needs.

All Freeway/Tollway corridors require additional study for capacity, geometric, and safety improvements related to truck operations.

New facility locations indicate transportation needs and do not represent specific alignments

Operational strategies to manage the flow of traffic should be considered in the corridors where additional freeway or tollway lanes are being considered.

North Central Texas Council of Governments Transportation



$29.8 Billion Regional Roadway System

Additional Freeway/Tollway lane miles = 3,444
Additional HOV/Managed lane miles = 626

Exhibit 12a

January 11, 2007

The Metropolitan Transportation Plan

Priced Facilities

Legend

- Existing Toll Facilities
- Proposed Toll Facilities
- Proposed HOV/Managed Facilities*
- Freeways/Tollways

Fort Worth CBD

Dallas CBD

Corridor specific design and operational characteristics for the Freeway/Tollway system will be determined through ongoing project development.

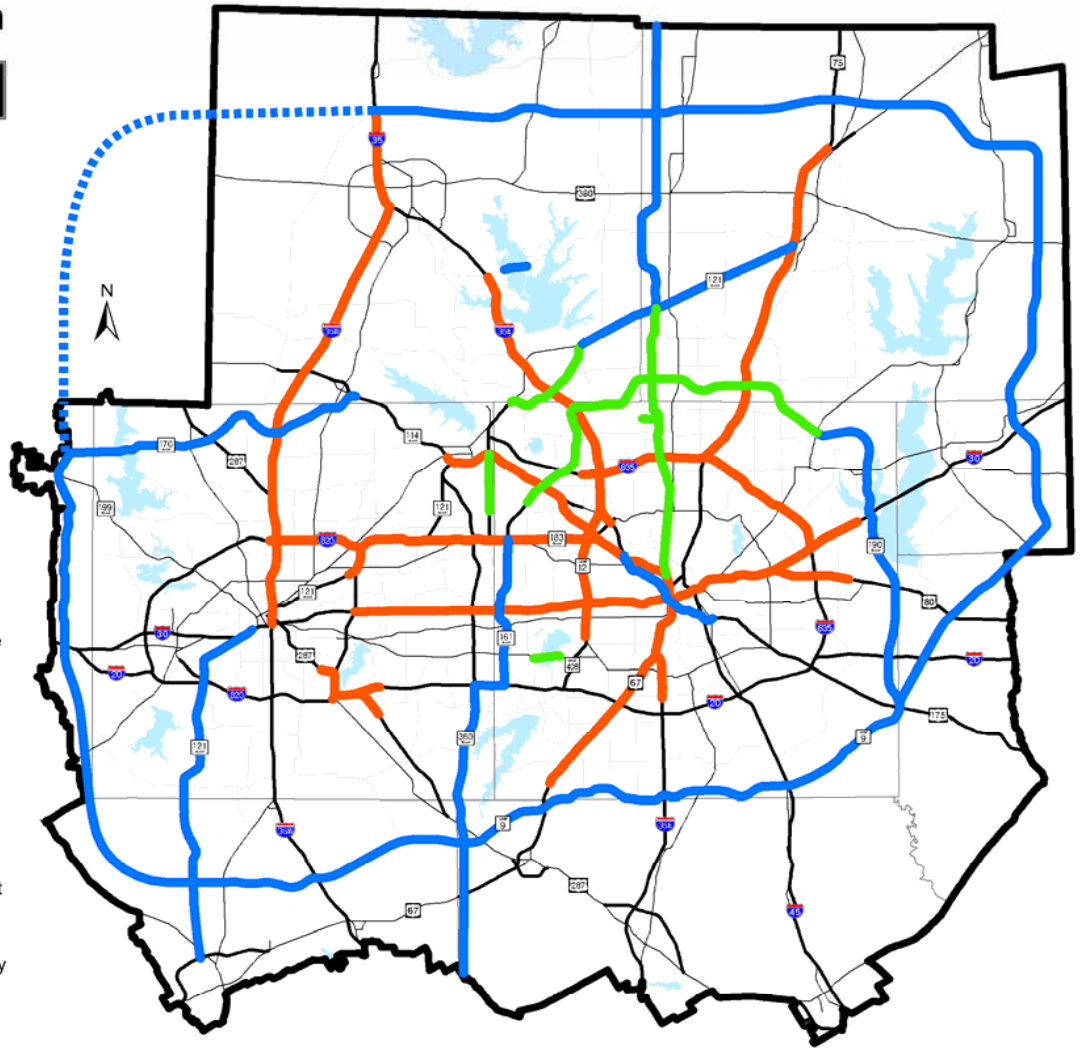
Additional and improved Freeway/Tollway interchanges and service roads should be considered on all Freeway/Tollway facilities in order to accommodate a balance between mobility and access needs.

All Freeway/Tollway corridors require additional study for capacity, geometric, and safety improvements related to truck operations.

New facility locations indicate transportation needs and do not represent specific alignments

Operational strategies to manage the flow of traffic should be considered in the corridors where additional freeway or tollway lanes are being considered.

* Existing lanes in corridor remain free. Toll charged on new capacity only and will include HOV incentives.



North Central Texas Council of Governments Transportation

$17.7 Billion of Innovative Funding Strategies

Exhibit 12b

January 11, 2007

The Metropolitan Transportation Plan

Passenger Rail Recommendations

Legend

- Light Rail
- Light Rail - New Technology
- Regional Rail
- Regional Rail - Special Events Only
- Existing Rail Corridors
- Highways

Fort Worth CBD

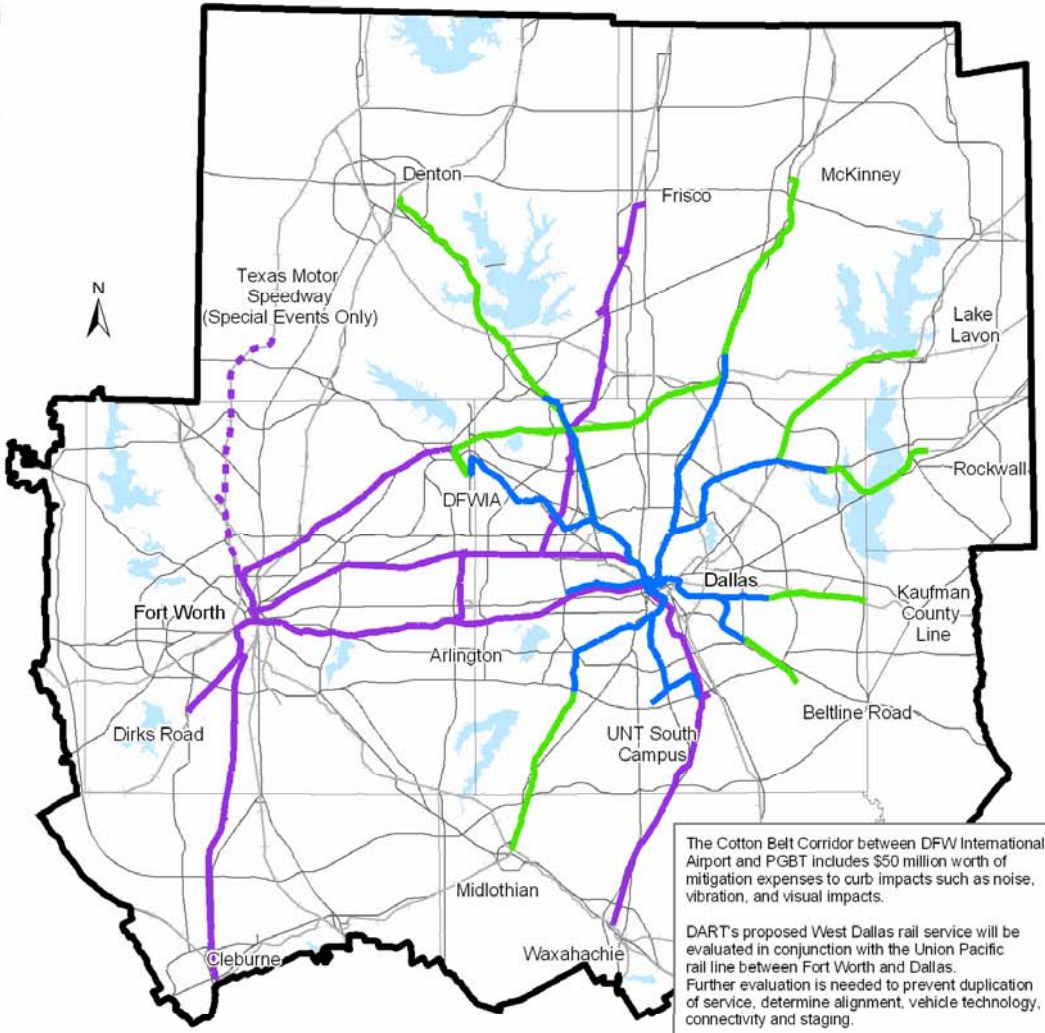
Dallas CBD

Corridor specific design and operation characteristics for the Intercity Passenger, Regional Passenger and Freight Rail Systems will be determined through capacity evaluation and ongoing project development. Refined rail forecasts are necessary to determine technology and alignment in Future Rail corridors.

All existing railroad rights-of-way should be monitored for potential future transportation corridors. New facility locations represent transportation needs and do not reflect specific alignments.

Institutional structure being reviewed for the region.

The need for additional rail capacity in the Dallas CBD, Fort Worth CBD, DFW International Airport, and other inter-modal centers will be monitored. A grade separation is needed for the Dallas CBD second alignment.



397 Additional Rail Miles
$9.6 Billion

The Cotton Belt Corridor between DFW International Airport and PGBT includes $50 million worth of mitigation expenses to curb impacts such as noise, vibration, and visual impacts.

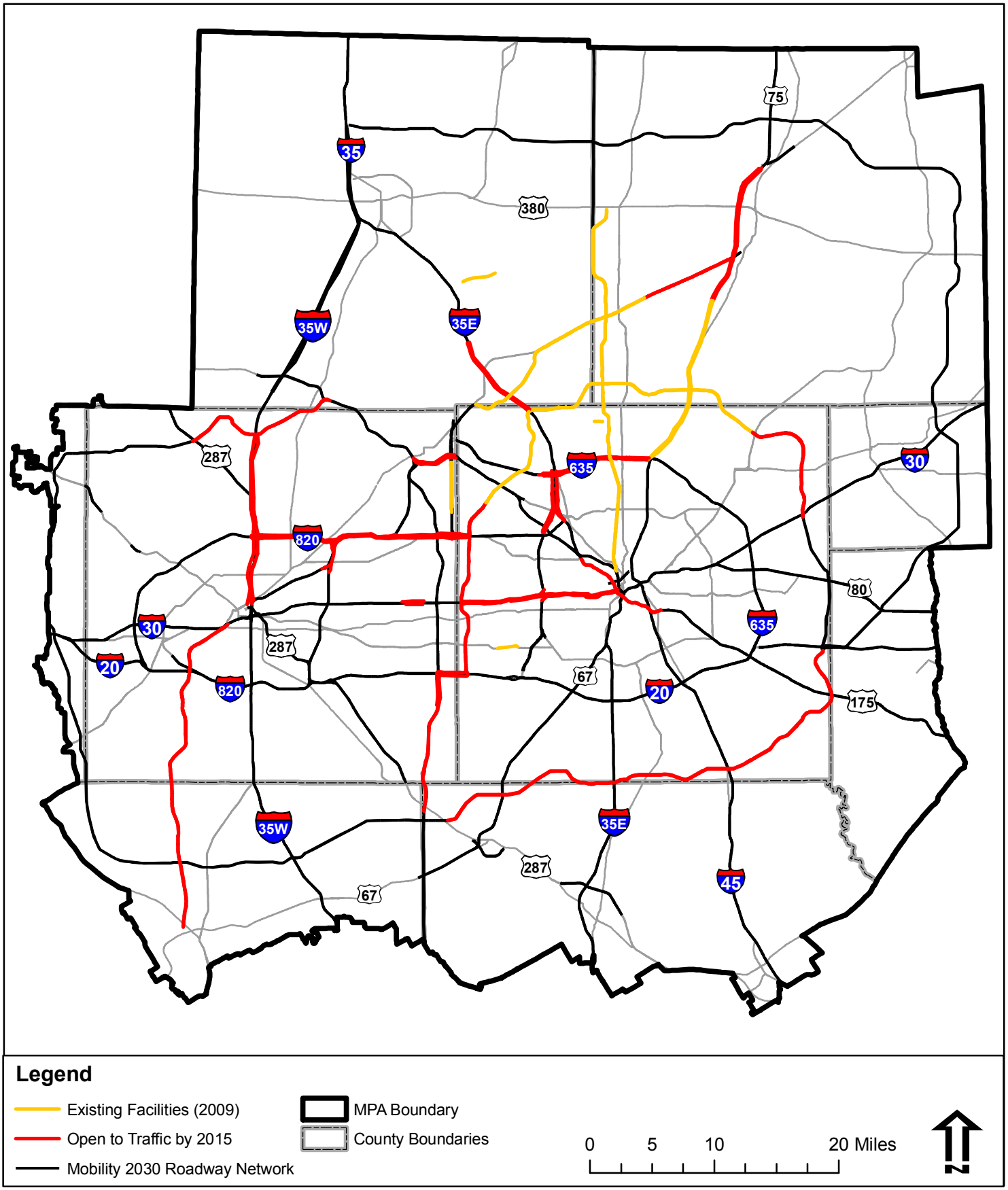
DART's proposed West Dallas rail service will be evaluated in conjunction with the Union Pacific rail line between Fort Worth and Dallas. Further evaluation is needed to prevent duplication of service, determine alignment, vehicle technology, connectivity and staging.

DART's proposed SouthPort rail line extension will be evaluated in conjunction with the Dallas to Waxahachie rail service. Further evaluation is needed to prevent duplication of service, determine alignment, vehicle technology, connectivity and staging.

North Central Texas Council of Governments Transportation

Exhibit 12c

January 11, 2007



Texas Department of Transportation

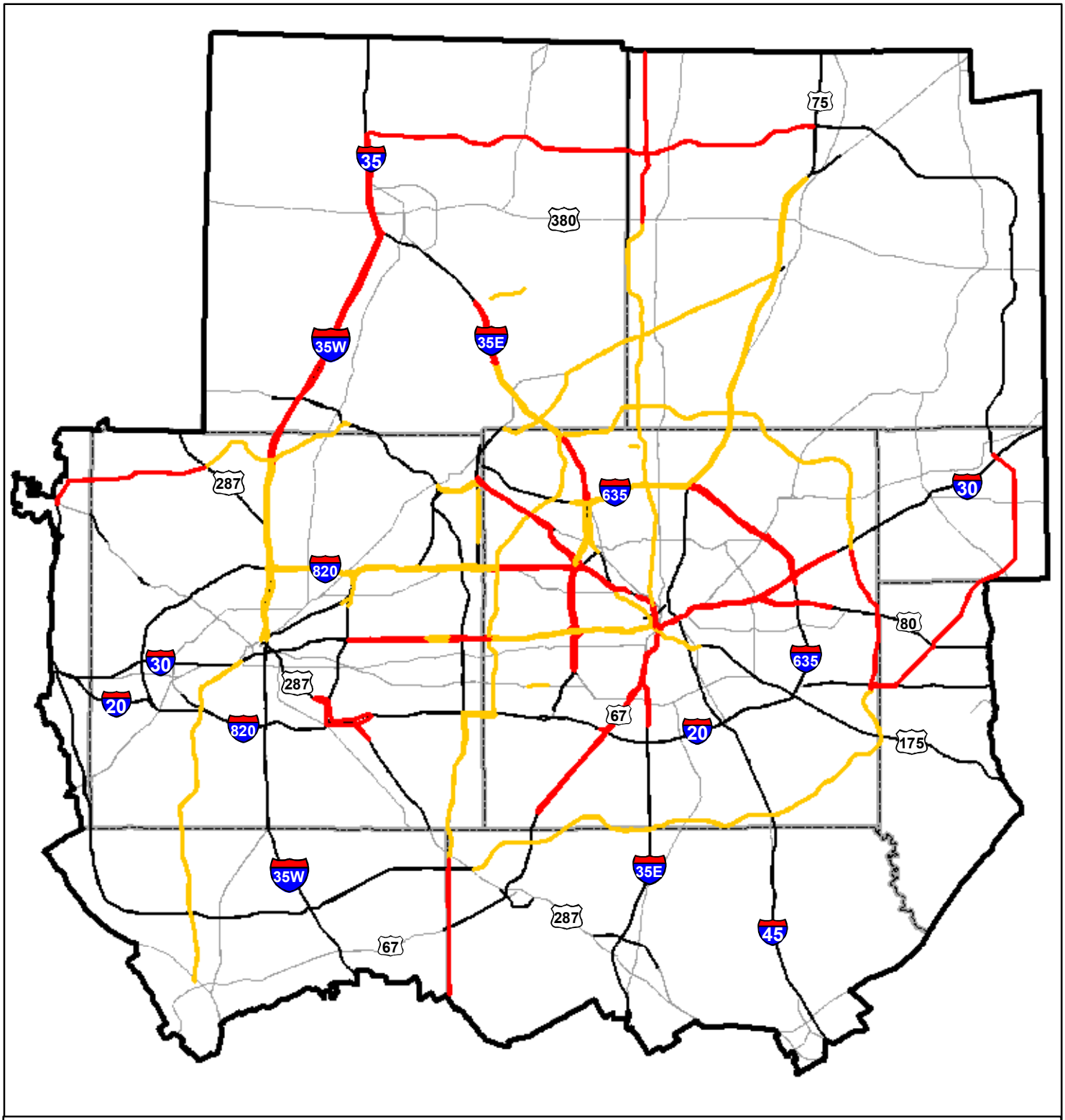
Texas Department of Transportation
Tarrant County

2015 Priced Facility Network

IH 820 from IH 35W to SH 121/183

Exhibit 12d

Date Created: May 2008



Legend

- Existing 2015 Facilities
- Open to Traffic by 2025
- Mobility 2030 Roadway Network
- MPA Boundary
- County Boundaries

0 5 10 20 Miles

N

Texas Department of Transportation

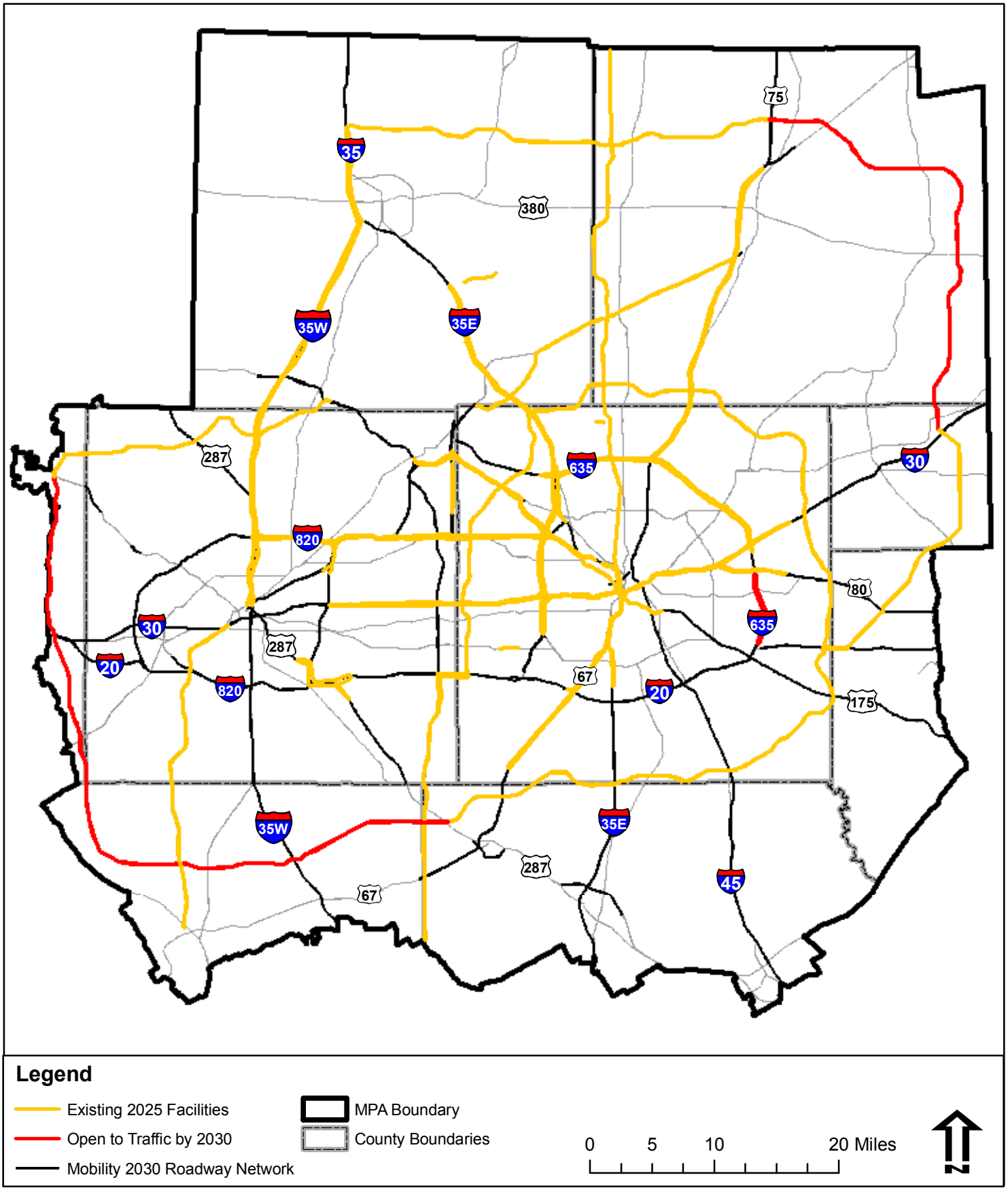
Texas Department of Transportation
Tarrant County

2025 Priced Facility Network

IH 820 from IH 35W to SH 121/183

Exhibit 12e

Date Created: May 2008



Texas Department of Transportation

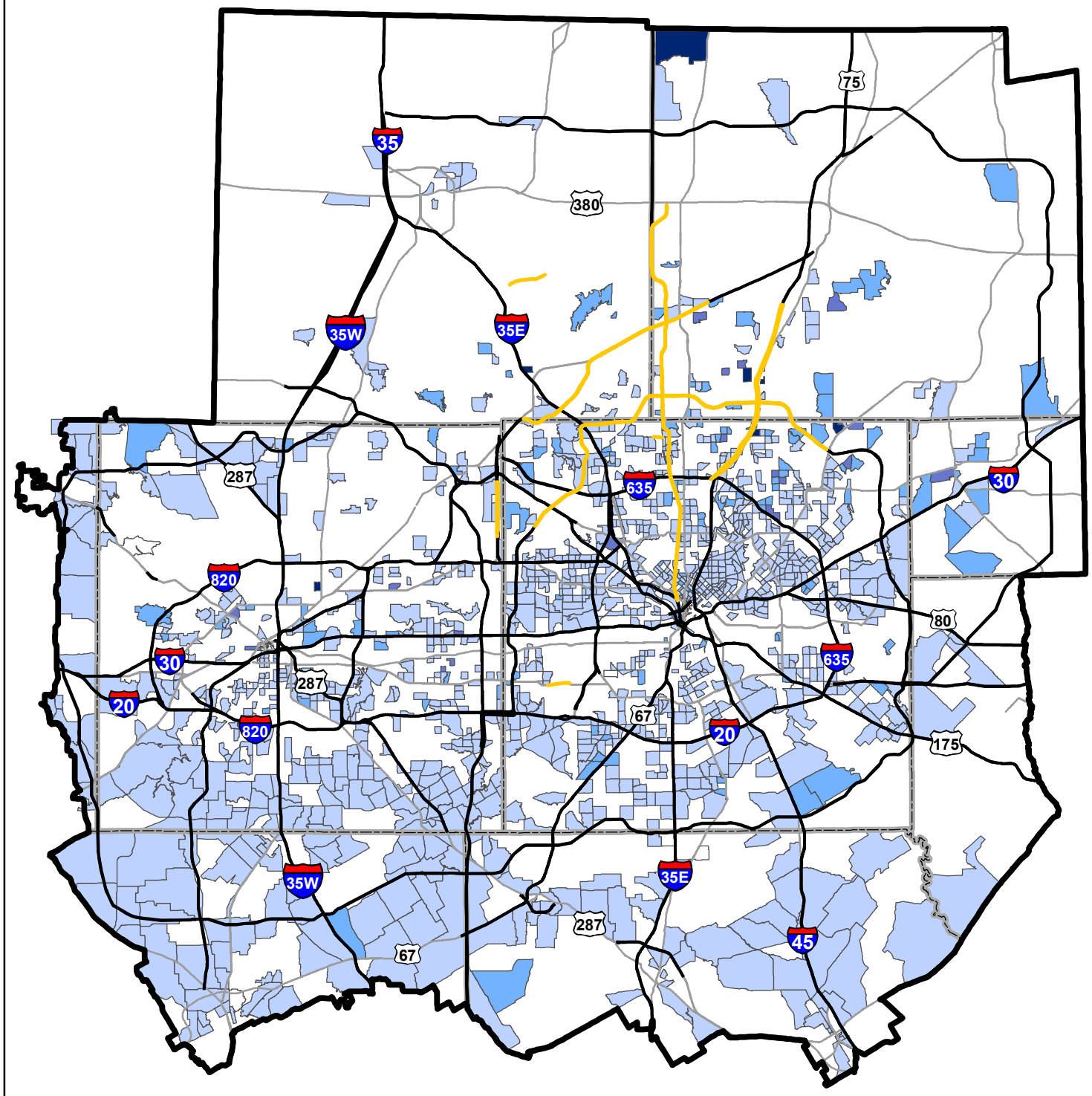
Texas Department of Transportation
Tarrant County

2030 Priced Facility Network

IH 820 from IH 35W to SH 121/183

Exhibit 12f

Date Created: May 2008



Legend

- 2009 Priced Facilities
- Mobility 2030 Roadway Network
- MPA Boundary
- County Boundaries

Environmental Justice TSZs

TRIPS

- <1 Trip
- 1-50 Trips (19,099 EJ Trips, 52% of total EJ Trips)
- 51-150 Trips (10,018 EJ Trips, 28% of total EJ Trips)
- 151-300 Trips (4,390 EJ Trips, 12% of total EJ Trips)
- >300 Trips (2,893 EJ Trips, 8% of total EJ Trips

0 5 10 20 Miles

N

Texas Department of Transportation

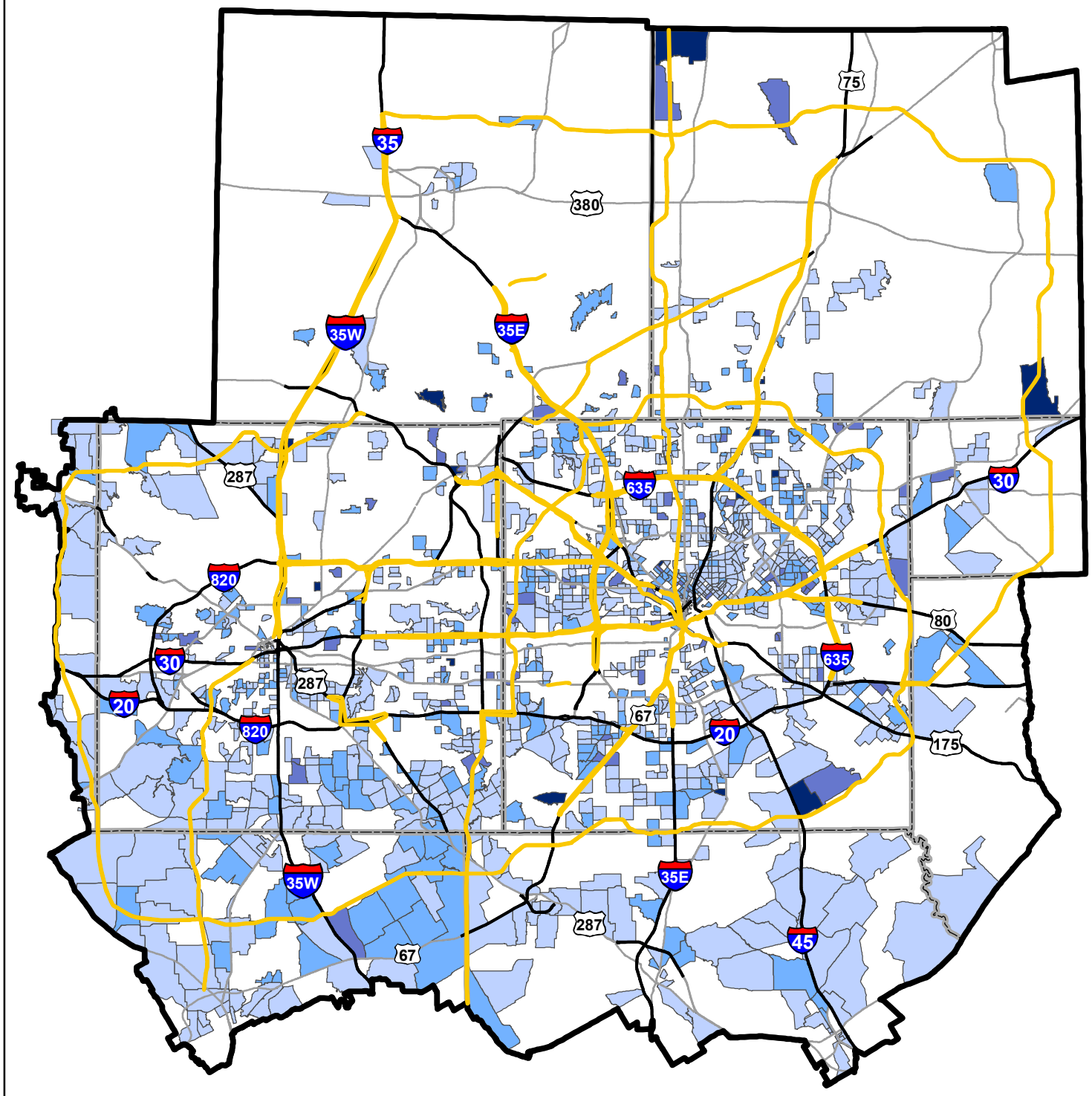
Texas Department of Transportation
Tarrant County

Environmental Justice
Traffic Survey Zones:
Daily Trips on Existing (2009) Priced Facilities

IH 820 from IH 35W to SH 121/183

Exhibit 12g

Date Created: May 2008



Legend

- 2030 Priced Facilities
- Mobility 2030 Roadway Network
- MPA Boundary
- County Boundaries

Environmental Justice TSZs

Trips by TSZ

- <1 Trip
- 1-50 Trips (23,109 EJ Trips, 27% of total EJ Trips)
- 51-150 Trips (43,809 EJ Trips, 41% of total EJ Trips)
- 151-300 Trips (17,740 EJ Trips, 21% of total EJ Trips)
- >300 Trips (9,353 EJ Trips, 11% of total EJ Trips)

0 5 10 20 Miles

N

Texas Department of Transportation

Texas Department of Transportation
Tarrant County

Environmental Justice
Traffic Survey Zones:
Daily Trips on Future (2030) Priced Facilities

IH 820 from IH 35W to SH 121/183

Exhibit 12h

Date Created: May 2008 v2

Exhibit 13: Agency Coordination

Texas Department of Transportation

DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

RE
MAY 17 1999
TXDOT - ENV

May 11, 1999

SECTION 106: IDENTIFICATION OF HISTORIC RESOURCES

Tarrant County
CSJ 0008-14-058

RECEIVED
MAY 13 1999
TEXAS HISTORICAL COMMISSION

IH 820: IH 35(W) to SH 26

Mr. Greg Smith
History Programs Division
Texas Historical Commission
Austin, Texas 78711

Dear Mr. Smith:

The above undertaking will be carried out with federal assistance. Currently, this section of IH 820 is a four-lane, limited-access, divided freeway. The proposed project would widen the existing freeway to 8 lanes, with 12 lanes at the IH 35(W)/IH 820 interchange. The project would fully reconstruct the existing IH 35(W)/IH 820 interchange, and would replace existing overpasses and railroad bridges. About 45 acres of additional right-of-way will be acquired for the project. The project stretches for a distance of about 6 miles, through northern Tarrant County. A project location map is enclosed.

In accordance with our Programmatic Agreement for Cultural Resources, Texas Department of Transportation staff conducted a cultural resource survey of the project area to identify resources potentially eligible for listing in the National Register of Historic Places. Due to the scope of this project, the area of potential effects was determined to extend 500 feet from the proposed right-of-way line. **No buildings, structures, or objects appearing to be 50 years of age or older were identified in the project's area of potential effects.**

Please acknowledge your receipt of these findings by returning a signed copy of this letter to our office within 15 days. If you have any questions regarding this project, please contact me at 416-2329.

Sincerely,

Richard E. Mitchell
Historic Preservation Planner
Environmental Affairs Division

NOT ELIGIBLE
for listing in the
National Register of Historic Places
PROJECT MAY PROCEED
by GW Smith
for F. Lawerence Oaks
State Historic Preservation Officer
Date 5-14-99

MEMORANDUM

Texas Department of Transportation

TO: 850 File, CRM Project file

District: Fort Worth **Highway: IH 820**
County: Tarrant
CSJ #: 0008-14-058, 0008-14-059, 0014-16-194
Project Limits: from Mark IV Parkway to US 183/SH 121

Project Description: HIST Stipulation VI, Appendix 4(2), expand main lanes from 4 to 6 lanes, construct 4 managed lanes, construct frontage roads, replace railroad underpass bridges, 56 acres of new ROW. No effects to historic properties.

FROM: Mark M. Brown MB **DATE:** February 5, 2008

SUBJECT: Internal review under the First Amended Statewide Programmatic Agreement for Transportation Undertakings (PA-TU) among the Federal Highway Administration, Texas State Historic Preservation Officer, Advisory Council on Historic Preservation, and the Texas Department of Transportation; and the Memorandum of Understanding (MOU) between the Texas Historical Commission and the Texas Department of Transportation

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Introduction

The Texas Department of Transportation -- Fort Worth District proposes the reconstruction and widening of IH 820 between the above limits. The existing four lanes would be widened to six lanes (three in each direction). Two managed lanes in each direction (for a total of four lanes) would be constructed within the median. The project design also calls for the construction of east and west bound frontage roads along IH 820 in most locations where there currently are none. The new frontage roads would require turn lanes or new connections to cross-streets. Three railroad underpasses constructed in 1966 would be replaced. See attached schematics and cross-sections. Approximately 56 acres of additional right-of-way (ROW) would be required.

The project was initially coordinated with SHPO on May 14, 1999. A series of early ROW acquisitions were coordinated on February 12, 2003, March 4, 2003, and January 30, 2004. Section 106 coordination is being reopened because the original historic resources survey has expired and the project has changed to include new alignment near Haltom Road.

Survey and Survey Findings

A review of the National Register of Historic Places (NRHP), the list of State Archeological Landmarks (SAL), and the list of Recorded Texas Historic Landmarks (RTHL) indicated that no historically significant resources have been previously documented within the area of potential effects (APE). It has been determined through consultation with the State Historic Preservation Officer (SHPO) that the APE for the proposed project is 150 feet from the project right-of-way for existing alignments and 300 feet from the project right-of-way for new alignments. As documented in the attached report, site visits in January 2007 and January 2008 revealed that there are 46 resources at 43 numbered sites, 50 years of age or older (built prior to 1965), located within the project area of potential effects. These resources include 39 residences, one agricultural site, one social hall, and one school. Furthermore, three post World War II residential subdivisions are in the APE. TxDOT determined that neither any of the historic-age resources nor any of the residential subdivisions are NRHP eligible. Furthermore, there are no Official Texas Historical Markers in the APE.

Determinations of National Register Eligibility

I have evaluated the surveyed properties through the application of the Criteria of Eligibility for listing in the National Register of Historic Places and have determined that none of these properties (Site #s 1-13, 18-31, 33, 36-50) are known to be associated with a significant historical event, or associated with a person of transcendent importance, nor embody the distinctive characteristics of a type, period, or method of construction, or that represents the work of a master. Therefore, these properties are determined to be **not eligible** for listing in the National Register of Historic Places. An inventory indicating individual NRHP evaluations is included in the attached historic resources survey.

TxDOT historians informally consulted with SHPO on February 5, 2008 concerning the survey findings and the eligibility determinations.

Determinations of National Register Eligibility

Pursuant to Stipulation VI "Undertakings with Potential to Cause Effects" of the First Amended Statewide Programmatic Agreement for Transportation Undertakings (PA-TU) between the Federal Highway Administration (FHWA), the Texas State Historic Preservation Officer (SHPO), the Advisory Council on Historic Preservation, and the Texas Department of Transportation (TxDOT) and the Memorandum of Understanding (MOU), ENV historians determined that none of the historic-age resources are eligible for listing in the National Register of Historic Places. Since the properties are not NRHP eligible, the project would have no effects to historic properties and individual project coordination with SHPO is not required.

Approved by_____ for TxDOT 2-07-08
Bruce Jensen — Date

Lead Reviewer_____ for TxDOT 2/7/08
Initials — Date

Distribution
Signed original: Michelle Skinner, ENV-PM
Cc w/attachment: ENV-CRM file, THC
Cc w/o attachment: Sonja Whitehead, Fort Worth District; scan
Warren Grannis, Historic Resources Inventory Manager

cc: CRM 4-9-04

Texas Department of Transportation

DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

April 2, 2004

Section 106/Antiquities Code of Texas: Archeological Review
CSJ: 0008-14-058
Tarrant County

IH-820: from IH 35(W) to SH 26

Dr. James E. Bruseth
Department of Antiquities Protection
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

TxDOT - ENV
APR 09 2004
CRM

Dear Dr. Bruseth:

The above referenced proposed project would utilize federal funds. Thus, in accordance with the National Historic Preservation Act of 1966, as amended, (and the Programmatic Agreement among the Federal Highway Administration, Texas State Historic Preservation Officer, Advisory Council on Historic Preservation, and the Texas Department of Transportation) and the Antiquities Code of Texas (and the Memorandum of Understanding between TxDOT and THC), we are continuing consultation on this project.

The project would widen the approximately six-mile long segment of existing IH-820 highway from west of IH-35(W) to SH 26 from a four-lane roadway to an eight-to-twelve-lane facility. The project would also involve complete reconstruction of the IH-820/IH-35(W) interchange and the section of IH-35(W) from 820 feet north of Fossil Creek Boulevard south to Meacham Boulevard. The project would require about 52 acres of new right of way. The general project is depicted on sections of the Hurst [3297-442] and Haltom City [3297-431] quads from the Texas Archeological Sites Atlas.

The project crosses, from west to east, Cretaceous Fort Worth Limestone and Duck Creek Formation (undivided); PawPaw Formation, Weno Limestone, and Denton Clay (undivided); and Grayson Marl and Main Street Limestone (undivided) geologic deposits. Big Fossil Creek trends southeasterly through the project area and Recent alluvium and Pleistocene terrace deposits have been mapped adjacent to it. A small area of Pleistocene deposits has also been mapped adjacent to Calloway Branch that flows through the east end of the project area (Bureau of Economic Geology 1988: Geologic Atlas of Texas, Dallas Sheet). Elevation along the project length is generally between about 600 and 650 feet NGVD, though adjacent to Big Fossil Creek it is only about 540 feet NGVD. Soils along the project have been mapped mainly as Sanger-Purves-Slidell association (nearly level and gently sloping, deep and shallow, clayey soils on uplands) with a small area of Ponder-Sanger-Slidell association soils (nearly level and gently sloping, deep, loamy and clayey soils on uplands) at the east end (Soil Conservation Service 1980: General Soil Map, Tarrant County, Texas). Most of the proposed project APE has been extensively disturbed by existing highway and railroad construction, associated development (commercial and residential) of adjacent properties, and installation of numerous utilities.

PROJECT
APR 09 2004
MANAGEMENT

Previous consultations with THC have been undertaken prior to purchase of several individual parcels of proposed right of way (4900 Cummings [Feb 12, 2002], 4933 Holiday Lane [Feb 27, 2003], Northern Crossing West [Sept 30, 2003], and another portion of Northern Crossing West [Jan 26, 2004]). THC has concurred that none of these parcels warranted survey.

A check of the Texas Archeological Sites Atlas revealed no recorded archeological sites within or adjacent to the proposed project APE. Examination of project schematics and aerial photos, as well as numerous drives through the area led to the conclusion that the only portion of the proposed project APE that has not been developed/disturbed and that may have slight potential to include archeological historic properties is within the Big Fossil Creek floodplain. Thus, TxDOT contracted with Prewitt and Associates Inc to conduct a survey (with trenching) across the Fossil Creek floodplain. The work was conducted under Antiquities Permit 3243 (multi-project permit) in March 2004. No archeological materials or settings likely to contain them were identified. A copy of the consultant's report is attached.

Thus, TxDOT seeks concurrence that the entire proposed project APE does not have reasonable potential to contain archeological historic properties or State Archeological Landmarks, would have no effect on such properties, and that no further research is required. In the event of the unexpected discovery of archeological materials during construction, work would cease in the immediate area of the discovery and emergency discovery procedures would be initiated.

Thank you for your consideration of this project.

Sincerely,

TxDOT - ENV
APR 09 2004
CRM

G. R. Dennis Price
Environmental Specialist
Environmental Affairs Division

Owen Lindauer, Ph.D., Supervisor
Archeological Studies Program
Environmental Affairs Division

Attachment

Bcc (with attachment): Fort Worth District office, Attn: Robert Hall
MMS, GRDP, SBW/JG, Own - reading file

Concurrence by: _____ 4-7-04
For F. Lawerence Oaks, State Historical Preservation Officer — Date

SCANNED
1-9-08
JDL

Pm

Texas Department of Transportation

DEWITT C. GREER STATE HIGHWAY BLDG. • 125 E. 11TH STREET • AUSTIN, TEXAS 78701-2483 • (512) 463-8585

January 4, 2008

NHPA Section 106 and Antiquities Code of Texas: Archeological Review
CSJ: 0008-14-058, 0008-14-059, 0014-16-194
IH-820; from west of IH-35 to SH 106
Tarrant County. Fort Worth District

Dr. James E. Bruseth
Director, Division of Archeology/Deputy State Historic Preservation Officer
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Dear Dr. Bruseth:

The above referenced proposed project would utilize federal funds. Thus, in accordance with the National Historic Preservation Act of 1966, as amended (and the First Amended Programmatic Agreement [PA-TU] among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historical Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings) and the Memorandum of Understanding (MOU) between the Texas Department of Transportation and the Texas Historical Commission (43 TAC 2.24) we are continuing consultation on this project.

Consultation regarding this project was initiated with a series of letters (dated February 12, 2003; February 27, 2003; September 30, 2003; and January 26, 2004) regarding advanced purchase of several individual properties that would be affected by the proposed project. THC concurred that purchase of these individual properties would have no effect on archeological historic properties (36 CFR 800.16.(1)) or State Archeological Landmarks (13 TAC 26.12) and did not warrant further archeological survey.

On April 2, 2004, TxDOT requested concurrence that the entire project, as then proposed, did not have reasonable potential to contain archeological historic properties or State Archeological Landmarks, would have no effect on such properties, and that no further research was required. THC concurred on April 7, 2004.

Recently the project has been modified to include two additional connectors that would extend between Haltom Road and the originally proposed IH-820 frontage roads. The connectors would be within 60-ft-wide rights of ways and would require an additional 4 acres of right of way. The

additional proposed project location is depicted on the attached section of USGS Haltom City [3297-431] 7.5' topographic quadrangle.

The additional APE (area of potential effects) for the project is defined as the additional proposed right of way, 4 acres. Depth of anticipated impacts is estimated as a maximum of 5 feet.

A check of the Texas Archeological Sites Atlas (on Jan 2, 2008 – see attached map section) revealed no recorded archeological sites within, immediately adjacent to, or within a mile of the additional APE. An archeological survey of 95 acres of the Big Fossil Creek Green Belt in Haltom City (about 0.6 to 1.0 mile north and northwest of the additional APE) was conducted in 1994 by AR Consultants [THC Permit # 1614]. Another survey of the Big Fossil Creek floodplain (approx 0.75 to 1.1 miles east of the additional APE) was conducted in 2004 by Prewitt & Associates for this project under contract to TxDOT [THC permit #3243]. Another survey was conducted by TxDOT at the junction of the St. Louis Western Railroad and US 377/Denton Road (about 0.8 mile southeast of the additional APE) in 1995. None of the three surveys recorded any archeological sites.

Surface geologic deposits within the additional APE have been mapped as Cretaceous Weno Limestone and Denton Clay, undivided [Kpd – alternating limestone, clay, and marl] (Bureau of Economic Geology 1988: Geologic Atlas of Texas, Dallas Sheet. Scale 1:250,000. The University of Texas at Austin, Austin, Texas. – see attached map section).

Soils along the proposed additional APE have been mapped by the Soil Conservation Service (1981: Soil Survey of Tarrant County, Texas, map sheet 24. US Department of Agriculture, Government Printing Office, Washington, D.C. – see attached map section) as: Aledo gravelly clay loam, 1-8% slopes [#1, about 16% of the additional APE]; Aledo-Bolar complex, 5-20% slopes [#2, about 10% of the additional APE]; Aledo-Urban land complex, 1-8% slopes [#4, about 14% of the additional APE]; Purves clay, 0-3% slopes [#61, about 16% of the additional APE]; and Sanger clay, 1-3% slopes [#65, about 44% of the additional APE]. Aledo soils formed in fractured limestone bedrock in uplands. The upper layers consist of sticky plastic clay and limestone fragments, with limestone bedrock at a depth of about 17 inches. Bolar soils developed in interbedded fractured limestone and marl on uplands. The surface layer typically consists of about 8 inches of sticky plastic clay loam, overlying sticky plastic clay loams containing calcium carbonate concretions, fragments of limestone and shells; with fractured limestone bedrock at a depth of about 31 inches. Purves clay developed in interbedded fractured limestone and marl on uplands. The surface layers typically consist of clay overlying fractured limestone bedrock at a depth of about 15 inches. Sanger clay developed in clayey marine sediment on uplands. Very sticky and plastic clay extends to depths of at least 80 inches, with color ranging from very dark grayish brown at the surface to light yellowish brown at a depth of about 50 inches. The soil is very susceptible to cracking, with cracks between 1 and 2 inches in width at depths of 20 inches.

Aerial photos indicate that the additional APE has been subject to cultivation, though there are some areas of trees, and indications of a small tributary to Big Fossil Creek within the APE.

The age of the surface geologic deposits and the generally shallow nature of the soils suggest that any archeological materials would be confined to the surface or very near the surface, where they

would have been disturbed by cultivation and, thus, there is little potential for the presence of archeological deposits that would be eligible for listing as archeological historic properties (36 CFR 800.16.(1)) or State Archeological Landmarks (13 TAC 26.8). The deeper clay areas would have been un-attractive for settlement, and cracking of soils would lead to vertical movement and potential mixing of artifacts from different temporal occupations, again suggesting little potential for the presence of archeological deposits that would be eligible for listing as archeological historic properties (36 CFR 800.16.(1)) or State Archeological Landmarks (13 TAC 26.8).

Thus, based on the foregoing, TxDOT seeks concurrence that the proposed additional project element (connector roads) would not affect archeological historic properties (36 CFR 800.16.(1)) or State Archeological Landmarks (13 TAC 26.8), and that no further investigations are warranted.

In the event that unanticipated archeological deposits are encountered during construction, work in the immediate area will cease and TxDOT archeological staff will be contacted to initiate post-review discovery procedures under the provisions of the PA-TU and MOU.

Sincerely,

G. R. Dennis Price, RPA
Archeologist
Environmental Affairs Division

Scott Pletka, Ph.D., Supervisor
Archeological Studies Branch
Environmental Affairs Division

Attachment

Concurrence by: _____ 1-4-08
For: F. Lawerence Oaks, State Historic Preservation Officer Date

Late

✓ SCANNED ✓ ETS

PM

TEXAS PARKS & WILDLIFE

March 11, 2008

NATURAL
MAR 17 2008
RESOURCES

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Stirling J. Robertson, Ph.D.
Biological Resources Management Branch
Environmental Affairs Division
Texas Department of Transportation
125 East 11th Street
Austin, TX 78701-2483

RE: Proposed IH 820 Widening: From IH 35W to SH 26 (Tarrant County, CSJ 0008-14-058)

Dear Mr. Robertson:

The Texas Parks and Wildlife Department (TPWD) has reviewed the Environmental Assessment (EA) for the proposed project referenced above. The project activities as proposed indicate minimal impact to fish and wildlife resources, including rare, threatened and endangered species.

Section 4(f) Properties

The EA Exhibit 9 *Programmatic 4(f) Evaluation City of North Richland Hills Tennis Center* indicates that approximately 0.58 acres of the Richland Tennis Center (RTC) would be impacted by the proposed project and that the RTC was partially funded by a TPWD grant using local park funds. The EA indicates that a 1:1 substitution of land for all property converted from recreational use is required under the TPWD grant and that a substitution property has been chosen, though no coordination with TPWD has been initiated.

To coordinate regarding the proposed Section 4(f) impacts and mitigation, please contact Jill Parrish (512) 389-8175. If you have additional questions, you can contact me at (903) 675-4447.

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Sincerely,

Karen B. Hardin

Karen B. Hardin
Wildlife Habitat Assessment Program
Wildlife Division

kbh/5197

SCANNED ETS

Texas Department of Transportation

P.O. BOX 6868 • FORT WORTH, TEXAS 76115-0868 • (817) 370-6500

April 8, 2008

IH 820: From IH 35W to SH 121/183/26
CSJ: 0008-14-058, etc.
Tarrant County

CONTACT: TPD-JJA

Karen B. Hardin
Texas Parks and Wildlife Department, Wildlife Division
Wildlife Habitat Assessment Program
4200 Smith School Road
Austin, Texas 78744-3291

NATURAL
APR 09 2008
RESOURCES

Dear Ms. Hardin:

This letter is in response to the comments received on the above referenced Environmental Assessment (EA), dated March 11, 2008. I would like to apologize for the inaccuracy in the document in relation to the Section 4(f) property that utilized local park funds at the city of North Richland Hills Tennis Center. The document indicated that no coordination with Texas Parks and Wildlife Department (TPWD) had occurred. This is in correct.

TPWD was contacted by the city of North Richland Hills. That coordination was done based on the anticipated conversion of 0.58 acre of property leased to the city by Birdville Independent School District and used as a green space buffer to the actual tennis courts. I have attached the response letter from TPWD from February 2003 for your information.

If you have any questions concerning this matter, please contact me at (817) 370-6710.

Sincerely,

Judith J. Anderson, P.E.

Judith J. Anderson, P.E.
Programs Administration Engineer
Fort Worth District

RECEIVED
APR 16 2008
ENV-PM

cc: Stirling Robertson, Environmental Affairs Division

RECEIVED

FEB 21 2003

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To Curtis H.		Date 2-26-03	# of pages ▸ one
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Phone #		Co.	
Fax #		Phone #	
		Fax #	

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EXECUTIVE DIRECTOR

February 13, 2003

Mr. Gregory T. Vick
Assistant City Manager
7301 NE Loop 820
North Richland Hills, TX 76180

Re: North Richland Hills Athletic Center - Conversion
Project Number 50-00059

Dear Mr. Vick:

We have reviewed your e-mail correspondence of January 27, 2003 and the attached Programmatic 4(f) Evaluation for the City of North Richland Hills Tennis Center. The Tennis Center was supported with a Texas Recreation and Park Account grant under the project referenced above and will be impacted by the proposed widening of Interstate Highway 820, resulting in the loss of approximately 0.58 acre of parkland. None of the fund supported recreational elements will be eliminated.

Several alternatives for the highway project were evaluated to avoid the park site, but were not feasible. Proposed measures to minimize impacts to the park include road design considerations, construction of an enhanced barrier wall between the road and park (as well as a visual barrier placed at either end of the wall), and irrigation system modifications and vegetation replacement in and adjacent to the construction area. Replacement of the property used for highway purposes will occur at the North Richland Hills Recreation Center or another site mutually agreed upon by the City of North Richland Hills and TxDOT.

We concur that the proposed mitigation measures are acceptable for the project, and ask that you keep us advised on the project status. If you have any questions, please contact Jeff Hauff, Grants Administrator at 512/912-7109. Thank you for advising us on this matter.

Sincerely,

Tim Hogsett, CPRP
Director
Recreation Grants Branch

TH:JH

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To manage and conserve the natural and cultural resources of Texas and to provide hunting, fishing and outdoor recreation opportunities for the use and enjoyment of present and future generations.

Exhibit 14: Acronyms and Abbreviations

AASHTO - American Association of State Highway and Transportation Officials
ACHP - Advisory Council on Historic Preservation
ACT - Antiquities Code of Texas
ADT - Average Daily Traffic
AOI - Area of Impact
APE - Area of Potential Effect
AST - Aboveground Storage Tank
BISD - Birdville Independent School District
BMP - Best Management Practices
CAA - Clean Air Act
Caltrans - California Department of Transportation
CEQ - Council on Environmental Quality
CERCLA - Environmental Response, Compensation, and Liability Act
CERCLIS - Comprehensive Environmental Response, Compensation, and Liability Information System
CFR - Code of Federal Regulations
CMAQ - Congestion Mitigation and Air Quality
CMP - Congestion Management Process
CO - Carbon Monoxide
COA - Control of Access
DART - Dallas Area Rapid Transit
dbh - Diameter at Breast Height
DFW - Dallas-Fort Worth
DFWRTM - Dallas-Fort Worth Regional Transportation Model
DHV - Design Hourly Volume
DOI - Department of Interior
DPM - Diesel Particulate Matter
EA - Environmental Assessment
EIS - Environmental Impact Statement
EPA - Environmental Protection Agency
ERNS - Emergency Response Notification System
ETC - Electronic Toll System
FEMA - Federal Emergency Management Agency
FHWA - Federal Highway Administration
FIRM - Flood Insurance Rate Map
FONSI - Finding of No Significant Impact
FTA - Federal Transit Administration
FWWR - Fort Worth Western Railroad
HAP - Hazardous Air Pollutant
HCTRA - Harris County Toll Road Authority
HDDV - Heavy-duty Diesel Vehicle
HHS - U.S. Department of Health and Human Services
HOV - High Occupancy Vehicle
IH - Interstate Highway
IRIS - Integrated Risk Information System
ISTEA - Intermodal Surface Transportation Efficiency Act
ITS - Intelligent Transportation System

LEP - Limited English Proficiency
LOS - Level of Service
LUST - Leaking Underground Storage Tank
MLS - Multiple List Service
MOA - Memorandum of Agreement
MOU - Memorandum of Understanding
MPA - Metropolitan Planning Area
mph - Miles per Hour
MPO - Metropolitan Planning Organization
MS4 - Municipal Separate Storm Sewer System
MSAT - Mobile Source Airt Toxics
MTP - Metropolitan Transportation Plan
NAAQS - National Ambient Air Quality Standards
NAC - Noise Abatement Criteria
NATA - National Air Toxics Assessment
NCHRP - National Cooperative Highway Research Program
NDD - Natural Diversity Database
NEPA - National Environmental Policy Act
NFIP - National Flood Insurance Program
NHPA - National Historic Preservation Act
NLEV - National Low Emission Vehicle
NNHC - Non-methane Hydrocarbon
Nox - Nitrogen Oxide
NPL - National Prority List
NPS - National Park Service
NRHCC - North Richland Hills Community Center
NRHP - National Register of Historic Places
NTTA - North Texas Tollway Authority
PA-TU - Programmatic Agreement of Transportation Undertakings
PCB - Polychlorinated Biphenyls
ppm - Parts per Million
RC - Recreation Center
RCCT - Rail with County Control Totals Scenario
RCRA - Resource Conservation and Recovery Act
RFG - Reformulated Gasoline
RIA - Regulatory Impact Analysis
ROW - Right of Way
RSA - Resource Study Area
RTC - Regional Transportation Council
RTHL - Recorded Texas Historic Landmarks
SAFETEA-LU - Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SAL - State Archeological Landmark
sf - Square Feet
SH - State Highway
SHPO - State Historic Preservation Officer
SIP - State Implementation Plan
SOV - Single Occupancy Vehicle
SW3P - Storm Water Pollution Prevention Program
TARL - Texas Archeological Research Laboratory

TC - Tennis Center
TCEQ - Texas Commission on Environmental Quality
TEA-21 - Transportation Equity Act for the 21st Century
THC - Texas Historical Commission
TIP - Transportation Improvement Program
TPDES - Texas Pollutant Discharge Ellimination System
TPP - Transportation Planning and Program Division
TPWD - Texas Parks and Wildlife Department
TRB - Transportation Research Board
TSS - Total Suspended Solids
TSZ - Traffic Survey Zone
TTA - Texas Turnpike Authority
TTI - Texas Transportation Institute
TxDOT - Texas Department of Transportation
U.S. - United States
U.S. DOT - U.S. Department of Transportation
USACE - U.S. Army Corp of Engineers
USFWS - U.S. Fish and Wildlife Service
UST - Underground Storage Tank
VMT - Vehicle Miles Traveled
VNT - Vision North Texas
VOC - Volatile Organic Compounds
VPD - Vehicles per Day

Exhibit 15: Regional Transportation Council Managed Lane Policy

MANAGED LANE POLICIES

1. A fixed-fee schedule will be applied during the first six months of operation; dynamic pricing will be applied thereafter.
2. The toll rate will be set up to $0.75 per mile during the fixed-schedule phase. The established rate will be evaluated and adjusted, if warranted, with Regional Transportation Council (RTC) approval.
3. Toll rates will be updated monthly during the fixed-schedule phase.
4. Market-based tolls will be applied during the dynamic-pricing phase. During dynamic operation, a toll rate cap will be established. The cap will be considered “soft” during times of deteriorating performance when a controlled rate increase above the cap will be temporarily allowed.
5. Transit vehicles will not be charged a toll.
6. Single-occupant vehicles will pay the full rate.
7. Trucks will pay a higher rate, and no trucks will be permitted in the LBJ tunnel.

North Central Texas Council of Governments

MANAGED LANE POLICIES
(continued)

8. High-occupancy vehicles of two or more occupants and vanpools will pay the full rate in the off-peak period.

9. High-occupancy vehicles of two or more occupants will receive a 50 percent discount during the peak period.* This discount will phase out after the air quality attainment maintenance period. RTC-sponsored public vanpools are permitted to add peak-period tolls as eligible expenses. Therefore, the Comprehensive Development Agreement (CDA) firm will be responsible for the high-occupancy vehicle discount and the Regional Transportation Council will be responsible for the vanpool discount.

10. The toll rate will be established to maintain a minimum average corridor speed of 50 miles per hour.

*6 hours per weekday: 6:30 a.m. - 9:00 a.m. and 3:00 p.m. - 6:30 p.m.

North Central Texas Council of Governments

MANAGED LANE POLICIES
(continued)

11. During the dynamic-pricing phase, travelers will receive rebates if the average speed drops below 35 mph. Rebates will not apply if speed reduction is out of the control of the operator.

12. Motorcycles qualify as high-occupancy vehicles.

13. No discounts will be given for “Green Vehicles.”

14. No scheduled inflation adjustments will be applied over time.

15. Every managed lane corridor will operate under the same policy.

16. Adoption of this policy will have no impact on the Regional Transportation Council Excess Revenue Policy previously adopted.

North Central Texas Council of Governments

MANAGED LANE POLICIES
(continued)

17. The Regional Transportation Council requests that local governments and transportation authorities assign representatives to the Comprehensive Development Agreement procurement process.

18. The duration of the Comprehensive Development Agreement should maximize potential revenue.

19. Tolls will remain on the managed lanes after the Comprehensive Development Agreement duration.

RTC Approved – May 11, 2006
RTC Modified – September 14, 2006
RTC Modified – September 13, 2007

North Central Texas Council of Governments