MATCH LINE

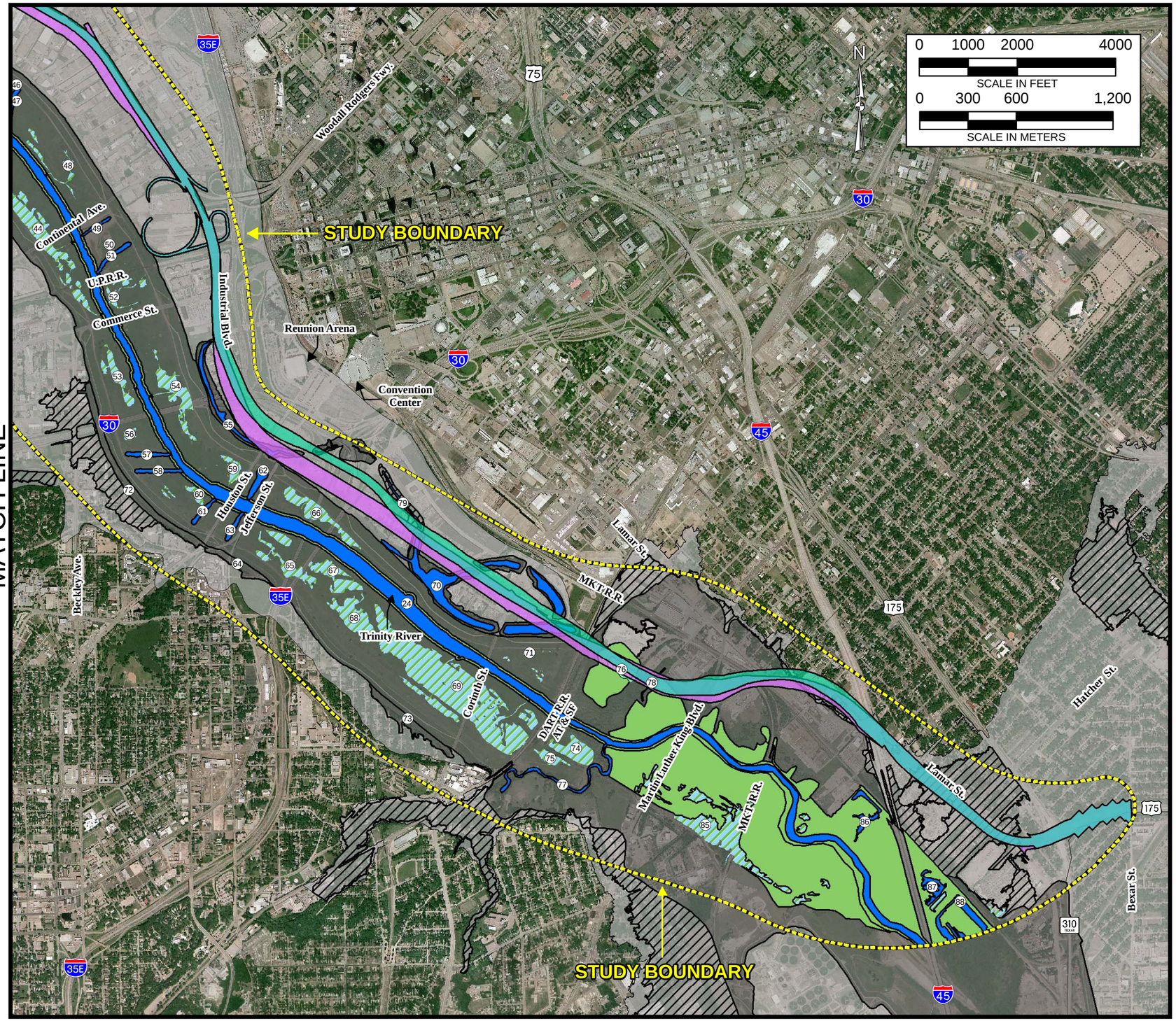


PLATE 4 - 23 B

NATURAL FEATURES - ALTERNATIVES 2A/2B

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

PROPOSED ROW AREAS

- ALTERNATIVE 2A INDUSTRIAL BLVD (ELEVATED)
- ALTERNATIVE 2B INDUSTRIAL BLVD (AT-GRADE)

FLOOD PLAINS:

- FEMA FLOODWAY AND 100 YR FLOODPLAIN
- FEMA 100 YEAR FLOODPLAIN
- AREAS PROTECTED BY LEVEES FROM 100 YR FLOOD

SOURCE: DATED JUNE 22, 2007

48113C0160L 48113C0195L
48113C0170L 48113C0310L
48113C0180L 48113C0215L
48113C0190L 48113C0330L
48113C0305L

NOTES: LOCATIONS ARE APPROXIMATE. REFERENCE SECTION 4.13.3

WOODLANDS AND WATERS OF THE UNITED STATES

- OPEN WATER / RIVER CHANNEL
- EMERGENT WETLAND
- FORESTED WETLAND
- WOODLAND
- (10) WETLAND & WATERWAY FEATURE IDENTIFIER

NOTES: LOCATIONS ARE APPROXIMATE. REFERENCE SECTION 4.8.2.1 AND TABLE 4-35

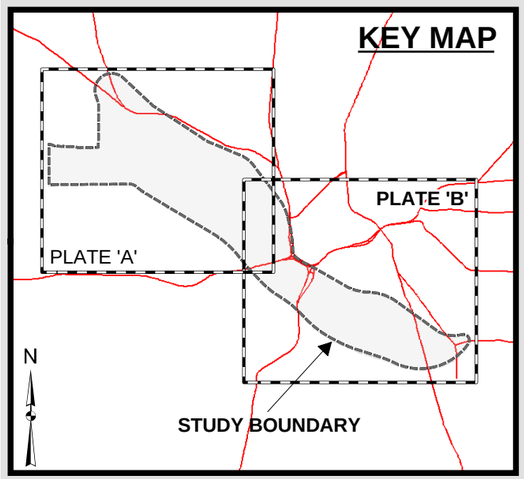
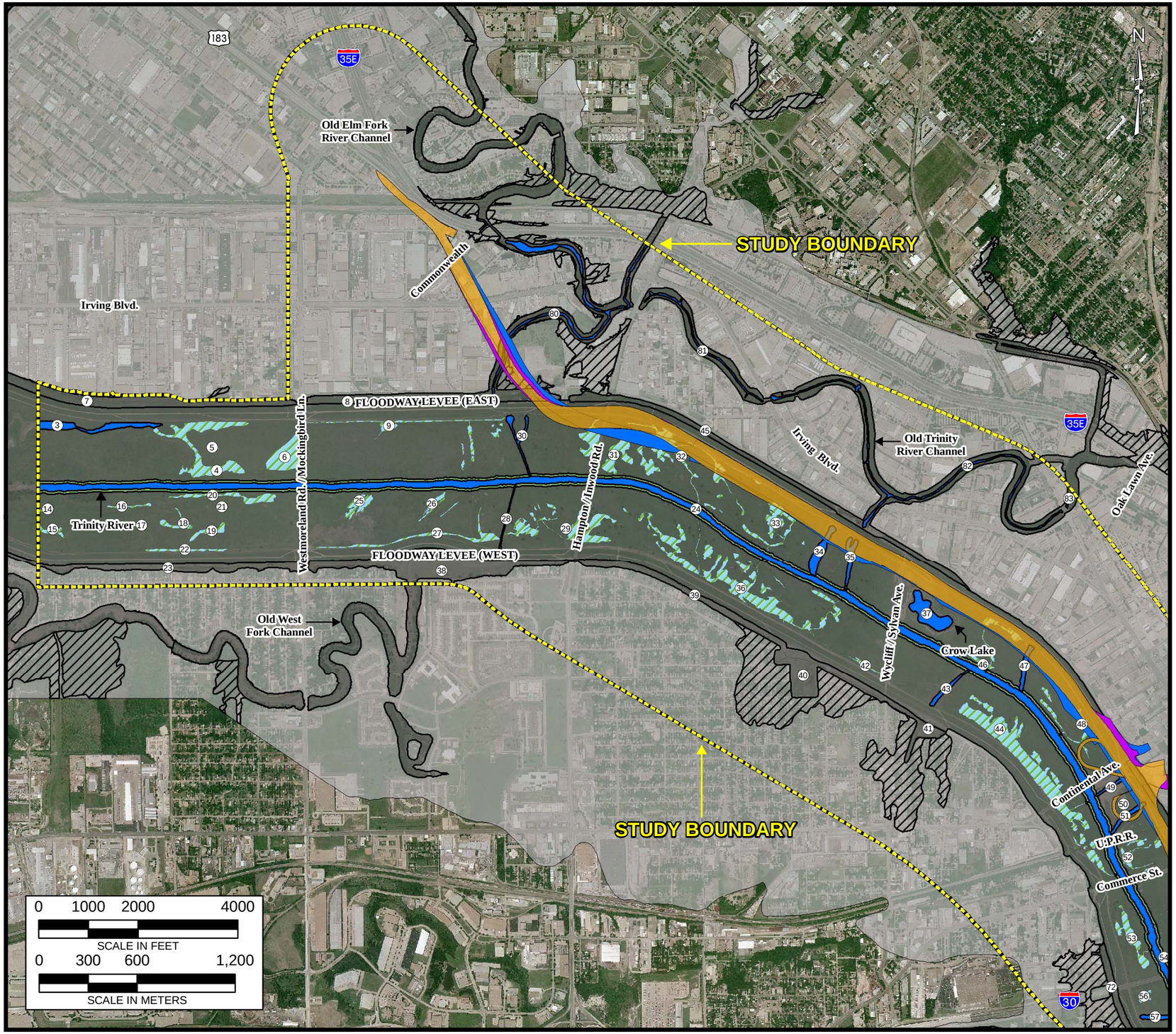


PLATE 4 - 24 A

NATURAL FEATURES - ALTERNATIVES 3A/3B/3C

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



MATCH LINE

PROPOSED ROW AREAS

- ALTERNATIVE 3A
- ALTERNATIVE 3B
- ALTERNATIVE 3C

FLOOD PLAINS:

- FEMA FLOODWAY AND 100 YR FLOODPLAIN
- FEMA 100 YEAR FLOODPLAIN
- AREAS PROTECTED BY LEVEES FROM 100 YR FLOOD

SOURCE: DATED JUNE 22, 2007

48113C0160L 48113C0195L
48113C0170L 48113C0310L
48113C0180L 48113C0215L
48113C0190L 48113C0330L
48113C0305L

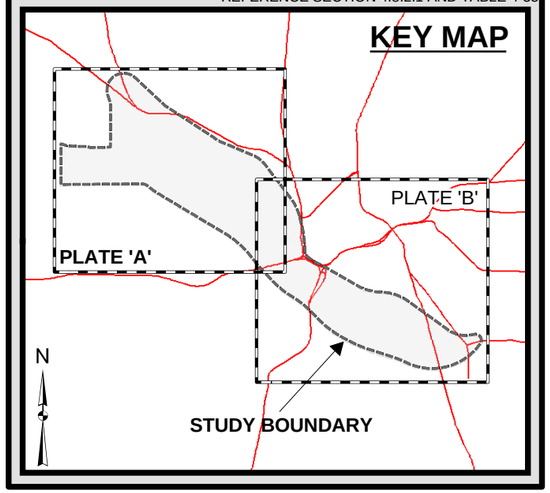
NOTES: LOCATIONS ARE APPROXIMATE. REFERENCE SECTION 4.13.3

WOODLANDS AND WATERS OF THE UNITED STATES

- OPEN WATER / RIVER CHANNEL
- EMERGENT WETLAND
- FORESTED WETLAND
- WOODLAND
- (10) WETLAND & WATERWAY FEATURE IDENTIFIER

NOTES: LOCATIONS ARE APPROXIMATE. REFERENCE SECTION 4.8.2.1 AND TABLE 4-35

KEY MAP



MATCH LINE

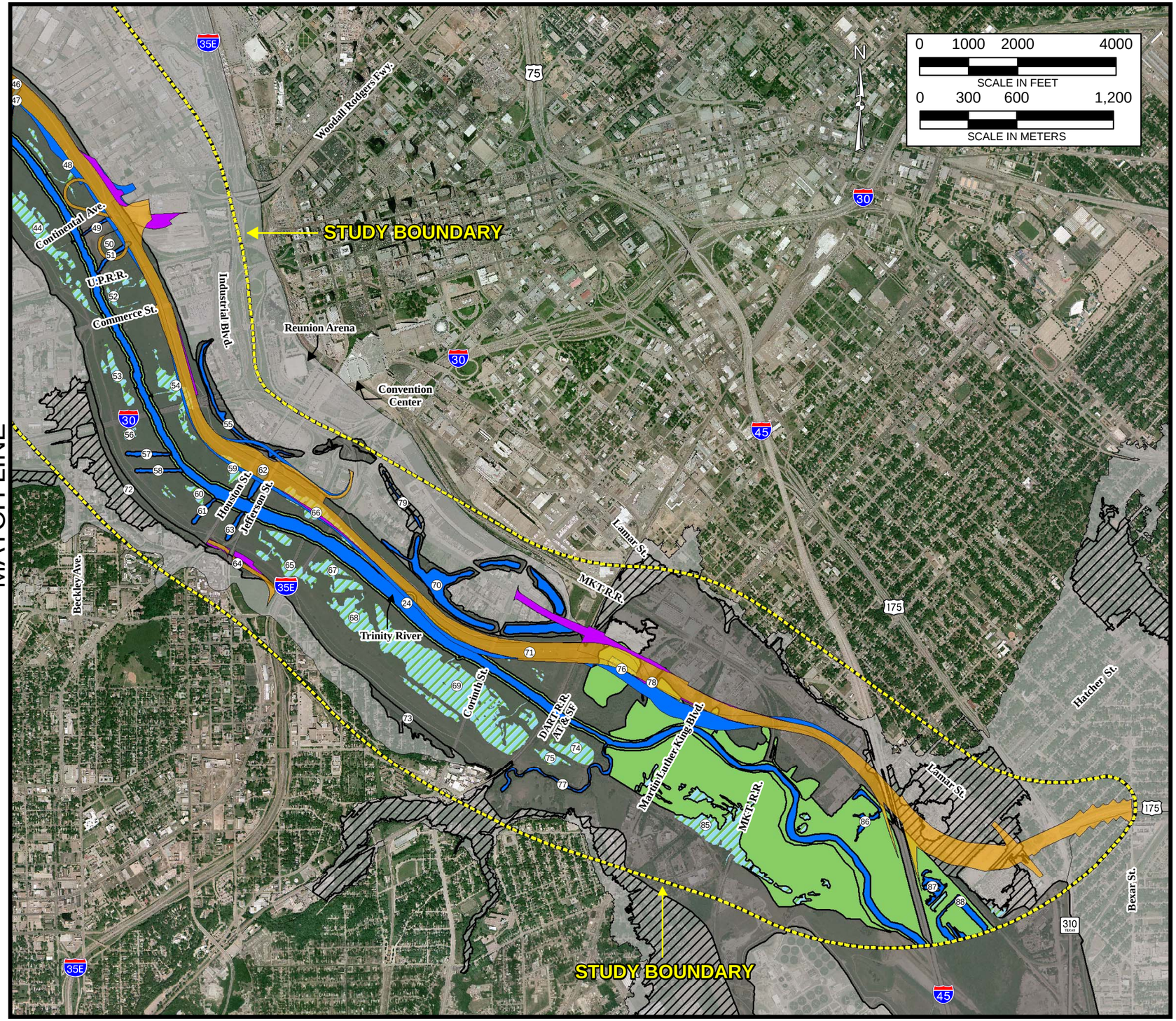


PLATE 4 - 24 B

NATURAL FEATURES - ALTERNATIVES 3A/3B/3C

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

PROPOSED ROW AREAS

- ALTERNATIVE 3A
- ALTERNATIVE 3B
- ALTERNATIVE 3C

FLOOD PLAINS:

- FEMA FLOODWAY AND 100 YR FLOODPLAIN
- FEMA 100 YEAR FLOODPLAIN
- AREAS PROTECTED BY LEVEES FROM 100 YR FLOOD

SOURCE: DATED JUNE 22, 2007

48113C0160L 48113C0195L
48113C0170L 48113C0310L
48113C0180L 48113C0215L
48113C0190L 48113C0330L
48113C0305L

NOTES: LOCATIONS ARE APPROXIMATE. REFERENCE SECTION 4.13.3

WOODLANDS AND WATERS OF THE UNITED STATES

- OPEN WATER / RIVER CHANNEL
- EMERGENT WETLAND
- FORESTED WETLAND
- WOODLAND
- ⑩ WETLAND & WATERWAY FEATURE IDENTIFIER

NOTES: LOCATIONS ARE APPROXIMATE. REFERENCE SECTION 4.8.2.1 AND TABLE 4-35

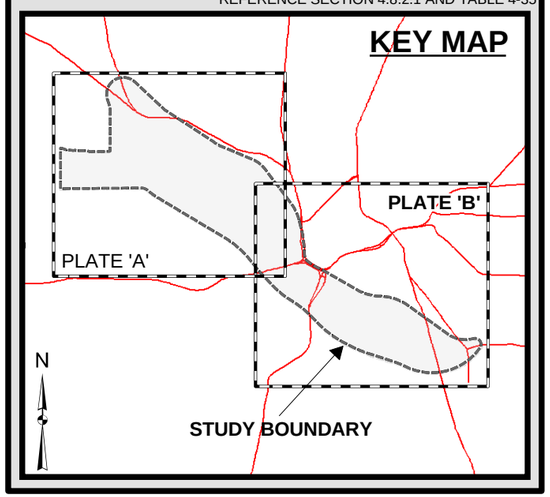
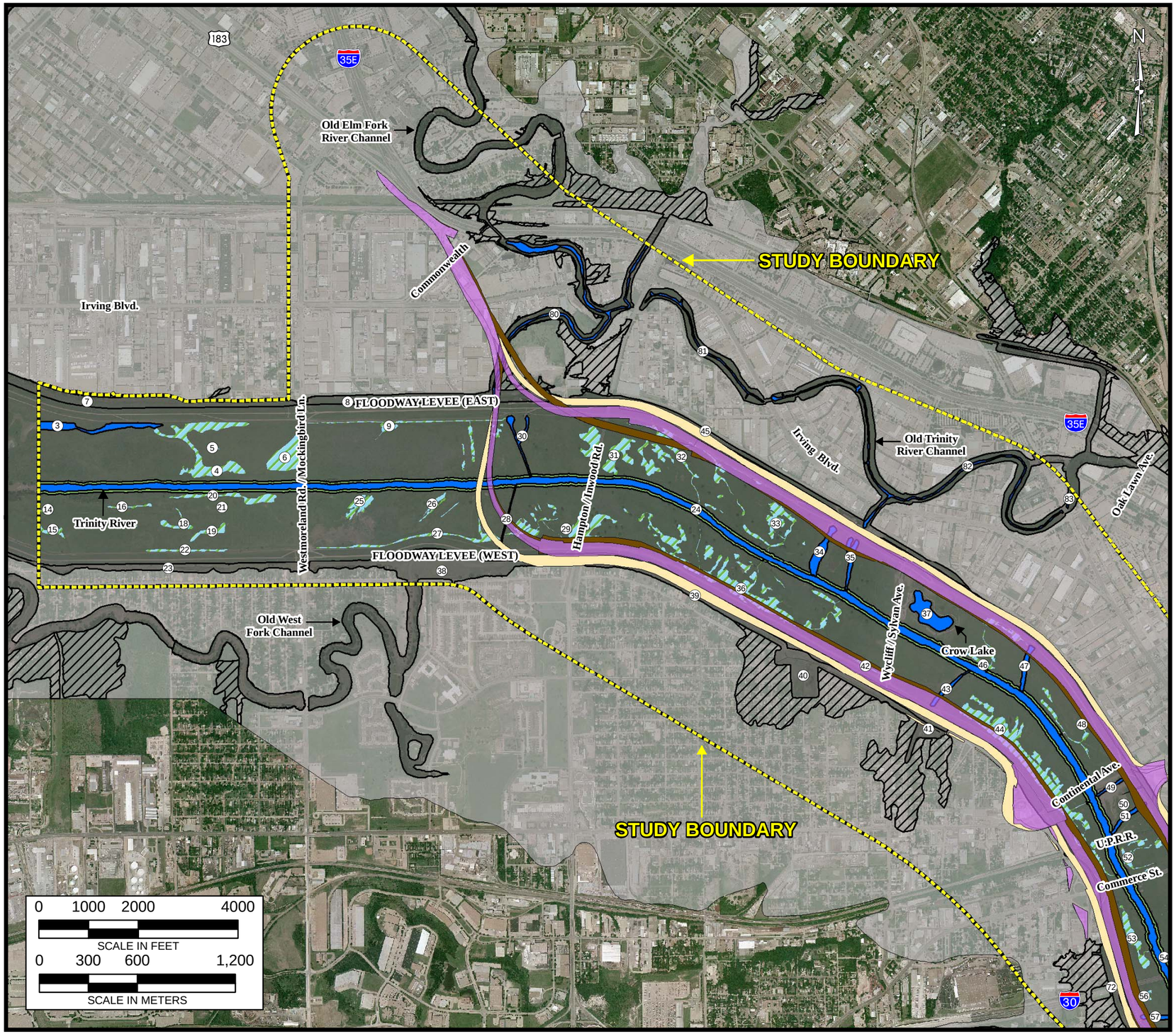


PLATE 4 - 25 A

NATURAL FEATURES - ALTERNATIVES 4A/4B/5

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



MATCH LINE

PROPOSED ROW AREAS

- ALTERNATIVE 4A
- ALTERNATIVE 4B
- ALTERNATIVE 5

FLOOD PLAINS:

- FEMA FLOODWAY AND 100 YR FLOODPLAIN
- FEMA 100 YEAR FLOODPLAIN
- AREAS PROTECTED BY LEVEES FROM 100 YR FLOOD

SOURCE: DATED JUNE 22, 2007

48113C0160L 48113C0195L
48113C0170L 48113C0310L
48113C0180L 48113C0215L
48113C0190L 48113C0330L
48113C0305L

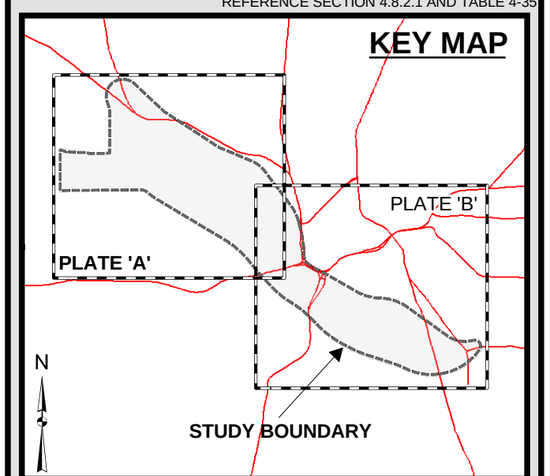
NOTES: LOCATIONS ARE APPROXIMATE. REFERENCE SECTION 4.13.3

WOODLANDS AND WATERS OF THE UNITED STATES

- OPEN WATER / RIVER CHANNEL
- EMERGENT WETLAND
- FORESTED WETLAND
- WOODLAND
- (10) WETLAND & WATERWAY FEATURE IDENTIFIER

NOTES: LOCATIONS ARE APPROXIMATE. REFERENCE SECTION 4.8.2.1 AND TABLE 4-35

KEY MAP



MATCH LINE

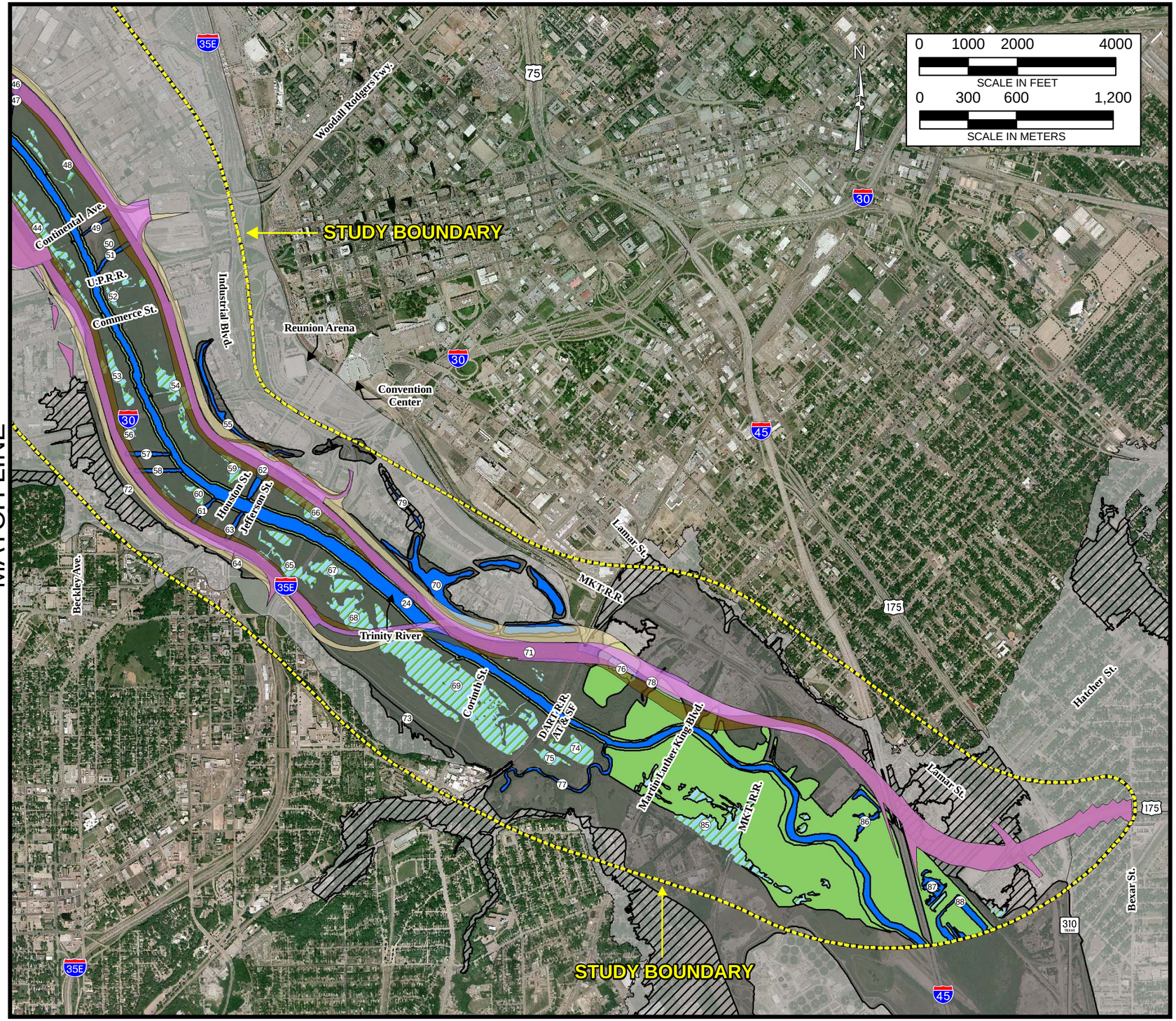


PLATE 4 - 25 B

NATURAL FEATURES - ALTERNATIVES 4A/4B/5

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

PROPOSED ROW AREAS

- ALTERNATIVE 4A
- ALTERNATIVE 4B
- ALTERNATIVE 5

FLOOD PLAINS:

- FEMA FLOODWAY AND 100 YR FLOODPLAIN
- FEMA 100 YEAR FLOODPLAIN
- AREAS PROTECTED BY LEVEES FROM 100 YR FLOOD

SOURCE: DATED JUNE 22, 2007

48113C0160L 48113C0195L
48113C0170L 48113C0310L
48113C0180L 48113C0215L
48113C0190L 48113C0330L
48113C0305L

NOTES: LOCATIONS ARE APPROXIMATE. REFERENCE SECTION 4.13.3

WOODLANDS AND WATERS OF THE UNITED STATES

- OPEN WATER / RIVER CHANNEL
- EMERGENT WETLAND
- FORESTED WETLAND
- WOODLAND
- (10) WETLAND & WATERWAY FEATURE IDENTIFIER

NOTES: LOCATIONS ARE APPROXIMATE. REFERENCE SECTION 4.8.2.1 AND TABLE 4-35

KEY MAP

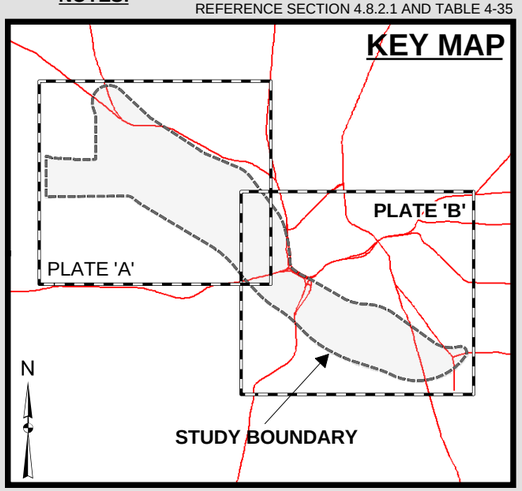


PLATE 4 - 26

POTENTIAL BORROW/ EXCAVATION AREAS

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

STUDY BOUNDARY

WATERS OF THE U.S., INCLUDING WETLANDS

POTENTIAL BORROW/ EXCAVATION AREAS

IMPACTS TO WATERS OF THE U.S., INCLUDING WETLANDS

N

0 3,000 6,000 9,000
SCALE IN FEET

0 900 1,800 2,700
SCALE IN METERS

Borrow/ Excavation Site	Footprint Area (Ac)	Assumed Average Depth (Ft)	Borrow Site Volume (CY) *	Waters of the U.S. Impacted (Ac)
A	56.8	18.0	1,559,000	4.1
B	44.6	18.0	1,089,000	2.1
C	60.9	3.0	522,000	0.6
D	13.7	3.0	128,000	2.9
E	78.9	12.0	1,482,000	12.8
F	57.9	12.0	889,000	28.0
G	22.8	10.0	321,000	13.0
Totals	**335.6**		**5,990,000**	**63.5**

NOTES:

*- Borrow / Excavation Site Volume Approximate

Reference Section 4.8.2.1, 4.13.4, 4.20.8 and Table 4-36 & 4-37

Locations Are Approximate.

Aerial Photograph Date: April 2006

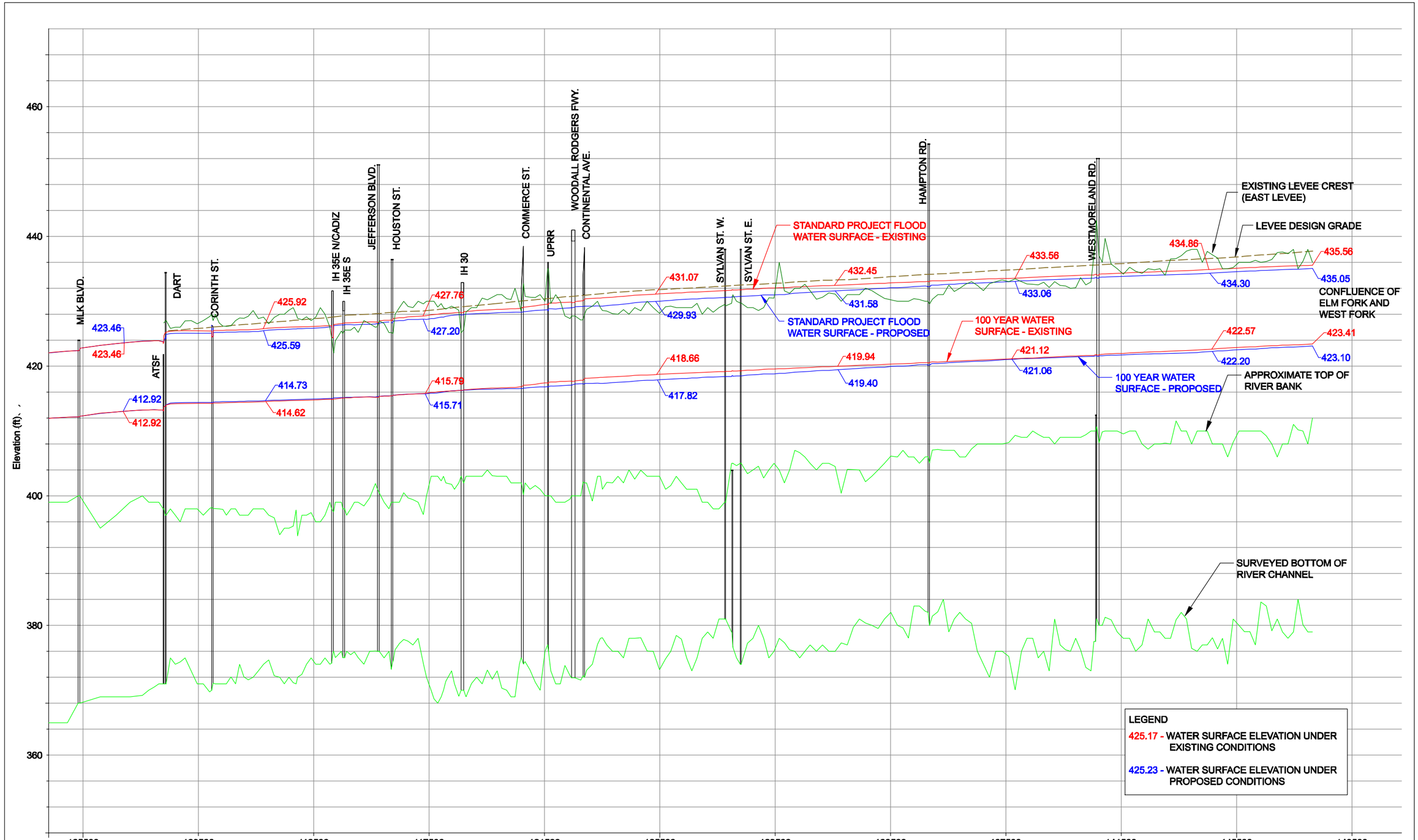


PLATE 4-27

Flood Profiles for Existing Conditions and Build Alternative 3A

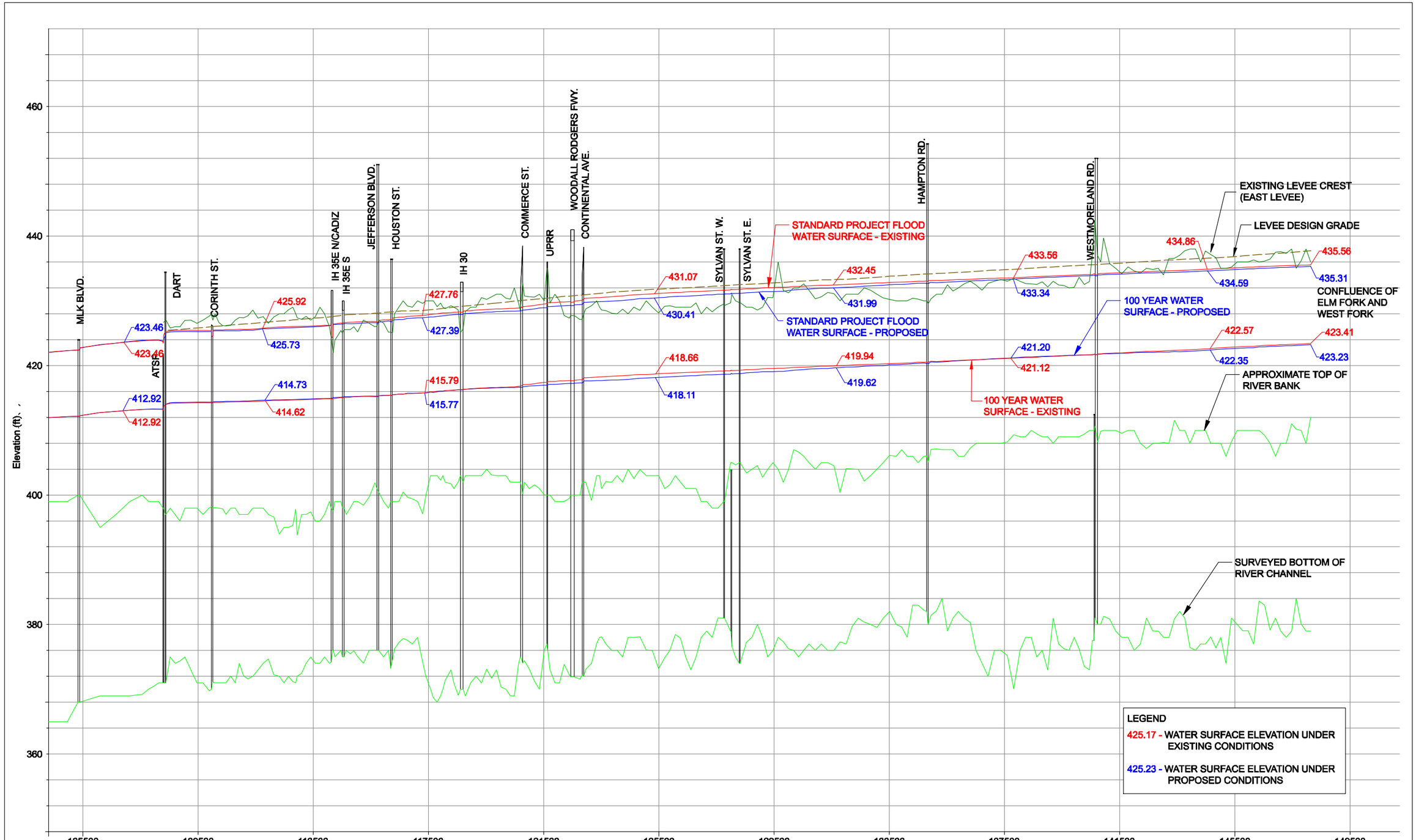


PLATE 4-28

Flood Profiles for Existing Conditions and Build Alternative 3B

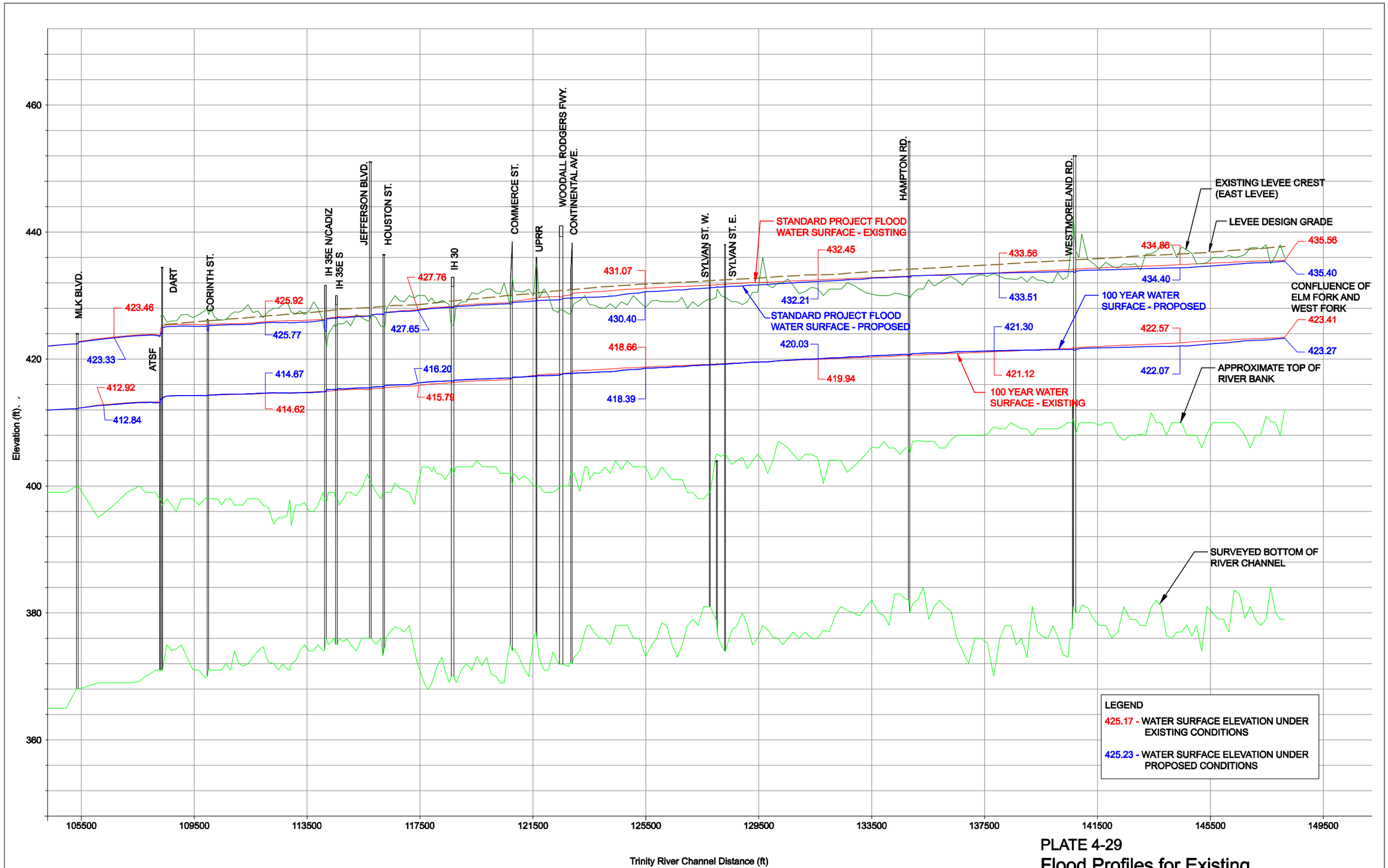


PLATE 4-29

Flood Profiles for Existing Conditions and Build Alternative 3C

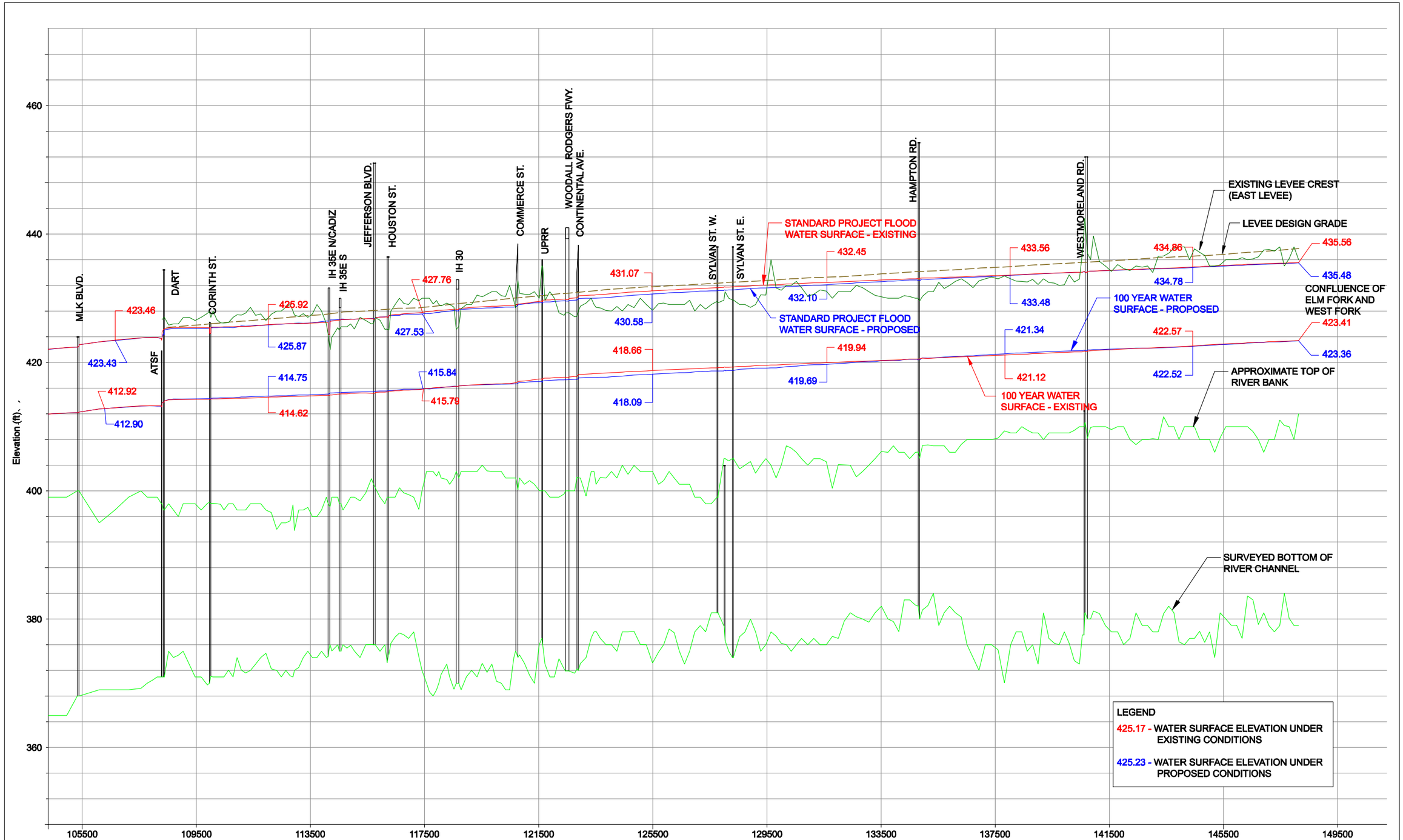


PLATE 4-30

Flood Profiles for Existing Conditions and Build Alternative 4A

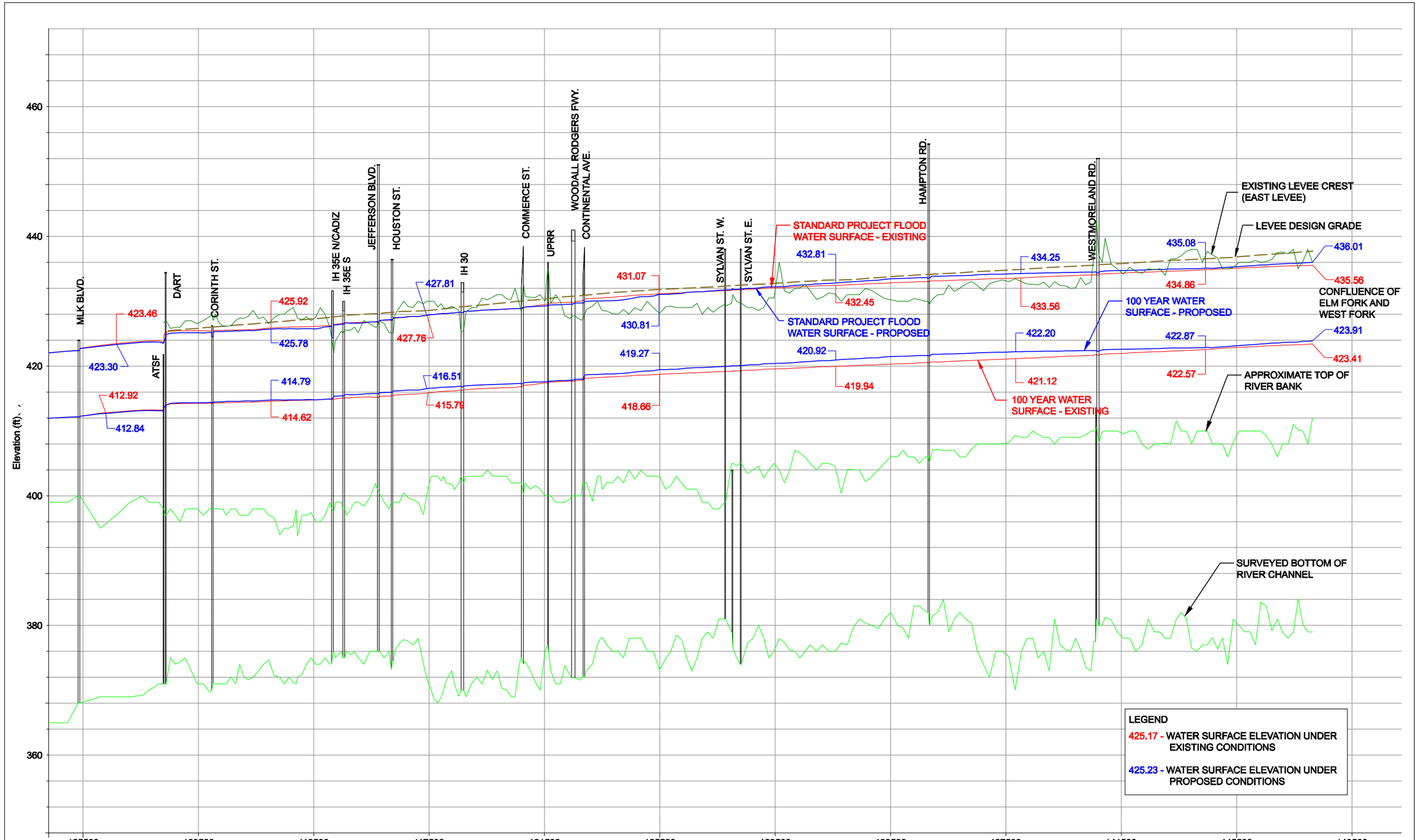


PLATE 4-31

Flood Profiles for Existing Conditions and Build Alternative 4B

PLATE 4 - 32

AIR QUALITY SENSITIVE RECEPTORS

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

STUDY BOUNDARY

Legend

- School
- Park
- Day Care
- Elder Care
- Alternatives 2A & 2B - Industrial Boulevard (Elevated and At-Grade)
- Alternative 3A and 3B - Combined Parkway - Riverside (Original and Modified)
- Alternative 3C - Combined Parkway - Riverside (Further Modified)
- Alternative 4A - Split Parkway - Riverside (Original)
- Alternative 4B - Split Parkway - Riverside (Modified)
- Alternative 5 - Split Parkway Landside

N

0 3,000 6,000 9,000
SCALE IN FEET

0 900 1,800 2,700
SCALE IN METERS

Aerial Photograph Date: April, 2006.

Note:
1. Locations are approximate.
2. There were no Hospitals found within 100 or 500 meters of any of the alternatives
3. ID Numbers correlate with Table 4-42A
4. Reference Section 4.14.5 and Tables 4-42A, 4-42B

PLATE 4 - 33

AREAS OF NOISE IMPACT ALTERNATIVES 2A & 2B

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

Residential (Impacts Common to All Alternatives)

STUDY BOUNDARY

Legend

Areas of Noise Impacts

Inset

Mixed - Residential Commercial, Industrial

Residential (Impacts Common to All Alternatives)

STUDY BOUNDARY

Proposed Noise Wall

N

0 3,000 6,000 9,000
SCALE IN FEET

0 900 1,800 2,700
SCALE IN METERS

NOTE:

Reference Section 4.15.5, 4.15.7 and Table 4-44 & 4-45.

Aerial Photograph Date: May, 2006.

PLATE 4 - 34

AREAS OF NOISE IMPACT ALTERNATIVES 3A, 3B & 3C

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

Residential (Impacts Common to All Alternatives)

STUDY BOUNDARY

Open Space Within the Levee

Open Space Within the Levee

Inset

Residential (Impacts Common to All Alternatives)

Legend

Areas of Noise Impacts

N

0 3,000 6,000 9,000
SCALE IN FEET

0 900 1,800 2,700
SCALE IN METERS

NOTE:

Reference Section 4.15.5, 4.15.7, and Table 4-44 & 4-45.

Aerial Photograph Date: May, 2006.

PLATE 4 - 35

AREAS OF NOISE IMPACT ALTERNATIVES 4A & 4B

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

Legend

Areas of Noise Impacts

Residential (Impacts Common to All Alternatives)

STUDY BOUNDARY

Open Space Within the Levee

Mixed - Residential Commercial

Mixed - Residential Commercial

Oak Cliff Founders Park

Residential

Open Space Within the Levee

Inset

Residential (Impacts Common to All Alternatives)

N

0 3,000 6,000 9,000
SCALE IN FEET

0 900 1,800 2,700
SCALE IN METERS

NOTE:

Reference Section 4.15.5, 4.15.7, and Tables 4-44 & 4-45.

Aerial Photograph Date: May, 2006.

PLATE 4 - 36

AREAS OF NOISE IMPACT ALTERNATIVE 5

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

Residential (Impacts Common to All Alternatives)

Legend

Areas of Noise Impacts

STUDY BOUNDARY

Open Space Within the Levee

Residential with Mixed Residential / Commercial Along Major N/S Crossing Roads

Oak Cliff Founders Park

Residential

Inset

Residential (Impacts Common to All Alternatives)

N

0 3,000 6,000 9,000
SCALE IN FEET

0 900 1,800 2,700
SCALE IN METERS

NOTE:

Reference Section 4.15.5, 4.15.7, and Tables 4-44 & 4-45.

Aerial Photograph Date: May, 2006.

PLATE 4 - 37

KEY OBSERVATION POINTS

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

STUDY BOUNDARY

Legend

- 1 — Key Observation Point & Direction of View
- Alternatives 2A & 2B - Industrial Boulevard (Elevated and At-Grade)
- Alternative 3A and 3B - Combined Parkway - Riverside (Original and Modified)
- Alternative 3C - Combined Parkway - Riverside (Further Modified)
- Alternative 4A - Split Parkway - Riverside (Original)
- Alternative 4B - Split Parkway - Riverside (Modified)
- Alternative 5 - Split Parkway Landside

N

0 3,000 6,000 9,000
SCALE IN FEET

0 900 1,800 2,700
SCALE IN METERS

Note:
All locations are approximate.

Alignments are shown adjacent to one another for graphic clarity. Detailed alignments for each alternative have been presented earlier as part of Chapter 2.

Reference Section 4.16

Aerial Photograph Date: April, 2006

Reference Section 4.16

PLATE 4 - 38

INDIRECT EFFECTS CONSTRAINTS MAP

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

STUDY BOUNDARY

Legend

- Single Family Residential Zones
- Public Facilities
- Planned Developments
- Major Electric Utilities
- Historic District
- Parks & 100 Year Floodplains
- Alternative 2A & 2B - Industrial Boulevard (Elevated and At-Grade)
- Alternative 3A & 3B - Combined Parkway - Riverside (Original and Modified)
- Alternative 3C - Combined Parkway - Riverside (Further Modified)
- Alternative 4A - Split Parkway - Riverside (Original)
- Alternative 4B - Split Parkway - Riverside (Modified)
- Alternative 5 - Split Parkway Landside

N

0 3,000 6,000 9,000
SCALE IN FEET

0 900 1,800 2,700
SCALE IN METERS

Note:

Locations are approximate.

Reference Section 4.24.1.5 and 4.24.1.6

Aerial Photograph Date: April, 2006.

Alignments are shown adjacent to one another for graphic clarity. Detailed alignments for each alternative have been presented earlier as part of Chapter 2.

PLATE 4 - 39

TRINITY RIVER CORRIDOR RESOURCE STUDY AREA

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

Elm Fork Master Plan

Balanced Vision Plan

Dallas Floodway Extension Project

McCommas Bluff Landfill Project Area

White Rock Lake

DNT

Note: Locations Are Approximate
Reference Section 4.24.2.4 and 4.24.2.9
Aerial Photograph Date: April 2006

0 1.5 3
SCALE IN MILES

N E S W

Legend

Highway

Trinity River Corridor Boundary

PLATE 4 - 40

2030 MTP
FUNDED ROADWAY
RECOMMENDATIONS

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

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.

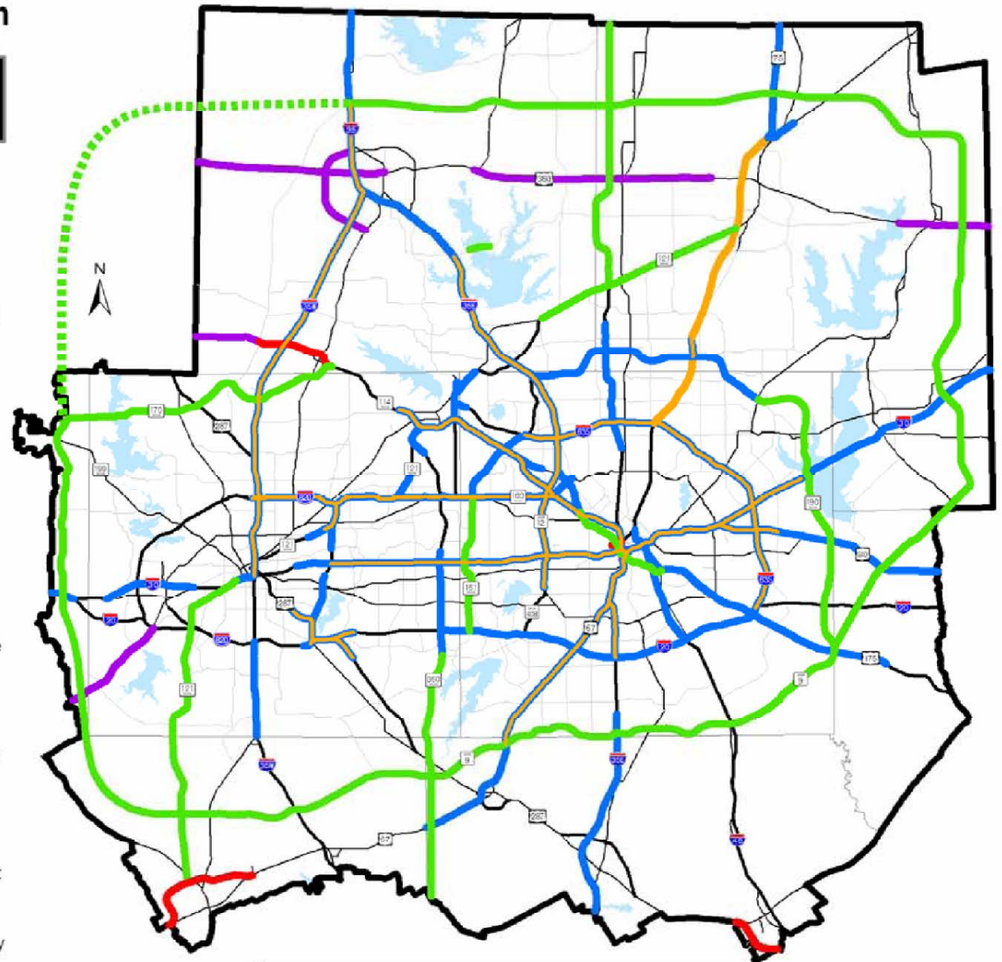
Additional and improved Freeway/Tollway interchanges and service roads should be considered on all Freeway/Tollway facilities in order to accommodate a balance between mobility and access needs.

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

January 11, 2007

PLATE 4 - 41

MTP 2030 PRICED FACILITIES NETWORK

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

Mobility 2030 The Metropolitan Transportation Plan

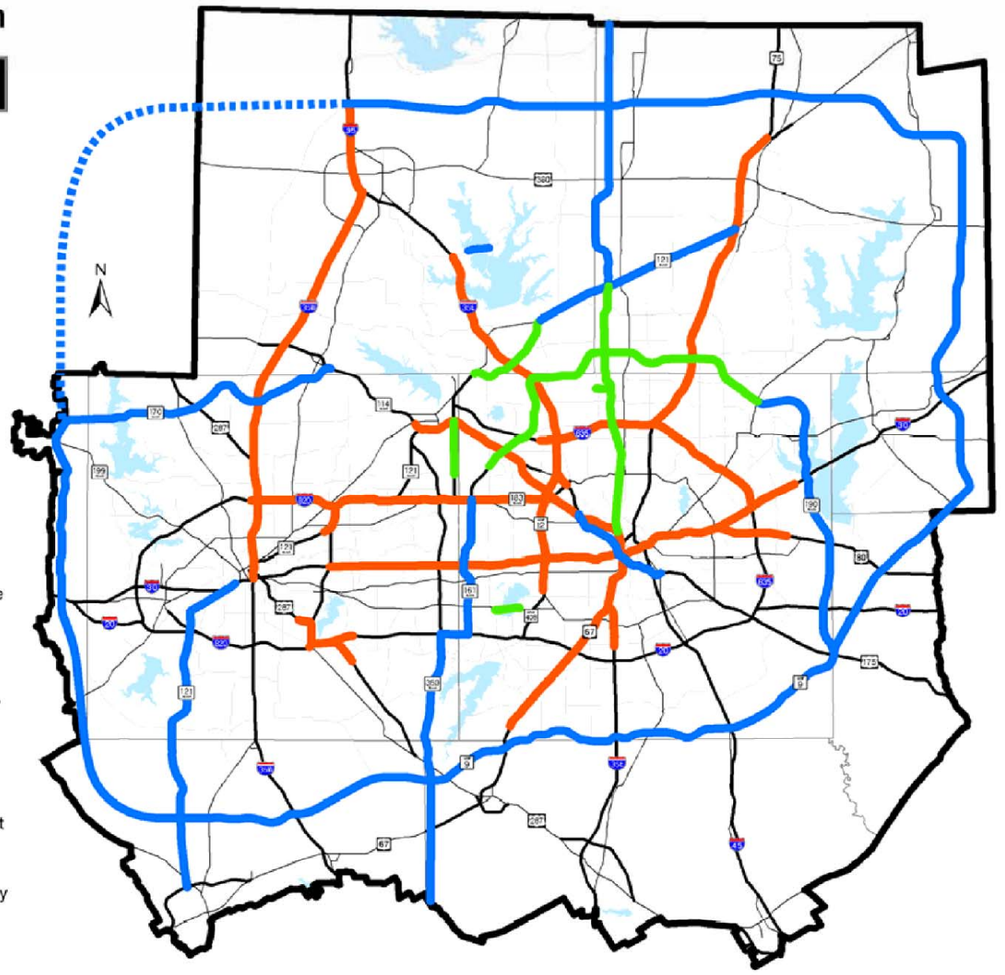
Priced Facilities

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

January 11, 2007

PLATE 4 - 42

MTP 2030 PASSENGER RAIL RECOMMENDATIONS

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

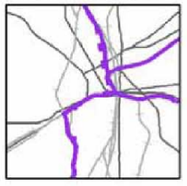
Mobility 2030 The Metropolitan Transportation Plan

Passenger Rail Recommendations

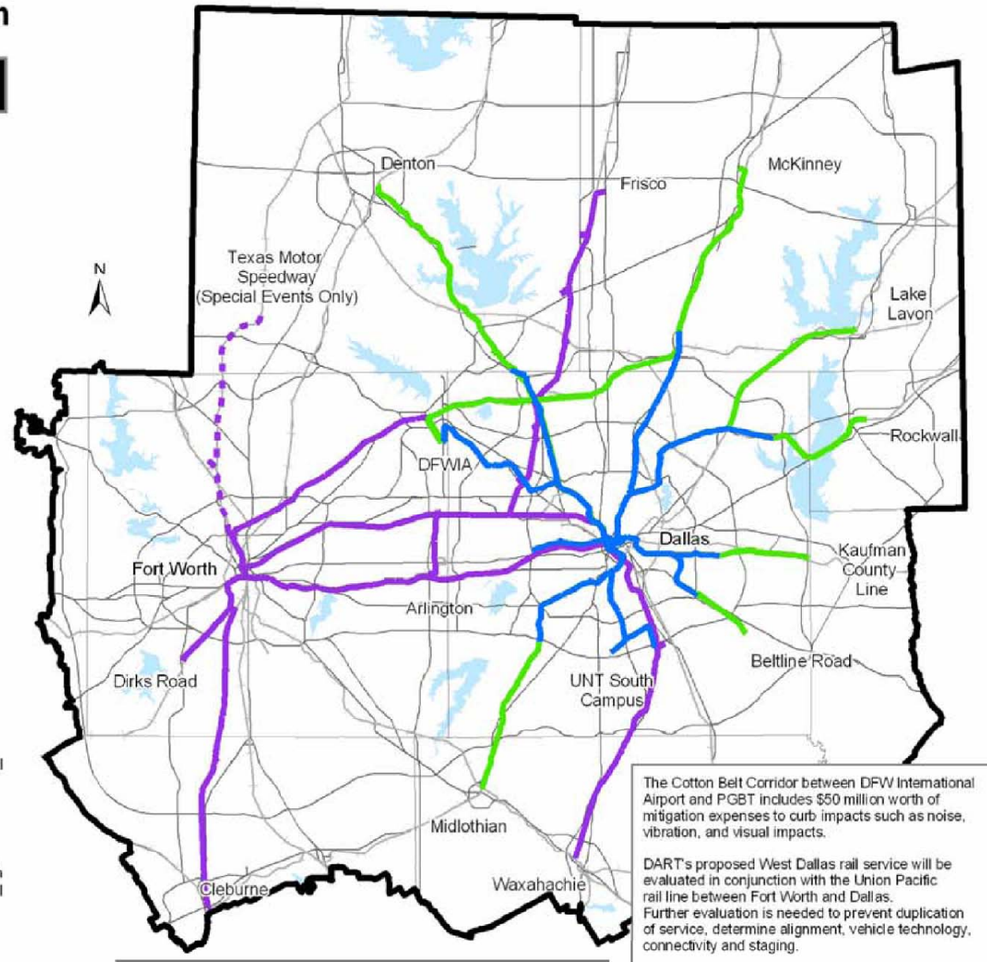
Legend

- 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.

North Central Texas Council of Governments Transportation

January 11, 2007

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.

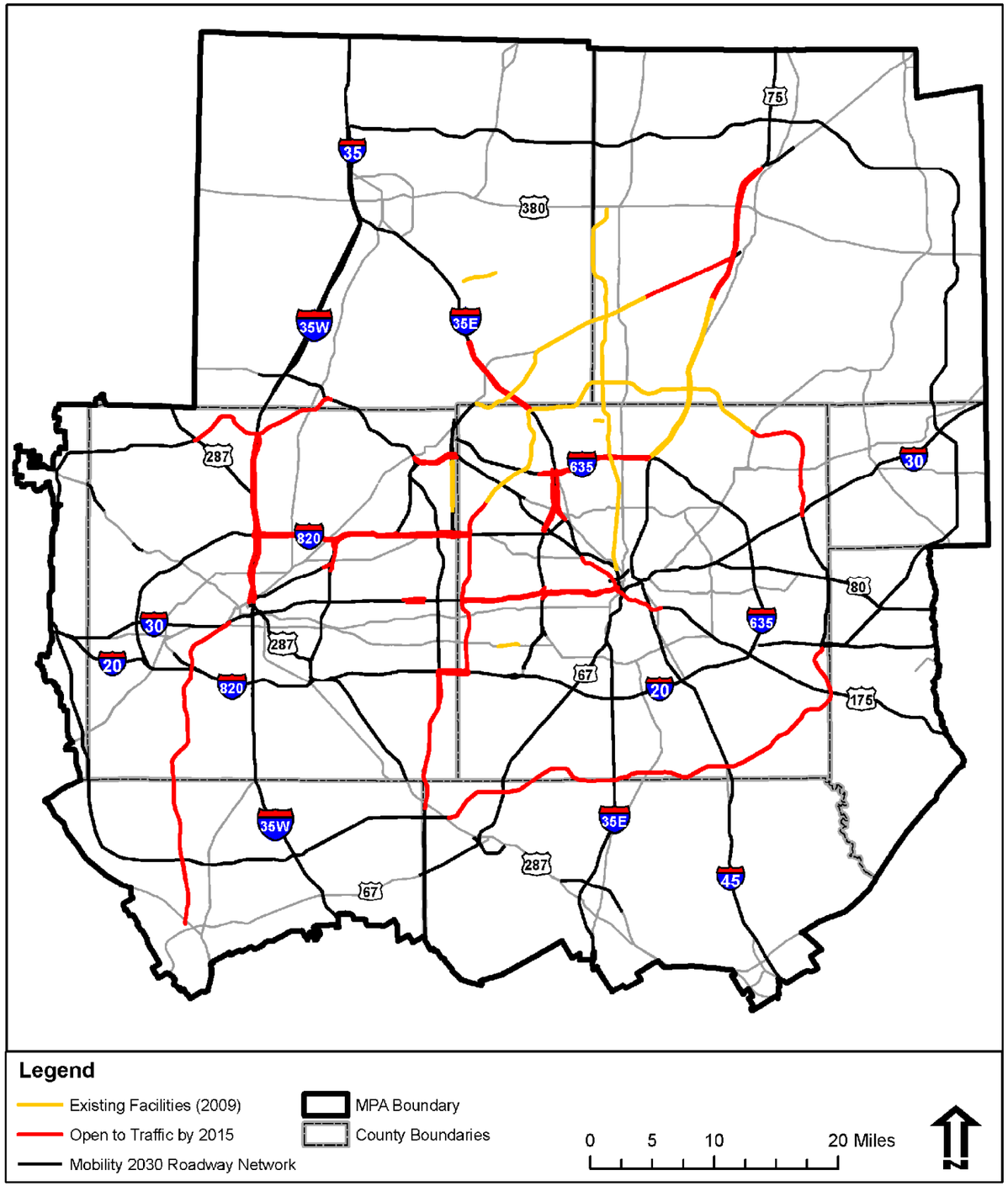
DART's proposed West Dallas rail service will be evaluated in conjunction with the Union Pacific rail line between Fort Worth and Dallas. Further evaluation is needed to prevent duplication of service, determine alignment, vehicle technology, connectivity and staging.

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.

PLATE 4 - 43

2015 PRICED FACILITIES NETWORK

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



Legend

- Existing Facilities (2009)
- Open to Traffic by 2015
- Mobility 2030 Roadway Network
- MPA Boundary
- County Boundaries

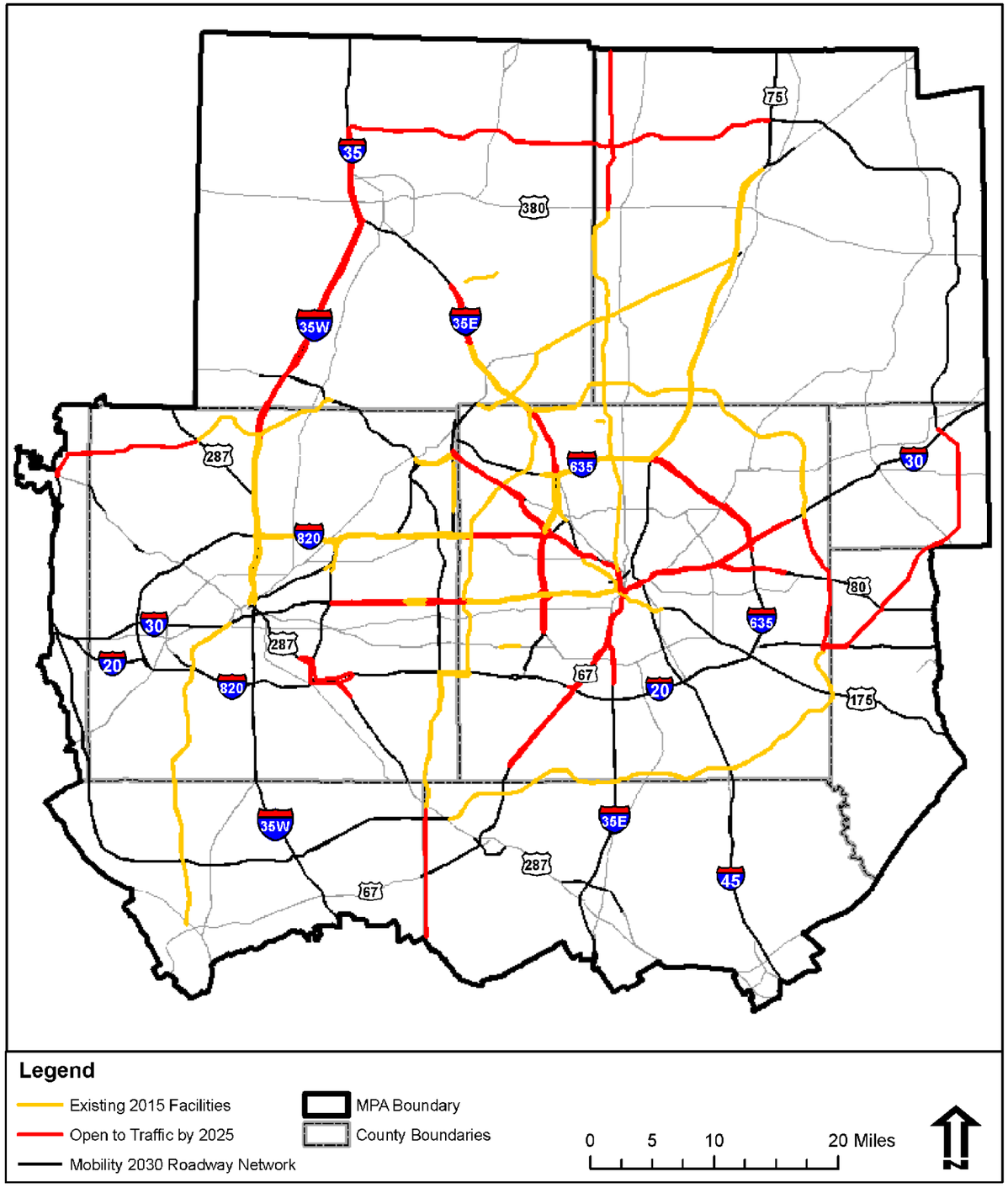
0 5 10 20 Miles

N

PLATE 4 - 44

2025 PRICED FACILITIES NETWORK

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



Legend

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

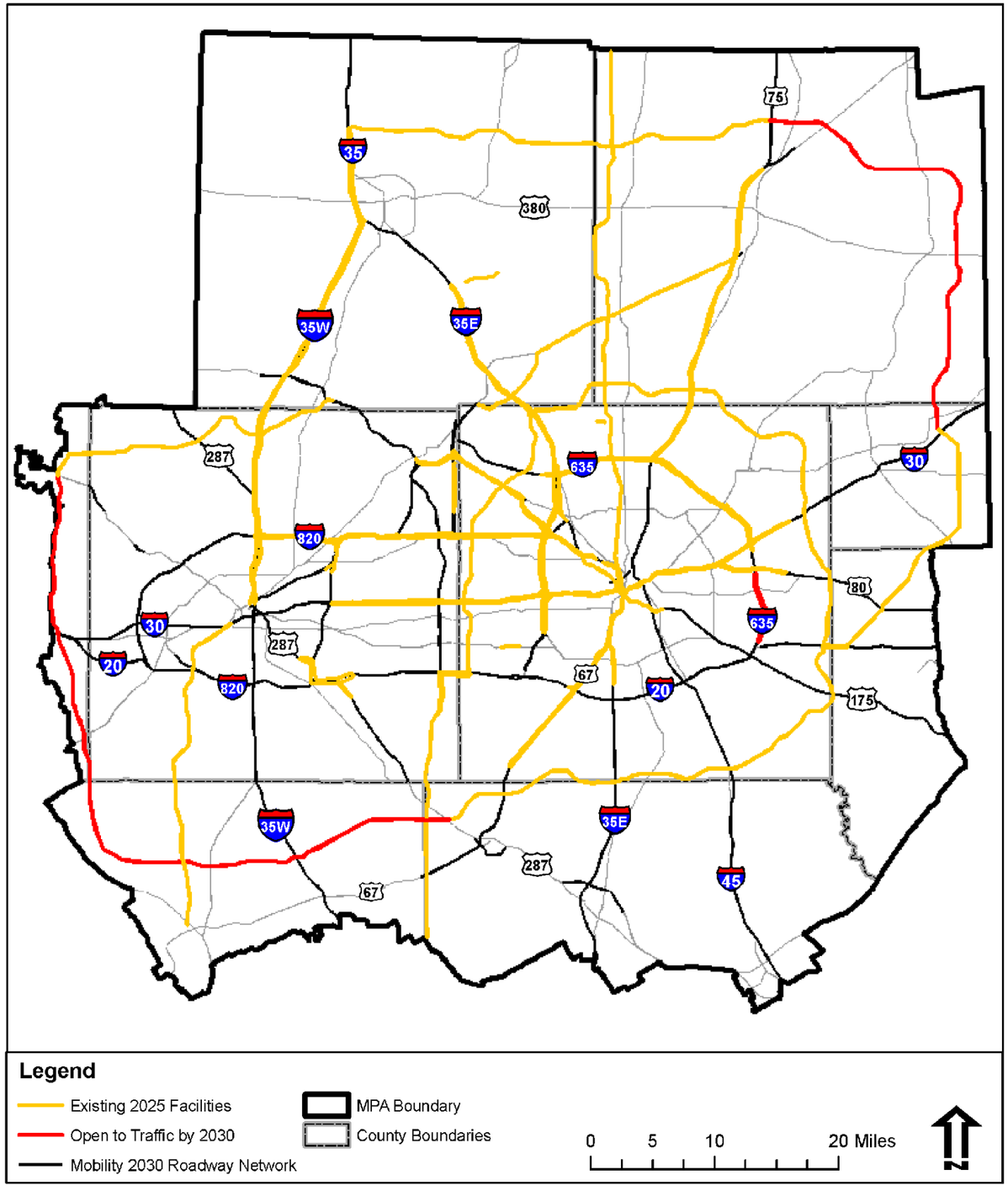
0 5 10 20 Miles

N

PLATE 4 - 45

2030 PRICED FACILITIES NETWORK

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



Legend

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

0 5 10 20 Miles

N

PLATE 4 - 46

ENVIRONMENTAL JUSTICE TRAFFIC SURVEY ZONES: DAILY TRIPS ON EXISTING (2009) PRICED FACILITIES

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

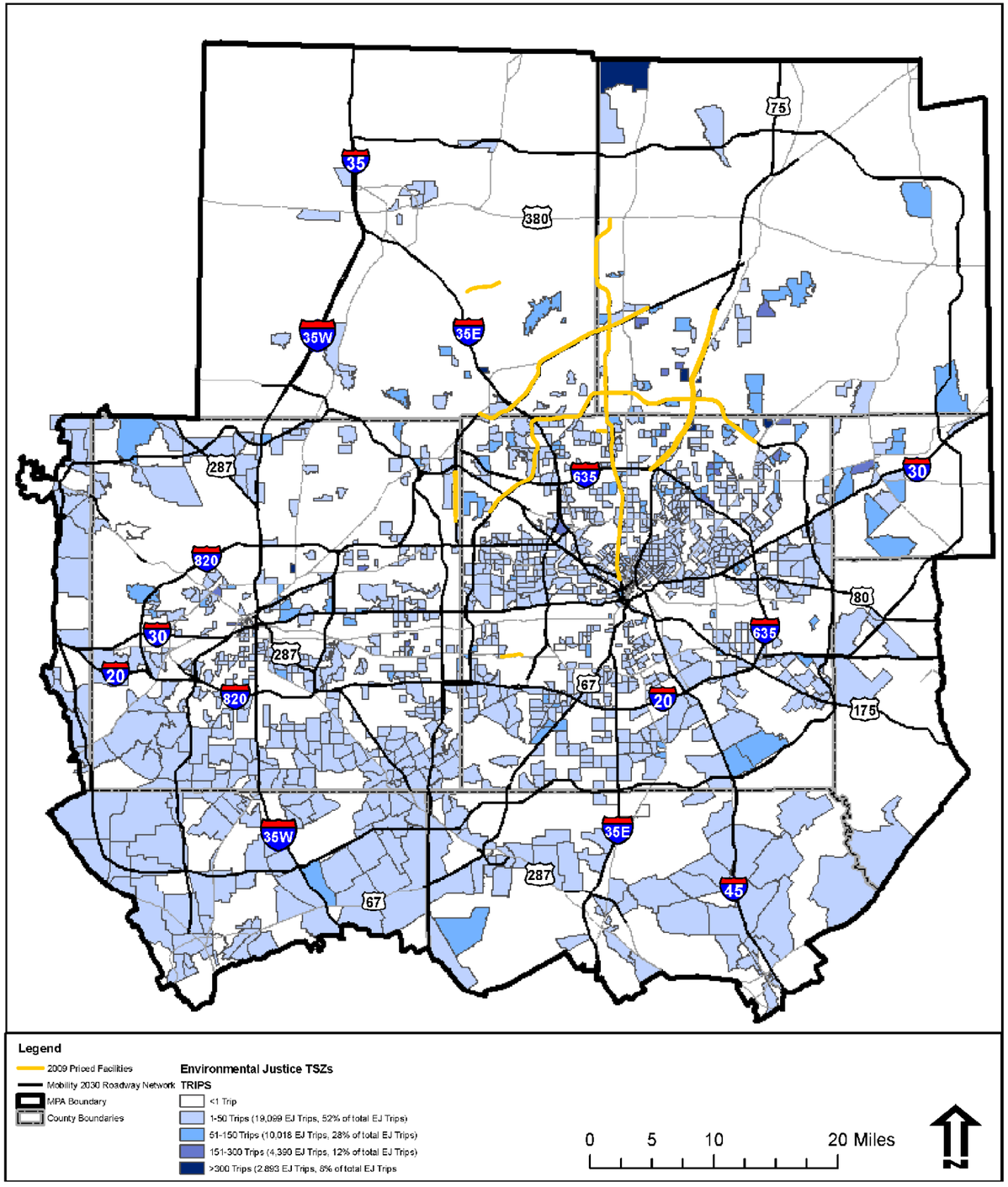
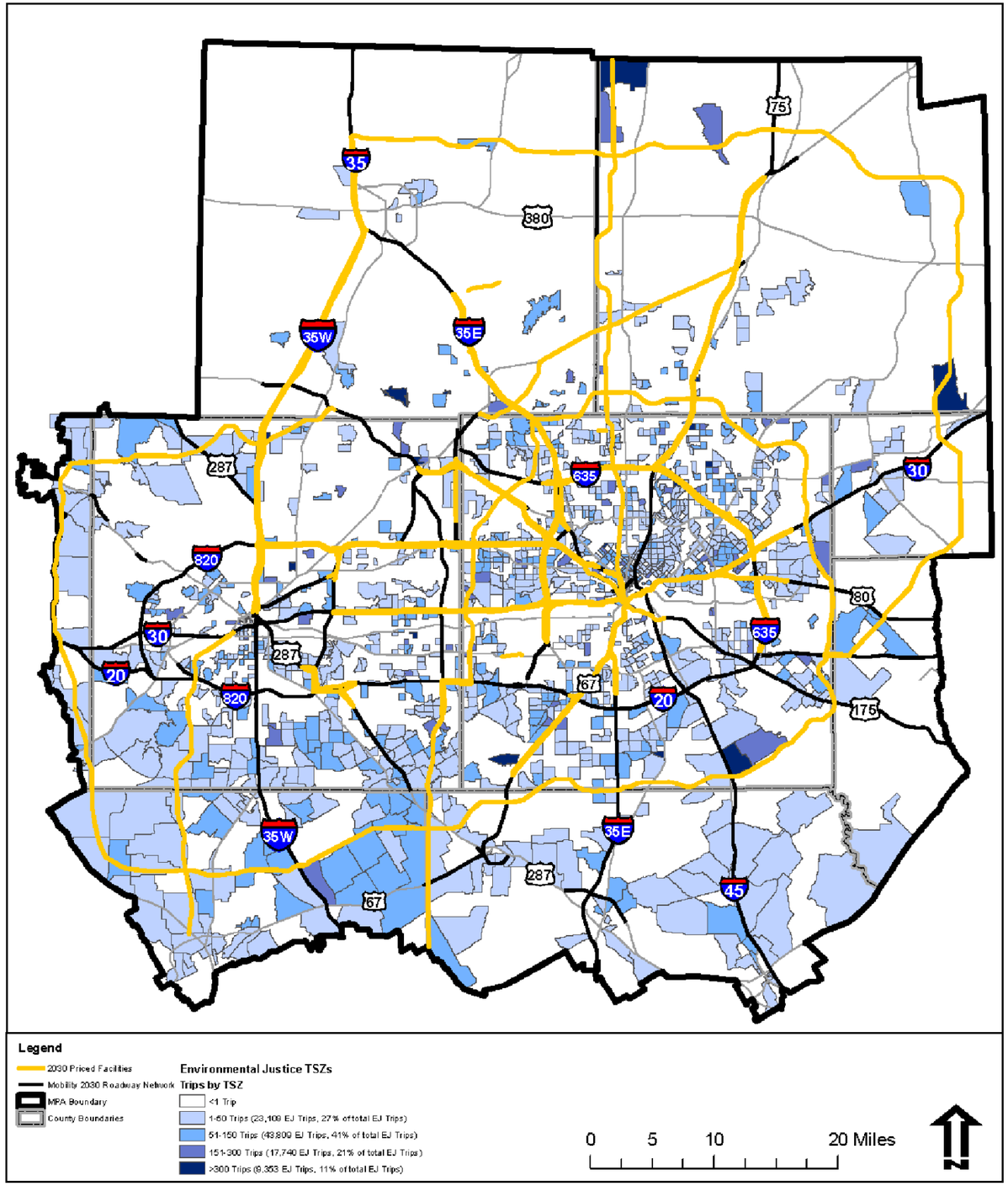


PLATE 4 - 47

ENVIRONMENTAL JUSTICE TRAFFIC SURVEY ZONES: DAILY TRIPS ON FUTURE (2030) PRICED FACILITIES

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



CHAPTER 5
DRAFT SECTION 4(f) EVALUATION

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DRAFT SECTION 4(f) EVALUATION

5.0 INTRODUCTION

A Preliminary Section 4(f) Evaluation was prepared for the Trinity Parkway in the DEIS published in February 2005. This document presents the Draft Section 4(f) Evaluation. The Final Section 4(f) Evaluation will be presented in the FEIS.

Section 4(f) has been part of federal law since it was enacted as Section 4(f) of the USDOT Act of 1966 and originally set forth in Title 49, USC Section 1653(f). Section 4(f) applies only to agencies within the USDOT. Also in 1966, a similar provision was added to Title 23, USC Section 138. The wording was somewhat different, but in 1968 the Federal-Aid Highway Act of 1968 amended the wording in both sections to be consistent. In January of 1983, as part of an overall re-codification of the USDOT Act, Section 4(f) was amended and codified in 49 USC Section 303 (FHWA, 1989). SAFETEA-LU, which was signed into law in August of 2005, incorporates limited changes to Section 4(f). Under SAFETEA-LU, some flexibility was added to Section 4(f) requirements for programs or projects having a "de minimis" impact on applicable resources. This new criteria included in SAFETEA-LU may be utilized in analyzing potential effects from the Trinity Parkway to Section 4(f) resources. These changes were reflected in amendments to 23 CFR Part 774 on March 12, 2008.

The overarching policy statement in Section 4(f) (49 USC § 330(a)) declares that "[I]t is the policy of the United States Government that special effort should be made to preserve the natural beauty of the countryside and public park and recreation lands, wildlife and waterfowl refuges, and historic sites." Section 4(f) specifies the following:

> "…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 prudent and feasible alternative to using that land; and
> (2) the program or project includes all possible planning to minimize harm to the park, recreation area, wildlife and waterfowl refuge, or historic site resulting from the use." (49 USC § 330(c))

Implementing regulations for Section 4(f) elaborate on the requirement that projects cause the "least overall harm in light of the statute's preservation purpose" and sets out the following seven factors to be used in completing the least harm analysis (23 CFR § 774.3(c)) for each Section 4(f) property: (1) the ability to mitigate adverse impacts to the property and potential benefits; (2) the relative severity of the remaining harm, after mitigation, to the attributes that qualify the property for Section 4(f) protection; (3) the relative significance of the property; (4) the views of officials with jurisdiction over the property; (5) the degree to which each alternative meets the need and purpose of the project; (6) after reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f); and, (7) any substantial differences in costs among the alternatives.

Under FHWA's regulations, the "use" of a Section 4(f) resource occurs when:

1. Land from a Section 4(f) site is permanently acquired for a transportation project;
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 the Section 4(f) property. A constructive use occurs when the transportation project does not physically incorporate land from a Section 4(f) property, but the project's proximity impacts are so severe that the protected activities, features, or attributes that qualify the property for protection under Section 4(f) are substantially impaired. (23 CFR §§ 774.15 and 774.17).

Section 4(f) is applicable to significant historic sites and archeological resources. "Significant" resources exist when the resources are included on, or eligible for, the National Register of Historic Places (NRHP) (23 CFR § 774.11(e)). Archeological sites are subject to Section 4(f) only if the State Historic Preservation Officer (SHPO)/Tribal or Territorial Historic Preservation Officer (THPO) determines that preservation in place is warranted. This determination has not yet been made for any known archeological site within the Study Area and would be made during the design phase, prior to construction. A constructive use does not occur when compliance with the requirements of Section 106 of the National Historic Preservation Act (NHPA) [16 USC § 470] and related regulations for proximity impacts of a proposed project on an NRHP site results in a finding of "no effect" or "no adverse effect" (36 CFR § 800.9).

The known potential Section 4(f) properties within the proposed project study area are City of Dallas parks and recreational areas and eligible historic architectural sites. There are no wildlife and waterfowl refuges of national, state, or local significance within the study area. Also, there are no archeological sites that have been determined to be eligible for inclusion in the NRHP (see **Sections 3.1.1.3** and **4.7.1**).

The format for the Draft Section 4(f) evaluation is set up as follows. **Sections 5.1** and **5.2** relate to the Description of the Proposed Action and the Need and Purpose of the project. **Section 5.3** describes the process of developing the project alternatives. **Section 5.4** presents the Section 4(f) resources. **Section 5.5** describes expected impacts of the Build Alternatives that would require the use of Section 4(f) resources. **Section 5.6** presents avoidance alternatives. **Section 5.7** presents measures to minimize harm and mitigate impacts. **Section 5.8** summarizes coordination. **Section 5.9** presents the conclusion.

5.1 DESCRIPTION OF PROPOSED ACTION

The Trinity Parkway project is described fully in **Chapter 1 Need and Purpose for Proposed Action** and **Chapter 2 Alternatives Considered**.

5.2 NEED AND PURPOSE

A complete description of the need and purpose for the proposed action is provided in **Chapter 1 Need and Purpose for Proposed Action**.

5.3 ALTERNATIVES EVALUATED

The process of developing alternatives began in 1996 with the initiation of the Trinity Parkway Corridor Major Transportation Investment Study (MTIS) (TxDOT, 1998a). **Chapter 1 Need and Purpose, Sections 1.5**, **1.5.1**, and **1.5.2** provide details on the MTIS process. **Chapter 2 Alternatives Considered**, **Sections 2.1** and **2.2** provide a summary of the alternatives that were analyzed and the roadway alternatives that were considered and withdrawn.

The MTIS evaluated a wide variety of measures that could improve traffic flow through and within downtown Dallas, including existing roadway capacity improvements, alternative mode strategies, and travel demand management methodologies. The MTIS procedures stressed the integration of social, economic, and environmental considerations early in planning analyses and transportation decision making. The MTIS analyzed over 40 improvement alternatives and involved a gradual reduction in the number of alternatives, with promising alternatives moved forward and less desirable alternatives set aside. Alternatives were developed and evaluated based on their ability to meet the project need and purpose, and were evaluated based on the following categories: environmental effects, social and economic effects, mobility benefits, cost effectiveness and affordability, compatibility with other corridor projects, and effects during construction. Within each category, criteria were developed for comparing the performance of individual alternatives. For instance, the environmental category included criteria for effects on wetlands, air quality, noise, parks, archeological and historic sites, etc. The set of criteria used

to evaluate alternatives, and the measurements applied to each, were subject to review by the stakeholders, and feedback from the public was received at each stage of the study. The MTIS recommended an approach to addressing transportation challenges in downtown Dallas that included seven elements, all of which were determined to be necessary to address the need for transportation improvements. The construction of a Trinity Parkway as a reliever route was one of these elements, along with measures for work trip reduction, pedestrian and bicycle facilities, enhanced transportation facility management, improvements to other downtown freeway corridors and major arterials, and creation of a continuous HOV system in the area.

The MTIS found that improvements to existing roadways, TSM/TDM, ITS, public transportation, and bicycle/pedestrian improvements could not separately or collectively satisfy the need for and purpose of the Trinity Parkway project. Even with all of these supporting transportation improvements assumed to be in place, the MTIS showed that the addition of the Trinity Parkway to the transportation network was required to improve the transportation network and manage congestion. The MTIS developed specific roadway alternatives for four corridors in the project area with identical termini locations (IH-35E/SH-183 and US-175/SH-310). The four corridors considered were: IH-35E, Irving/Industrial Boulevard, the east Trinity River levee, and the west Trinity River levee. Several alternative cross sections and operational scenarios were developed for each corridor. **Tables 2-1** through **2-4** in **Chapter 2** provide an abbreviated record of the range of roadway alternatives and cross sections considered.

To meet the FHWA requirements, and in response to comments received from the public and agency officials during the DEIS process, eight Build Alternatives and the No-Build Alternative were advanced for further consideration and analysis in this SDEIS. Five of the Build Alternatives (Alternatives 2A, 2B, 3A, 4A, and 5) were developed early in the study period. A sixth Build Alternative (Alternative 3B) was added to the DEIS after further public input and consultation with the Dallas City Council in the fall of 2003. Two additional Build Alternatives (Alternatives 3C and 4B) were added to the SDEIS based on agency consultation after the February 2005 publication of the DEIS.

All reasonable alternatives have been identified and are evaluated in this SDEIS. Alternatives that clearly did not meet the project need and purpose, and/or that would have unacceptable levels of social, economic, and environmental impacts were eliminated from consideration during the MTIS process. The eight Build Alternatives and the No Build Alternative are fully described in **Chapter 2** and include:

- Alternative 1 - No Build
- Alternative 2A - Irving/Industrial Boulevard (elevated)
- Alternative 2B - Irving/Industrial Boulevard (at-grade)
- Alternative 3A - Combined Parkway, Riverside of Dallas Floodway East Levee (original)

- Alternative 3B - Combined Parkway, Riverside of Dallas Floodway East Levee (modified)
- Alternative 3C - Combined Parkway, Riverside of Dallas Floodway East Levee (further modified)
- Alternative 4A - Split Parkway, Riverside of Dallas Floodway Levees (original)
- Alternative 4B - Split Parkway, Riverside of Dallas Floodway Levees (modified)
- Alternative 5 - Split Parkway, Landside of Dallas Floodway Levees

This SDEIS represents a second phase in the development of alternatives, which has focused on refining the MTIS recommendation for a Trinity Parkway reliever route. The eight Build Alternatives have been evaluated in this draft Section 4(f) analysis to outline the general nature of anticipated impacts to Section 4(f) resources. It is clear at this point that there is not a Build Alternative that avoids all Section 4(f) properties. The following sections summarize the potential impacts of the various Build Alternatives on Section 4(f) resources. Temporary use impacts are not anticipated for any of the Build Alternatives. Upon the identification of a preferred Build Alternative, the Draft Section 4(f) analysis would be revised to include a "least overall harm" analysis using the specific criteria set out in 23 CFR § 774.3(c); that analysis would require a description of the engineering, geographical, financial, or environmental constraints that make the preferred alternative the one with least Section 4(f) impacts. The next phase of finding avoidance alternatives would occur with the development of design options for the preferred alternative to further avoid or minimize harm to Section 4(f) resources (i.e., fine tuning of the project design to avoid harm to the maximum extent practicable).

5.4 SECTION 4(f) PROPERTIES

This section describes the potential Section 4(f) resources, first existing and planned parks and recreational areas, and then specific areas and structures that are either listed in the NRHP or have been determined to be eligible for NRHP listing.

Parks and Recreation Areas

Chapter 3, Sections 3.3.2.2 and **3.3.2.3** and **Plate 3-18** of this SDEIS provided a listing and location of existing and planned parks and recreation areas in the project study area. Those parks and recreation areas that were determined to potentially have project related impacts were discussed in **Chapter 4, Section 4.7.3 Impacts to Parks and Recreational Areas. Plates 4-16** through **4-18** show the resource locations and the project alternative alignments. For clarity, portions of the **Chapter 4** discussion and analysis are presented here.

The purpose of the **Table 5-1**, below, is to identify those park resources that potentially may be impacted by the proposed project alternatives. Following the table, the identified park resources are discussed in detail.

TABLE 5-1. POTENTIAL PROXIMITY IMPACTS ON PARKS AND RECREATIONAL AREAS

Plate ID Number	Site Description	Trinity Parkway Build Alternatives							
		2A	2B	3A	3B	3C	4A	4B	5
1	Sleepy Hollow Park (Existing)	N, V	N, V	N, V	N, V	N, V	N, V	N, V	N, V
	Closest Distance to/from Build Alternative	720 feet (0.14 miles)	720 feet (0.14 miles)	720 feet (0.14 miles)	720 feet (0.14 miles)	720 feet (0.14 miles)	720 feet (0.14 miles)	720 feet (0.14 miles)	720 feet (0.14 miles)
3	Trinity River Greenbelt Park (Existing)	R (1.1)* V	R (5.1)* V	R (173.9)* V	R (153.7)* V	R (176.8)* V	R (213.5)* V	R (269.6)* V	R (84)* V
	Closest Distance to/from Alternative	Adjacent to park at AT&SF RR Bridge	Adjacent to park at AT&SF RR Bridge	Encroaches within park	Encroaches within park	Encroaches within park	Encroaches within park	Encroaches within park	Encroaches within park
10	Oak Cliff Founders Park (Existing)	---	---	---	---	---	N, V	N, V	N, V
	Closest Distance to/from Alternative	2,880 feet (0.55 miles)	2,400 feet (0.45 miles)	1,980 feet (0.38 miles)	1,980 feet (0.38 miles)	1,980 feet (0.38 miles)	500 feet (0.10 miles)	500 feet (0.10 miles)	400 feet (0.06 miles)
11	Eloise Lundy Park (Existing)	---	---	---	---	---	V	V	V
	Closest Distance to/from Alternative	2,980 feet (0.56 mile)	2,710 feet (0.51 mile)	1,980 feet (0.38 mile)	1,980 feet (0.38 mile)	1,910 feet (0.36 mile)	330 feet (0.06 mile)	420 feet (0.08 mile)	40 feet (0.01 mile)
17	Great Trinity Forest Park (Planned)	V	V	V	V	V	V	V	V
	Closest Distance to/from Alternative	Adjacent to park at AT&SF RR Bridge**	Adjacent to park at AT&SF RR Bridge**	Adjacent to park at AT&SF RR Bridge**	Adjacent to park at AT&SF RR Bridge**	Adjacent to park at AT&SF RR Bridge**	Adjacent to park at AT&SF RR Bridge**	Adjacent to park at AT&SF RR Bridge**	Adjacent to park at AT&SF RR Bridge**
18	Old Trinity River Meanders (Planned)	V	V	---	---	---	---	---	---
	Closest Distance to/from Alternative	Adjacent**	Adjacent**	470 feet (0.09 mile)	470 feet (0.09 mile)	470 feet (0.09 mile)	470 feet (0.09 mile)	470 feet (0.09 mile)	470 feet (0.09 mile)
20	Trinity Strand (Existing Park with Planned Trail)	V	V	---	---	---	---	---	---
	Closest Distance to/from Alternative	Adjacent to park	50 feet (0.01 mile)	1,100 feet (0.21 mile)	1,100 feet (0.21 mile)	1,140 feet (0.22 mile)	1,100 feet (0.21 mile)	1,140 feet (0.22 mile)	1,000 feet (0.19 mile)

Key to Terms: R = right-of-way would be required, and access rights for construction, operation, and maintenance are anticipated to be established by an operating agreement with the City of Dallas (estimated number of acres shown in parentheses - see Section 4.1.2; N = project noise analysis indicates site has noise levels above impact criteria - see Section 4.15; V = visual - indicates a project alternative can be seen from the park, the effect ranges from minimal visual change, moderate visual change, or strong visual change depending on location and other factors - see Section 4.16; --- = no impact anticipated.

Notes: The information for Alternatives 3A, 3B, and 4A is shaded to denote for the reader that these alternatives are not considered approvable by the USACE due to concerns detailed in Section 2.3.9.

* - The deed records for the park land indicate that it can be used for transportation. Therefore, even though a change in use would occur, the estimated acreage needed for right-of-way would not constitute a direct use (take) of park land under Section 4(f).

** - Due to concurrent planning efforts with the City of Dallas, it is expected that the proposed project would be adjacent to the final area designated as park land.

Calculated distances/areas are estimates only.

Plate ID numbers correspond to the locations shown on Plate 3-18 (Chapter 3) and Plates 4-14 through 4-16 (Chapter 4).

As shown in **Table 5-1**, the project Build Alternatives would have some degree of proximity impact to seven parks and/or recreation areas (five are existing and two are planned). **Chapter 4, Plates 4-14** through **4-16** show the locations of these facilities by Plate ID and also shows the footprints of the project Build Alternatives.

The City of Dallas Park and Recreation Department (PARD) has indicated that none of the Trinity Parkway Build Alternatives would have a negative impact to any of the existing and planned parks and recreational areas located in the study area. The PARD acknowledges one of the goals for the Trinity Parkway project as a whole is to improve access to existing and proposed recreational opportunities. In this regard, the Trinity Parkway would provide positive benefits for these resources (see **Appendix A-1, Pages 67-68**).

The following section further describes the project impacts to the park and recreation areas. Additional information regarding potential noise impacts described below may be found in **Section 3.7 Existing Noise Environment**, **Section 4.15 Noise Impacts**, and **Table 4-45**.

Sleepy Hollow Park (Plate ID 1) is an urban neighborhood park located approximately 300 feet northeast of IH-35E. The park is rectangular in shape and approximately 0.6 acres in size. The park is surrounded on three sides by residential streets. On the remaining side (south) is a commuter rail line and further south is IH-35E, located approximately 300 feet away. Amenities at the park include picnic benches, a playground, and a multi-use court facility (primarily basketball). In this area, all project Build Alternatives are the same consisting of connecting ramps to the southwest side of the existing IH-35E facility (greater than 700 feet from the park).

The project's noise analysis determined that Sleepy Hollow Park has existing noise levels of 66 dBA which equals or exceeds FHWA Noise Abatement Criteria (NAC). The existing noise level at the park is due to the existing traffic on nearby IH-35E. The predicted future noise level at the park with the Build Alternatives in place remains at 66 dBA. In sum, predicted noise levels at the park equal or exceed the NAC because of high existing noise, and there is no increase in predicted future noise levels at the park if the proposed project is constructed, when compared with the predicted noise levels if the project is not constructed. Because of their height, the proposed ramp structures of all Build Alternatives would likely be visible from the park, as is the IH-35E facility. The Build Alternatives would cause minimal visual impacts in that they would be somewhat visible, but consistent with the existing landscape.

In sum, the project's proximity impacts would not substantially impair the activities, features, or attributes that qualify this park for protection under Section 4(f).

Trinity River Greenbelt Park (Plate ID 3) is an urban open space park of approximately 3,652 acres extending from Northwest Highway (SH 348), located northwest and outside the study area, to the AT&SF Railroad bridge located in the southwest portion of the study area. The designated primary use of the Trinity River Greenbelt Park is floodplain and flood control, with secondary use as park and open space. The Dallas Floodway encompasses approximately 2,000 acres of this park. Research of the City of Dallas' acquisition and deed stipulations was performed for the floodway land between Westmoreland Road and the DART/AT&SF Railroad bridge, comprising approximately 1,900 acres. This segment of the Dallas Floodway is part of the 3,652 acre Trinity River Greenbelt Park. It is through this area the Trinity Parkway would be constructed if one of the river alternatives (Alternatives 3A, 3B, 3C, 4A, 4B or 5) is selected. The deed records of the City of Dallas' acquisition of the Trinity River Greenbelt Park include a conveyance for transportation purposes (see correspondence in **Appendix A-1, Pages 37-47 and 58-69**). As noted previously, the City of Dallas PARD (official with jurisdiction) has indicated that none of the Build Alternatives would have a negative impact to any of the existing or planned parks and recreational areas in the study area, including the Trinity River Greenbelt Park. The FHWA has determined that the provisions of Section 4(f) do not apply to the park land between Westmoreland Road and the DART/AT&SF Railroad bridge, based on deed records identifying a transportation use of the park land and the City of Dallas PARD opinion that the Trinity Parkway would not be detrimental to the Trinity River Greenbelt Park (see **Appendix G-6**).

Future recreational facilities proposed to be constructed within the Trinity River Greenbelt Park are being planned by others concurrently with the Trinity Parkway project. If Alternative 3A, 3B, 3C, 4A, 4B or 5 is selected as the preferred alternative, additional noise studies would be performed for the preferred alternative to predict the future noise environment within the Trinity River Greenbelt Park adjacent to and near that alternative. Proposed park facilities adjacent to or near the preferred alternative that are planned, designed and programmed would be considered for reasonable and feasible noise abatement. These efforts would guide local officials responsible for land use control programs to ensure, to the maximum extent possible, that new recreational activity areas within the park are planned or constructed with the predicted future noise environment in mind. Alternatives 3A, 3B, 3C, 4A, 4B or 5 would be constructed within or adjacent to the levees and would be visible from the park and planned recreational areas. Similarly, concurrent planning efforts would allow local officials responsible to ensure that new recreational activity areas within Trinity Park are planned or constructed with the locations of the proposed alternatives in mind.

Oak Cliff Founders Park (Plate ID 10) is located approximately 500 feet west of the west levee and is bounded by Zang Boulevard and Marsalis Avenue, which are major city arterials connecting to the Houston Street and Jefferson Boulevard Viaducts. This urban open space park is triangular in shape and is approximately 16.1 acres in size. The park is oriented such that the closest point of the park to the

Build Alternatives is the northeastern point of the park triangle (approximately 500 feet from the levee). Amenities at the park include: a hike/bike trail extending around the perimeter and through the interior of the park, and several sitting benches throughout the park. The park has fairly heavy tree cover through most of its interior. Land use around the park includes single and multi family residential, retail, and commercial.

The project's noise analysis determined that Oak Cliff Founders Park has existing noise levels of 66 dBA Leq, which equals or exceeds the FHWA NAC. The existing noise level is due to existing traffic on the adjacent city arterials (Zang and Marsalis). Alternatives 2A, 2B, 3A, 3B, and 3C have no noise effect on the park because of distance away. The predicted future noise level at the park without Alternatives 4A, 4B or 5 in place is 68 dBA. The predicted future noise level at the park with Alternatives 4A, 4B or 5 in place is 69 dBA Leq, a difference of 1 dBA. Zang and Marsalis are closer to the park than any proposed alternative and their traffic is the dominate noise generator at the park. The predicted noise levels at the park equal or exceed the NAC because of high existing noise, and the increase in predicted noise levels at the park if the proposed project is constructed, when compared with the predicted noise levels if the project is not constructed is 1 dBA. A barely perceptible change in noise is considered to be 3 dBA or less.

Alternatives 4A and 4B ramp connections to the Houston Street Viaduct would be located near the top of the levee and would be visible from the northeastern point of the park (approximately 500 feet away), but would not be visible from the interior sections of the park. The ramps would cause minimal visual change in that they would be somewhat visible, but consistent with the existing landscape. Alternative 5 southbound mainlanes and ramps would be located outside the west levee and would be visible only from the northeastern point of the park. Alternative 5 would cause moderate visual change in that it would be somewhat visible, but consistent with the existing landscape.

In sum, the project's potential proximity impacts would not substantially impair the activities, features, or attributes that qualify this park for protection under Section 4(f).

Eloise Lundy Park (Plate ID 11) is an urban community park located west of the west levee approximately one-quarter mile southeast of the IH-35E crossing of the Dallas Floodway. The park is roughly rectangular in shape and approximately 3.4 acres in size. Amenities include a picnic area, swimming pool, tennis court, softball field, playground, multi-use court facilities, and a community recreation center building. The park has residential streets on two sides, a major city arterial on the southwest side, and the floodway levee on the northeast side. Land use around the park is primarily residential. Alternatives 2A, 2B, 3A, 3B, and 3C would have no impact on the park. Alternatives 4A and 4B depart the west levee of the floodway between IH-35E and the park (approximately 330 and 420 feet from the park), and begin

an eastward track across the floodway on bridge structure. Alternative 5 departs the west levee approximately 40 feet from the park.

The project noise analysis indicates the park would not be noise impacted by any of the project Build Alternatives. Because the park is located behind the levee, the proposed bridge structures crossing the floodway of Alternatives 4A, 4B, and 5 would likely be visible from some areas of the park and not visible from others. Build Alternatives 4A and 4B would cause minimal visual proximity impacts in that they would be somewhat visible in the distance. Alternative 5 would cause moderate visual impact because it would be considerably visible, but would not obscure the view of the landscape. In sum, the project's proximity impacts would not substantially impair the activities, features, or attributes that qualify this park for protection under Section 4(f).

Trinity Strand Trail Park (Plate ID 20) is an urban open space park located east of the east levee along a meander of the old Trinity River channel (see **Plate 3-23**). The park extends along the meander from IH 35E to near Irving Boulevard for a distance of approximately 2 miles and contains an area of approximately 57 acres. The park currently has no amenities, and functions as a sump of the Eastside Interior Drainage Sump System of the Dallas Floodway. A hike/bike trail and enhanced landscaping are proposed for this park. Land use in the area is primarily industrial and retail commercial. Irving Boulevard (a major city arterial) parallels the park on the southwest at a distance that varies from adjacent to 3,000 feet. IH 35E (a major freeway) parallels the park on the northeast at a distance that varies from adjacent to 2,000 feet.

The project noise analysis indicates the park would not be noise impacted by any of the project Build Alternatives. Alternatives 2A and 2B (alternatives along Irving Boulevard) would be on structure and adjacent or near the park in some areas. Alternatives 2A and 2B would be visible from the park area a small percentage of the time. Alternatives 2A and 2B would cause minimal visual proximity impacts because they would not be visible through much of the park length, and in those areas where visible, would be consistent with the existing landscape.

Great Trinity Forest Park (Plate ID 17) and Old Trinity River Meanders (Plate ID 18) are planned park areas. The NTTA participates in a cooperative multi-project planning effort with the City of Dallas, Dallas County, TxDOT, FHWA, NCTCOG, and the USACE to implement various components of the City of Dallas' *Trinity River Corridor MIP/BVP*. The Trinity Parkway has been identified as a key component of this plan. The *Trinity River Corridor MIP/BVP* incorporates the proposals from these agencies into one cohesive concept plan. These projects include: the Dallas County Trail Plan; the Trinity Trails System; the Regional Veloweb; the Great Trinity Forest Master Plan; and the DFE Project (see **Appendix L-2** for

details). The two planned parks (Great Trinity Forest Park and Old Trinity River Meanders) are included in these plans.

The Great Trinity Forest Master Plan proposes recreational development and preservation of over 6,000 acres of land extending from south of the Corinth Street Viaduct southward to IH-20 near the southern limits of the City of Dallas. This master planning effort was built upon many previous studies and plans for the Trinity River corridor and is designed to work within the context of these plans, such as the USACE's proposed flood control improvements, and the Trinity Parkway (proposed action), which would improve access along the upper end of the corridor. The first phase of the Master Plan involves acquisition of lands not owned by the City of Dallas. Real estate acquisition, relocations, and utilities work is ongoing. Within the project study area, the planned Great Trinity Forest Park area is crossed (via bridge) by Martin Luther King Boulevard, IH-45, and the MKT railroad. Alternatives 2A and 2B would skirt the northeast corner of this planned park area and then follow an alignment along Lamar Street, a major city arterial. Alternatives 3A, 3B, 3C, 4A, 4B and 5 would skirt the northeast corner of the planned park and then follow an alignment between Lamar Street and the levee system. The Build Alternatives would be visible only from the northeast corner of the park and from certain areas along the northeastern boundary of the proposed park. The Build Alternatives would not be visible from the majority of the planned park area. Due to the proximity of the Build Alternatives to the area planned as the Great Trinity Forest Park, a determination by FHWA to verify Section 4(f) applicability is currently being coordinated.

The Old Trinity River Meanders planned park area is located in the northeast portion of the study area roughly between IH-35E and Irving Boulevard. This planned park area would extend from the northern limit of the Trinity Strand Trail Park (described above) to IH-35E. Similar to the Trinity Strand Trail Park, the old river meanders currently serve as a network of flood control storage sumps. Their banks are bordered by warehouse and industrial facilities common to the area. Planning documents indicate the county's open space system as a whole, in particular downtown Dallas, could benefit from the salvaging and rehabilitation of the old channel as a river and corridor landscape. The Old Trinity River Meanders would also serve as a connecting greenbelt between the Trinity River Greenbelt Park, downtown Dallas, and other existing/planned parks and recreational areas within the study area and beyond. Alternatives 2A and 2B would be on bridge structure adjacent to the east side of the planned park area. Alternatives 3A, 3B, 3C, 4A, 4B and 5 would not be visible from the planned park area.

Both of the planned parks, the Great Trinity Forest Park and Old Trinity River Meanders, are being planned concurrently with the Trinity Parkway project. While portions of the Build Alternatives may be visible from areas of the planned parks, it is not expected that the Trinity Parkway's proximity impacts would be so severe that the planned Section 4(f) resources would be substantially impaired. In addition, as mentioned previously, the City of Dallas PARD has indicated that none of the Trinity Parkway Build

Alternatives would have a negative impact to any of the existing or planned parks and recreational areas in the study area.

In summary, all of the parks identified in **Table 5-1** exist or would exist in an urban environment where the influences of the local transportation system are part of their operational and functional characteristics. All are located adjacent to, near or crossed by operating roadways, so the passage of vehicles nearby would not introduce an activity that has not previously existed. The visual proximity impacts caused by one or more of the Build Alternatives would not obscure the views from these parks and would be consistent with the landscape surrounding the parks. The existing parks provide an urban recreation opportunity, and serenity is not a component to achieve that purpose.

In conclusion, the Build Alternatives would not require the use of any publicly owned land from a public park or recreation area and the project's proximity impacts would not substantially impair the protected activities, features, or attributes that qualify a property for protection under Section 4(f). Parks and recreational areas, therefore, are not considered further in this Draft Section 4(f) Evaluation.

Eligible or Listed Historic Architectural Properties

Important attributes for the listed and eligible historic architectural properties are outlined in the following subsections. **Plate 5-1** shows the eight Build Alternatives in relation to the eligible and listed historic properties in the study area.

One NRHP eligible resource, identified as "The Sportatorium" at 1000 South Industrial Boulevard (see Plate ID 13), was included in previous Section 106 coordination, but has since been demolished by others. As a result, a detailed description of the former resource is not presented and impacts are not considered in this Draft Section 4(f) Evaluation.

5.4.1 Colonial Hill Historic District

Listed in NRHP (see **Plate 5-1** ID 1)

The Colonial Hill Historic District was listed in the NRHP in 1995 at the local level of significance under Criterion A, for Community Planning and Development, as one of Dallas' largest intact and best examples of a classic "streetcar suburb" because it was planned to provide moderate income housing for downtown workers at the end of the Ervay streetcar line. Colonial Hill is also significant under Criterion C, for Architecture, on the basis of its large grouping of intact houses from the 1910-1940 era.

Property: Colonial Hill Historic District
Ownership: Numerous Residential Home Owners (Historic District)
Function: Residential Neighborhood
Unusual characteristics affecting value: Numerous Vacant Lots
Property size: 130.5 acres
Applicable clauses affecting ownership: City Historic District restrictions
Access and usage: Vehicular, pedestrian, local neighborhood streets
National Register status: Listed - Reference Number 95000334 (NRHP Listing Criteria: A, Event; and, C, Architecture/Engineering)

View looking northeast on Herald Street in the Colonial Hill Historic District. Alternatives 2A and 2B would skirt the southwestern boundary of the district (photographed December 2005).

5.4.2 Houston Street Viaduct

Listed in NRHP (see **Plate 5-1** ID 2)

The first of five viaducts constructed by the City of Dallas across the Trinity River, the 1911 Houston Street Viaduct was listed in the NRHP in 1984 for its historic and engineering significance. It is significant as one of the longest reinforced concrete arch-structure viaducts ever built.

Property: Houston Street Viaduct

Ownership: City of Dallas - Historic Structure

Function: Transportation Facility - Bridge

Unusual characteristics affecting value: Bridge below SPF flood level within Dallas Floodway

Property size: Length: 6,562 linear feet; Railing (total): 13,124 linear feet; Deck Area: 7.5 acres

Applicable clauses affecting ownership: N/A

Access and usage: Vehicular, pedestrian

National Register status: Listed - Reference Number 84001641 (NRHP Listing Criteria: A, Event; and, C, Architecture/Engineering)

View looking southwest toward the Houston Street Viaduct on the south side of the east levee of the Dallas Floodway. Jefferson Street Bridge is in the background (photographed December 2005).

5.4.3 Corinth Street Viaduct

Eligible for NRHP Listing (see **Plate 5-1** ID 4)

The Corinth Street Viaduct was built by the City of Dallas between 1929 and 1931.

Property: Corinth Street Viaduct

Ownership: City of Dallas - historic structure

Function: Transportation facility - bridge

Unusual characteristics affecting value: Bridge below SPF flood level within Dallas Floodway

Property size: Length: 3,400 linear feet; Railing (total): 6,800 linear feet; Deck Area: 3.9 acres

Applicable clauses affecting ownership: N/A

Access and usage: Vehicular, pedestrian

National Register status: Eligible for NRHP Listing under Criteria: A, Community Development; and, C, Engineering

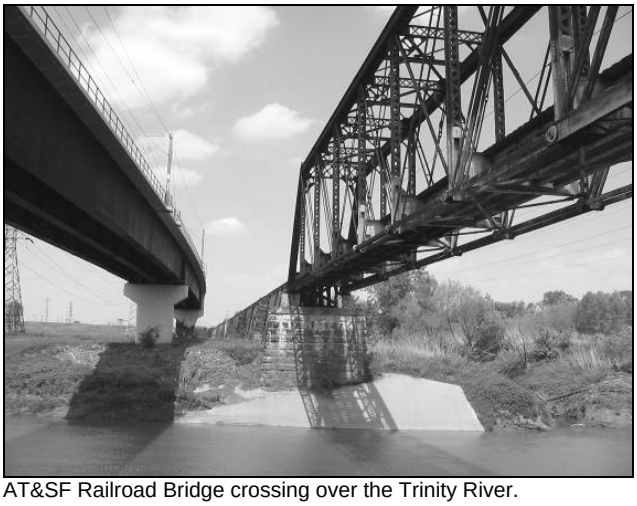
View looking southwest toward the Corinth Street Viaduct on the north side of the east levee of the Dallas Floodway (photographed December 2005).

5.4.4 AT&SF Railroad Bridge

Eligible for NRHP Listing (see **Plate 5-1** ID 5)

The AT&SF Railroad Bridge predates the construction of the flood-control levees and was determined eligible for NRHP listing as a good example of a Pratt through-truss dating from the period 1890-1910. The steel trestle portion of the bridge over the Trinity River and the wooden trestle has been determined eligible. TxDOT and the City of Dallas are preparing plans to construct a hike/bike trail on the bridge connecting Moore Park to the east levee-Levee Top Trail.

Property: AT&SF Railroad Bridge
Ownership: DART/City of Dallas - historic structure
Function: Transportation facility - bridge
Unusual characteristics affecting value: Timber trestle and earthen embankment restrict flood conveyance of Dallas Floodway
Property size: Length: 2,800 linear feet; Deck Area: 1.03 acres
Applicable clauses affecting ownership: N/A
Access and usage: Currently abandoned with no access - future hike/bike trail
National Register status: Eligible for NRHP Listing under Criterion C, Engineering



AT&SF Railroad Bridge crossing over the Trinity River. Dart Bridge is adjacent (photographed December 2005.)

AT&SF Railroad Bridge wooden structure (eastern portion of bridge) (photographed December 2005.)

5.4.5 UP Railroad Bridge

Eligible for NRHP Listing (see **Plate 5-1** ID 3)

The former Southern Pacific Railroad Bridge, construction date unknown, is eligible for NRHP listing as a good example of a Warren through-truss railroad bridge.

Property: UP Railroad Bridge

Ownership: Union Pacific Railroad - historic bridge

Function: Transportation facility - bridge

Unusual characteristics affecting value: N/A

Property size: Length: 2,050 linear feet; Deck Area: 1.04 acres

Applicable clauses affecting ownership: N/A

Access and usage: Railroad track with passenger and freight train usage

National Register status: Eligible for NRHP Listing under Criterion C, Engineering

Looking east at UP Railroad crossing over the Trinity River (photographed December 2005).

5.4.6 MKT Railroad Bridge

Eligible for NRHP Listing (see **Plate 5-1** ID 6)

The MKT Railroad Bridge is eligible for NRHP listing as a good example of a Parker through-truss railroad bridge commonly used by railroads at the turn of the century.

Property: MKT Railroad Bridge

Ownership: Burlington Northern Santa Fe Railroad - historic bridge

Function: Transportation facility - bridge

Unusual characteristics affecting value: Bridge below the 100-year flood level

Property size: Length: 205 linear feet; Deck Area: 0.07 acre

Applicable clauses affecting ownership: N/A

Access and usage: Railroad track used exclusively for freight transport

National Register status: Eligible for NRHP Listing under Criterion C, Engineering

Looking north toward MKT Railroad crossing the Trinity River (photographed February 2008).

5.4.7 Commerce Street Viaduct

Eligible for NRHP Listing (see **Plate 5-1** ID 8)

The Commerce Street Viaduct, built by the City of Dallas between 1929 and 1931, was determined eligible for NRHP listing in 2001.

Property: Commerce Street Viaduct

Ownership: City of Dallas - historic structure

Function: Transportation facility - bridge

Unusual characteristics affecting value: Bridge below SPF level within Dallas Floodway

Property size: Length: 1,980 linear feet; Railing (total): 3,960 linear feet; Deck Area: 3.18 acres

Applicable clauses affecting ownership: N/A

Access and usage: Vehicular, pedestrian

National Register status: Eligible for NRHP Listing under Criteria A, Community Development, and C, Engineering

View looking toward the Commerce Street Viaduct along the south side of the east levee of the Dallas Floodway (photographed December 2005).

5.4.8 Continental Avenue Viaduct

Eligible for NRHP Listing (see **Plate 5-1** ID 7)

The Continental Avenue Viaduct, built by the City of Dallas between 1929 and 1931, was determined eligible for NRHP listing in 2001.

Property: Continental Avenue Viaduct

Ownership: City of Dallas - historic structure

Function: Transportation facility - bridge

Unusual characteristics affecting value: Bridge below SPF level within Dallas Floodway

Property size: Length: 2,130 linear feet; Railing (total): 4,260 linear feet; Deck Area: 2.69 acres

Applicable clauses affecting ownership: N/A

Access and usage: Vehicular, pedestrian

National Register status: Eligible for NRHP Listing under Criteria A, Community Development, and C, Engineering

Looking west toward the Continental Avenue Viaduct from the top of the east levee of the Dallas Floodway (photographed December 2005).

5.4.9 1715 Market Center Boulevard

Eligible for NRHP Listing (see **Plate 5-1** ID 11)

The circa 1954 warehouse/shipping facility, now occupied by Pettigrew Associates, was determined eligible for NRHP listing in 2002.

Property: 1715 Market Center Boulevard

Ownership: Private

Function: Commercial business

Unusual characteristics affecting value: N/A

Property size: Total area 76,506 square feet; Land 130,263 square feet

Applicable clauses affecting ownership: N/A

Access and usage: Vehicular, pedestrian / private business

National Register status: Eligible for NRHP Listing under Criterion C, Architecture (at the local level of significance)

View looking toward the NRHP-eligible property located at 1715 Market Center Boulevard (photographed 2002).

5.4.10 1202 North Industrial Boulevard

Eligible for NRHP Listing (see **Plate 5-1** ID 12)

The circa 1947 warehouse/shipping facility, now occupied by ACF Corporation, was determined eligible for NRHP listing in 2002.

Property: 1202 North Industrial Boulevard

Ownership: Private

Function: Commercial business

Unusual characteristics affecting value: N/A

Property size: Total area 22,500 square feet; Land 22,500 square feet

Applicable clauses affecting ownership: N/A

Access and usage: Vehicular and pedestrian; private business

National Register status: Eligible for NRHP Listing under Criterion C, Architecture (at the local level of significance)

View looking toward the NRHP-eligible property located at 1202 North Industrial Boulevard (photographed 2002).

5.4.11 1212 South Industrial Boulevard

Eligible for NRHP Listing (see **Plate 5-1** ID 14)

The Oak Cliff Box Co. building consists of a 1948 Art Moderne office building and an attached 1950 warehouse/shipping facility. The building was determined eligible for NRHP listing in 2002.

Property: 1212 South Industrial Boulevard

Ownership: Private

Function: Commercial business

Unusual characteristics affecting value: N/A

Property size: Three buildings - Total area 10,004 square feet; Land 9,900 square feet

Applicable clauses affecting ownership: N/A

Access and usage: Vehicular and pedestrian; private business

National Register status: Eligible for NRHP Listing under Criterion C, Architecture (at the local level of significance)

View looking toward the NRHP-eligible property located at 1212 South Industrial Boulevard (photographed 2002).

5.4.12 3701 South Lamar Street

Eligible for NRHP Listing (see **Plate 5-1** ID 10)

Built in 1920 as a Procter and Gamble Co. manufacturing facility, the building is now used as a storage facility for the Dallas Public Schools. The building was determined eligible for NRHP listing in 2002.

Property: 3701 South Lamar Street

Ownership: Dallas Independent School District - historic building

Function: Warehouse storage

Unusual characteristics affecting value: N/A

Property size: Six buildings on property

Total area: 488,233 square feet; Land 29.96 acres

Applicable clauses affecting ownership: N/A

Access and usage: Vehicular

National Register status: Eligible for NRHP Listing under Criteria C, Architecture, and A, Community Development (at the local level of significance). Note: The NRHP eligibility of the ancillary buildings on this site and on a historically associated site at 1301 McDonald Street has not been determined.

View looking southwest toward the NRHP-eligible property located at 3701 South Lamar Street (photographed 2005).

5.4.13 2255 Irving Boulevard

Eligible for NRHP Listing (see **Plate 5-1** ID 9)

The circa 1925 City of Dallas/Irving Water Pumping Facility was determined eligible for NRHP listing in 2002.

Property: 2255 Irving Boulevard

Ownership: City of Dallas - Historic building

Function: Stormwater Pump Station

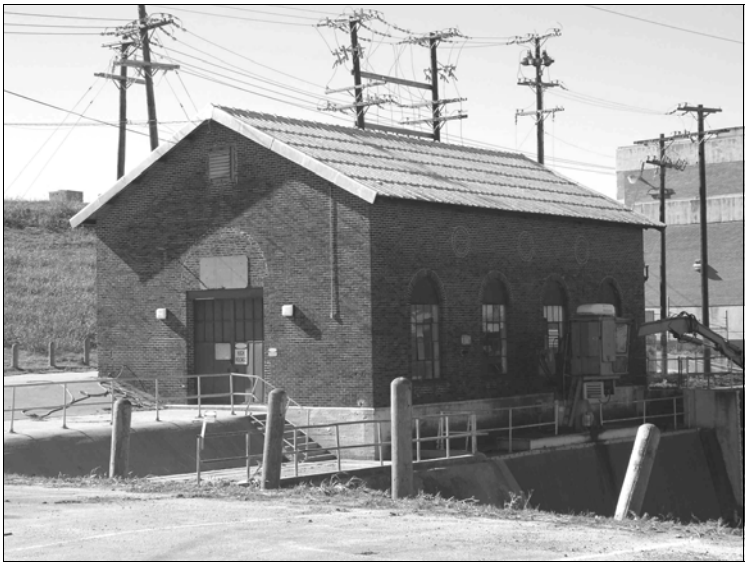
Unusual characteristics affecting value: N/A

Property size: Total area 100 square feet; Land 281,920 square feet

Applicable clauses affecting ownership: N/A

Access and usage: Vehicular

National Register status: Eligible for NRHP Listing under Criterion C, Architecture (at the local level of significance)



View looking toward the NRHP-eligible property located at 2255 Irving Boulevard (photographed 2002).

5.5 IMPACTS TO SECTION 4(f) PROPERTIES

The No-Build alternative would avoid impacts to Section 4(f) properties. Each of the eight Build Alternatives evaluated in the SDEIS would require the use of Section 4(f) properties. Impacts are described and defined in accordance with Section 4(f). Impacts are further described in **Sections 4.7.2** and **4.7.3**.

Table 5-2 presents the potential impacts to historic bridges and buildings. Alternative 2B would have the least impact to historic bridges by impacting the AT&SF railroad bridge which would be impacted by all of the alternatives. The impacts would be to the wooden piling section of the bridge and would not impact the steel trestle bridge spanning the Trinity River. Alternative 2A would impact two bridges. Alternatives 3B and 3C would impact four bridges and Alternative 3A would impact five bridges, all along the eastern levee side of the Dallas Floodway. Alternative 4A would impact five bridges and Alternative 4B would impact three bridges. The bridges impacted by Alternatives 4A and 4B would be impacted on both ends of the bridges. Alternative 5 would impact six bridges and would also impact both sides of three bridges. These impacts would affect elements of the structures that contribute toward the eligibility of each structure for listing in the NRHP.

Alternative 2A would impact the most historic properties with four displacements. Alternatives 2B and 5 would each directly impact one historic property, while Alternatives 3A, 3B, 3C, 4A, and 4B would have no impacts to historic properties. Alternatives 2A and 2B would also have a potential for constructive use of a historic district.

TABLE 5-2. POTENTIAL IMPACT TO HISTORIC BRIDGES AND BUILDINGS

SECTION 4(f) RESOURCE	TRINITY PARKWAY ALTERNATIVES							
	2A	2B	3A	3B	3C	4A	4B	5
Colonial Hill Historic District	Adjacent	Adjacent	Near	Near	Near	Near	Near	Near
Houston Street Bridge	Yes	No	Yes	Yes	Yes	Yes	Yes	Yes
Corinth Street Viaduct	No	No	Yes	Yes	Yes	Yes	Yes	Yes
AT&SF Railroad Bridge	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
UPRR Bridge	No	No	No	No	No	No	No	Yes
MKT Railroad Bridge	No	No	No	No	No	No	No	No
Commerce Street Viaduct	No	No	Yes	No	No	Yes	No	Yes
Continental Avenue Viaduct	No	No	Yes	Yes	Yes	Yes	No	Yes
1715 Market Center	Yes	No	No	No	No	No	No	No
1202 North Industrial	Yes	No	No	No	No	No	No	No
1212 South Industrial	Yes	No	No	No	No	No	No	No
3701 South Lamar	Yes [1]	Yes [2]	No[3]	No[3]	No[3]	No[3]	No[3]	No[3]
2255 Irving Boulevard	No	No	No	No	No	No	No	Yes
Total Bridges	2	1	5	4	4	5	3	6
Total Properties	5	2	0	0	0	0	0	1

Notes: The information for Alternatives 3A, 3B, and 4A is shaded to denote for the reader that these alternatives are not considered approvable by the USACE due to concerns detailed in **Section 2.3.9**.
1 - Two buildings
2 - Four buildings
3 - Assumes that an associated property at 1301 McDonald Street is not eligible for NRHP listing

In this section, the potential impact to each historic architectural resource for which there would be a potential "use" under Section 4(f) is described to the extent possible based on the available level of the Trinity Parkway project elements. In addition, alternatives that would avoid or minimize any use of the properties are described. Unless otherwise noted, impacts to historic resources would not be expected to disqualify them for NRHP listing.

5.5.1 Colonial Hill Historic District

Alternative 2A: An elevated section of roadway would skirt the western boundary of the historic district. No use of land but potential constructive use due to visually intrusive elements that could diminish aspects of the district's integrity of setting.

Alternative 2B: An elevated section of roadway would skirt the western boundary of the historic district. No use of land but potential constructive use due to visually intrusive elements that could diminish aspects of the district's integrity of setting.

Alternative 3A: An elevated section of roadway would be located approximately 1,000 feet west of the historic district. No use of land; no constructive use.

Alternative 3B: An elevated section of roadway would be located approximately 1,000 feet west of the historic district. No use of land; no constructive use.

Alternative 3C: An elevated section of roadway would be located approximately 1,000 feet west of the historic district. No use of land; no constructive use.

Alternative 4A: An elevated section of roadway would be located approximately 1,000 feet west of the historic district. No use of land; no constructive use.

Alternative 4B: An elevated section of roadway would be located approximately 1,000 feet west of the historic district. No use of land; no constructive use.

Alternative 5: An elevated section of roadway would be located approximately 1,000 feet west of the historic district. No use of land; no constructive use.

5.5.2 Houston Street Viaduct

Property size: length = 6,562 linear feet; railing (total) = 13,124 linear feet; deck area = 7.5 acres

Alternative 2A: Elevated entrance and exit ramps would connect to the viaduct outside the levee. Approximately 265 feet of railing (2.0% of total railing) would be removed for the ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 2B: Main lanes would pass under the viaduct with no ramp connections. There would be no impacts to contributing features or use of this resource.

Alternative 3A: Ramp connections to the viaduct in two locations would require removal of 330 feet of railing (2.5%). This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 3B: Ramp connections to the viaduct in two locations would require removal of 481 feet of railing (3.7%). This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 3C: Main lanes would pass under the viaduct inside the levee. Ramp connections to the viaduct in two locations would require removal of 452 feet of railing (3.4%). This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 4A: Eastbound main lanes would pass under the viaduct within the levee with no physical impact. A 142-foot-long approach span would be removed from the north side of the viaduct for the westbound main lanes. Ramps would connect to the viaduct at the top of both the east and west levees. Approximately 320 feet of railing (2.4%) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 4B: Main lanes would pass under the viaduct within the levee with no physical impact. Ramp connections to the viaduct in two locations would require removal of 314 feet of railing (2.4%). This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 5: Main lanes would pass under the viaduct outside the levee. Eastbound main lanes would pass under the viaduct with no physical impact; a portion of the viaduct's north approach span would be rebuilt for the westbound main lanes. Approximately 138 feet of railing (1.1%) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

5.5.3 Corinth Street Viaduct

Property size: length = 3,400 linear feet; railing (total) = 6,800 linear feet; deck area = 3.9 acres

Alternative 2A: The alignment would pass to the north of the viaduct and there would be no impacts to contributing features or use of this resource.

Alternative 2B: The alignment would pass to the north of the viaduct and there would be no impacts to contributing features or use of this resource.

Alternative 3A: Main lanes would pass under the viaduct inside the levee. Ramps would connect to the viaduct within and on top of the levee. Approximately 524 feet of railing (7.7% of total railing) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 3B: Main lanes would pass under the viaduct inside the levee. Ramps would connect to the viaduct within and on top of the levee. Approximately 194 feet of railing (2.9%) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 3C: Main lanes would pass under the viaduct inside the levee. Ramps would connect to the viaduct inside the levee and would require removal of 197 feet of railing (2.8%). This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 4A: Main lanes would pass under the viaduct inside the levee. Ramps would connect to the viaduct within and on top of the levee. Approximately 521 feet of railing (7.7%) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 4B: Main lanes would pass under the viaduct inside the levee. Ramps would connect to the viaduct inside the levee. Approximately 384 feet of railing (5.7%) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 5: Main lanes would pass under the viaduct outside the levee. Ramps would connect to the viaduct outside the levee in two locations. Approximately 500 feet of railing (7.4%) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

5.5.4 AT&SF Railroad Bridge

Property size: length = 2,800 linear feet; deck area = 1.03 acres

Alternative 2A: Approximately 400 feet (14.3% of total structure length) of the timber trestle portion of the bridge would need to be removed. There would be no impacts to the steel truss that spans the Trinity River channel. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 2B: Approximately 400 feet (14.3%) of the timber trestle portion of the bridge would need to be removed. There would be no impacts to the steel truss over the Trinity River. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 3A: Approximately 400 feet (14.3%) of the timber trestle portion of the bridge would need to be removed. There would be no impacts to the steel truss over the Trinity River. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 3B: Approximately 300 feet (10.7%) of the timber trestle portion of the bridge would need to be removed. There would be no impacts to the steel truss over the Trinity River. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 3C: Approximately 300 feet (10.7%) of the timber trestle portion of the bridge would need to be removed. There would be no impacts to the steel truss over the Trinity River. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 4A: Approximately 440 feet (15.7%) of the timber trestle portion of the bridge would need to be removed. There would be no impacts to the steel truss over the Trinity River. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 4B: Approximately 440 feet (15.7%) of the timber trestle portion of the bridge would need to be removed. There would be no impacts to the steel truss over the Trinity River. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 5: Approximately 440 feet (15.7%) of the timber trestle portion of the bridge would need to be removed. There would be no impacts to the steel truss over the Trinity River. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

5.5.5 UP Railroad Bridge

Property size: length = 2,050 linear feet; deck area = 1.04 acres

Alternative 2A: The alignment passes to the north of the bridge and there would be no impacts to contributing features or use of this resource.

Alternative 2B: The alignment passes to the north of the bridge and there would be no impacts to contributing features or use of this resource.

Alternative 3A: Main lanes would pass under the structure with no physical impact. There would be no impacts to contributing features or use of this resource.

Alternative 3B: Main lanes would pass under the structure with no physical impact. There would be no impacts to contributing features or use of this resource.

Alternative 3C: Main lanes would pass under the structure with no physical impact. There would be no impacts to contributing features or use of this resource.

Alternative 4A: Main lanes would pass under the structure with no physical impact. There would be no impacts to contributing features or use of this resource.

Alternative 4B: Main lanes would pass under the structure with no physical impact. There would be no impacts to contributing features or use of this resource.

Alternative 5: A 238-foot-long section of bridge structure (11.6% of total structure length) would be removed and reconstructed for the westbound main lanes and a 241-foot-long section (11.8%) of bridge structure would be removed and reconstructed for the eastbound main lanes. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

5.5.6 MKT Railroad Bridge

Property size: length = 205 linear feet; deck area = 0.07 acre

Each of the Build Alternatives is proposed to go over the railroad embankment east of the bridge. There would be no impacts to contributing features or use of this resource.

5.5.7 Commerce Street Viaduct

Property size: length = 1,980 linear feet; railing (total) = 3,960 linear feet; deck size = 3.18 acres

Alternative 2A: The alignment passes to the north of the viaduct and there would be no impacts to contributing features or use of this resource.

Alternative 2B: The alignment passes to the north of the viaduct and there would be no impacts to contributing features or use of this resource.

Alternative 3A: The main lanes would pass under the viaduct within the levee with ramp connections on the inside and top of the east levee. Approximately 267 feet of contributing railing (6.7% of total railing) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 3B: The main lanes would pass under the viaduct within the levee without ramp connections to the viaduct. There would be no physical impacts to or use of Section 4(f) resources.

Alternative 3C: The main lanes would pass under the viaduct within the levee without ramp connections to the viaduct. There would be no physical impacts to or use of Section 4(f) resources.

Alternative 4A: The main lanes would pass under the viaduct within the levee with ramp connections on the top of the east and west levees. Approximately 386 feet of contributing railing (9.8%) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 4B: The main lanes would pass under the viaduct within the levee without ramp connections to the viaduct. There would be no physical impacts to or use of Section 4(f) resources.

Alternative 5: The main lanes would pass under the viaduct outside the levees with ramp connections to the viaduct. The main lanes would not physically impact the viaduct but ramp connectors to the westbound lanes would require removal of 130 feet of contributing railing (3.3% of total railing). A 62-foot-long section of existing viaduct would be replaced for ramp connections to the eastbound lanes (3.1% of total structure length). This alternative would diminish the bridge's integrity of design, materials, and workmanship.

5.5.8 Continental Avenue Viaduct

Property size: length = 2,130 linear feet; railing (total) = 4,260 linear feet; deck area = 2.69 acres

Alternative 2A: The main lanes would pass to the north of the viaduct. There would be no impacts to contributing features or use of this resource.

Alternative 2B: The main lanes would pass to the north of the viaduct. There would be no impacts to contributing features or use of this resource.

Alternative 3A: Main lanes would pass under the viaduct inside the levee. Ramps would connect to the viaduct on top of the levee. Approximately 140 feet of railing (3.3% of total railing) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 3B: Main lanes would pass under the viaduct inside the levee. Ramps would connect to the viaduct on top of the levee. A 112-foot long section of existing viaduct outside the levee would be removed for the Woodall Rodgers ramp connections. A new pedestrian/bike/trolley connection would be constructed reconnecting Continental Avenue.

Alternative 3C: Main lanes would pass under the viaduct inside the levee. A 112-foot long section of existing viaduct (5.3% of total structure length) outside the levee would be removed for the Woodall Rodgers ramp connections. A new pedestrian/bike/trolley connection would be constructed reconnecting Continental Avenue. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 4A: Main lanes would pass under the viaduct inside the levees with ramp connections on top of the levee. Approximately 140 feet of railing (3.3% of total railing) would be removed for ramp connections. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

Alternative 4B: Main lanes would pass under the viaduct inside the levees. The Woodall Rodgers ramp connection would pass under the viaduct outside the levee. No modifications would be made to the viaduct.

Alternative 5: The main lanes would pass under the viaduct outside the levees. A 194-foot-long section of existing viaduct (9.1% of total structure length) outside the levees would be removed for the eastbound main lanes. This alternative would diminish the bridge's integrity of design, materials, and workmanship.

5.5.9 1715 Market Center Boulevard

Alternative 2A: This alternative would take land from the property and displace the building. This alternative would diminish the property's integrity of location, design, materials, workmanship, setting, feeling, and association. The property would no longer be eligible for NRHP listing.

Alternative 2B: No use of land.

Alternative 3A: No use of land.

Alternative 3B: No use of land.

Alternative 3C: No use of land.

Alternative 4A: No use of land.

Alternative 4B: No use of land.

Alternative 5: No use of land.

5.5.10 1202 North Industrial Boulevard

Alternative 2A: This alternative would take land from the property and displace the building. This alternative would diminish the property's integrity of location, design, materials, workmanship, setting, feeling, and association. The property would no longer be eligible for NRHP listing.

Alternative 2B: No use of land.

Alternative 3A: No use of land.

Alternative 3B: No use of land.

Alternative 3C: No use of land.

Alternative 4A: No use of land.

Alternative 4B: No use of land.

Alternative 5: No use of land.

5.5.11 1212 South Industrial Boulevard

Alternative 2A: This alternative would take land from the property and displace the building. This alternative would diminish the property's integrity of location, design, materials, workmanship, setting, feeling, and association. The property would no longer be eligible for NRHP listing.

Alternative 2B: No use of land.

Alternative 3A: No use of land.

Alternative 3B: No use of land.

Alternative 3C: No use of land.

Alternative 4A: No use of land.

Alternative 4B: No use of land.

Alternative 5: No use of land.

5.5.12 3701 Lamar Street

Alternative 2A: This alternative would take 4.6 acres of land (15% of the total area) from the property, displace two ancillary buildings, but would not displace the primary NRHP-eligible resource. This alternative could diminish the resource's integrity of setting, design, materials, and workmanship.

Alternative 2B: This alternative would take 9.7 acres of land (33% of the total area) from the property, displace three ancillary buildings and would displace the primary NRHP-eligible resource. This alternative would diminish the resource's integrity of location, design, materials, workmanship, setting, feeling, and association. The property would no longer be eligible for NRHP listing.

Alternative 3A: This alternative would take 1.5 acres of land from the property (5% of the total area), but would not displace historic buildings. This alternative could diminish the resource's integrity of setting.

Alternative 3B: This alternative would take 1.5 acres of land from the property (5% of the total area), but would not displace historic buildings. This alternative could diminish the resource's integrity of setting.

Alternative 3C: This alternative would take 2.2 acres of land from the property (8% of the total area), but would not displace historic buildings. This alternative could diminish the resource's integrity of setting.

Alternative 4A: This alternative would take 1.5 acres of land from the property (5% of the total area), but would not displace historic buildings. This alternative could diminish the resource's integrity of setting.

Alternative 4B: This alternative would take 1.5 acres of land from the property (5% of the total area), but would not displace historic buildings. This alternative could diminish the resource's integrity of setting.

Alternative 5: This alternative would take 1.5 acres of land from the property (5% of the total area), but would not displace historic buildings. This alternative could diminish the resource's integrity of setting.

Note: The NRHP eligibility of an associated property at 1301 McDonald has not been established, and the above assessment assumes that property is not eligible. A formal determination of eligibility and effect will be conducted prior to FHWA taking final action on the proposed project, unless the No Build Alternative is identified as the preferred alternative.

5.5.13 2255 Irving Boulevard

Alternative 2A: No use of land.
Alternative 2B: No use of land.
Alternative 3A: No use of land.
Alternative 3B: No use of land.
Alternative 3C: No use of land.
Alternative 4A: No use of land.
Alternative 4B: No use of land.
Alternative 5: Taking of land; displacement of historic building. This alternative would diminish the resource's integrity of location, design, materials, workmanship, setting, feeling, and association. The property would no longer be eligible for NRHP listing.

5.5.14 Summary of Impacts by Alternative

Table 5-3 lists the magnitude of impacts of the eight Build Alternatives on the historic properties. Direct impacts are classified as None, Minor, Major, or Severe. Minor impacts are those that would alter or remove small areas of a resource's historic fabric (e.g., less than 10% of bridge railing) but would not be anticipated to seriously impair the integrity of the resource's design, materials, or workmanship. Major impacts would alter larger areas of a resource's historic fabric (e.g. replacing structural elements) or would take significant amounts of land (25% or more) from a historic site. Severe impacts are those that would result in the loss or significant impairment of a historic architectural resource so that the resource would no longer be eligible for NRHP listing. Continued Section 106 consultation among TxDOT and the SHPO will be required once a preferred alternative has been identified to definitively assess effects to historic resources, and may influence the general classifications of impacts presented here. The designation of impacts as Minor, Major, or Severe would be corrected in the FEIS, if necessary, and the full effects of the proposed undertaking would be described in greater detail.

Alternative 2A: Severe impacts to three properties, major impacts to two properties, minor impacts to one property, and potential constructive use of a historic district.
Alternative 2B: Severe impacts to one property, major impacts to one property, and potential constructive use of a historic district.
Alternative 3A: Major impacts to one property and minor impacts to four properties.
Alternative 3B: Major impacts to one property and minor impacts to three properties.
Alternative 3C: Major impacts to two properties, minor impacts to two properties.
Alternative 4A: Major impacts to two properties, minor impacts to three properties.
Alternative 4B: Major impacts to two properties, minor impacts to one property.

Alternative 5: Severe impacts to one property, major impacts to five properties, and minor impacts to one property.

TABLE 5-3. MAGNITUDE OF IMPACTS TO SECTION 4(f) PROPERTIES

RESOURCE	TRINITY PARKWAY ALTERNATIVES								
	1 (No-Build)	2A	2B	3A[1]	3B[1]	3C	4A[1]	4B	5
Colonial Hill Historic District	None	Potential constructive use	Potential constructive use	None	None	None	None	None	None
Houston Street Viaduct	None	Minor Ramp connections, railing removal	None	Minor Ramp connections, railing removal	Minor Ramp connections, railing removal	Minor Ramp connections, railing removal	Major Ramp connections, replacement section, railing removal	Major Ramp connections, replacement section, railing removal	Major Ramp connections, replacement section, railing removal
Corinth Street Viaduct	None	None	None	Minor Ramp connections, railing removal	Minor Ramp connections, railing removal	Minor Ramp connections, railing removal	Minor Ramp connections, railing removal	Minor Ramp connections, railing removal	Minor Ramp connections, railing removal
AT&SF RR Bridge	Major Section of wood trestle removed	Major Section of wood trestle removed	Major Section of wood trestle removed	Major Section of wood trestle removed	Major Section of wood trestle removed	Major Section of wood trestle removed	Major Section of wood trestle removed	Major Section of wood trestle removed	Major Section of wood trestle removed
UP RR Bridge	None	None	None	None	None	None	None	None	Major Replacement section
MKT RR Bridge	None	None	None	None	None	None	None	None	None
Commerce Street Viaduct	None	None	None	Minor Ramp connections, railing removal	None	None	Minor Ramp connections, railing removal	None	Major Ramp connections, replacement section, railing removal
Continental Avenue Viaduct	None	None	None	Minor Ramp connections, railing removal	Minor Ramp connections, railing removal	Major Ramp connections, replacement section, railing removal	Minor Ramp connections, railing removal	None	Major Ramp connections, replacement section, railing removal
1715 Market Center	None	Severe Loss of historic resource	None	None	None	None	None	None	None
1202 North Industrial	None	Severe Loss of historic resource	None	None	None	None	None	None	None
1212 South Industrial	None	Severe Loss of historic resource	None	None	None	None	None	None	None
3701 South Lamar	None	Major Taking of land	Severe Loss of historic resource	None[2]	None[2]	None[2]	None[2]	None[2]	None[2]
2255 Irving Boulevard	None	None	None	None	None	None	None	None	Severe Loss of historic resource

Notes:
1. The information for Alternatives 3A, 3B, and 4A is shaded to denote for the reader that these alternatives are not considered approvable by the USACE due to concerns detailed in Section 2.3.9.
2. The NRHP eligibility of an associated property at 1301 McDonald has not been established, and the above assessment assumes that property will be determined not eligible.

5.6 AVOIDANCE ALTERNATIVES

The No-Build Alternative would avoid any direct impact on identified historic properties. This alternative, however, would not address the basic need and purpose of the project, which is to manage traffic congestion as well as improve mobility and traffic safety in and near downtown Dallas.

As discussed in **Section 5.3**, the process of developing alternatives began in 1996 with the initiation of the Trinity Parkway Corridor Major Transportation Investment Study (MTIS). The MTIS evaluated a wide variety of measures that could improve traffic flow through and within downtown Dallas, including existing roadway capacity improvements, alternative mode strategies, and travel demand management methodologies. The MTIS recommended an approach to addressing transportation challenges in downtown Dallas that included seven elements, all of which were determined to be necessary to address the need for transportation improvements. The construction of a Trinity Parkway as a reliever route was one of these elements, along with measures for work trip reduction, pedestrian and bicycle facilities, enhanced transportation facility management, improvements to other downtown freeway corridors and major arterials, and creation of a continuous HOV system in the area. **Sections 2.1** and **2.2** of this SDEIS summarize and discuss the MTIS process that developed and evaluated multiple alternatives in terms of meeting the specified need for transportation improvements and anticipated levels of social, economic, and environmental impacts (including Section 4(f) resources).

This SDEIS represents a second phase in the development of alternatives, which has focused on refining the MTIS recommendation for a Trinity Parkway reliever route. The eight Build Alternatives have been evaluated in this draft Section 4(f) analysis to outline the general nature of anticipated impacts to Section 4(f) resources. It is clear at this point that there is not a Build Alternative that avoids all Section 4(f) properties. The following sections summarize the direct and constructive impacts of the various Build Alternatives on each historic property; temporary use impacts are not anticipated for any of the Build Alternatives. Upon the identification of a preferred Build Alternative, this Section 4(f) analysis would be revised to include a "least overall harm" analysis using the specific criteria set out in 23 CFR § 774.3(c); that analysis would require a description of the engineering, geographical, financial, or environmental constraints that make the preferred alternative the one with least Section 4(f) impacts. The third phase of finding avoidance alternatives would occur with the development of design options for the preferred alternative to further avoid or minimize harm to Section 4(f) resources (i.e., fine tuning of the project design to avoid harm to the maximum extent practicable).

5.6.1 Colonial Hill Historic District

Alternatives 3A, 3B, 3C, 4A, 4B, and 5 avoid any direct or indirect effects to the Colonial Hill Historic District. Alternatives 2A and 2B would not directly impact the historic district, but have the potential for constructive use due to visual impacts.

5.6.2 Houston Street Viaduct

Alternative 2B would have no direct impacts to the Houston Street Viaduct. Alternatives 2A, 3A, 3B, 3C, 4A, 4B, and 5 would have direct impacts to the viaduct, although the impacts of Alternatives 2A, 3A, 3B, and 3C would be less substantial than those of Alternatives 4A, 4B, and 5.

5.6.3 Corinth Street Viaduct

Alternative 2A and 2B would not directly impact the Corinth Street Viaduct. Alternatives 3A, 3B, 3C, 4A, 4B, and 5 would directly impact the viaduct by removing sections of contributing railing and adding ramp connections.

5.6.4 AT&SF Railroad Bridge

All of the Build Alternatives would directly impact the AT&SF Bridge by removing a major section of the wood trestle portion of the bridge.

5.6.5 UP Railroad Bridge

Alternatives 2A, 2B, 3A, 3B, 3C, 4A, and 4B would have no direct or indirect impacts on the UPRR bridge. Alternative 5 would directly impact the bridge by removing and replacing a section of the structure to accommodate the travel lanes.

5.6.6 MKT Railroad Bridge

None of the Build Alternatives would have a direct or indirect impact on the MKT RR bridge.

5.6.7 Commerce Street Viaduct

Alternatives 2A, 2B, 3B, 3C, and 4B would have no direct or indirect impacts on the Commerce Street Viaduct. Alternatives 3A, 4A, and 5 would directly impact the viaduct, although the impacts of Alternatives 3A and 4A would be less substantial than those of Alternative 5.

5.6.8 Continental Avenue Viaduct

Alternatives 2A, 2B, and 4B would have no direct or indirect impacts on the Continental Avenue Viaduct. Alternatives 3A, 3B, 3C, 4A, and 5 would directly impact the viaduct, although the impacts of Alternatives 3A, 3B, and 4A would be less substantial than those of Alternatives 3C and 5.

5.6.9 1715 Market Center Boulevard

Alternatives 2B, 3A, 3B, 3C, 4A, 4B, and 5 would have no direct or indirect impacts on the historic property. Alternative 2A would require the taking of the property and displacement of the historic resource.

5.6.10 1202 North Industrial Boulevard

Alternatives 2B, 3A, 3B, 3C, 4A, 4B, and 5 would have no direct or indirect impacts on the historic property. Alternative 2A would require the taking of the property and displacement of the historic resource.

5.6.11 1212 South Industrial Boulevard

Alternatives 2B, 3A, 3B, 3C, 4A, 4B, and 5 would have no direct or indirect impacts on the historic property. Alternative 2A would require the taking of the property and displacement of the historic resource.

5.6.12 3701 Lamar Street

Alternatives 3A, 3B, 3C, 4A, 4B, and 5 would take a minor amount of land from the property, but would not displace contributing historic resources. Alternative 2A would take a larger portion of the property but would not require displacement of contributing historic resources. Alternative 2B would take land from the property and displace historic resources.

5.6.13 2255 Irving Boulevard

Alternatives 2A, 2B, 3A, 3B, 3C, 4A, and 4B would have no direct or indirect impacts on the historic property. Alternative 5 would take land from the property and displace the historic resources.

5.7 MINIMIZATION OF HARM AND MITIGATION

Among other steps, NTTA in consultation with TxDOT would mitigate adverse effects to historic properties by consulting with the Texas SHPO and other parties to obtain their comments as provided in the *First Amended Programmatic Agreement Among the Federal Highway Administration, TxDOT, the SHPO, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings* (FHWA, 2005c). Interested parties such as preservation groups, historical societies, and Native Americans would be invited to contribute to the process of developing these measures. NTTA would then carry out agreed-to mitigation measures which may include relocating a historic structure, documenting architectural properties in nationally-maintained architectural and engineering databases, or the creation of cultural histories or exhibits.

The FEIS will include a final Section 4(f) evaluation detailing the Section 4(f) resources associated with the preferred alternative. These evaluations would include progressively more detailed plans showing the boundaries of Section 4(f) properties and conceptual right-of-way limits of the preferred alternative. In accordance with FHWA's Technical Advisory T 6640.8A (1987), location and design alternatives would be evaluated to determine minimization measures. Generally, this would include measures such as shifting the preferred alternative to either side of the property to minimize direct or visual impacts or incorporating design elements into the new facility that integrate better into the resource affected. This detailed evaluation would explain more specifically the problems associated with avoiding each Section 4(f) resource and would discuss the measures proposed to minimize harm to each Section 4(f) resource.

5.8 COORDINATION

Both the Trinity Parkway Corridor MTIS and EIS evaluation processes have involved extensive public/agency coordination since the MTIS began in 1996. Coordination has included meetings with community groups, agencies, developers, landowners, special interest groups, and the general public. The alternatives evaluated in this SDEIS are those determined to best meet the need and purpose of this project (see **Chapter 1**), while avoiding and minimizing, to the maximum extent possible, impacts to Section 4(f) resources.

As required by the Programmatic Agreement among the FHWA, the Advisory Council on Historic Preservation, the Texas SHPO and TxDOT, the Environmental Affairs Division of TxDOT, acting on behalf of the NTTA and FHWA, initiated coordination and consultation by letter with the office of the Texas SHPO on June 5, 2002. The correspondence reported the findings of a survey of properties that would be directly affected by the various Build Alternatives and made recommendations of NRHP eligibility. Through a concurrent determination of eligibility, six properties were found to be eligible for inclusion in the NRHP. Following identification of a preferred alternative, coordination on the full effects of the undertaking would continue (FHWA, 2005a). Coordination of impacts to historic architectural properties with appropriate parties would include the analysis of "least overall harm" as required by 23 CFR § 774.3(c). At this point, no impacts are anticipated to archeological sites eligible for the NRHP or park areas, but similar coordination regarding such potential Section 4(f) resources would be required if circumstances change.

5.9 CONCLUSION

Upon the identification of a preferred alternative, this evaluation would be modified as necessary to complete the requirements of Section 4(f) and 36 CFR 800. The results of the final Section 4(f) evaluation, indicating compliance with these and public involvement requirements, would be included in the FEIS.

[END OF CHAPTER EXCEPT FOR THE PLATE]

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PLATE 5 - 1

SECTION 4(f) RESOURCES (HISTORIC PROPERTIES)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

STUDY BOUNDARY

Legend

- 2 — NRHP - Listed Resources
- 8 — NRHP - Eligible Resources
- 1 — NRHP - Listed District
- Alternatives 2A & 2B - Industrial Boulevard (Elevated and At-Grade)
- Alternative 3A and 3B - Combined Parkway - Riverside (Original and Modified)
- Alternative 3C - Combined Parkway - Riverside (Further Modified)
- Alternative 4A - Split Parkway - Riverside (Original)
- Alternative 4B - Split Parkway - Riverside (Modified)
- Alternative 5 - Split Parkway Landside

N

0 3,000 6,000 9,000
SCALE IN FEET

0 900 1,800 2,700
SCALE IN METERS

Note: Locations are approximate.

Alignments are shown adjacent to one another for graphic clarity. Detailed alignments for each alternative have been presented earlier as part of Chapter 2.

Reference Section 3.3.1.4, and Table 3-10

Aerial Photograph Date: April, 2006.

CHAPTER 6

FINANCIAL ANALYSIS AND EVALUATION

CHAPTER 6
FINANCIAL ANALYSIS AND EVALUATION

6.0 INTRODUCTION

This chapter presents cost estimates of the Trinity Parkway alternatives. The various sources of funding and cost sharing opportunities to construct the proposed project are discussed.

Due to funding constraints and uncertainties associated with implementation of the project by TxDOT using gasoline tax revenue sources, the proposed action is being considered for implementation as a limited access toll facility with NTTA as the local sponsor. Subject to environmental clearance and other agency considerations, implementation of the proposed action as a NTTA toll facility should accelerate the project's schedule by several years. Toll financed revenue bonds will be sold to private investors at competitive rates, thereby avoiding increased costs due to otherwise delayed completion. Notwithstanding this approach, should other local, state, or federal funding become available at some future date, this funding may be used to support the proposed action.

6.1 CITY OF DALLAS FUNDING

On May 2, 1998, the City of Dallas held a Capital Bond Program election to fund 11 propositions (City of Dallas 1998). The bond election passed in its entirety, including Proposition 11 that authorized the following:

> The issuance of $246,000,000 general obligation Trinity River Corridor Project Bonds, the Project to include floodways, levees, waterways, open space, recreational facilities, the Trinity Parkway and related street improvements, and other related, necessary, and incidental improvements to the Trinity River Corridor (City of Dallas 1998a).

The Trinity River Corridor Project Bonds fund the city's share of several projects, programmed to be implemented over 10 years and expected to leverage substantial additional funding from state, federal, and other agency sources. Proposition 11 was subdivided into the following program categories:

Dallas Floodway Extension	$ 24,700,000
Elm Fork Levee	$ 30,000,000
Transportation Improvements	$ 118,000,000
Great Trinity Forest	$ 41,800,000
Chain of Lakes	$ 31,500,000

The Transportation Improvements program category has direct application to the proposed action (Trinity Parkway) and is further described in **Section 6.2**. All of the other listed program categories, excluding the Elm Fork Levee item, have direct influence on the study corridor and are further described in other sections of the SDEIS.

6.2 COST SHARING

The Trinity Parkway has been allocated $84 million of the $118 million Transportation Improvements category funds identified above in Proposition 11 of the City of Dallas 1998 Capital Bond Program. The funding is available for use in preparing the EIS, schematic plans, detail design, right-of-way acquisition and relocation assistance, utility relocations and construction.

Subject to environmental clearance and other agency considerations, NTTA would expect to provide a substantial share of the initial cost of the project through toll revenue bonds and related project financing instruments. It is also NTTA standard practice to pay for on-going operations and maintenance costs from toll receipts. Future costs for project improvements, such as the eventual expansion from four to six lanes in the southern segments (see **Section 2.5.4 Staged Construction**) would also be expected to be financed from toll revenue on the project. The exact amount of toll revenue contribution to initial cost will be determined at a future date based on an Investment Grade Traffic and Revenue Analysis (see **Section 6.7**). The NTTA contribution may include so-called "System Financing," a funding mechanism wherein NTTA collateralizes all or part of their overall system, to achieve better financial terms and contributions for a particular expansion project. Additional transportation funding sources that may be utilized to fund the initial portion of Trinity Parkway include:

- TxDOT (which includes allocation of federal funding, revenue bonds, and other sources)
- Dallas County
- City of Dallas – General Transportation Improvements
- Other state and federal funding sources, such as loans through the Transportation Infrastructure Finance and Innovation Act of 1998 (TIFIA).

In May of 2007 as part of year 2008 Unified Transportation Program (UTP) development, the Regional Transportation Council approved $730 million for the Trinity Parkway project. As the state has not taken action on the year 2008 UTP, this project is currently listed in the environmental clearance section of the 2008-2011 Transportation Improvement Program (TIP). Once the state takes action on the UTP, this project will be added to the 2008-2011 TIP project listing. The proposed project is identified in the 2008-2011 TIP as Project # CSJ 0918-45-121, "Construct new location tollway bypass," with limits "from IH 35E/SH 183 to US 175/SH 310."

The Interlocal Agreement between TxDOT, the City of Dallas, and NTTA identified certain focus areas for cost sharing. In concept, TxDOT would contribute funds to provide connections from the toll facility to the state highway system. The City of Dallas would contribute money for the roadway preliminary engineering, roadway right-of-way acquisition, utility services to the toll gantries and other construction. The NTTA would fund the construction of the tollway connecting to the construction of the state facility, and operations and maintenance for the entire facility. This Agreement may be modified or expanded at some future date, subject to environmental clearance of the project, additional financing studies, and other agency considerations.

6.3 NEW NTTA FINANCING TOOLS

Funding for Texas state highway projects has historically been based on a "pay as you go" approach, with TxDOT's capacity and authority to borrow severely restricted. In this environment, only turnpike and tollway authorities authorized by Texas State Statute were permitted to use alternative financing or issue revenue bonds in connection with highway projects. In 2001, the Texas Constitution was amended (Art. 3, sec. 49-K) to create the Texas Mobility Fund ("TMF"). Under legislation implementing the TMF passed during the 2001 session, under certain circumstances, revenue bonds may be issued by TxDOT. Pursuant to legislation passed in 2003, the authority for the administration of the TMF is delegated to the Texas Transportation Commission ("TTC").

In 2005, TxDOT, under HB 3588, gained certain authority to enter into so-called "Comprehensive Developer Agreements" (CDA's) for tollroads. CDA's are public-private partnerships, under which a private developer contracts with the state to finance, design, build and operate a roadway under certain financial terms, including collection of tolls. In 2007, this authority was modified by SB 792, which enacted a two year moratorium on Texas CDA agreements, but exempted several projects, including SH 121, the Trinity Parkway, Loop 9, and managed lane projects in North Texas. The bill created a market valuation process for new toll roads, and gave the NTTA the first option to develop future toll projects in its service area. NTTA was also authorized to use CDA procurement for toll projects, under rules which mirror TxDOT's process for entering into CDAs.

6.4 COST ESTIMATES FOR THE TRINITY PARKWAY ALTERNATIVES

Cost estimates (August 2007) for each of the Trinity Parkway Build Alternatives are summarized in **Table 6-1**, and shown in detail in **Appendix D**. Estimated costs include roadway construction, engineering, utility relocations, contingences, right-of-way acquisition, environmental remediation and mitigation. Costs are based on recent highway construction cost data. Right-of-way costs are estimated using local real estate prices and assessed values, and include additional costs related to the acquisition process. Remediation and mitigation costs are estimated based upon the best information available at this time and on industry cost

information. Additional details regarding the estimates for environmental costs are discussed following the table below.

TABLE 6-1. ESTIMATE OF PROBABLE COST (ULTIMATE BUILD OUT)

Category	TRINITY PARKWAY BUILD ALTERNATIVES							
	2A	2B	3A	3B	3C	4A	4B	5
CONSTRUCTION COSTS (CURRENT $)								
Roadway	25,646,142	58,337,736	93,060,458	119,559,631	106,382,534	120,790,591	115,923,880	126,314,713
Structures, Bridges & Walls	774,398,600	484,088,750	355,023,530	353,296,170	463,057,520	386,287,750	501,974,450	459,561,540
Drainage & Utilities	78,586,370	70,036,810	39,773,750	42,045,500	41,245,750	44,181,250	44,188,750	113,464,500
Miscellaneous- Signage, Lighting, Traffic Control, Etc	89,449,780	93,908,402	64,391,074	64,685,141	56,977,723	76,102,836	66,293,630	76,415,414
Toll Gantries & ITS	33,365,000	33,365,000	33,365,000	33,365,000	33,365,000	33,365,000	33,365,000	33,365,000
Mobilization (10%)	100,144,589	73,973,670	58,561,381	61,295,144	70,102,853	66,072,743	76,174,571	80,912,117
Subtotal- Construction Costs	1,101,590,481	813,710,368	644,175,193	674,246,586	771,131,380	726,800,170	837,920,281	890,033,284
Construction Contingencies (20%)	220,318,096	162,742,074	128,835,039	134,849,317	154,226,276	145,360,034	167,584,056	178,006,657
TOTAL CONSTRUCTION COST (CURRENT $)	1,321,908,577	976,452,441	773,010,232	809,095,903	925,357,656	872,160,204	1,005,504,337	1,068,039,940
ROW COSTS (CURRENT $)								
Subtotal- Row Costs	327,091,448	294,239,347	78,830,051	92,516,480	93,097,788	84,807,801	85,474,522	95,109,200
Row Contingencies (20%)	65,418,290	58,847,869	15,766,010	18,503,296	18,619,558	16,961,560	17,094,904	19,021,840
TOTAL ROW COST (CURRENT $)	392,509,738	353,087,216	94,596,061	111,019,776	111,717,346	101,769,361	102,569,426	114,131,040
AGENCY COSTS (CURRENT $)								
Subtotal- Agency Costs	303,379,394	230,084,725	176,019,200	184,377,619	210,611,396	200,916,444	229,585,432	247,310,587
Agency Contingencies (20%)	60,675,879	46,016,945	35,203,840	36,875,524	42,122,279	40,183,289	45,917,086	49,462,117
TOTAL AGENCY COST (CURRENT $)	364,055,273	276,101,670	211,223,040	221,253,143	252,733,675	241,099,733	275,502,518	296,772,704
TOTAL PROJECT COST SUMMARY (CURRENT $) - ROUNDED UP TO NEAREST MILLION								
Total Construction Cost	1,321,908,577	976,452,441	773,010,232	809,095,903	925,357,656	872,160,204	1,005,504,337	1,068,039,940
Total Row Cost	392,509,738	353,087,216	94,596,061	111,019,776	111,717,346	101,769,361	102,569,426	114,131,040
Total Agency Cost	364,055,273	276,101,670	211,223,040	221,253,143	252,733,675	241,099,733	275,502,518	296,772,704
TOTAL PROJECT COST (CURRENT $)	2,079,000,000	1,606,000,000	1,079,000,000	1,142,000,000	1,290,000,000	1,216,000,000	1,384,000,000	1,479,000,000
TOTAL PROJECT COST SUMMARY (ESCALATED $, CONSTRUCTION YEAR 2013 - ENR CCI PROJECTION) - ROUNDED UP TO NEAREST MILLION								
Escalated Total Construction Cost	1,833,359,156	1,354,244,956	1,072,090,317	1,122,137,648	1,283,381,437	1,209,601,724	1,394,537,122	1,481,267,946
Escalated Total Row Cost	544,372,987	489,697,769	131,195,574	153,973,676	154,941,137	141,144,247	142,253,859	158,288,698
Escalated Total Agency Cost	504,909,401	382,926,273	292,945,897	306,856,678	350,517,127	334,381,976	382,095,308	411,594,995
TOTAL PROJECT COST (ESCALATED $)	2,883,000,000	2,227,000,000	1,497,000,000	1,583,000,000	1,789,000,000	1,686,000,000	1,919,000,000	2,052,000,000
POSSIBLE PROJECT DEDUCTIONS FROM OTHER PROJECTS OR AGENCIES (CURRENT $)								
Total Construction Costs	107,367,513	107,367,513	107,367,513	107,367,513	107,367,513	107,367,513	107,367,513	107,367,513
Total Possible Savings To Agency	5,140,853	5,140,853	5,140,853	5,140,853	5,140,853	5,140,853	5,140,853	5,140,853
TOTAL POSSIBLE PROJECT DEDUCTIONS	112,508,366	112,508,366	112,508,366	112,508,366	112,508,366	112,508,366	112,508,366	112,508,366

Notes: The information for Alternatives 3A, 3B, and 4A is shaded to denote for the reader that these alternatives are not considered approvable by the USACE due to concerns detailed in **Section 2.3.9**.
All estimated costs are preliminary and subject to change as the project is further developed and refined.
ENR CCI = Engineering News Record Construction Cost Index

Table 6-2 details the preliminary environmental mitigation costs for each Build Alternative. Some of the environmental mitigation components include:

- Replacement of affected waters of the U.S., including wetlands;
- Revegetation of disturbed areas, wildlife enhancements, and tree plantings;
- Noise walls;
- Historic structures mitigation;
- Hazardous waste remediation;
- Asbestos abatement of displaced buildings; and
- Demolition cost of buildings.

Preliminary cost estimates of several of the known features that would require mitigation are listed in **Table 6-2**. These estimates are preliminary and should be used only to show the current potential range of costs between the alternatives. Once a preferred alternative is identified, a more detailed mitigation plan will be developed and presented in the FEIS.

TABLE 6-2. ESTIMATED ENVIRONMENTAL MITIGATION COSTS

Criteria	Trinity Parkway Build Alternatives							
	2A	**2B**	**3A**	**3B**	**3C**	**4A**	**4B**	**5**
Vegetation Enhancements (Acres of Non-Wetland Woodlands Impacted) [1]	4.6	6.4	27.1	26.9	33.3	27.1	29.3	10.5
$4,000 / per acre ($)	18,400	25,600	108,400	107,600	133,200	108,400	117,200	42,000
Noise Walls	No cost developed at this time. Noise walls will be refined in the FEIS. Costs are expected to be similar for all alternatives.							
Waters of U.S., Including Wetlands [2]	4.2	9.1	82.9	81.2	90.9	85.7	110.6	11.8
$12,000 / per acre ($)	50,400	109,200	994,800	974,400	1,090,800	1,028,400	1,327,200	141,600
Historic Structures								
Historic Bridges	2	1	5	5	5	5	5	6
Historic Buildings	4	1	0	0	0	0	0	1
No cost developed at this time. Section 106 and Section 4(f) coordination ongoing and will be refined in the FEIS.								
Hazardous Material Sites [3]	34	35	15	17	17	16	16	21
Total Remediation Cost ($)	3,694,000	3,511,000	2,161,000	2,321,000	2,268,000	2,137,000	2,137,000	2,475,000
Sub Total ($)	3,762,800	3,645,800	3,264,200	3,403,000	3,492,000	3,273,800	3,581,400	2,658,600
Building Displacements (Commercial/Residential)	272/8	228/6	27/6	34/6	29/6	30/11	24/11	39/20
Asbestos abatement:[4]								
$61,500 per commercial building ($)	16,728,000	14,022,000	1,660,500	2,091,000	1,783,500	1,845,000	1,476,000	2,398,500
$13,500 per residential building ($)	108,000	81,000	81,000	81,000	81,000	148,500	148,500	270,000
Building demolition:[5]								
$25,000 per commercial building ($)	6,800,000	5,700,000	675,000	850,000	725,000	750,000	600,000	975,000
$3,500 per residential building ($)	28,000	21,000	21,000	21,000	21,000	38,500	38,500	70,000
Sub Total ($)	23,664,000	19,824,000	2,437,500	3,043,000	2,610,500	2,782,000	2,263,000	3,713,500
TOTAL ($)	27,426,800	23,469,800	5,701,700	6,446,000	6,102,500	6,055,800	5,844,400	6,372,100

Notes: The information for Alternatives 3A, 3B, and 4A is shaded to denote for the reader that these alternatives are not considered approvable by the USACE due to concerns detailed in **Section 2.3.9**.

1) Woodland plantings used an assumed cost of $4,000 per acre; this was based on the following information:
   Bare root seedlings - plant and installation = $10/tree
   Plant 100 trees an acre = $1,000 per acre x 3 plantings = $3,000 per acre
   or
   2-inch diameter trees - $150 per inch of diameter x 2" = $300 per tree installed
   50 trees per acre x $300 per tree = $1,500 per acre x 3 plantings = $4,500 per acre

2) Restoration cost estimates for wetlands used an assumed cost of $12,000 per acre; this was based on the following: Development of unit cost per acre assumed a 50-acre site excavated to an average of 1 foot below natural ground.
   - Excavation costs: 50 acres x 43,560 square feet per acre = 2,178,000 square feet = 80,555 cubic yards x $6.00 per cubic yard = $483,999 ÷ 50 = $9,679 per acre; $10,000 per acre was used for wetland excavation.
   - Planting costs: wet prairie fringe mix 20 pound per acre x $40 per pound = $800 an acre; plus emergent sprig hand plantings were estimated at $1,200 an acre; $2,000 per acre was used for wetland plantings.

3) Remediation costs for hazardous material sites vary widely depending on the type and extent of remediation. A more detailed remediation cost will be refined in the FEIS. The investigation/remediation costs presented in this table were prepared utilizing commonly accepted standard cost estimation practices for preliminary budgeting purposes only.

4) Estimates for asbestos abatement were made from limited asbestos surveys of eight buildings in the study corridor that ranged in size from 2,600 square feet to 11,100 square feet. This information yielded extrapolated abatement costs for a standard 4,000 square-foot commercial building and a standard 1,500 square-foot residential building using current asbestos abatement costs: average abatement costs were $61,500 per commercial building and $13,500 per residential building.

5) Building demolition cost estimates assumed an average commercial building size of 5,000 square feet, with an average demolition cost of $5.00 per square foot = $25,000 per commercial building. For residential buildings, an average demolition cost of $3,500 per building was assumed.

6.5 COST ESTIMATES FOR ANNUAL OPERATIONS AND MAINTENANCE

Estimated costs for annual roadway operations and maintenance (O&M) expenditures have been prepared for the Trinity Parkway Build Alternatives. The Build Alternatives were estimated to have the proposed lane miles indicated in **Table 6-3** applying the individual lane mile characteristics of the various alternatives.

It is assumed that other underlying characteristics such as truck traffic (Industrial Boulevard Alternatives 2A and 2B) and possible intermittent wet conditions in the embankments for the Floodway Alternatives (Alternatives 3A, 3B, 3C, 4A and 5) would be mitigated by roadway design (thickening of pavements in truck areas or improving subgrade characteristics in the Floodway for example) so that O&M costs would be normalized to typical NTTA roadway conditions.

These costs are estimated over a feasibility study 52 year period (2013 – 2065) based on standard practices for NTTA O&M. **Table 6-3** shows the breakdown of estimated O&M costs in 2008 dollars and as escalated dollars assuming a 2.75% escalation rate over the 52 year period.

TABLE 6-3. ESTIMATE OF PROBABLE ROADWAY O&M COSTS

Alternative	Lane Miles	2008 Dollars	Escalated Dollars
2A	58	$ 78,077,000	$ 199,093,000
2B	92	$ 232,987,000	$ 594,106,000
3A*, 3B*, 3C	79	$ 232,641,000	$ 593,225,000
4A*, 4B	76	$ 227,200,000	$ 579,350,000
5	80	$ 241,378,000	$ 615,504,000

Notes:

* = denotes for the reader that Alternatives 3A, 3B, and 4A are not considered approvable by the USACE due to concerns detailed in **Section 2.3.9**.

- Lane miles expressed above include Mainlanes, Ramps & Frontage Roads.
- Factors including design changes, specific agreements with local, state and/or federal entities and unique maintenance characteristics can affect the estimated O&M cost. The level of information used to estimate O&M for this project is based on conceptual layouts that do not provide sufficient detail to prepare final O&M costs. The estimates developed are based on the best available information and reflect the relative O&M cost difference between alternatives. While final O&M costs may vary from estimates provided in **Table 6-3**, any differences are expected to be similar across all alternatives.
- These O&M cost estimates exclude costs for back office toll collection systems, System Incident Management (SIM) equipment, tolling and roadway alert equipment, courtesy patrol and police.
- The estimated values shown above do not include flood event clean-ups, since it would be difficult to predict when such an event may occur. The cost for such an event is provided separately in 2008 dollars as shown in **Section 6.6**.
- The estimates in **Table 6-3** assume that it would be the NTTA's responsibility to maintain areas inside the ROW associated with the Trinity Parkway applying the same standards used for other NTTA roadway systems.
- These O&M cost estimates do not include maintaining any landscaping on frontage roads other than turf maintenance within the Trinity Parkway ROW.
- These O&M cost estimates assume that there would be no landscaping to maintain under bridges in the Trinity Parkway ROW other than turf maintenance, except for Alternative 2A as indicated below.
- These O&M cost estimates assume that the City of Dallas would continue to provide maintenance under the proposed NTTA bridge areas north of Industrial Boulevard for Alternative 2A, resulting in lower annual roadway O&M cost.
- These O&M cost estimates are only for annual roadway O&M and do not include lifecycle roadway maintenance costs.
- Present roadway O&M costs do not factor in additional lane miles that would result from a future widening of Trinity Parkway.

As described in **Sections 1.11.4 and 2.4.6**, it is assumed that proposed City of Dallas Balanced Vision Plan (BVP) lakes within the Floodway could be used as borrow sites to produce needed material to build roadway embankments for the various Parkway alternatives. As stated in **Section 2.4.8**, in the time period between the end of Parkway construction and start-up of BVP lake construction, there would be an extra maintenance responsibility for the excavated areas in the Floodway. (This maintenance responsibility would be in addition to the annual O&M expenditures shown in **Table 6-3**.) Based on preliminary coordination with the City of Dallas, it is anticipated that the City Flood Control District (FCD) would take responsibility for removing sediment and reestablishing grass cover in the excavated areas, as necessary, in the event intermittent flooding causes substantial sedimentation of these features following completion of the construction of the Trinity Parkway. A future interlocal agreement between the City and NTTA would further detail and define the maintenance responsibilities.

The actual cost of sediment removal and re-grassing might be reduced by several actions taken at the time the Parkway is actually built, assuming that a committed schedule for BVP construction might be available at the time. For instance, the lake bottoms might be initially over-excavated by some amount to allow for estimated sediment accretion. The City of Dallas might also choose to incorporate the sediment as fill material in grading related to establishing the lakes, fill areas and other features of the BVP. Nevertheless, removal of the sediment, if required, could add to the City's annual O&M expenditures for such time as this might be necessary before the start-up of BVP lake construction.

In order to develop an estimate of the cost of such sediment removal, the study team reviewed available sedimentation studies from the Dallas Floodway. The best available information appears to be the City of Dallas report *Trinity River Corridor, Master Implementation Plan, Lake Design and Recreational Amenities Report* (City of Dallas, 1999) (See **Section 1.11.4**). This study indicates an expected sediment accretion rate in the Floodway of three inches (3") per year. Assuming this accretion rate applied to the entire 194 acres in the potential lake bottom areas gives a required removal of approximately 78,000 cubic yards of sediment each year. (This may be an over-estimate, since the free-draining configuration of the lake excavations would be expected to reduce the amount of trapping and settling of sediment from the river water.) Nevertheless, based on the full three inch accretion rate, the estimated annual cost for removal of the sediment is approximately $1 million as detailed in **Table 6-4**.

TABLE 6-4. ESTIMATE OF ANNUAL SEDIMENT REMOVAL FROM LAKE SITES (2008 DOLLARS)

Item	Annual Removal Cost
Excavation and Transport of Sediment (78,000 cubic yards)	$ 780,000
Stormwater Pollution Prevention during Construction	$ 40,000
Hydro mulch Grassing	$ 11,000
Administration, Environmental Coordination and Contingencies	$ 169,000
Total	$ **1,000,000**
Note: Estimated costs are preliminary and subject to change as the project is further developed and refined.	

6.6 COST ESTIMATES FOR FLOOD DAMAGES IN THE EVENT OF A FLOOD EXCEEDING THE 100-YEAR EVENT IN THE DALLAS FLOODWAY

As described in **Chapter 2**, the riverside Build Alternatives in the Dallas Floodway (Alternatives 3A, 3B, 3C, 4A and 4B) would be protected by embankments and floodwalls to a level above the 100-year flood event in the Floodway (an event with 1% chance of being equaled or exceeded in any one year time period.) This level of protection meets or exceeds NTTA and TxDOT standards for design of highway main-lane facilities. Nevertheless, the following analysis provides an estimate of potential damages in the event of a storm exceeding the 100-year event, sufficient to cause overtopping of the roadway. The costs associated with flood damage recovery presented below would not apply to Alternatives 2A, 2B, or 5.

A very large flood (such as a Standard Project Flood or "SPF") in the Dallas Floodway would rise and recede over several days. Based on available hydrologic and hydraulic modeling for the Floodway, it is estimated the riverside Build Alternatives would be under water 24-48 hours as the river crests during an SPF event. This would affect the entire segment of the Parkway within the Floodway (approximately 6.2 miles in length). As described in **Section 2.4.7**, the roadway would be protected by flood walls and pumps at low points under the cross bridges in the Floodway. Assuming these walls are overtopped, the pumps are estimated to take 3 to 6 hours to pump out the flooded segments of roadway after the river level falls below the 100-year level. For a riverside Build Alternative in the Floodway, the out-of-service time due to a flood of SPF magnitude could be estimated at approximately 5 days as outlined below:

- Time of barricading up to time of actual flooding = ¼ day
- Duration of flooding = 2 days
- Duration of pump-out of sags = ¼ day
- Duration of cleanup/repair = 2 days

The estimated river flow velocities in the area of the roadway under SPF conditions are in the six to nine feet per second range. This velocity range is not expected to be particularly erosive due to the short duration of inundation and the assumed established landscape cover. Nevertheless, the damage estimates include total landscape replacement, as well as replacement of aesthetic enhancements. The estimate for flood damage and recovery also includes the cost for debris and sediment removal, including testing and appropriate disposal of contaminated sediments, and disposal of debris in a sanitary landfill.

Based on the above assumptions, the following are estimated costs for flood damage repairs and cleanup in the event of a flood exceeding the 100-year event in the Dallas Floodway. The cost for the Combined Parkway Riverside would be applicable to Alternatives 3A, 3B, and 3C. The cost for the Split Parkway Riverside would be applicable to Alternatives 4A and 4B:

TABLE 6-5. ESTIMATE OF PROBABLE FLOOD DAMAGE RECOVERY COST (2008 DOLLARS)

Item	Combined Parkway (Alts 3A*, 3B* & 3C)	Split Pkwy Riverside (Alts 4A* & 4B)
Landscape and Aesthetic Treatment Replacement	$ 1,310,000	$ 2,560,000
Debris and Sediment Removal	$ 1,210,000	$ 2,355,000
Administration, Environmental Coordination and Misc. Repairs	$ 250,000	$ 250,000
Total	**$ 2,770,000**	**$ 5,165,000**

Notes:
* = denotes for the reader that Alternatives 3A, 3B, and 4A are not considered approvable by the USACE due to concerns detailed in **Section 2.3.9**.

- Estimated costs are preliminary and subject to change as the project is further developed and refined.
- The O&M costs for a flood event recovery include the cost for debris and sediment removal/disposal, total landscape replacement and restoration of aesthetic enhancements.
- Debris would be removed and disposed of at a sanitary landfill.
- Debris removal was estimated at 30 cubic yards of debris for every quarter mile for the flooded sections of the roadway and 100 cubic yards for every quarter mile for the elevated sections including debris cleanup under the bridges.
- Debris and sediment removal and disposal would be conducted in accordance with best management practices and in accordance with applicable regulations and environmental requirements. Both hazardous and non-hazardous clean-up procedures for the sediment disposal were evaluated.
- Maintenance operations would concentrate on restoration of the roadway to an acceptable service level followed by completion of cleanup and restoration.
- Cleanup activities and disposal would be coordinated with the TCEQ and local Health Department organizations, if necessary. Compliance with all applicable OSHA regulations and requirements would occur.
- Cleanup operations would be conducted 24 hours a day until an acceptable level of service is restored, followed by 12 hours a day, until the initial cleanup is complete. Reconstruction/restoration would be implemented in a timely manner.
- The aesthetic enhancements within the flooded areas of the road are assumed to be replaced.
- Landscapes, within flooded areas, are assumed to be replaced.

Rounding the above costs, it is estimated to cost around $2.8 million to restore a Combined Parkway Riverside alternative after an inundation event, and $5.2 million for a Split Parkway Riverside alternative. Assuming an average traffic volume of 120,000 vehicles per day on the Parkway (see **Section 2.3.16**) and a future year toll of (say) $2.00 for a full-length trip, a five day shutdown of the roadway is estimated to cost $1.2 million in lost toll revenue. This makes the total cost of shutdown and recovery around $4.0 million for a Combined Parkway Riverside alternative, and $6.4 million for a Split Parkway Riverside alternative.

It is stressed the flood shutdown and recovery figures shown above are for a relatively unlikely event of a flood in excess of the 100-year event. Taking a 1% annual chance of occurrence, the annualized cost of the event is $40,000 for a Combined Parkway Riverside alternative, and $64,000 for a Split Parkway Riverside alternative. Assuming a 52-year period for a toll facility financial evaluation, the probability of one flood event equal to or exceeding the 100-year event in the period is approximately 40%.

6.7 COST ESTIMATES OF THE DALLAS FLOODWAY LOCALLY PREFERRED PLAN

The USACE is preparing an EIS to address potential flood control, recreation, and environmental enhancements within the Dallas Floodway. The Dallas Floodway LPP may include the following components:

- Chain of Lakes and Trails;
- Levee Improvements;
- Removal of the AT&SF wooden trestle and earthen embankments; and
- Environmental Restoration (EQ Plan).

The USACE and the City of Dallas will develop a cost estimate in the Dallas Floodway EIS documenting the details and cost sharing components of their project.

6.8 FUTURE TRAFFIC AND REVENUE ANALYSIS

Upon identification of a Build Alternative as the preferred alternative for the Trinity Parkway, NTTA will commission an Investment Grade Traffic and Revenue Analysis for the project. As a result of these analyses and actions of the NTTA Board of Directors, revenue bonds may be issued for the Trinity Parkway in a final amount to be determined. As stated above, the NTTA contribution may include "System Financing" to achieve better financial terms and contributions for a particular expansion project.

6.9 BENEFIT/COST ANALYSIS

A benefit-cost analysis was not conducted for the project, as it is not a requirement under FHWA's NEPA guidelines as set forth under FHWA's Technical Advisory T 6640.8 (1987). Direct capital costs of construction of each alternative have been estimated and are documented in the SDEIS, as well as indirect costs such as lost tax revenue resulting from business displacements.

6.10 FHWA MAJOR PROJECTS REQUIREMENTS

The new federal transportation act, SAFETEA-LU, includes a provision requiring FHWA to designate any highway projects with a total cost in excess of $500 million as "Major Projects." For these projects, FHWA guidelines call for preparation of a Management Plan describing the proposed implementation of the project, plus a Financial Plan. These documents are required to be prepared after a final decision document, which in the case of Trinity Parkway would be a ROD. The estimates of probable cost for the Trinity Parkway range from approximately $1 billion to $2 billion, depending on the alternative selected. Based on this range, the project would be classified as a Major Project under FHWA guidelines, and would require preparation of the Management and Financial Plans after the ROD.

[END OF CHAPTER 6]

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CHAPTER 7

MITIGATION MEASURES AND COMMITMENTS

CHAPTER 7
MITIGATION MEASURES AND COMMITMENTS

7.0 INTRODUCTION

Throughout the process of developing transportation projects, one of the chief considerations is to reduce adverse impacts to the environment. One of the methods used to reduce overall impacts is referred to as "mitigation." Federal policy on mitigation is specified in the CEQ regulations implementing NEPA. Federal agencies shall to the fullest extent possible:

> *[U]se all practicable means consistent with the Act [NEPA] and other essential considerations of national policy, to restore and enhance the quality of the human environment and avoid or minimize any possible adverse effects of their actions on the quality of the human environment [40 CFR 1500.2(f)].*

Mitigation of impacts and enhancement of resources must be considered for all impacts, whether or not the impacts are substantial. All relevant, reasonable mitigation measures that could improve the project are to be identified and included in the project. The CEQ regulations (40 CFR 1508.20) define mitigation to include:

- 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.

It is FHWA's policy that measures necessary to mitigate adverse impacts be incorporated into the proposed action. This policy emphasizes the identification and implementation of measures to rehabilitate, restore, or replace impacted resources. In addition, mitigation measures can be eligible for federal funding if:

- The impact for which the mitigation was proposed actually resulted from the project; and
- The proposed mitigation represented a reasonable public expenditure, considering, among other things, the extent to which the proposed measures would assist in complying with a federal statute, EO, or other Administration [FHWA] regulation or policy.

The mitigation recommendations presented herein are appropriate for the Trinity Parkway based on experience developing other transportation projects and on general recommendations made by various local, state, and federal agencies in response to preliminary discussions and correspondence concerning the proposed action. For those areas analyzed in **Chapter 4 Environmental Consequences** but not listed here, no adverse impacts are expected.

Specific mitigation measures for the preferred alternative will be considered and discussed in greater detail in the FEIS. The FHWA/TxDOT/NTTA will continue coordination efforts with other agencies through project final design and during refinements of the mitigation and enhancement measures on this project.

7.1 SOCIAL ENVIRONMENT

7.1.1 Compliance with Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, and Other Approval Standards

Right-of-Way Acquisition

As summarized in **Section 4.5**, each of the Build Alternatives would require right-of-way acquisition that would cause relocations and displacements. The right-of-way acquisition process follows the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended. The process provides for fair and equitable treatment of occupants of the properties to be acquired. The process includes initial property appraisal, determination of just compensation, negotiations, payment, and rights under eminent domain.

Displacements and Relocation (Residential)

It is the policy of the FHWA/TxDOT/NTTA that no person be displaced due to right-of-way acquisition until comparable decent, safe, and sanitary replacement housing is available. The available housing must also be open to persons regardless of race, color, religion, or national origin. All relocation efforts may be consistent with the requirements of the Civil Rights Act of 1964 and 1968 (U.S. Congress, 1964), the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970 as amended, and the Housing and Urban Development Act of 1974. Adequate replacement housing must be within the financial means of displaced families or individuals. The number of residential displacements would range from a low of six for Alternatives 2B, 3A, 3B, and 3C to a high of 20 for Alternative 5. Most of these residential displacements occur at the southern terminus of the project between Lamar Boulevard and SH-310.

Residential displacements are to be provided a decent, safe, and sanitary comparable replacement dwelling that is functionally equivalent to their present dwelling. Although replacement dwellings may not be necessarily identical to their present dwellings, the replacements must have comparable attributes, including a similar number of rooms and living space and comparable size to accommodate the occupants. All replacement housing would meet the minimum requirements established by the State of Texas and conform to applicable housing and occupancy codes. If a comparable decent, safe, and sanitary dwelling is not available for all affected persons, housing of Last Resort may be provided (see **Appendix C**).

The NTTA/City of Dallas would assist each displaced person in securing comparable replacement housing. The NTTA/City of Dallas would also provide assistance to displaced businesses and nonprofit organizations to aid in their satisfactory relocation with a minimum of delay of services or loss of earnings. The NTTA/City of Dallas would also maintain contact and exchange information with other agencies rendering services useful to persons and organizations that must relocate. Such agencies include social welfare agencies, redevelopment authorities, public housing authorities, the Small Business Administration, and the federal Housing and Veterans Administration.

Contact may be maintained with local sources of information on available replacement housing, including real estate brokers, real estate boards, property managers, apartment owners and operators, and home building contractors. The occupants of business establishments and nonprofit organizations may be entitled to receive moving costs and related expenses incurred in relocating their personal property. These related expenses include loss of tangible personal property/purchase of substitute personal property, and expenses involved in searching for a replacement site.

To assure the public has adequate knowledge of the relocation program, the services and benefits available will be discussed at the Public Hearing to be held for the proposed action, presented in a brochure available in both English and Spanish. The Public Hearing date and location will be announced in the news media and through posted notices.

Qualified eligible residential displacees may be provided with Relocation Assistance Program benefits intended to assist in purchasing or renting comparable replacement housing. They would also receive either an actual moving cost payment or payment of a fixed moving cost based on an eligible room count. Other payments to which they may be entitled are the costs, which are incidental to selling property to the state, costs incidental to purchasing a replacement dwelling, and an increased interest differential payment. Additional details concerning relocation assistance are provided in **Appendix C Displacement / Relocation Assistance Information**. The number of business displacements would range from a low of 24 for Alternative 4B to a high of 272 for Alternative 2A. The other river/levee alternatives would range

from 27 to 34 displacements. The Industrial Boulevard Alternatives 2A and 2B would displace 272 and 228 businesses, respectively.

Construction of any segment of the mainlanes of the Trinity Parkway project would not be authorized by the FHWA until:

- Right-of-way has been cleared for that segment of the project in accordance with federal regulations;
- All individuals and families have been relocated to decent, safe, and sanitary housing or comparable replacement housing has been made available to relocatees in the immediate area as required by regulation; and
- Displaced businesses have been assisted in obtaining and becoming established in suitable replacement locations.

7.1.2 Measures to Minimize Impacts to Neighborhoods

Design details that minimize intrusion into community environments will be considered and incorporated into the design of the Trinity Parkway and its associated structures where practicable. With respect to visual intrusion and increased noise levels, noise walls, and visual screens would be considered where warranted, reasonable, and feasible to minimize the impacts upon local residents. The NTTA would consider spanning existing streets to minimize the amount of additional traffic on residential collector streets and local arterial roadways. The construction of sidewalks along portions of neighborhoods or across busy intersections would be considered to improve pedestrian access in and around the areas, on a case by case basis. Access/service roads would be provided for any areas affected by the discontinuation of an existing street, or where property access must be restored.

Affordable Housing

The City of Dallas has in place both the Trinity River Corridor Comprehensive Land Use Plan and various affordable housing programs which would help minimize potential moderate development/redevelopment pressures associated with the Trinity Parkway. The Trinity River Corridor Comprehensive Land Use Plan establishes general principles that would direct preparation of detailed plans for smaller neighborhoods, and provides guidance about the appropriate land uses and development patterns for the corridor. In particular, the Plan mentions retaining and enhancing the residential character of many adjacent neighborhoods, and improving neighborhoods through streetscape improvements and pedestrian amenities. Throughout the development of the Plan, neighborhoods and public at large were consulted about future zoning preferences that support the vision of the corridor. As the Trinity River Corridor Comprehensive Land Use Plan is undergoing the implementation process, the City of Dallas has set up a

separate public involvement process whereby an ad hoc sub-committee of the Planning Commission would conduct a minimum of four meetings in each of the adjacent neighborhoods to provide opportunity for further refinement and approval of the proposed zoning mentioned in the Plan. Procedural steps exist through the Dallas Planning and Zoning Commission variance approval process, which allows potential developments that do not conform to zoning or building codes to be evaluated on a case by case basis.

The City of Dallas also administers eight affordable housing programs designed to enhance and protect the amount of affordable housing stock within the City. In addition, the City oversees five home repair financial assistance programs, a mortgage assistance program for first-time buyers, and a Neighborhood Investment Program, which is a vehicle for focusing Housing Department programs, public improvements, building code enforcement, and other resources to targeted areas within the City of Dallas. Together, these programs could minimize potential development/redevelopment pressures or impacts associated with the proposed Trinity Parkway. According to the City of Dallas, both the Community Housing Development Organization (CHDO) Program (provides community-based housing development organizations with loans/grants for operating assistance and development funding), and the City of Dallas Urban Land Bank program (allows the City to acquire vacant tax-delinquent lots for re-sale at below market pricing to nonprofit and for-profit developers of single-family homes for low-to-moderate income homebuyers) have been frequently used to stabilize and improve declining neighborhoods[1].

Context-Sensitive Solutions (CSS)

Impacts to neighborhoods could be further minimized by considering the concepts of FHWA's CSS approach in developing project-specific mitigation. CSS provides community benefits as it seeks to:

- Incorporate feedback from the local populace affected by proposed transportation facilities;
- Encourage collaboration between neighborhoods and local, state, and federal public officials;
- Enhancements to the roadway and considerations for the bicycle and pedestrian communities as well;
- Encourage assessments and design of alternatives consistent with local needs; and
- Help effectively merge transportation, engineering, architectural, historical, and natural environmental systems into transportation decision-making.

[1] It should be noted that while the Trinity River Corridor Comprehensive Land Use Plan and City of Dallas programs exist to facilitate planned development and protect residential neighborhoods, four areas/districts adjacent to the proposed Trinity Parkway (Cedars, Fort Worth Avenue, Design District, and Oak Cliff Gateway) are designated as Tax Increment Finance (TIF) districts that are intended to finance public improvements to infrastructure with a goal of attracting private development, and thereby raise property values in their communities. Each TIF board of directors is comprised of members of the community who participate in the decision-making process.

CSS contributes to community, safety, and mobility and considers the total context within which a transportation improvement project will exist. It is a collaborative and interdisciplinary approach to developing and redesigning transportation facilities that fit into their physical and human environment while preserving its aesthetic, historic, community, and environmental values. Coordination with City of Dallas planning departments has been ongoing and will continue to occur throughout the planning process to develop strategies for minimizing overall neighborhood disruptions and isolation of specific neighborhood areas (FHWA, 2007).

Noise Impacts

A noise wall analysis was performed for the impacted areas of each alternative. Based on the analysis, noise walls were determined to be both feasible and reasonable only at the residential neighborhoods located in the common area at the south terminus of the project. **Plates 4-33** through **4-36** in **Chapter 4** show the proposed noise walls. In this area, from Lamar Street to the south project termini, all project alternatives are the same, and consequently, the proposed noise walls are reasonable and feasible for all alternatives.

When a preferred alternative is identified, the noise wall analysis would be reviewed for each traffic noise-impacted area of the preferred alternative. Public involvement would occur through noise workshops to determine if the noise walls are wanted and if so, then to assist in their aesthetic design. Any additional areas where a noise wall is determined to be warranted, reasonable, and feasible would be reported in the FEIS.

Future recreational facilities are proposed to be constructed within the Trinity Park. These future facilities are being planned by others concurrently with the roadway project. If Alternative 3A, 3B, 3C, 4A, 4B or 5 is identified as the preferred alternative, additional noise studies would be performed for the preferred alternative to predict the future noise environment in the Trinity Park adjacent to and near that alternative. Proposed park facilities adjacent to or near the preferred alternative that are planned, designed and programmed would be considered for reasonable and feasible noise mitigation and reported in the FEIS.

Visual Impacts

The NTTA has developed *System-Wide Design Guidelines for the Dallas North Tollway System* (2003, as amended), which establishes a framework of aesthetic design elements. NTTA is developing specific guidelines for the Trinity Parkway and cooperating with the City of Dallas' Lake Design Team to develop the guidelines for the Trinity corridor. Mitigation measures to improve post-project visual quality would apply to all Build Alternatives. These measures may include a combination of any of the following generally recommended methods.

- Contour grading of earthen fill slopes, especially interchange areas, to reduce their massiveness and to provide a more compatible appearance with adjacent landforms. Where feasible, the bottom of fill slope edges would be rounded to blend with the existing terrain.
- Reduce the vertical alignment of structures, where practicable and feasible, to the lowest height allowable.
- Native plantings, indigenous to the area, planted along the right-of-way to mitigate visual impacts of the new construction.
- A subsequent landscape contract implemented immediately following completion of tollway construction to mitigate visual impacts in remaining areas. Plantings placed within the more developed areas consisting of a mixture of container grown native and/or approved ornamental trees, shrubs, and grass species.
- Establish a general landscape palette using native plants typically found in the project area or similar species. Utilize the palette where appropriate throughout the alignment, tailored to harmonize with the surrounding landscape. The goal of this mitigation measure is to establish a coherent aesthetic landscape design for all slopes and bridge structures throughout the length of the project by using plant species possessing good survival characteristics.
- Remove all existing pavement to be abandoned and revegetate with native or approved ornamental plantings and native grasses.
- Develop a coherent building materials palette of architectural elements as part of the project development process, based on colors, textures, patterns, and materials used in the corridor area. Apply architectural elements selected from the palette to bridge over crossings and under crossings, retaining walls, drainage facilities, and sound walls. The result would be an integrated design with visual consistency, rather than a patchwork of unrelated materials.
- Use non-reflective materials for all visible metal structures and elements.

Continued local input would be sought during the planning phase to ensure that the toll road would be as aesthetically appealing as possible. Tree removal impacts may be reduced by identifying trees that can be relocated or incorporated into a highway planting plan instead of removal. The right-of-way corridor would be professionally landscaped, with an equal or greater number of trees being replaced than removed. Trees would be monitored for a specified period (two to five years) to insure survivability. Landscaping would commence when practicable after major construction operations have been completed. Mitigation measures, such as landscaping and vegetation, within the Dallas Floodway would be subject to review and approval by the USACE and FEMA if a floodway alternative is identified as the preferred alternative.

Environmental Justice

The development of the proposed project alternatives has involved minimizing residential displacements and community cohesion impacts where feasible. In addition, during the DEIS process, both NTTA and the City of Dallas led public outreach efforts to involve potentially affected minority and low-income populations, share information with the public, and listen to potential issues of concern (see **Table 4-10**). As discussed in **Section 4.3.3.2**, community concerns voiced during the public meeting process were used to modify alternatives. As part of future outreach efforts, dialog with affected low-income and minority neighborhoods would continue through the SDEIS and FEIS process. In an effort to enhance opportunities for utilization of its toll facilities, NTTA has methods in place to provide for toll-tag registration as part of general public outreach efforts. The NTTA operates a mobile facility, known as the Tag Wagon, which takes TollTag® registration directly to the community's of potential customers. The Tag Wagon is operated by NTTA staff and is driven to special events and festivals throughout North Texas, and could be useful if brought to events in neighborhoods adjacent to the proposed Trinity Parkway. The Tag Wagon allows the registration process to be taken directly to the customers, rather than requiring them to travel to a TollTag® registration location or to register online and then wait for a TollTag® to be mailed to them. The Tag Wagon makes it convenient for toll road users to register and immediately begin using a TollTag®. In addition to registering new customers, the Tag Wagon staff is able to answer questions about the program.

As previously mentioned, potential impacts to neighborhoods and EJ populations could be further minimized by implementing the concepts of CSS. NTTA is developing specific design guidelines for Trinity Parkway in cooperation with the City of Dallas to address vegetation, lighting, and other aesthetic considerations.

Also mentioned previously, the SDEIS noise analysis shows that noise walls would be reasonable and feasible near the Trinity Parkway's southern end, east of IH 45, from Lamar Street to the southern project terminus. This would be true for each of the proposed alternatives, which all terminate near the South Dallas, Ideal and Rochester Park neighborhoods. Each of these neighborhoods contains high percentages of minority and low-income residents. If noise walls are implemented with the permission and coordination of adjacent residents, then disproportionately high and adverse noise impacts to these EJ populations would be avoided.

As discussed earlier, affordable housing programs sponsored by the City of Dallas would play a role in safe-guarding against potential development pressures to convert low-income housing to some other use. Additionally, the network of non-tolled major roadways (IH-35E, IH-30, IH-45, and US-175) offer benefits to neighborhoods because these existing roadways connect to the same general endpoints as the proposed Trinity Parkway in the northwest and southeast portions of the study area, and would not

require venturing onto frontage roads or side streets within neighboring residential and commercial areas should motorists elect not to use the proposed Trinity Parkway (see **Figure 4-1**). It should be noted that the most southern mainlane toll gantry proposed for all Build Alternatives occurs north of IH-45. This allows non-tolled movements between IH-45 and the US-175/SH 310 intersection at the south project terminus, and would minimize tolling impacts for communities near the proposed Trinity Parkway southern terminus and further removed along IH-45 and US 175. These and other offsetting benefits have been presented by NTTA in an effort to minimize, avoid, or mitigate potential environmental justice impacts.

To ensure all options applicable to the Build Alternatives being considered meet NEPA requirements and are in compliance with EO 12898 (1994), the NTTA would take any reasonable actions needed to ensure this project would not allow for disproportionately high adverse human health or environmental effects on minority and low-income populations. Specific mitigation features that are reasonable and feasible would be considered later as a preferred alternative is identified in the FEIS.

7.1.3 Regional and Community Growth

The potential for the proposed action to induce regional and/or community growth can be mitigated by adhering to local land use plans and policies as implemented by the City of Dallas. The City of Dallas is controlling growth and redevelopment through the implementation of the Trinity Corridor Comprehensive Land Use Plan (City of Dallas, 2002a) and the Balanced Vision Plan (City of Dallas, 2003a). Any sprawl-inducing potential of the project can be mitigated by a higher density urban form with fill-in, smaller size lot requirements, and development or redevelopment of high-density structures at designated activity centers along the corridor. NTTA, along with the City of Dallas, NCTCOG, TxDOT, and FHWA have remained sensitive to possible neighborhood gentrification that could occur in minority and low-income neighborhoods as a result large-scale land development in the Trinity Corridor. Together with NTTA, these agencies have worked cooperatively to minimize the number of residential displacements in each of the design alternatives, and have supported targeted public involvement efforts that might result from potential induced development or redevelopment stemming from the Trinity Parkway. Public involvement efforts, both past and present, have been aimed at addressing community concerns as adjacent communities seek to protect their quality of life while planning for future economic development opportunities. In addition, TxDOT is working closely with NTTA at the Trinity Parkway southern terminus to understand the potential issues that would affect the redesign and downgrade of the SM Wright Freeway (SH 310), a TxDOT-sponsored project located in the vicinity of the Trinity Parkway (see **Plate 4-4**).

Construction of the Trinity Parkway project would induce redevelopment within the project area. The direction and density of regional growth, particularly within the area of influence for this project, is dictated

by city zoning and regional, local, and neighborhood comprehensive planning, and by city affordable housing policies and programs, which facilitate protection of housing for low-income residents.

7.2 MEASURES TO MINIMIZE IMPACTS TO WATER QUALITY

There are several Federal, State, and local regulations that protect water quality and floodplains related to development. To mitigate the effect of the proposed construction and operation of the roadway on water resources, such as surface water, floodplains, and groundwater, the following mitigation measures would be implemented based on the selected alternative, and where feasible and appropriate.

The TCEQ is the agency with primary responsibility for adopting and enforcing state water quality standards under Section 401 of the CWA. The TCEQ conducts Section 401 certification reviews of Section 404 permit applications (see **Section 7.4**) to preserve aquatic resources and the functions they perform in maintaining human and aquatic uses of state waters. Efforts to avoid and/or minimize adverse impacts to wetlands and water bodies would be taken to retain the important functions these aquatic resources provide for maintaining and improving water quality. Design features such as spanning over jurisdictional waters and installation of storm septor systems are a few examples of water quality enhancements that will be evaluated in final design.

Texas Pollutant Discharge Elimination System

As previously described in **Section 4.12.1**, construction of the proposed project would disturb more than 1 acre of ground surface. Therefore, this project requires compliance with TCEQ's Texas Pollutant Discharge Elimination System (TPDES) General Permit for Construction Activities. A Stormwater Pollution Prevention Plan (SW3P) is required for each construction project or site covered under this permit.

Stormwater Pollution Prevention Plan

To comply with the TCEQ's requirements, the SW3P prepared for this project would include the following:

(1) Site Description - The project site description and site map.

(2) Controls - A description would be provided concerning appropriate control measures (e.g., BMPs) that may be implemented as part of the construction activity to control pollutants in storm water discharges. The SW3P would clearly describe the control measures and the general timing (or sequence) during the construction process that would be implemented. These may include limiting construction access routes, stabilization of areas denuded by construction, and using sediment controls and filtration.

(3) Maintenance - All erosion and sediment control measures and other protective measures identified in the SW3P and used in the project would be maintained in effective operating condition.

(4) Inspections - Qualified personnel would inspect disturbed areas of the construction site in accordance with the Authority's permit.

It should be noted that at least one SW3P should be developed for each construction project or site covered by the TPDES General Permit. The TCEQ indicates that for more effective coordination of BMPs and opportunities for cost sharing, a cooperative effort is encouraged for the different operators at a site to prepare and participate in a comprehensive SW3P. Individual operators at a site may but are not required to develop separate SW3Ps that cover only their portion of the project, provided reference is made to other operators at the site. In instances where there is more than one SW3P for a site, coordination would be conducted between the "permittee(s)" to ensure the storm water discharge controls and other measures are consistent with one another.

The minimum BMPs that would be employed for construction of the proposed project are found in FHWA's Standard Specifications (FHWA, 1996b). The proposed project would also consider the recommended practices included in NCTCOG's *Storm Water Quality Best Management Practices for Construction Activities* (2000c). This EPA approved "Construction BMP Manual" presents a comprehensive approach to addressing regional storm water quality issues associated with construction activities. The recommended practices included in this manual are tailored to the type of conditions experienced in the north central Texas region. These controls are characterized by their effectiveness, applicability, and cost in order to define a performance-based standard for each control measure. Both structural and non-structural BMPs would be considered to address post-construction storm water management for the proposed action. Non-structural BMPs would include some or a combination of:

a. Ponds (e.g., dry extended detention pond or wet pond);
b. Infiltration practices (e.g., infiltration basin, infiltration trench or porous pavement);
c. Filtration practices (e.g., bioretention, sand, and organic filters);
d. Vegetative practices (e.g., storm water wetland, grassed swale, or grassed filter strip);
e. Runoff pretreatment practices (e.g., catch basin or in-line storage); and
f. Better site design (e.g., buffer zones, open space design, or urban forestry).

Structural BMPs would include some or a combination of:

a. Runoff pretreatment practices (manufactured products for storm water inlets - e.g., hydrodynamic separator, modular treatment system, or water quality inlet);

b. Experimental practices (e.g., alum injection);
c. On-lot treatment; and
d. Better site design (e.g., conservation easements, infrastructure planning, eliminating curb and gutters, green parking, alternative turnarounds, or alternative pavers).

TCEQ Permit for Municipal Separate Storm Sewer System (MS4)

Municipalities and other designated entities have storm water permit requirements to monitor storm water during wet weather events. In north central Texas, this includes the cities of Dallas, Fort Worth, Arlington, Garland, Irving, Plano, Mesquite, and the local districts of TxDOT. In addition, the NTTA applied for their own MS4 permit (Permit No. WQ0004400000) that was approved by the TCEQ on February 22, 2006. The NCTCOG has been assisting these entities through a cooperative regional monitoring program designed to meet permit requirements. The primary goal of the regional sampling program, which calls for quarterly sampling within each entity's designated watershed, is to establish a baseline and determine long-term trends to assess the impact of storm water discharge on receiving stream quality. The NTTA permit would remain in effect during the course of the project. The major elements of the storm water management program required as part of NTTA's permit include the following:

- Structural controls to reduce the discharge of pollutants;
- Operation and maintenance of roadways in a manner that minimizes the discharge of pollutants (including deicing or sanding activities);
- Development and implementation of controls to reduce the discharge of pollutants related to the storage and application of pesticides, herbicides, and fertilizers applied to public right-of-ways or other NTTA property;
- Programs and controls to prevent illicit discharges and improper disposal (i.e., sanitary sewer overflows into the MS4, motor vehicle fluids, household hazardous wastes, etc.);
- Spill prevention and response programs;
- Identification and evaluation of industrial and high risk runoff (i.e., landfills, TSD facilities, etc.) and implementation of control measures and a monitoring program, if necessary;
- A program to reduce the discharge of pollutants from construction sites;
- A public education program; and
- Monitoring and screening programs (i.e., dry and wet weather screening, etc.).

7.3 MEASURES TO MINIMIZE IMPACTS TO WILDLIFE AND VEGETATION RESOURCES

Unavoidable impacts to sensitive habitats are mitigated by minimization, restoration, or replacement. The successful implementation of the mitigation plan would ensure that no net loss of aquatic resources and no cumulative loss of sensitive habitat result from the proposed action. A wildlife and vegetation

mitigation plan will be prepared in cooperation with the resource agencies including the U.S. Fish and Wildlife Service, EPA and the Texas Parks and Wildlife Department (TPWD).

In accordance with Provision (4)(A)(ii) of the TxDOT-TPWD MOU and at the TxDOT Dallas District's discretion, habitats given consideration for non-regulatory mitigation during project planning include:

- Habitat for federal candidate species if mitigation would assist in the prevention of the listing of species;
- Rare vegetation series (S1 - critically imperiled in state, extremely rare, very vulnerable to extirpation, five or fewer occurrences; S2 - imperiled in state, very rare, vulnerable to extirpation, 6 to 20 occurrences; or S3 - rare or uncommon in state, 21 to 100 occurrences) that also locally provide habitat for a state-listed species;
- All vegetation communities listed as S1 or S2, regardless of whether or not the series in question provide habitat for state-listed species;
- Bottomland hardwood, native prairies, and riparian areas; and
- Any other habitat feature considered to be locally important.

NTTA will consider impacted bottomland hardwoods and riparian sites within the study area as habitats that will be given consideration for non-regulatory mitigation. According to the publication *Plant Communities of Texas (Series Level)* (Texas Natural Heritage Program, 1993), there are no imperiled or critically imperiled plant communities within or adjacent to the study area.

Areas designated as sensitive habitat would be denoted on the construction plans, and, if impacted, would be replaced within the Trinity Project where practicable. Revegetation and appropriate landscaping are required and would satisfy highway safety and local standards. All re-vegetation and landscaping activities would comply with EO 13112 (1999), which calls for the FHWA to prevent and control the introduction and spread of invasive (non-native) plant and animal species, as well as the City of Dallas tree ordinance. Preventative measures would include the inspection and cleaning of construction equipment, commitments to ensure the use of invasive-free mulches, topsoil, and seed mixes, and eradication strategies should invasive plants occur. Any seed mixes used to reestablish vegetation would be consistent with TxDOT-approved seeding specifications, meeting the requirements for Texas Seed Law and EO 13112.

In consideration of the *Executive Memorandum on Beneficial Landscaping* (FHWA 1994b), landscaping activities would utilize techniques that complement and enhance the local environment and seek to minimize the adverse effect that the landscaping may have on it. In particular, this means using regionally native plants and employing landscaping practices and technologies that conserve water and

prevent pollution. Environmentally beneficial landscaping would include seeding and replanting the right-of-way with native species of plants, where cost-effective and to the extent practicable.

Potential impacts to wildlife along the Trinity Parkway for the river alternatives are the potential for habitat fragmentation and reduction in wildlife habitat connectivity as a result of roadway construction. The following are mitigation measures that would be considered to address this impact:

- Acquisition of replacement habitat of comparable biological values;
- Protective measures for existing or acquired lands such as fencing, barriers, and signs;
- Creation of replacement habitat by conversion of less sensitive upland habitat into wetlands by excavation and planting;
- Contribution to a mitigation bank;
- Minimize the crossing of flowing streams and utilize bridge spans to the greatest extent to minimize impacts on riparian and aquatic communities;
- Bridge spans would also act as wildlife corridors, allowing unrestricted movement of wildlife;
- Particularly dangerous wildlife crossings (e.g., where culverts, bridge spans, etc. are not practicable) could be fenced to divert wildlife through wooded areas along the right-of-way to culverts or bridge spans where crossings can be more safely made;
- Mitigation with an in-lieu fee provider;
- Limit the use of herbicides and other chemicals for right-of-way maintenance; and
- Schedule mowing for right-of-way maintenance to facilitate the natural reseeding of indigenous spring and autumnal herbaceous communities.

7.4 MEASURES TO MINIMIZE IMPACTS TO WATERS OF THE U.S., INCLUDING WETLANDS

Section 404 of the CWA authorizes the Secretary of the Army, acting through the Chief of Engineers, to issue permits after notice and opportunity for public hearings, for the discharge of dredged or fill material into waters of the U.S. at specified disposal sites. Selection of such sites must be in accordance with Section 404(b)(1) guidelines developed by the EPA in conjunction with the USACE. The USACE regulations are codified in 33 CFR Section 320-338.

Activities requiring Section 404 permits are limited to discharges of dredged or fill materials into the waters of the U.S. These discharges include return water from dredged material disposed of on the upland and generally any fill material (e.g., rock, sand, or dirt) used to construct fast land for site development, roadways, erosion protection, etc. In conjunction with the Section 404 permit process, permit applications are reviewed by the TCEQ for compliance with Section 401 of the CWA (see **Section 7.2**). This project would likely affect more than one-half acre of waters of the U.S. and would

therefore be subject to an individual Section 404 Permit. Impacts to Waters of the U.S., including wetlands are discussed in **Section 4.8** and specific impacts for each alternative are presented in **Tables 4-35** and **4-36**.

In accordance with the CWA Section 404 (b)(1) guidelines, wetland mitigation is identified as avoidance, minimization, and compensatory mitigation. These guidelines focus on the avoidance of adverse impacts to wetlands with the goal of no overall net loss of wetland functions. Consideration for avoidance and minimization of impact to wetlands would be given throughout the design and construction process. In addition, design features such as construction alternatives (e.g., retaining walls and steeper side slopes) would be considered to avoid or minimize impacts to wetlands and other waters of the U.S. However, because avoidance is not possible across an entire alignment, mitigation includes minimizing or compensating unavoidable impacts. Compensation would include restoration, enhancement, creation of wetlands, or mitigation banking.

Specific measures to protect waters of the U.S., including wetlands and to reduce erosion and maintain water quality would be identified and may include the following:

- Temporary exclusion fencing of wetlands during construction;
- Sparing existing trees in impacted wetlands when possible and fencing trees and shrubs to prevent damage;
- Restoration of existing degraded wetlands and wetland creation are two methods of compensatory mitigation. Compensatory wetland mitigation would occur as close to the site of impact as possible; and
- Compensatory mitigation, as required by the Section 404 process, to offset unavoidable, adverse impacts to the aquatic system.
- During construction, staging areas and borrow areas would avoid wetlands were practicable.
- Heavy equipment would avoid all wetlands not permitted for impact.

The primary means of assuring appropriate mitigation for impacts to waters of the United States, including wetlands is the CWA Section 404 permit process. Several key components that are part of that process have been included as appendices to this document. **Appendix H** contains a preliminary analysis of USACE's Section 404(b)(1) guideline that includes a series of factual determinations regarding impacts and mitigation for a variety of waters of the United States, including wetlands attributes. **Appendix I** presents the responses to the TCEQ CWA Section 401 water quality certification questionnaire. **Appendix J** sets out a preliminary CWA Section 404 mitigation plan; this plan provides details about specific impact avoidance and minimization measures that would be employed, expected direct and indirect impacts of Build Alternatives on waters of the United States, including wetlands, and a description

of a proposed mitigation area that would be needed if a Dallas Floodway Build Alternative were to be selected.

The Industrial Boulevard 2A and 2B Alternatives would have a relative small impact on jurisdictional waters, with impacts of 4 acres and 9 acres, respectively. Alternative 3C and 4B would have the greatest waters of the U.S. impacts with 91 acres and 111 acres, respectively.

7.5 MEASURES TO MINIMIZE IMPACTS TO FLOODPLAINS

To comply with Executive Order 11988 (1977), the proposed project must be designed to avoid floodplain impacts where practicable and to adequately mitigate unavoidable impacts. In accordance with EO 11988 and 23 CFR 650 Subpart A, practical measures to minimize harm to floodplains are incorporated in the Build Alternatives for the Trinity Parkway. If an Industrial Boulevard alternative is selected (Alternatives 2A or 2B) there would be minimal impacts to the floodplain. If a river alternative is selected (Alternatives 3A, 3B, 3C, 4A, 4B, or 5), there would be floodplain modifications required to minimize floodplain impacts. Little or no change to historic drainage patterns would be expected within or down gradient from the study area. Impacts to floodplains are minimized by following standard stream crossing design criteria, avoiding direct impacts on stream channels, and adjusting the alignment where possible. Bridge and roadway designs seek to minimize impacts to floodplains in compliance with FHWA requirements - including efforts to span 100-year floodplains. Final designs would adhere to FHWA drainage criteria for both minor and major hydraulic structures, as well as following all FEMA requirements. **Section 4.13** discusses floodplain impacts and the results are presented in **Tables 4-40** through **4-40B**. Specific measures may include the following:

- Coordination with Federal, state, and local governments concerning issues related to floodplain encroachment;
- Installation of detention basins, infiltration beds, or other structural controls to reduce and minimize the effects of increased runoff due to substantial increases in impervious surfaces;
- Cut and fill balance within the floodplain to preserve flood carrying capacity of the Dallas Floodway;
- Bridging over drainage sumps to avoid impacts to floodplains in developed areas; and
- Vegetation management to achieve the desired roughness for floodwater conveyance.

Federal regulations require that an “only practicable alternative” finding be prepared for projects that result in a significant floodplain encroachment (23 CFR Subpart 650A). This finding is applicable if one of the Trinity Parkway Alternatives 3A, 3B, 3C, 4A, and 4B is identified as the preferred alternative, since

these alternatives occupy floodplain land within the Dallas Floodway, and would be required in the FEIS (see 23 CFR § 650.113).

Potential Mitigation Measures

Both direct and indirect construction impacts may be avoided by use of approved bridge and levee construction methods and temporary water quality/quantity BMPs, such as, but not limited to the following:

- Bridge superstructures would be constructed a minimum of 1 foot above the 100-year flood elevation;
- Where practical, bridge approach fills and abutments would be constructed outside the 100-year floodplain;
- Bridge piers required to fall within the Trinity River (although not anticipated) would be designed to minimize obstruction of flow and constructed during periods of low water; and
- A backwater analysis would be done before final bridge and/or roadway design (using the USACE and FEMA computer models). This would ensure that construction techniques proposed would not decrease the channel-carrying capacity, increase the 100-year floodplain elevation, and/or create erosive velocities more than that allowed by the City of Dallas CDC requirements.

Other considerations may include:

- Aligning new bridge piers with nearby remaining piers;
- Employing long bridge spans (to minimize the number of piers involved);
- Increasing the channel cross-sectional area through reshaping the stream bank(s);
- Relocating levees and/or increasing levee height;
- Compensatory channel conveyance improvements (to offset floodplain conveyance loss); and
- Locating construction staging areas well away from floodplains to prevent impacts.

U.S. Army Corps of Engineers

The Dallas Floodway is a federal project with oversight from the USACE. The following paragraph is from an October 23, 2006 Memorandum (USACE, 2006) describing Policy and Procedural Guidance for the Approval of Modification and Alteration of Corps of Engineers Projects. The memorandum is located in **Appendix E**.

> "Any proposed modification to an existing Corps projects (either federally or locally maintained) that go beyond those modifications required for normal O&M require approval under 33 USC 408. 33 USC 408 states that there shall be no temporary or

permanent alteration occupation or use of any public works including, but not limited to levees, sea walls, bulkheads, jetties, and dikes for any purpose without the permission of the Secretary of the Army. Under the terms of 33 USC 408, any proposed modification requires a determination by the Secretary that such proposed alternation or permanent occupation or use of a Federal project is not injurious to the public interest and will not impair the usefulness of such work. The authority to make this determination and to approve modifications to Federal works under 33 USC 408 has been delegated to the Chief of Engineers."

Prior to construction, the proposed project will require USACE review and approval by the Chief of Engineers of any modifications to the Dallas Floodway lands.

City of Dallas Fill Permit

Encroachment into a non-federal floodway is prohibited within the City of Dallas unless a professional registered engineer certifies that encroachment would not increase the design flood elevation and:

1. The applicant meets the permitting requirements of FEMA;
2. The encroachment complies with the City of Dallas requirements governing fills in floodplains; and
3. Floodplain encroachment must not result in any increase in the elevation of the design flood within the Dallas Floodway levee system.

Proposed projects requiring fill in the floodplain cannot proceed without a fill permit approved by the Dallas City Council. The applicant for a fill permit must submit an application to the Floodplain Management and Erosion Control Division of Public Works and Transportation Department, and must fulfill both the city and FEMA's criteria.

The application must be accompanied by a hydraulic engineering analysis and maps prepared by a licensed professional engineer, including a landscape and erosion control plan (with a tree survey of all trees greater than 6-inch caliper in the floodplain), and also an environmental impact study, where applicable. Additionally, the applicant is required to obtain any other permits, which could include a USACE Section 404 permit dealing with wetlands. Copies of the application are sent to the Director of Planning and Development and the Director of Park and Recreation for their review and approval and determination of city interest in acquiring the property proposed for fill.

The engineering analysis must prove that the proposed fill meets the city's criteria for filling in the floodplain, which include the following:

- The proposed fill must not increase the 100-year water surface elevation or the stream's erosive velocities and must preserve part of the natural ability of the stream to store portion of the floodwater (called valley storage). This can be achieved by compensating for the proposed fill with excavation of a piece of land, the size of which is determined by the mathematical computer/hydraulic models engineers use; and
- A landscape plan needs to be prepared showing which trees would be preserved and also the size, type, and location of all proposed trees, as specified in the city's floodplain ordinance.

The Public Works and Transportation Department engineers review the submitted engineering analysis and all maps and plans, and if they meet the established city criteria, the most important of which are outlined above, the fill permit application goes to the city council for approval. A public notice and a notice to adjacent municipalities are sent approximately two weeks prior to the public hearing held by the City Council.

- Signs are posted;
- Comments are solicited; and
- Where concerns are expressed, a neighborhood meeting is held prior to the public hearing.

Once the City Council has approved a fill permit, Public Works and Transportation issues authorization to the applicant. When the applicant obtains a fill permit, the fill project must be completed according to the plans submitted and then have a certified surveyor prepare an as-filled survey of the property. A copy of the as-filled survey is submitted to the City of Dallas.

Corridor Development Certificate

Depending on the alternative selected, the proposed action may require a CDC permit, which would be processed and issued by the City of Dallas. The CDC process was developed with the coordination of the NCTCOG and the joint efforts of the participating nine cities and three counties along the Trinity River corridor to adopt a cooperative management program whereby each city retains development permit authority within its jurisdiction, but bases its permit decision on a set of common permit criteria.

In addition to all local jurisdiction requirements for fill permits, when a property is located within the 100-year floodplain of the Trinity River, the Elm Fork, and portions of Lower White Rock Creek and Lower Fivemile Creek, which is called the Regulatory Zone under the CDC Process, the applicant has to apply for technical review to the USACE, and a CDC permit must be obtained from the local jurisdiction prior to approval of a fill permit.

For property located within the Review Zone, which is the area between the 100-year and the Standard Project Flood (SPF) flood boundaries, no CDC permit is required. However, the applicant must apply to the CDC/Floodplain Administrator(s) (Part I of the CDC application) to inform them of their plans and activities. The CDC calls for the maximum allowable loss in valley storage for the 100-year flood and SPF discharges to be 0 percent and 5 percent, respectively.

Summary

Floodplain mitigation for this project includes avoidance, minimization, and engineering controls. Bridges are the primary means of avoiding encroachment, while retaining walls and similar structures would be incorporated, as project design is refined. Once a preferred alternative is identified and its preliminary design completed, floodplain impacts may be quantified on a volume basis and compensatory flood storage areas would be evaluated consistent with EO 11988, *Floodplain Management*, and 23 CFR 650, Subpart A, and all other federal, state, and local regulatory requirements. **Section 4.13 Floodplain Impacts** present the effects of each Alternative on the Floodplains along the Trinity Corridor. **Appendix F** contains the floodplain analysis.

7.6 MEASURES TO MINIMIZE IMPACTS TO CULTURAL RESOURCES AND PARKLANDS

7.6.1 Cultural Resources

Following the identification of a preferred Build Alternative, NTTA would coordinate with the SHPO regarding additional investigations within the Area of Potential Effects of the preferred alternative. These investigations would be conducted by qualified professionals. The scope of the investigations would be developed in consultation with the THC under the terms and conditions of the Programmatic Agreement between TxDOT, THC, FHWA, and the ACHP (FHWA, 2005c).

The mitigation of cultural resources would be pursued, as necessary, in compliance with Section 106 of the NHPA and the Texas Antiquities Code (Texas Historical Commission, 2002b). Various measures would be considered to mitigate for adverse effects to known or potential cultural resources. Following the identification of a preferred alternative, measures to avoid or minimize impacts to archeological and historic architectural resources, including alignment modifications, may be developed. Mitigation for impacts to NRHP resources may include Historic American Building Survey/Historic American Engineering Record (HABS/HAER) documentation, relocation of a historic structure, or the installation of vegetative screening to mitigate for changes in the visual setting. **Chapter 5** presents the Draft Section 4(f) Evaluation.

7.6.2 Parks and Recreational Areas

Mitigation for impacts to public parks and recreational areas for this project initially involved the development of alternative alignments that avoided or minimized impacts to these resources. Any new park/recreational use that may be affected by proximity or indirect impacts associated with the Build Alternatives can be planned and designed to avoid or minimize those impacts.

Preliminary analysis indicates that noise mitigation (in the form of a noise wall) would not be feasible for Sleepy Hollow Park (impacted by all Build Alternatives) and Oak Cliff Founders Park (impacted by Alternatives 4A, 4B, and 5) because the major source of noise at these parks is traffic on other adjacent roads and highways. These two parks are located adjacent to major roadways that are nearer to the park(s) than any project Build Alternative. **Section 4.7.3** discusses impacts to parks and recreational areas

The Industrial Boulevard Alternatives (2A and 2B) would have the least impact on parkland, but may impact the Trinity Strand Trail Park (i.e., visual intrusion). All of the Build Alternatives would require right-of-way from the Trinity River Greenbelt Park (Dallas Floodway) and acreage impacts would range from one acre (Alternative 2A) to 270 acres (Alternative 4B). This would not constitute a direct use (take) of park land because the deed for this property includes a conveyance for transportation facilities (see correspondence in **Appendix A-1, Pages 37-47** and **58-69**). **Chapter 5** presents the Draft 4(f) Evaluation and includes discussion pertaining to park and recreation areas.

As previously mentioned, the NTTA is participating in a cooperative planning effort with all agencies involved with proposed recreational and non-recreational developments planned for the Dallas Floodway (Trinity River Greenbelt Park) and DFE (Great Trinity Forest Park) portions of the study area. NTTA will continue to work closely with these agencies in order to maximize these multi-project planning efforts and, thereby, work to minimize any potential adverse impacts that may result from the Trinity Parkway Build Alternatives.

7.7 MEASURES TO MINIMIZE IMPACTS TO HAZARDOUS WASTE SITES

Avoiding hazardous waste sites would be a priority during the final design stage. Site assessments would be carried out to the degree necessary to identify the levels of contamination and, if necessary, to evaluate the options to remediate, along with the associated costs. Resolution of any concerns associated with contamination would be coordinated with the appropriate regulatory agencies prior to right-of-way acquisition, and appropriate action would be taken.

Any required mitigation of identified hazardous material concerns would include those for proper management and disposal of hazardous wastes encountered during construction and precautions for worker health and safety. In the event hazardous materials are unexpectedly encountered during construction, a contingency plan or other health and safety procedures would be in place establishing procedures for temporary stoppage of work, securing of the area, notification of the discovery, and proper management of such materials. All procedures would be consistent with NTTA's guidelines and federal, state, and local laws and regulations. The Industrial Boulevard Alternatives (2A and 2B) would encounter 34 and 35 identified hazardous sites, respectively. The other alternative alignments would impact a low of 15 hazardous sites identified for Alternative 3A to 21 sites identified for Alternative 5.

The demolition and removal of all structures would include procedures for the identification, abatement, handling, and disposal of lead-based paint and asbestos, as well as worker health and safety. All procedures would be consistent with NTTA's guidelines and all federal, state, and local laws and regulations.

7.8 MEASURES TO MINIMIZE CONSTRUCTION IMPACTS

Construction activities may result in several impacts that may cause inconvenience. These impacts can be categorized as follows:

- Airborne dust due to clearing, grubbing, hauling, and construction activities;
- The use of local and regional streets and arterials to haul materials and equipment to and from the site;
- Temporary materials and equipment on-site storage;
- Increase in noise levels due to construction activities and equipment;
- Temporary utility rerouting;
- Temporary traffic detours; and
- Soil and water runoff due to rain and dust control.

Construction impacts are mitigated on two levels, direct intervention methods, and construction procedures that effectively lessen construction impacts below the levels that would occur if these procedures were not employed.

Direct intervention methods are typically active measures required in permits, FHWA's Standard Specifications, or local ordinances pertaining to the mitigation of construction impacts. Mitigation recommendations for erosion and sedimentation, water pollution, and noise impacts are included in this

chapter. Unforeseen construction impacts would be handled through a review process, BMP's, and implementation of other procedures, if necessary.

Traffic impacts during construction would be addressed by implementation of a Traffic Management Plan (TMP). TMPs include the following:

- Staging of construction activities;
- Providing detours around construction areas;
- Limiting work on arterial streets to off-peak hours;
- Confining haul routes to designated streets; and
- Providing a public relations and media campaign to inform residents and motorists of upcoming activities.

7.8.1 Pedestrian/Vehicular Safety During Construction

To ensure pedestrian safety, ample width for construction activities would be provided, properly equipped machinery would be employed, temporary or permanent fencing would be erected, and guidelines for equipment operators and supervisors would be enforced. Steps would be taken to control access to construction zones by pedestrians, especially children. Particular consideration would be given to areas likely to have the most pedestrian activity. In addition, the use of flag persons, signs, barricades, and the general restriction of construction activities to daylight hours, when feasible or appropriate, should substantially reduce the risk of vehicular accidents during the construction period. Construction would normally occur during daylight hours, although some construction might also occur at night.

7.8.2 Construction Air Quality Impacts

Impacts to ambient air quality would occur as a result of construction activities. Fugitive dust and particulate matter, including emissions, would be generated during project excavation and filling. Construction equipment and off-site vehicles used for hauling debris and supplies would also produce emissions during construction. The pollutants of primary concern include fugitive dust, PM_{10}, reactive organic gases, NOx, CO, and to a lesser extent, sulfur dioxides. The degree of air quality impact due to construction emission is difficult to predict and depends on many variables such as the type of weather, construction vehicles, and the timing and phasing of construction activities. However, project construction would be conducted in accordance with all federal, state, and local regulations that govern construction activities and emissions. Specific mitigation measures that can be utilized would be identified in a dust control plan prepared prior to project construction. These mitigation measures would comprise some or a combination of the following:

- Stabilize construction roads and dirt piles with water and/or chemicals;
- Limit speeds on unpaved construction roads;
- Remove dirt spilled onto paved roads daily;
- Periodic watering on dirt roads to reduce dust;
- Cease grading and excavation activities when wind speeds exceed 25 mph and during extreme air pollution episodes;
- Require covering of all haul trucks;
- Phase grading to minimize the area of disturbed soils;
- Phase construction to minimize daily emissions;
- Ensure proper maintenance of construction vehicles to maximize efficiency and minimize emissions; and
- Revegetate road medians and slopes promptly.

While emissions from construction activities and equipment are an unavoidable consequence of project construction, an aggressive mitigation plan would serve to minimize impacts to ambient air quality and the nuisance impacts to the public in proximity to the project corridor. Other mitigation measures would include temporary drainage facilities and the use of erosion control strategies.

7.8.3 Construction Noise Impacts

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. Although construction activity normally occurs during daylight hours, some construction activity may be required at night.
Construction noise levels could be minimized by the use of one or a combination of the following general methods. These noise reduction measures would be considered where they are reasonable, feasible and practicable. Factors such as space limitation, equipment efficiency, construction timing and other particular construction problems would limit the use of any of these methods.

- Noise walls that are proposed for traffic noise abatement could be constructed prior to other project-related construction. This would allow the walls to help protect noise-sensitive areas from construction noise.
- Locate stationary equipment such as compressors, generators, and other diesel-powered equipment as far away from nearby noise sensitive areas as possible.
- Shut off idling equipment when not in use.

- Schedule construction operations near noise sensitive areas during daylight hours. Operating limitations can be particularly effective when the construction site is near schools or churches, where a quiet environment is essential during certain hours of the day.
- Route construction equipment and vehicles into areas that would cause the least disturbance to nearby receptors.

7.8.4 Value Engineering

Title 23 CFR Part 627 requires the application of value engineering (VE) to all federal-aid highway projects on the National Highway System (NHS) with an estimated cost of $25 million or more. FHWA defines VE as "the systematic application of recognized techniques by a multi-disciplined team to identify the function of a product or service, establish a worth for that function, generate alternatives through the use of creative thinking, and provide the needed functions to accomplish the original purpose of the project, reliably, and at the lowest life-cycle cost without sacrificing safety, necessary quality, and environmental attributes of the project" (23 CFR Section 627.3). Accordingly, a VE analysis is required for the proposed project to improve project quality, foster innovation, eliminate unnecessary and costly design elements, and ensure efficient investments.

7.9 POTENTIAL MITIGATION ENHANCEMENTS

USDOT Transportation Enhancement (USDOT TE) Program

The USDOT TE program was created under ISTEA and is carried forward under TEA-21. This program was setup to encourage diverse modes of travel, foster local economic development, and bring direct benefits to communities from transportation spending. The list of qualifying TE activities is set forth in 23 USC Section 101(a)(35). Only those activities that are listed in one of the qualifying categories are eligible for transportation enhancement funds. Each project activity must demonstrate a relationship to surface transportation. Of the 12 categories of TE activities, the following have potential application to the Trinity Parkway and would be considered in the development and funding of the final design:

1. **Pedestrians and bicycle facilities** - New or reconstructed sidewalks, walkways, or curb ramps; bike lane striping, wide paved shoulders, bus parking, and bus racks; off-road trails; bike and pedestrian bridges and underpasses.
2. **Landscaping and scenic beautification** - Improvements such as street furniture, lighting, public art, and landscaping along streets, historic highways, trails, and interstates, waterfronts and gateways.
3. **Historic preservation** - Preservation of buildings in historic districts; restoration and reuse of historic buildings for transportation-related purposes.

4. **Rehabilitation and operation of historic transportation buildings, structures, or facilities** - Restoration of railroad depots, bus stations, and lighthouses; rehabilitation of rail trestles, tunnels, and bridges.
5. **Archeological planning and research** - Research, preservation, planning, and interpretation.
6. **Environmental mitigation runoff pollution and provision of wildlife connectivity** - Soil erosion controls; detention and sediment basins, river clean-ups; wildlife underpasses.

Although potential mitigation measures planned for the proposed action may be eligible for funding and implementation through the USDOT TE program, prior approval by FHWA would be required for the use of TE funds.

7.10 MITIGATION COMMITMENTS

FHWA/TxDOT/NTTA and the City of Dallas have the responsibility to ensure the mitigation and enhancement measures committed to in the environmental document, as well as those contained in applicable permits, are completed satisfactorily. Similarly, it is also FHWA policy that all environmental commitments be properly maintained and operated. FHWA is required to assure compliance as part of its program management responsibilities [23 CFR 771.109(b)]. This includes review of designs, plans, specifications, estimates, and construction inspections.

The draft mitigation measures described below are potential commitments made by the NTTA and would be finalized prior to publication of the anticipated Record of Decision (ROD). The NTTA and their agent(s) would be responsible for implementing the project commitments and monitoring construction activities; and the FHWA would be responsible for overseeing the implementation of mitigation measures identified in the environmental documents.

The commitment to develop project specific “mitigation plans” is included in the mitigation measures discussed below. These plans would be developed after consideration from the City of Dallas and the various resource agencies having jurisdictional responsibilities within the project area. In some instances, the mitigation plans for specific resources overlap with measures to mitigate other impacts (e.g., mitigation of impacts to visual resources and vegetation). Thus, measures to mitigate impacts for any particular resource may be addressed within more than one perimeter mitigation plan.

It would be necessary to revise and refine the mitigation plans as additional information is collected and design details are developed. For example, on-going hydraulic investigations and park/lake design details may require refinements be made to the visual impact mitigation plan and revegetation plan. Input

from City of Dallas and approval by resource and regulatory agencies would be obtained before substantive revisions are made.

Mitigation Measures

1. The NTTA would develop a construction oversight and environmental monitoring program specific to the Trinity Parkway project, which is similar to the environmental oversight program implemented for the President George Bush Turnpike (Segment IV). The purpose of the oversight and monitoring program would be to outline the activities to be implemented by the NTTA during design and construction to ensure that environmental commitments are met and mitigation measures are properly implemented.

2. A visual impact mitigation plan (VIMP) would be developed by the NTTA prior to project construction. NTTA is currently working with the Dallas Lake Design Team to develop visual and aesthetic design guidelines for the Trinity Corridor. A draft of the Design Guidelines would be prepared after additional data has been collected and analyzed and preliminary park and lake designs have been completed. The guidelines would specify the general methods and techniques to be used in avoiding and mitigating visual impacts resulting from the construction of new cut slopes and fill embankments and from the loss of shrubs, trees, and other vegetation. The guidelines would be developed with input from the affected communities within the study area and the land/resource management agencies with jurisdictional responsibilities within the project limits.

3. Temporary impacts to vegetation would be minimized by limiting construction activities to the minimum area needed to complete the necessary improvements to the tollway. A pre-construction conference and field review involving NTTA staff and construction contractors would be held prior to the start of project construction to establish and review the locations and boundaries of construction. Subsequent to the pre-construction conference and field review, a report would be prepared that identifies areas to be avoided during project construction and identifies any other special provisions to be followed by the contractor. The limits of construction staging areas would be surveyed and staked in the field prior to construction. The perimeter would be fenced or flagged during construction.

4. A revegetation plan would be developed prior to project construction that specifies the areas to be revegetated, species of plants to be used for revegetation, and the techniques to be used to revegetate disturbed areas. The revegetation plan would also identify the special techniques to be used to establish vegetation on steep slopes (i.e. slopes with a grade steeper then 3:1) or

alternative techniques and measures to prevent erosion. The revegetation plan would be developed in consultation with TPWD and USFWS and would specify the use of plant species that are native to the project area and that would enhance the quality of habitat within the right-of-way. In addition to general mitigation methods and techniques, the revegetation plan would include the following specific provisions:

a. Stands of riparian hardwoods affected by construction would be replaced by replanting similar species along the Trinity River, or through payment to the City of Dallas Reforestation fund or through the acquisition of a stand of mature trees along the Trinity River Corridor.
b. All riparian habitat lost to construction would be replaced within the general study area in accordance with the City of Dallas Vegetation Ordinance.

5. A plan to avoid and minimize effects to potential threatened or endangered species and to minimize impacts to wildlife would be developed prior to project construction. The plan would be developed in consultation with TPWD and USFWS and would include, but would not be limited to, the following specific provisions:
    a. If interior least terns are documented to be in the study area, then a survey would be conducted prior to construction to document the condition and location of interior least tern populations within the study area. The surveys would also serve to determine the presence of other species that may require special treatment. The locations of nest areas and important roost sites would be discussed with the construction team and flagged for avoidance. The need for avoidance measures would be determined in collaboration with the USFWS and applicable land management agency, depending on location. The wildlife survey would be conducted in collaboration with the resource agencies.

6. A wetland mitigation plan would be prepared prior to project construction. This plan would be developed in collaboration with the USACE and resource agencies. Location of replacement wetlands and methods to restore impacted wetlands would be included in the mitigation plan. The wetland mitigation plan would document the impacts of the proposed Trinity Parkway and its mitigation requirements.

7. Impacts to water quality and floodplains would be avoided and/or mitigated by the following measures.
    a. A SW3P would be prepared in accordance with the NPDES/TPDES requirements. The SW3P would identify specific measures and techniques to prevent excessive silt and/or

chemical contaminants from being washed into perennial streams and ephemeral drainages during storm events.

b. Construction of new structures that involves dredging and filling in waters of the U.S. would be conducted in accordance to the requirements of Section 401 and Section 404 of the CWA. Coordination with the USACE and TCEQ would continue through project design to ensure the CWA BMP requirements are included in construction plans. Oversight and monitoring of project construction by the NTTA would be provided to ensure that the SW3P, Section 401, and Section 404 permit requirements are followed. An oversight and monitoring plan would be developed in collaboration with the USACE and TCEQ.

c. Planning and design of all drainage structures would be coordinated with the Regulatory and Operation Branches of the USACE pursuant to Section 404 of the CWA. All conditions and requirements of Section 404 authorization for drainage crossings would be complied within their entirety during the final design phase of the project to ensure that floodplain capacity is not reduced and that floodplain management or development plans are not impaired.

d. In accordance with the 1988 Trinity Regional Environmental Impact Statement ROD criteria (see **Sections 3.5.6.4** and **4.13.1**), any of the Build Alternatives within the Dallas Floodway would be reviewed by the FEMA, City of Dallas, NCTCOG, and USACE as part of the CDC process to ensure there would be no loss of valley storage of flood water. Such review would rely on a detailed hydraulic analysis of the Floodway's ability to convey the 100-year and SPF floods as modeled with proposed design features in place and as measured against specific hydraulic criteria originally established by the 1988 ROD. Similarly, USACE implements its regulatory authority over construction and operations within the Floodway through national flood control regulations (33 CFR § 208.10) as well as through local floodway guidance issued by the USACE Fort Worth District (see **Appendix E**). USACE approval of any construction within the Floodway is conditioned on demonstrating design, construction phasing, and mitigation measures that meet specific USACE guidelines for ensuring continuous protection of flood conveyance capacity (see **Sections 2.4.6** and **4.20.9**).

e. A MS4 Stormwater permit would be developed by NTTA and would comply with TCEQ requirements.

f. To avoid unnecessary wetland impacts during construction, staging areas and borrow areas would avoid wetlands where practicable. Heavy equipment will avoid all wetland not permitted for impact.

8. Impacts to cultural resources would be mitigated by the following measures:
    a. Measures to avoid or mitigate impacts to archeological sites, historic architectural properties, and other cultural resources would be developed in collaboration with the SHPO. The current Dallas Floodway Extension - Programmatic Agreement (DFE PA) between the THC and the USACE would be used as a guide.
    b. Retaining walls or other slope stabilization techniques would be used to prevent slope encroachment into an archeological or historic site the SHPO determines must be preserved in place.
    c. Sites used to obtain fill material and/or in construction zone areas would be surveyed for cultural resources and threatened and endangered species. These surveys would be the responsibility of the contractor and would be monitored by the NTTA.
    d. A cultural resource mitigation plan would be prepared with the overall goal of preservation and protection of the archeological and historic architectural resources in the project area. General design guidelines for preservation consideration include:
        1. Minimize impacts to historic buildings/structures or historic districts.
        2. All efforts should be made to preserve historic architectural resources intact and on their original site.
        3. Additions and alterations to original structures should be kept to a minimum. If additions or alterations are necessary, every effort should be made to retain historic material, setting, workmanship, and design.
        4. When new construction is required near bridges, connections, links, approaches, and access should occur at a point of least disruption to the original bridge. New construction should not compromise the views to and from the historic bridges (i.e. no flyovers, etc.).
        5. To the extent practicable, new construction or additions/alterations should be distinctive from the original historic bridge and be reflective of the original design and intent, but not mimic it.
        6. Secondary elements associated with the bridges should be preserved or enhanced. Lighting, railing, support structures, etc. may be important architectural parts to the overall whole of the bridge. Removal or replacement of these should have inkind material and design.

9. Impacts to the individual property owners and the general communities affected by the project would be mitigated by the following measures:
    a. The acquisition of residences, structures, property, and any resulting relocations of persons and businesses would be conducted in accordance with federal and state laws

including the Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, as amended, and Title VI of the Civil Rights Act of 1964, as amended.

b. Community enhancements may include sidewalks and access considerations, lighting, landscaping, trail/park access, and noise walls.
c. Emergency medical service providers would be consulted during the design phase to develop an emergency response plan that would provide continuous and acceptable service during project construction.
d. Access to roadside businesses, side roads, and driveways would be maintained throughout construction.
e. A new intersection of the frontage road and US-175 immediately east of Starks Avenue would be provided to replace the intersection to be closed at Starks Avenue.
f. Noise workshops would be conducted with property owners where noise walls have been determined to be reasonable and feasible. The workshops would determine if the noise walls are wanted and if so what types of aesthetic treatments are preferred.

10. A hazardous material mitigation plan would be developed to investigate and characterize the right-of-way and construction areas. The site characterization and closure plans will be overseen by the TCEQ.

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CHAPTER 8
LIST OF PREPARERS

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The following organizations and individuals have been involved in the preparation of the DEIS/SDEIS:

FHWA

Sal Deocampo, District Engineer, Texas Division

Anita Wilson, Urban Engineer, Texas Division

Jose Campos, Intermodal Team Leader, Texas Division

Tom Bruechert, Environmental Team Leader, Texas Division

TxDOT

District Office, Dallas, Texas

H. Stan Hall, P.E., District Advance Project Development Engineer

Headquarters Office, Austin, Texas

Dianna F. Noble, P.E., Director, Environmental Affairs Division

Elvia Gonzalez, Environmental Supervisor, Environmental Affairs Division

NTTA

Janice D. Davis, Interim Executive Director

Christopher Anderson, Planning Director

CONSULTANT TEAM

Halff Associates

Benke, Rachel, BA, MAG, GIS Specialist - 5+ years experience in Geographic Information Systems

Cargo, Douglas, B., Ph.D., BS, MS, Environmental Scientist - 40+ years experience of environmental education, land development, planning, and solid waste experience

Conway, Patrick, GISP, MBA, Environmental Scientist - 8+ years experience in Geographic Information Systems

Craig, Matt, P.E., Project Manager, MSCE - 20+ years experience in transportation planning, engineering and project management

Diamond, Jason, M., BS, Environmental Scientist - 12+ years experience in subsurface investigation, site assessments, and preparation of NEPA documents

English, April, BA, MS, Environmental Scientist - 2+ years experience in environmental planning, preparation of NEPA documents, traffic noise analysis, and spatial analysis/mapping using GIS

Erskine, Russell, EIT, BS, Hydrology and water resources, BS, Civil Engineering - 11+ years of experience in water resource modeling

Flesher, Scott, BS, Environmental Scientist - 1+ years of experience in wetland delineation, Section 404 permitting, and GIS Mapping

Furlong, Jack, P.E., Civil Engineer, 30+ years experience in transportation design and hydraulic analysis

Griffith, Daniel C., BS, Environmental Scientist - 3+ years of experience in wetland delineation, Section 404 permitting, and environmental assessments

Hamrick, Adam, CADD Technician - 15+ years of experience in drafting and Microstation production

Hoffman, John R., BS, Environmental Scientist - 12+ years of experience in the preparation of environmental assessments, air quality assessments, Section 4(f)/6(f) evaluations, community impact/environmental justice analysis, and NEPA documentation

Jaynes, Richard A., BS, MS, JD, LLM, Environmental Scientist - 15+ years experience in interdisciplinary environmental studies and the application of environmental and natural resource law and policy

Joseph-Williams, Robin, AICP, BA, MA, Environmental Planner - 13+ years experience in urban, transportation, and environmental planning, specializing in socio-economic analysis and public involvement

Lesh, Michael M., P.E., BSCE, BS, Civil Engineer - 10+ years of experience in design and technical computer-aided design

Marusak, Russell J., BS, Environmental Scientist - 8+ years experience in wetland delineations, USACE permits, and environmental assessments

Milburn, Todd, P.E., BS - 7+ years experience in transportation design and traffic noise analysis

Molloy, Martin J., P.E., BSCE, MSCE - Principal-In-Charge - Project Manager Trinity Parkway MTIS, 27+ years experience in transportation planning, evaluation, and design

Morgan, David S., BS, MS, Environmental Scientist, 28+ years experience preparing environmental assessments, flood plain management, open space planning, USACE permits

Morovitz, J. Jason, BS, MS, Environmental Scientist, 7+ years experience in environmental science, including environmental planning, preparation of NEPA documents, and wetland delineation/permitting

Novoa, Jose I., P.E., Civil Engineer, 42+ years experience in engineer design, planning, public involvement, and project management

Pitt, Robert W., BS, MS, Environmental Scientist, 7+ years experience conducting noise evaluations/modeling, air quality assessments, wetland delineations/permitting, hazardous materials investigation, and NEPA documentation

Satre, Dennis D., P.E., BSCE, Civil Engineer, 20+ years experience in transportation design, construction management, project engineer

Skipwith, Walter E., P.E., BSCE, MSCE, Water Resources Engineer, 30+ years experience in hydrology and hydraulics and project management

Snavely, Samantha E., BS, MS, Environmental Scientist, 6+ years experience in the research and teaching of biology, and writing/editing scientific reports

Stancill, Shelly P., Executive Assistant, 13+ years of experience in document compiling, editing, and preparation

Tang, Zongpei, BS, MS, GIS Specialist - 2+ years experience in GIS data spatial analysis, raster data modeling, and Geodatabase design

Thomas, Richard N., BS, Environmental Scientist - 15+ years experience in hydrology, environmental assessments, noise evaluation/modeling, and air quality assessments

Urbanovsky, Jody, BA, GIS Specialist - 2+ years of experience in Geographic Information Systems

Westsmith, Richard, P.E., M.E., Water Resources Engineer, 25+ years experience in hydrology and hydraulics and project management

Wood, Adam S., BA, MS, Urban Planner - 2+ years experience in transportation and land use planning

AR Consultants

Skinner, Alan S., BA, MA, Ph.D. - 37+ years of prehistoric and historic archeological research, teaching and field investigations focused on the southwestern United States

Trask, Lance, BS - 17+ years of nationwide professional archeologist experience

Wheeler, Sonny A., Historic archeological research experience

Ecological Communications Corporation

Eisenhour, Thomas, R.A. Historical Architect, 19+ years evaluating historic structures and performing Section 106 coordination

Insight Research Corporation

Morris, Elizabeth, BA, 35+ years experience providing economic analysis

Michael R. Coker Company

Carroll, F.M., ASLA, Vice President, Coker Company, 24+ years experience in large real estate development projects, transportation planning, and land planning

Cartes, Elizabeth, Associates Planner, BA, Coker Company, 3+ years of experience in neighborhood redevelopment, planning, and development and zoning

Coker, Michael R., AICP, President, BS, MA, Coker Company, 30+ years of landuse and transportation planning experience. Previous experience includes the Director of Planning and Development for the City of Dallas

Greer, John, R, Economic Development Analysis, BS, MA, Coker Company, 40+ years experience in economic analysis and urban renewal/planning and policy analysis

Norman Alston Architects

Alston, Norman, BA, 25+ years experience in providing architectural and historic preservation services to Texas and surrounding states

Neely, Jess, 35+ years of architectural and historic preservation experience

Terra-Mar, Inc.

Abrams, Tim G., P.E., Manager Geotechnical Services, 30+ years of experience in geotechnical investigations

Haneefuddin, Syed K., P.E., Project Manger, 20+ years experience in geotechnical investigations

Trinity Consultants, Inc.

Sung, Sue, P.E., Ph.D., Environmental Engineer, 20+ years of experience in air and noise modeling for transportation projects

Steve Simonsen, P.E., Senior Consultant, 9+ years experience in traffic air quality analysis and dispersion modeling

Vance and Man Consulting

Moore, Ron, BLA, Environmental Scientist, 17+ years of experience in NEPA, natural resources, and environmental planning

Wilbur Smith Associates, Inc.

Smolley, John, Traffic Forecast/Analysis Manager, 35+ years of traffic analysis experience

Torello, Bob, Traffic Forecast/Analysis Modeler, 25+ years of traffic analysis experience

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CHAPTER 9
CIRCULATION OF THE SDEIS

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CIRCULATION OF THE SDEIS

The government agencies noted below will be provided a copy of the SDEIS along with a request to provide comments.

FEDERAL AGENCIES

- Environmental Protection Agency
- Federal Emergency Management Agency
- United States Coast Guard
- United States Army Corps of Engineers – Fort Worth District
- United States Department of Agriculture – Natural Resources Conservation Service
- United States Department of the Interior (Office of Environmental Policy and Compliance)
- United States Department of Housing and Urban Development
- United States Fish and Wildlife Service

STATE AGENCIES

- Texas Parks and Wildlife Department
- Texas Commission on Environmental Quality
- Texas Historical Commission
- Governor's Office of Budget and Planning (State Single Point of Contact)

REGIONAL AGENCIES

- North Central Texas Council of Governments
- Dallas Area Rapid Transit

LOCAL AGENCIES

- City of Dallas
- Dallas County

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CHAPTER 10
COMMENTS AND COORDINATION

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10.0 INTRODUCTION

The preparation of the DEIS and this SDEIS, involved extensive coordination and consultation with the public that may be affected by the proposed project. The public includes not only the study area residents, including individuals, groups, clubs, and other social institutions, but also businesses and organizations operating within the study corridor, and public officials and agencies with regulatory oversight and other administrative responsibilities within the study area. This section provides a brief summary of the agency coordination and public involvement that occurred throughout the preparation of the DEIS and this SDEIS.

10.1 PUBLIC INVOLVEMENT

The initial public involvement opportunity occurred at the Public Scoping Meeting held on July 8, 1999. The meeting notification process included direct mailings to interested citizens, property owners, and elected officials; three legal advertisements in local newspapers; and a paid advertisement in a local newspaper. The purpose of the meeting was to initiate public involvement and identify the range of alternatives, environmental impacts, and important issues to be addressed in the EIS. The meeting opened with an approximate 1-hour technical presentation summarizing the role of NTTA, the results of the TxDOT *Trinity Parkway Corridor Major Transportation Investment Study* (MTIS) (TxDOT, 1998a), and information concerning public/agency involvement, environmental issues, alternatives, and the project schedule. Exhibits were displayed showing existing and projected traffic problems, the proposed study area with the preliminary Build Alternatives, existing land use, and diagrams of typical sections. Each attendee was given a handout that included the meeting agenda, copies of slides used during the presentation, an information sheet, a returnable comment sheet, and the City of Dallas *Trinity River Corridor 1998 Year in Review*. After the technical presentation and a short intermission, the attendees were asked to present verbal and written comments concerning scoping issues to be addressed in the EIS. A listing by date of various public participation events and a summary of the public scoping meeting are included in **Appendix A-2**. Additional public participation events that have occurred since publication of the DEIS are listed in **Appendix G-7**.

Public involvement occurred through meetings of the Community Advisory Work Group (CAWG) during the period from 1999 to 2005. The CAWG is composed of members of the community who volunteer their time to stay involved in the study through regular meetings and other activities. The CAWG was

intended to provide broad-based representation of the community at large, but on a smaller scale to provide a reasonably sized working group. The group's primary role was to monitor the study process from the community perspective and to provide input, ideas, and concerns to the study team. The CAWG was composed of roughly equal representation from the following sectors of the community:

- Neighborhood Associations and places of worship;
- Business interests and land owners;
- Environmental and recreational interests;
- Civic groups and chambers of commerce;
- Local governments; and
- Local agencies.

The identification of the representatives for *Neighborhood Associations and Places of Worship* was carried out in small group meetings at recreation centers and other suitable sites within identified neighborhood clusters in the project study area. At small group meetings in these neighborhoods, members of the community were requested to volunteer as representatives for their area. A listing of CAWG participants is included in **Appendix A-2**, **Table A-2.1** of and a summary of attendance at CAWG meetings is found in **Appendix A-2, Table A-2.2**.

Additionally, briefings and presentations have been made to the following: NTTA Board of Directors, the Trinity River Corridor Citizens Committee, Recreation, Economic Development, and Transportation Sub-committee, Dallas Plan Conference, Richardson Church Group, Richardson Chamber of Commerce, West Dallas Business Association, T.R. Hoover (South Dallas) Neighborhood Association, Stemmons Corridor Business Association, Industrial Corridor Businesses, Oak Cliff Chamber of Commerce, New Hope Baptist Church, Water Environment Association of Texas, Greater Dallas Chamber of Commerce, Dallas City Council, Dallas Landmark Commission, American Society of Landscape Architects – DFW Section, American Institute of Architects – Dallas Chapter, North Dallas Shepard Center, Dallas County Judge Jackson, and State Representative Yvonne Davis.

Information regarding this project has been provided through a web page on NTTA's website (www.ntta.org). Information included a description of the project and the alternatives under study, maps of the study area, frequently asked questions, project newsletters, information from the community/public meetings, and contact information. This information was reviewed and updated on a quarterly basis, or as deemed necessary for time-sensitive information. An electronic copy of the DEIS was posted on the website.

10.2 AGENCY COORDINATION

An initial Interagency Scoping Meeting was held on May 17, 1999 to introduce the project concept, review the alignment alternatives, and identify environmental resource concerns. Participants included the FHWA, TxDOT, USACE, EPA, City of Dallas, and NTTA.

On June 16, 1999, the NTTA, in cooperation with the FHWA, TxDOT, and the City of Dallas, published a Notice of Intent in the *Federal Register* to prepare an EIS for the proposed project (a copy of the notice is in **Appendix A-3**).

Additional Interagency Scoping Meetings were held on July 6, August 10, and September 8, 1999 to further identify environmental resource issues. The August and September meetings included bus tours of the project study area. On January 10, 2000, a meeting with the SHPO was held to define the "area of potential effects" for cultural resources. Coordination with the SHPO under Section 106 of the NHPA was initiated by letter, dated June 5, 2002.

During the agency scoping process in 1999, formal request were extended to TPWD and USFWS for identification of biological resource issues and concerns, and to determine review/consultation requirements (see reference to correspondence in **Appendix A-1**, **Page 2**).

On December 12, 2000, the FHWA issued a supplementary NOI in the *Federal Register* to include in the EIS an evaluation of the proposed City of Dallas Lake Plan (*Trinity River Corridor MIP*). The supplementary NOI was issued because additional analysis is needed to fully address the impacts of potential coordination and planning considerations for these projects (see **Section 3.1.1.4 Coordinated Planning and Design**).

On January 17, 2001, a meeting and bus tour was held with members of the THC, TxDOT, NTTA, City of Dallas, and consultant architects to categorize for potential historic significance those structures that may be displaced by each alternative alignment.

Monthly Trinity River Interagency Executive Team Meetings have provided continuing agency involvement. These meetings started on June 29, 1999 and have occurred on a monthly basis to date. The Trinity River Interagency Executive Team includes staff from the following organizations: City of Dallas Trinity River Corridor Project Office, USACE, TCEQ, EPA, TxDOT, NCTCOG Dallas County, and NTTA.

Numerous agency coordination meetings have been conducted with the FHWA, USACE, EPA, TXDOT, City of Dallas, and NTTA to discuss various aspects of the proposed project. A listing of Agency Coordination Meetings is presented in **Appendix A-2**, and a summary of agency written coordination and copies of agency correspondence are in **Appendix A-1**. The listing of agency participation events is supplemented in **Appendix G-7**, and copies of additional agency correspondence that occurred following publication of the DEIS are presented in **Appendix G-6**.

Informal coordination has occurred through various discussions with local USFWS and TPWD staff regarding potential occurrences of threatened and endangered species and rare biological resources. Coordination with these agencies would continue upon selection of a preferred alternative.

In 2005, the DEIS was circulated to the federal and state resource agencies, including THC, TCEQ, TPWD, EPA, FEMA, USACE, USCG, USDA, U.S. Department of Housing and Urban Development, U.S. Department of the Interior, and USFWS, for comment (see **Appendix G-2** and **G-5** for comments received).

10.3 PUBLIC HEARING AND OPEN HOUSE

An open house and public hearing were held on Tuesday, March 29, 2005 at the Dallas Convention Center Arena. Prior to the hearing a variety of notices were provided to inform members of the community about the proposed project, the public hearing, and the opportunity to provide comments. Notices were published in the legal notice sections of four area newspapers as outlined in **Table 10-1**, and notices were mailed to community leaders, agencies, interested groups, potential affected property owners, and persons on the project mailing list. The content of the legal notice and the materials mailed to property owners is provided in **Appendix G-3**, as is a listing of the locations where copies of the DEIS were made available to the public for review. In addition to legal notices, the hearing was publicized by news releases distributed to area broadcast media. The DEIS was also posted on the NTTA's website (www.ntta.org) prior to the public hearing.

TABLE 10-1. PUBLICATION OF NOTICES OF THE PUBLIC HEARING

Publication	1st Notice	2nd Notice	3rd Notice	4th Notice
Dallas Morning News	25 Feb 2005	4 March 2005	11 March 2005	20 March 2005
Al Dia (Spanish)	25 Feb 2005	4 March 2005	11 March 2005	19 March 2005
Dallas Weekly	23 Feb 2005	2 March 2005	9 March 2005	23 March 2005
El Sol de Texas (Spanish)	25 Feb 2005	4 March 2005	11 March 2005	18 March 2005

An open house was held from 2:00 p.m. to 6:00 p.m. and allowed members of the public to view exhibits detailing aspects of the No-Build Alternative (Alternative 1) and six Build Alternatives (Alternatives 2A, 2B, 3A, 3B, 4A, and 5) under consideration and summarized important findings of the DEIS and Preliminary

Section 4(f) Evaluation. The following stations were available for attendees to visit: (1) registration; (2) right-of-way acquisition and relocation assistance; (3) copies of the DEIS; (4) poster exhibits depicting various aspects of the project and its alternatives; and, (5) design schematics for each alternative. Staff members were available at each of these stations to answer questions about the proposed project. A listing of the exhibits displayed and several photographs of the open house and public hearing are in **Appendix G-3**; this appendix also contains a copy of a welcome packet of materials handed to each person who registered, which included the following: the meeting agenda; copies of slides used during the formal presentation; a summary of characteristics and impacts for each of the alternatives under consideration; instructions as to where copies of the DEIS could be reviewed; and instructions and forms regarding making verbal and written comments on the DEIS.

Attendance of 159 people was recorded for the open house and public hearing; this number includes one elected official from the City of Dallas and 13 public officials representing the EPA (2), the USACE (1), the National Wildlife Refuge System (1), the NCTCOG (6), and the City of Dallas (3). In addition, at least 20 people representing the FHWA, TxDOT, and NTTA were on hand during the open house and public hearing to explain the proposed project and answer questions. During the formal presentation for the hearing, which began at 6:00 p.m., the NTTA provided information on the proposed construction of the Trinity Parkway reliever route from the IH-35E / SH-183 Interchange to US-175 / SH-310 Interchange in the City of Dallas. During the hearing, public officials and members of the public were given the opportunity to make comments. Verbal comments were received from one elected official and 15 members of the public during the formal hearing. Citizens who elected to provide a verbal statement outside the formal hearing were permitted to do so; there were six verbal statements recorded. Transcripts of the formal presentation, verbal statements given during the hearing and verbal statements given to a court reporter are in **Appendix G-4**.

The formal comment period for the DEIS, began February 10, 2005 and closed on April 8, 2005. During this period, 57 written statements were received from members of the public. The DEIS was also distributed to all federal, state, and local government agencies with potential interest in the proposed project; 12 written statements were received from government agencies. Copies and an index of the written statements received from the public and from agencies are included in **Appendix G-5**.

A total of 22 people spoke or wrote in support of the proposed project and 16 people spoke or wrote in opposition to the project. The majority of the oral and written comments from citizens favored the project, and particularly Alternative 3B. Most of the citizens that expressed opposition to the proposed project said they did not want to see a highway within the Dallas Floodway. The opposition of these citizens centered on the negative affect that the new roadway would have on the existing human and natural

environment. Major concerns expressed involved the following environmental issues: relocations and displacements, floodplains, wetlands, and wildlife habitat.

A summary and analysis of all verbal and written comments submitted on the DEIS, and the FHWA's responses thereto, is presented in **Appendix G-1**. Specific comments on different topics were extracted from each statement and the FHWA prepared detailed responses to similar comments that were designated as "subtopics." These comments and responses, organized according to 21 topics and 226 subtopics, are in **Appendix G-2**. A listing of the topics addressed by these comments and responses (the number of subtopics for which a specific response was prepared is shown in parentheses) follows:

- Purpose and Need (9)
- Alternatives (21)
- Project Design (20)
- Costs (5)
- Regulatory Process (12)
- Public Involvement (10)
- USACE Coordination (10)
- Adequacy of Investigation (16)
- Air Quality (12)
- Economic Impacts (4)
- Environmental Justice (3)
- Floodplains (26)
- Cultural Resources (4)
- Noise (7)
- Parklands (6)
- Visual Resources (2)
- Water Quality (8)
- Wetlands (21)
- Wildlife Habitat (16)
- Other Impacts (6)
- Cumulative Impacts (8)

There may be additional text changes to individual paragraphs in this chapter shown in Comments and Responses (SDEIS **Appendix G-2**). These text changes will be included in the Trinity Parkway FEIS.

[END OF CHAPTER]

CHAPTER 11

COMMONLY USED ACRONYMS/ABBREVIATIONS

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COMMONLY USED ACRONYMS/ABBREVIATIONS

AAA	American Automobile Association
AASHTO	American Association of State Highway and Transportation Officials
ACHP	Advisory Council on Historic Preservation
ACM	Automatic Coin Machine
ADA	Americans with Disabilities Act
ADP	Automatic Data Processing
ADT	Average Daily Traffic
APE	Area of Potential Effects
AST	Above Ground Storage Tank
ASTM	American Society for Testing and Materials
AT&SF	Atchison, Topeka, and Santa Fe
AU	Assessment Units
AVI	Automatic Vehicle Identification
AWQMP	Annual Water Quality Management Plan
BEA	Bureau of Economic Analysis
BG	Block Group
BLM	Bureau of Land Management
BMP	Best Management Practice
BN	Burlington Northern and Santa Fe
BOD	Biochemical Oxygen Demand
BRIT	Botanical Research Institute of Texas
BTU	British Thermal Units
BVP	Balanced Vision Plan
C	Celsius
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CAAT	Clean Air Act of Texas
Caltrans	California Department of Transportation
CAWG	Community Advisory Work Group
CBD	Central Business District
CDC	Corridor Development Certificate
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System

CFR	Code of Federal Regulations
cfs	Cubic Feet Per Second
CGP	Construction General Permit
CLI	Closed Landfill Inventory
CLOMR	Conditional Letter of Map Revision
cm	Centimeter
CMAQ	Congestion Mitigation and Air Quality
CMP	Congestion Management Program
CMSA	Consolidated Metropolitan Statistical Area
CO	Carbon Monoxide
COD	Chemical Oxygen Demand
CORRACTS	Corrective Action System
CRP	Clean Rivers Program
CRWR	Center for Research in Water Resources
CSJ	Control-Section-Job
CSS	Context-Sensitive Solutions
CT	Census Tract
CTTC	Council Transportation and Telecommunication Committee
CVO	Commercial Vehicle Operations
CWA	Clean Water Act
CWWTP	Central Wastewater Treatment Plant
DART	Dallas Area Rapid Transit
dB	Decibel
dBA	Decibel (A-Weighed Scale)
DBH	Diameter at Breast Height
DDD	Dichloro-Diphenyl-Dichloroethane
DDE	Dichloro-Diphenyl-Dichloroethylene
DDT	Dichloro-Diphenyl-Trichloroethane
DEIS	Draft Environmental Impact Statement
DEOG	Diesel Exhaust Organic Gases
DFE	Dallas Floodway Extension
DFIRM	Digital Flood Insurance Rate Maps
DFW	Dallas-Fort Worth
DFWRTM	Dallas-Fort Worth Regional Travel Model
DGNO	Dallas Garland and Northeastern Railroad
DHA	Dallas Housing Authority
DHV	Design Hourly Volume
DISD	Dallas Independent School District

DNT	Dallas North Tollway
DO	Dissolved Oxygen
DOI	Department of Interior
DOT	Department of Transportation
DPM	Diesel Particulate Matter
DRMC	Dallas Regional Mobility Coalition
DWU	Dallas Water Utilities
e.g.,	exempli grantia (for example)
EA	Environmental Assessment
EDR	Environmental Data Resources, Inc.
EIS	Environmental Impact Statement
EJ	Environmental Justice
ELR	Environmental Law Review
ENF	Enforcement Report
EO	Executive Order
EOID	Element Occurrence Identification
EOR	Element Occurrence Records
EPA	Environmental Protection Agency
EQ	Environmental Quality
ER	Engineer Regulation
ESA	Endangered Species Act
ESL	English as a Second Language
et al.	et alia (and others)
ETC	Electronic Toll Collection
Etc.	et cetera (and so forth)
ETR	Employer Trip Reduction
F	Fahrenheit
FEIS	Final Environmental Impact Statement
FEMA	Federal Emergency Management Agency
FHA	Federal Highway Administration
FHBM	Flood Hazard Boundary Map
FHWA	Federal Highway Administration
FIRM	Flood Insurance Rate Map
FM	Farm-to-Market
FP	Floodplain
FPEIS	Final Programmatic Environmental Impact Statement
FPPA	Farmland Protection Policy Act
FR	Federal Register

FTA	Federal Transit Administration
FWCA	Fish and Wildlife Coordination Act
GIS	Geographic Information Systems
GVW	Gross Vehicle Weight
HA	Hectare
HABS/HAER	Historic American Building Survey / Historic American Engineering Record
HCM	Highway Capacity Manual
HCS	Highway Capacity Software
HEC-RAS	Hydrologic Engineering Center - River Analysis System
HHS	U.S. Department of Health and Human Services
HOA	Home Owner's Association
HOT	High-Occupancy Toll
HOV	High-Occupancy Vehicle or High-Occupant Vehicle
HRC	hydrogen release compound
HSW	Hazardous and Solid Waste
HUD	Department of Housing and Urban Development
ICIS	Integrated Compliance Information System
i.e.,	id est (that is)
IH	Interstate Highway
IH-20	Interstate Highway 20
IH-30	Interstate Highway 30
IH-35 E	Interstate Highway 35 East
IH-45	Interstate Highway 45
IH-635	Interstate Highway 635
IOP	Innocent Owner/Operator Program
IRIS	Integrated Risk Information System
ISA	Initial Site Assessment
ISD	Independent School District
ISTEA	Intermodal Surface Transportation Efficiency Act of 1991
ITS	Intelligent Transportation Systems
KCS	Kansas City Southern Railroad
Kg	Kilogram
Km	Kilometer
KOP	Key Observation Point
L	Liter
LBP	Lead-Based Paint
L_{dn}	24-hour Equivalent Sound Level
LEP	Limited English Proficiency

L_{eq}	1-hour Steady State Equivalent Sound Level
LOS	Level of Service
LPA	Locally Preferred Alternative
LPIS	Locally Preferred Investment Strategy
LPP	Locally Preferred Plan
LQG	Large Quantity Generator
LRT	Light Rail Transit
LUP	Land Use Plan
LUST	Leaking Underground Storage Tank
LWCF	Land and Water Conservation Fund Act of 1965
MBTA	Migratory Bird Treaty Act
MFT	Federal Motor Fuels Tax
mg/L	Milligrams per Liter
mg/m^3	Milligrams per Cubic Meter
mgd	Million Gallons Per Day
MIP	Master Implementation Plan
MIS	Major Investment Study
MKT	Missouri Kansas and Topeka Railroad
MLK	Martin Luther King, Jr.
MOA	Memorandum of Agreement
MOE	Measure of Effectiveness
MOU	Memorandum of Understanding
MPA	Metropolitan Planning Area
MPH	Miles Per Hour
MPO	Metropolitan Planning Organization
MSAT	Mobile Source Air Toxics
MSL	Mean Sea Level
MTBE	Methyl Tertiary Butyl Ether
MTIS	Major Transportation Investment Study
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NAC	Noise Abatement Criteria
NAFTA	North American Free Trade Agreement
NATA	National Air Toxics Assessment
NCHRP	National Cooperative Highway Research Program
NCTCOG	North Central Texas Council of Governments
ND	Neighborhood District
NDD	Texas Natural Diversity Database

NE	Northeast
NEPA	National Environmental Policy Act
NFIP	National Flood Insurance Program
NHPA	National Historic Preservation Act
NHS	National Highway System
NIST	National Institute of Standards and Technology
NLEV	National Low Emission Vehicle
NMFS	National Marine Fisheries Service
NO_2	Nitrogen Dioxide
NOA	Notice of Availability
NOAA	National Oceanic and Atmospheric Administration
NOI	Notice of Intent
NO_x	Nitrogen Oxides
NPDES	National Pollutant Discharge Elimination System
NPL	National Priority List
NPS	National Park Service
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NTTA	North Texas Tollway Authority
NW	Northwest
NWI	National Wetlands Inventory
NWP	Nationwide Permit
O_3	Ozone
OHWM	Ordinary High Water Mark
OU	Operable Unit
PA	Programmatic Agreement
PA-TU	Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings
PARD	Park and Recreation Department
Pb	Lead
PCB	Polychlorinated Biphenyls
PDP	Project Development Plan
PE	Preliminary Engineering
PEIS	Programmatic Environmental Impact Statement
PL	Public Law
PM	Particulate Matter
PM_{10}	Particulate Matter (Less Than 10 Microns In Diameter)
$PM_{2.5}$	Particulate Matter (Less Than 2.5 Microns In Diameter)

PMSA	Primary Metropolitan Statistical Area
PPB	Parts Per Billion
PPM	Parts Per Million
PS & E	Plans, Specifications, and Estimates
PUC	Public Utility Commission
PWA	Public Works Administration
QT	Quaternary Terrace
RAATS	RCRA Administrative Action Tracking System
RAP	Relocation Assistance Program
RCRA	Resource Conservation and Recovery Act
RCRIS	Resource Conservation and Recovery Information System
RFG	Reformulated Gasoline
RIMS II	Regional Input-Output Modeling System II
RIS	Research and Information Services
RLT	R.L. Thornton
ROD	Record of Decision
ROW	Right-of-Way
RPO	Regional Planning Office
RST	Registered Storage Tank
RTC	Regional Transportation Council
RTP	Regional Transportation Plan
SAFETEA-LU	Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users
SAL	State Archeological Landmarks
SCS	Soil Conservation Service
SDEIS	Supplemental Draft Environmental Impact Statement
SDHPT	State Department of Highways and Public Transportation
SE	Southeast
SFEIS	Supplemental Final Environmental Impact Statement
SH	State Highway
SH-183	State Highway 183
SH-310	State Highway 310
SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SMSA	Standard Metropolitan Statistical Area
SMU	Southern Methodist University
SO_2	Sulfur Dioxide
SO_4	Sulfate
SOV	Single-Occupancy Vehicle or Single-Occupant Vehicle

SP	Southern Pacific
SP-366	Spur 366
SPF	Standard Project Flood
SQG	Small Quantity Generator
SVOC	Semi-Volatile Organic Compounds
SW	Southwest
SW3P	Storm Water Pollution Prevention Plan
SWF/LF	Solid Waste Facility / Landfill
SWQM	State Water Quality Monitoring
TAC	Texas Administrative Code
TACB	Texas Air Control Board
TAQA	Traffic Air Quality Analysis
TCAA	Texas Clean Air Act
TCEQ	Texas Commission on Environmental Quality
TCM	Transportation Control Measures
TDA	Teas Department of Agriculture
TDH	Texas Department of Health
TDM	Travel Demand Management
TDML	Total Maximum Daily Load
TDS	Total Dissolved Solids
TE	Transportation Enhancement
TEA-21	Transportation Equity Act for the 21st Century
TEC	Texas Employment Commission
THC	Texas Historical Commission
THPO	Tribal/Territorial Historic Preservation Officer
TIF	Tax Increment Financing
TIP	Transportation Improvement Program
TMA	Transportation Management Area
TMDL	Total Maximum Daily Load
TMF	Texas Mobile Fund
TMP	Traffic Management Plan
TNHP	Texas Natural Heritage Program
TNM	Traffic Noise Model
TNRCC	Texas National Resource Conservation Commission
TOC	Total Organic Carbon
TORP	Texas Outdoor Recreational Plan
TPC	Trinity Parkway Corridor
TPDES	Texas Pollutant Discharge Elimination System

TPWD	Texas Parks and Wildlife Department
TRA	Trinity River Authority
TRCCC	Trinity River Corridor Citizens Committee
TRE	Trinity Railway Express
TREIS	Trinity Regional Environmental Impact Statement
TSD	Treatment, Storage, or Disposal
TSM	Transportation System Management
TSCA	Toxic Substances Control Act
TSS	Total Suspended Solids
TSWQS	Texas Surface Water Quality Standards
TTA	Texas Turnpike Authority
TTAC	Trinity Trails Advisory Committee
TTC	Texas Transportation Commission
TTI	Texas Transportation Institute
TWDB	Texas Water Development Board
TxDOT	Texas Department of Transportation
TxDOT-ENV	Texas Department of Transportation – Environmental Affairs Division
TXI	Texas Industries
TXU	Texas Utilities
U.S.	United States
UD/TX	University of Dallas / Texas Stadium
UP	Union Pacific
US-175	United States Highway 175
US-75	United States Highway 75
USACE	United States Army Corps of Engineers
USC	United States Code
USCG	United States Coast Guard
USDA	United States Department of Agriculture
USDOI	United States Department of Interior
USDOT	United States Department of Transportation
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UST	Underground Storage Tank
UTP	Unified Transportation Plan
VCP	Voluntary Cleanup Program
VE	Value Engineering
VHT	Vehicle Hours Traveled
VIMP	Visual Impact Mitigation Plan

VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compounds
VPD	Vehicles Per Day
VPH	Vehicles Per Hour
WEAT	Water Environment Association of Texas
WRDA	Water Resource Development Act
WSA	Wilbur Smith Associates
WWTP	Wastewater Treatment Plant
µg/m^3	Micrograms per Cubic Meter
§	Section
®	Registered Trademark
°	Degree

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Allen, G.R. 1980. *Relationship Between Highway Noise, Noise Mitigation, and Residential Property Values*. Publication No. FHWA/VA-81/1.

American Association of State Highway and Transportation Officials (AASHTO). 1992. *Highway Drainage Guidelines*.

Brown, Steve. 2008. *Property Investors Target West Dallas*. The Dallas Morning News. <http://www.dallasnews.com/sharedcontent/dws/bus/industries/commrealestate/stories/053108dnbuswestdallas.3ce4cd8.html>. Accessed Sept. 24, 2008.

Bureau of Economic Geology, 1972, *Geologic Atlas of Texas, Dallas Sheet*. The University of Texas at Austin.

Burt, W.H. and R.P. Grossenheider. 1976. *A Field Guide to the Mammals of North America North of Mexico*. Third Edition. The Peterson Field Guide Series. Boston: Houghton Mifflin Co.

California Department of Transportation (Caltrans). 2005. *Guidance for Preparers of Cumulative Impact Assessments*. June 30, 2005.

CB Richard Ellis. 2007. *Dallas Industrial Market View*. Second Quarter 2007.

City of Dallas. Park and Recreation Department. 1959. *Park and Open Spaces Plan*.

---------. 1975. *A Preliminary Design Report for Town Lake for the City of Dallas, Texas.*

---------. 1984. *Chain of Lakes Park Plan.*

---------. 1992a. *Oak Cliff Gateway TIF District*.

---------. 1992b. *The Cedars TIF District*.

---------. 1994. *The Dallas Plan*.

---------. 1996. *CBD Gateways Urban Design Study*.

---------. 1997a. *Dallas City Council Resolution 972918*.

---------. Park and Recreation Department. 1997b. *Long-Range Physical Development Plan for Parks and Recreation Facilities*.

---------. 1997c. *Trinity river corridor Projects: Trinity Trails.* <http://www.trinityrivercorridor.org/html/trinity_trails.html>. Accessed Sept. 24, 2008.

---------. 1998a. *Capital Bond Improvement Program Summary; In Brief*. Publication No. 97/98-56.

---------. 1998b. *West Dallas Comprehensive Land Use Study*.

---------. 1999a. *Trinity River Corridor Master Implementation Plan, Lake Design and Recreational Amenities Report*.

---------. 1999b. *10th Street Land Use Study*.

---------. Park and Recreation Department. 1999c. *Site and Facility Inventory*.

---------. 2001a. *Stemmons/Design District Land Use Plan*.

---------. 2001b. *Moore Park Master Plan*.

---------. 2001c. *Neighborhood Revitalization and Historic Preservation Program*. <http://www.dallascityhall.com/development_services/historic_preservation.html>. Accessed Sept. 24, 2008.

---------. 2001d. *South Dallas/Fair Park Economic Development Corridor Plan*. J-Quand and Associates and Stanland and Associates.

---------. 2002a. *Trinity River Corridor Comprehensive Land Use Plan with Economic Impact Analysis and Implementation Strategy*.

---------. Park and Recreation Department. 2002b. *A Renaissance Plan for Dallas Parks and Recreation in the 21st Century*. <http://www.dallascityhall.com/pdf/park_and_rec/RenaissancePlan.pdf>. Accessed Sept. 24, 2008.

---------. 2002c. *Fiscal and Economic Impacts of Proposed Recreation and Transportation Initiatives in the Trinity River Corridor, Dallas, TX.*

---------. 2003a. *A Balanced Vision Plan for the Trinity River Corridor*.

---------. 2005. *Design District TIF District*. Ordinance Number 26021.

---------. 2006a. *Preliminary Water Quality Analyses for the Dallas Floodway Draft Environmental Impact Statement (DEIS).* <http://www.trinityrivercorridor.org/pdf/FinalLakesReport01162006.pdf>. Accessed Sept. 24, 2008.

---------. 2006b. *Forward Dallas! Comprehensive Plan.* <http://www.forwarddallas.org/news/item.php?id=67>. Accessed Sept. 24, 2008.

---------. Dallas Water Utilities, Mapping and Capital Services. 2006c. *2006 Water Distribution and Water Collection System Mapping.* Revised February 2, 2006.

---------. 2006d. *Power Transmission Line Update, Trinity River Committee, April 17, 2006.* <http://www.dallascityhall.com/committee_briefings/briefings0406/20060417_TRC_Power.pdf>. Accessed Sept. 24, 2008.

---------. 2006e. *City of Dallas 2006 Bond Program.* <http://www.dallascityhall.com/html/2006_bond_program.html>. Accessed Sept. 24, 2008.

---------. 2006f. *Public Involvement Districts*. <http://www.dallas-edd.org/area_redevelopment.html>. Accessed Sept. 24, 2008.

---------. 2007a. *Upper Trinity River Feasibility Study*. <http://www.trinityrivercorridor.org/html/upper_trinity.html>. Accessed Sept. 24, 2008.

---------. Dallas Fire and Rescue. 2007b. *Fire Station Location Map.* <http://dallasfirerescue.com/sta_list/citymap.html>. Accessed Sept. 24, 2008.

---------. 2007c. *City of Dallas Interactive Map Site.* <http://maps.dallascityhall.com/>. Accessed Sept. 24, 2008.

---------. 2007d. *Trinity River Corridor Project, Trinity Bridges*. <http://www.trinityrivercorridor.org/html/trinity_bridges.html>. Accessed Sept. 24, 2008.

---------. Park and Recreation Department. 2007e. *Site and Facility Inventory*.

---------. 2007f. *All About Dallas, Quick Facts.* <http://www.dallascityhall.com/info/about.html>. Accessed Sept. 24, 2008.

---------. 2007g. *Fort Worth Avenue TIF District*.

---------. Dallas Regional Chamber of Commerce. 2007h. Programs: Business Information & Research. *DFW Region Considered a Top Spot for Office Real Estate*. <http://www.gdc.org/research/research2.aspx> Accessed Sept. 24, 2008.

---------. 2008. *Trinity River Corridor Project, Online Project Timeline for Major Projects.* <http://www.trinityrivercorridor.com/html/project_schedule.html>. Accessed Sept. 24, 2008.

Conant, R. 1975. *Reptiles and Amphibians of Eastern and Central North America*. 2nd Edition. The Peterson Field Guide Series. Boston: Houghton Mifflin Company.

Council on Environmental Quality (CEQ). Executive Office of the President. 1993. *Incorporating Biodiversity Considerations into Environmental Impact Analysis Under the National Environmental Policy Act.*

---------. 1997a. *Environmental Justice - Guidance Under the National Environmental Policy Act.*

---------. 1997b. *Considering Cumulative Effects Under the National Environmental Policy Act.*

Cowardin, L.M., et al. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. Publication No. FWS/OBS-79/31. Washington, D.C.: U.S. Fish and Wildlife Service.

Dallas Area Rapid Transit (DART). 2000a. *Southeast Corridor Major Investment Study*.

---------. 2000b. *Northwest Corridor Major Investment Study*.

---------. 2003. *Northwest Corridor LRT Line to Farmers Branch and Carrollton Final Environmental Impact Statement.* <http://www.dart.org/about/expansion/nweis/nwfeis.htm>. Accessed Sept. 24, 2008.

---------. 2006. *DART Annual Report.* <http://www.dart.org/annualreport/annualreport.asp>. Accessed Sept. 24, 2008.

---------. 2006b. *2030 Transit System Plan.* <http://www.dart.org/2030plan/DART2030PlanJan2007.pdf>. Accessed Sept. 24, 2008.

---------. 2007. *DART Expansion Plans.* <http://www.dart.org/about/expansion/otherprojects.asp>. Accessed Sept. 24, 2008.

--------. 2008. *Northwest Corridor LRT Line to Irving/DFW Airport Final Environmental Impact Statement.* <http://www.dart.org/about/expansion/nwirvingfeis/nwirvingfeis.htm>. Accessed Sept. 24, 2008.

Dallas Convention and Visitors Bureau. 2003. *Stats and Facts*. <http://www.visitdallas.com/media/press_releases.php?id=41&category=5356>. Accessed Sept. 24, 2008.

Dallas County Commissioners Court. 1991. *Dallas County Open Space Plan*.

---------. 1997. *The Dallas County Trail Plan: Trails for the Twenty-First Century*.

Dallas Independent School District (DISD). 2007. *DISD List of Schools by Area (Areas 2, 3, and 6).* <http://www.dallasisd.org/schools/>. Accessed Sept. 24, 2008.

Dallas Parks Board. 1969. *Coordinated Plan - Open Space Development Trinity River System in Dallas, Texas*.

DFW Visitor Guide. 2007. *Facts about DFW*. <http://www.dfwairport.com/visitor/index.php?ctnid=24254>. Accessed Sept. 24, 2008.

Diggs, G.M., Jr., B.L. Lipscomb, and R.J. O'Kennon. 1999. *Shinner's and Mahler's Illustrated Flora of North Central Texas*. Fort Worth: Botanical Research Institute of Texas and Austin College.

---------. 2002. *Major Rivers of East Texas*. <http://artemis.austincollege.edu/acad/bio/gdiggs/EastTX/MapPages/Etriversmap.htm>. Accessed Sept. 24, 2008.

Driscoll, E.D., P.E. Shelley, and E.W. Strecker. 1990. *Pollutant Loadings and Impacts from Highway Stormwater Runoff, Volume I: Design Procedure*. Publication No. FHWA-RD-88-006. Springfield: National Technical Information Service.

Environmental Data Resources, Inc. (EDR). 2007. *EDR DataMap® Area Study, Trinity Parkway, Dallas, TX 75201*.

Environmental Law Institute. 2005. *Uncertainty in the Federal Legal Scheme Controlling Air Pollution from Motor Vehicles*. 35 ELR 10273.

Executive Order No. 11988. 1977. *Flood Plain Management*. <http://www.archives.gov/federal-register/codification/executive-order/11988.html>. Accessed Sept. 24, 2008.

Executive Order No. 11990. 1977. *Protection of Wetlands*. <http://www.archives.gov/federal-register/codification/executive-order/11990.html>. Accessed Sept. 24, 2008.

Executive Order No. 12898. 1994. *Federal Actions to address Environmental Justice in Minority Populations and Low Income Populations.* <http://www.usda.gov/rus/water/ees/pdf/eo-12898.pdf>. Accessed Sept. 24, 2008.

Executive Order No. 13112. 1999. *Invasive Species*. <http://ceq.hss.doe.gov/nepa/regs/eos/eo13112.html>. Accessed Sept. 24, 2008.

Executive Order No. 13166. 2000. *Improving Access to Services for Persons with Limited English Proficiency*. <http://www.usdoj.gov/crt/cor/Pubs/eolep.htm>. Accessed Sept. 24, 2008.

Executive Order No. 13274. 2002. *Environmental Stewardship and Transportation Infrastructure Project Reviews*. 67 FR 6157, February 8, 2002. <http://ceq.hss.doe.gov/nepa/regs/eos/eo13274.pdf>. Accessed Sept. 24, 2008

Federal Emergency Management Agency (FEMA). 2007a. Preliminary Digital Flood Insurance Rate Map - Dallas County, Texas and Incorporated Areas. Panel Number 48113C0160L. June 22, 2007.

---------. 2007b. Preliminary Digital Flood Insurance Rate Map - Dallas County, Texas and Incorporated Areas. Panel Number 48113C0170L. June 22, 2007..

---------. 2007c. Preliminary Digital Flood Insurance Rate Map - Dallas County, Texas and Incorporated Areas. Panel Number 48113C0180L. June 22, 2007.

---------. 2007d. Preliminary Digital Flood Insurance Rate Map - Dallas County, Texas and Incorporated Areas. Panel Number 48113C0190L. June, 22, 2007.

---------. 2007e. Preliminary Digital Flood Insurance Rate Map - Dallas County, Texas and Incorporated Areas. Panel Number 48113C0305L. June 22, 2007.

---------. 2007f. Preliminary Digital Flood Insurance Rate Map - Dallas County, Texas and Incorporated Areas. Panel Number 48113C0195L. June 22, 2007.

---------. 2007g. Preliminary Digital Flood Insurance Rate Map - Dallas County, Texas and Incorporated Areas. Panel Number 48113C0310L. June 22, 2007.

---------. 2007h. Preliminary Digital Flood Insurance Rate Map - Dallas County, Texas and Incorporated Areas. Panel Number 48113C0215L. June 22, 2007.

---------. 2007i. Preliminary Digital Flood Insurance Rate Map - Dallas County, Texas and Incorporated Areas. Panel Number 48113C0330L. June 22, 2007.

Federal Highway Administration (FHWA). 1982. *Procedures for Abatement of Highway Traffic Noise and Construction Noise - Final Rule*. 23 CFR Part 772.

---------. 1987. *Guidance for Preparing and Processing Environmental and Section 4(f) Documents*. FHWA Technical Advisory T6640.8A.

---------. 1988. *Visual Impact Assessment for Highway Projects.*

---------. 1992. *Position Paper: Secondary and Cumulative Impact Assessment in the Highway Project Development Process*.

---------. 1994a. *Erosion and Sediment Control - Final Rule*. *Federal Register* 59: 42.

---------. 1994b. *Executive Memorandum on Beneficial Landscaping*. <http://www.fhwa.dot.gov/environment/042694em.htm>. Accessed Sept. 24, 2008.

---------. 1995. *Nondiscrimination, Environmental Justice, and Community Impact Assessment in Planning and Project Development*.

---------. Office of Environment and Planning. 1996a. *Community Impact Assessment: A Quick Reference for Transportation*. Publication No. FHWA-PD-96-306.

---------. 1996b. Standard Specifications for Construction of Roads and Bridges on Federal Highway Projects. <http://www.wfl.fhwa.dot.gov/design/specs/>. Accessed Sept. 24, 2008.

---------. 1998. *Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. FHWA Order 6640.23.

---------. 1999. *Guidance on Invasive Species.*

---------. 2003. *Interim Guidance: Questions and Answers Regarding Indirect and Cumulative Impact Considerations in the NEPA Process.*

---------. 2005a. *Trinity Parkway Draft Environmental Impact Statement and Section 4(f) Evaluation*. February 2005.

---------. 2005b. Project Pegasus Environmental Assessment and Section 4(f) Evaluation. <http://projectpegasus.org/images/Pegasus%20EA%20-%20Jan%202005%20-Table%20of%20Contents_web.pdf>. Accessed Sept. 24, 2008.

---------. 2005c. *First Amended Programmatic Agreement Among the FHWA, TxDOT, SHPO, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings.* <http://www.dot.state.tx.us/publications/environmental_affairs/programmatic.pdf>. Accessed Sept. 24, 2008.

---------. 2005d. *Section 4(f) Policy Paper*.

---------. 2006. Transportation Air Quality *Selected Facts and Figures, January 2006.* <http://www.fhwa.dot.gov/environment/aqfactbk/index.htm>. Accessed Sept. 24, 2008.

---------. (no date; accessed 2006). *A Methodology for Evaluating Mobile Source Air Toxic Emissions Among Transportation Project Alternatives.* <http://www.fhwa.dot.gov/environment/airtoxic/msatcompare/msatemissions.htm>. Accessed Sept. 24, 2008.

---------. 2007. *FHWA and Context Sensitive Solutions*. <http://www.fhwa.dot.gov/csd/index.cfm>. Accessed Sept. 24, 2008.

Federal Transit Administration (FTA). 1993. *Final Rule on Statewide Metropolitan Planning*.

Fritiofson v. Alexander. 1985. 772 F.2d 1225 (5th Circuit).

Global Hydrology and Climate Center. 2000. *Urban Climatology and Air Quality*. <http://www.ghcc.msfc.nasa.gov/urban/urban_heat_island.html>. Accessed Sept. 24, 2008.

Hall, F.L., B.E. Breston, and S.M. Taylor. 1978. *Effects of Highway Noise on Residential Properties Transportation Research Record*, pp. 38-43.

Health Effects Institute. 2007. *Mobile-Source Air Toxics: A Critical Review of the Literature on Exposure and Health Effects*. <http://pubs.healtheffects.org/view.php?id=282>. Accessed Sept. 24, 2008.

Johnston, J.E. 1989. *Urban Development and Fish and Wildlife Habitat of the Dallas/Fort Worth Metroplex*. U.S. Fish and Wildlife Service Special Report, Fort Worth Field Office, Ecological Services.

Land, L.F. 1995. Water-Quality Assessment of the Trinity River Basin, Texas - Data Collection, 1992-95. NAWQA Fact Sheet FS-090-95.

Land, L.F., et al. 1998. *Water Quality in the Trinity River Basin, Texas, 1992-95*. U.S. Geological Survey Circular 1171.

Litman, T. 2007. Community Cohesion as a Transport Planning Objective. Victoria Transport Policy Institute. Victoria, British Columbia.

Lott, C.A. 2006. *Distribution and Abundance of the Interior Population of the Least Tern (Sternula antillarum), 2005*. US Army Corps of Engineers: Engineer Research and Development Center.

Marvin Springer and Associates and Schrickel, Rollins, and Associates. 1980. *Dallas County Open Space Plan*. Report prepared for the Dallas County Open Space Committee.

McCune, R., ed. 1971. *Freshwater Fishes of Texas*. Austin: Texas Parks and Wildlife Department.

Myfoxdfw.com Dallas Fort Worth. 2007. *Flipped Truck Cleared from Mixmaster.* <http://www.myfoxdfw.com/myfox/pages/ContentDetail?contentId=2654586 >. Accessed Sept. 24, 2008.

National Oceanic and Atmospheric Administration (NOAA). 2007a. *DFW Annual Summary of Normal, Means, and Extremes.* <http://www.srh.noaa.gov/fwd/CLIMO/dfw/normals/dfwann.html>. Accessed Sept. 24, 2008.

---------. 2007b. National Weather Service Forecast Office, Fort Worth, Texas. *Dallas/Fort Worth Climatology*. <http://www.srh.noaa.gov/fwd/CLIMO/dfw/dfwclimo.html>. Accessed Sept. 24, 2008.

---------. 2007c. National Climatic Data Center (NCDC). 2007 A*verage Wind Speed Data - Dallas-Fort Worth, Texas*. Website: <http://www.ncdc.noaa.gov/ol/climate/online/ccd/avgwind.html>. Accessed Sept. 24, 2008.

National Register of Historic Places (NRHP). (no date). <http://www.nationalregisterofhistoricplaces.com/>. Accessed Sept. 24, 2008.

Natural History of North Central Texas (NHNCT). 2007. *Dallas County Soil Map (no date).* <http://www.nhnct.org/geology/soilmap.html>. Accessed Sept. 24, 2008.

NatureServe Explorer: An online encyclopedia of life. 2008. <http://www.natureserve.org/explorer/>. Accessed Sept. 24, 2008.

NBC5i.com Dallas/Fort Worth. 2007a. *Overturned Semi Closes Ramp.* <http://www.nbc5i.com/news/13524906/detail.html>. Accessed Sept. 24, 2008.

---------. 2007b. *Big Rig Crash Snarls Traffic on I-35E.* <http://www.nbc5i.com/news/13542934/detail.html>. Accessed Sept. 24, 2008.

Norman Alston Architects. 2000. *Cultural Resource Review for the Environmental Impact Statement Areas of Potential Effect of the Trinity River Parkway, Dallas, Texas.*

---------. 2001. *Historic Resource Survey of the Building Displacements for the Trinity River Parkway, Dallas, Texas*.

North Central Texas Council of Governments (NCTCOG). Department of Transportation. 1986. *Mobility 2000*.

---------. Department of Transportation. 1990. *Mobility 2010.*

---------. Department of Transportation. 1996. *Mobility 2020*. <http://www.nctcog.org/trans/mtp/previous/mob2020.asp>. Accessed Sept. 24, 2008.

---------. 1998. *Trinity Trails Management Guide* (App. L-2, pg. 10).

---------. Department of Transportation. 2000a. *Mobility 2025*. <http://www.nctcog.org/trans/mtp/previous/mob2025.asp>. Accessed Sept. 24, 2008.

---------. 2000b. Research and Information Services. *2000 Land Use by City.* <http://www.nctcog.org/ris/demographics/landuse/landuse2000.pdf>. Accessed Sept. 24, 2008.

---------. 2000c. *Storm Water Quality Best Management Practices for Construction Activities - North Central Texas.* Second Edition.

---------. Department of Transportation. 2001a. *Mobility 2025 Update*. <http://www.nctcog.org/trans/mtp/previous/mob2025update.asp>. Accessed Sept. 24, 2008.

---------. 2001b. Census *2000. Population by Decade, 1960-2000.* <http://www.nctcog.org/ris/census/reports/decadereport.pdf.> Accessed Sept. 24, 2008.

---------. 2001c. *Trinity River Common Vision Program*. <http://www.nctcog.org/envir/SEEsafe/fpm/C_V_background.asp>. Accessed Sept. 24, 2008.

---------. 2002. Corridor Development Certificate (CDC) Manual. Trinity River Corridor - North Central Texas. <http://www.nctcog.org/envir/SEEsafe/fpm/cdc/3rd_edition/ver3-cover.pdf>. Accessed Sept. 24, 2008.

---------. 2003a. *2000 Employment by City*. <http://www.nctcog.org/ris/demographics/employment/2000cityemp.pdf>. Accessed Sept. 24, 2008.

---------. 2003b. *North Central Texas 2030 Demographic Forecast.* <http://www.nctcog.org/ris/demographics/forecast/publication.pdf>. Accessed Sept. 24, 2008.

---------. Department of Transportation. 2004. *Mobility 2025 - 2004 Update.* <http://www.nctcog.org/trans/mtp/previous/mob2025-2004update.asp>. Accessed Sept. 24, 2008.

---------. Department of Transportation. 2005a. *2006-2008 Transportation Improvement Program for the Dallas-Fort Worth Metropolitan Area.*

---------. Department of Transportation. 2005b. *Mobility 2025 - Amended April 2005.* <http://www.nctcog.org/trans/mtp/amend05/index.asp>. Accessed Sept. 24, 2008.

---------. Department of Transportation. 2005c. *Regional Rail Corridor Study*. <http://www.nctcog.org/trans/transit/planning/rrcs/index.asp>. Accessed Sept. 24, 2008.

---------. Department of Transportation. 2007a. *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area.* <http://www.nctcog.org/trans/mtp/2030/>. Accessed Sept. 24, 2008.

--------. 2007b. *2007 Current Population Estimates.* <http://www.nctcog.org/ris/demographics/population/2007popestimates.pdf>. Accessed Sept. 24, 2008.

---------. 2007c. *Transportation Improvement Program Information System Interactive Map*. <http://www.dfwmaps.com/index.asp?mapTheme=dfwmaps&mapOption=tip&TIP=on>. Accessed Sept. 24, 2008

---------. 2007d. *Major Employers.* <http://www.nctcog.org/ris/demographics/demographics.asp?majemp=on&search=city&citycode=1085&cntycode=085&Submit=Submit>. Accessed Sept. 24, 2008.

---------. Department of Transportation. 2007e. *Historic Ozone Activity online data.* Air Quality Planning and Operations. <http://www.nctcog.org/trans/air/ozone/exceedances04.pdf>. Accessed Sept. 24, 2008.

---------. 2007f. Research and Information Services. *2000 Census Tracts and Block Groups.* <http://www.dfwmaps.com/index.asp?mapTheme=dfwmaps&mapOption=CENSUS>. Accessed Sept. 24, 2008.

---------. 2007g. *2008-2011 Transportation Improvement Program: Inventory of Programmed Transportation Projects in the Dallas-Fort Worth Area.* Approved October, 31, 2007. <http://www.nctcog.org/trans/tip/FinTIP0811.pdf>. Accessed Sept. 24, 2008.

North Texas Tollway Authority (NTTA). 2003. *System-Wide Design Guidelines*.

Oregon Department of Transportation. 2001. *A guidebook for Evaluating the Indirect Land Use and Growth Impacts of Highway Improvements.* ECONorthwest and Portland State University.

Palmquist, R.B. 1980. *Impact of Highway Improvements on Property Values in Washington*. <http://www.wsdot.wa.gov/Research/Reports/000/037.1.htm>. Accessed Sept. 24, 2008.

---------. 1982. *Measuring Environmental Effects on Property Prices Values Regressions*. Journal of Urban Economics 11: 333-47.

Pulich, W. 1990. *Field Checklist of Birds: Dallas County, Texas*. Dallas: Dallas County Audubon Society. Realtor.com. 2007. <www.realtor.com>. Accessed Sept. 24, 2008.

Sharpless, R.M. and J.C. Yelderman, Jr., eds. 1993. *The Texas Blackland Prairie*. Waco: Baylor University.

Sierra Club, The. 2004. *Highway Health Hazards.* <http://www.sierraclub.org/sprawl/report04_highwayhealth/report.pdf>. Accessed Sept. 24, 2008.

Skinner, A., AR Consultants, Inc. 2003. *The Trinity River Parkway Archival and Archaeological Evaluation Report*.

---------. 2006. *Archaeological Testing Report for the Trinity Parkway*. June 27, 2006.

South Coast Air Quality Management District. 2000. *Multiple Air Toxic Exposure Study - II*.

State Department of Highways and Public Transportation (SDHPT). 1967. *DFW Regional Transportation Study*. Volume 2.

Terra-Mar, Inc. 1999. *Geotechnical/Environmental Investigation: Trinity River Implementation Plan*. TMI Report No. DE99-029.

Texas Commission on Environmental Quality (TCEQ). 2005a. 2004 Texas Clean Water Act Section 303(d) List (May 13, 2005). <http://www.tceq.state.tx.us/assets/public/compliance/monops/water/04twqi/04_303d.pdf>. Accessed Sept. 24, 2008.

---------. 2005b. *2004 Texas Water Quality Inventory Status and Category of All Waters (May 13 2005).* <http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/04twqi/twqi04.html>. Accessed Sept. 24, 2008.

---------. 2007a. *Online Wind Roses 1984 through 1992.* <http://www.tceq.state.tx.us/compliance/monitoring/air/monops/windroses.html>. Accessed Sept. 24, 2008.

---------. 2007b. *2006 Draft Texas Water Quality Inventory and 303(d) List (March 19, 2007).* <http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/06twqi/twqi06.html>. Accessed Sept. 24, 2008.

---------. 2007c. *TCEQ Texas Clean Rivers Program: Data and Map Resources.* <http://www.tceq.state.tx.us/compliance/monitoring/crp/data/samplequery.html>. Accessed Sept. 24, 2008.

---------. 2007d. *State Implementation Plan.* <http://www.tceq.state.tx.us/nav/eq/sip.html> Accessed Sept. 24, 2008.

---------. 2008. *2008 Texas Water Quality Inventory and 303(d) List (March 19, 2008).* <http://www.tceq.state.tx.us/compliance/monitoring/water/quality/data/08twqi/twqi08.html>. Accessed January 16, 2009.

Texas Comptroller of Public Accounts. Economic Analysis Center. 1989. *Texas Input/Output Model*.

Texas Department of Agriculture. 1981. *Noxious Weed Content*. Title 5, Subtitle A, Chapter 61. <http://tlo2.tlc.state.tx.us/statutes/docs/AG/content/pdf/ag.005.00.000061.00.pdf>. Accessed Sept. 24, 2008.

Texas Department of Health (TDH). 2000. *Health Consultation - Trinity River: Dallas County and Tarrant County, Texas*. Prepared under cooperative agreement with the Agency for Toxic Substances and Disease Registry.

Texas Department of Transportation (TxDOT). Environmental Affairs Division. 1996. *Guidelines for Analysis and Abatement of Highway Traffic Noise*.

---------. Dallas District. 1998a. *Trinity Parkway Corridor Major Transportation Investment Study*.

---------. Dallas District. 1998b. *Study Report, Trinity Parkway Corridor*.

---------. Dallas District. 2000a. *Annual Auto Occupancy Study, Dallas County, Texas*.

---------. Dallas District. 2000b. *SH-183/West Fork Corridor Major Investment Study*.

---------. 2001. *Unified Transportation Plan*.

---------. 2002. *Trans Texas Corridor Plan*. <www.dot.state.tx.us>. Accessed Sept. 24, 2008.

---------. Environmental Affairs Division. 2006a. *Air Quality Guidelines*. June 2006.

---------. Environmental Affairs Division. 2006b. *Guidance on Preparing Indirect and Cumulative Impact Analyses*. December 2006.

---------. 2007a. *2008-2011 Statewide Transportation Improvement Program*. <http://www.dot.state.tx.us/services/transportation_planning_and_programming/statewide_transportation_improvement_program/stip08_11.htm>. Accessed Sept. 24, 2008.

---------. Dallas District. 2007b. *TxDOT Online Project Information.* <http://www.dot.state.tx.us/dal/mis/sh183stage2/index.htm>. Accessed Sept. 24, 2008.

---------. Dallas District. 2007c. *Project Pegasus, Online Project Information.* <http://www.projectpegasus.org/information.htm>. Accessed Sept. 24, 2008.

---------. Dallas District. 2007d. *The Southern Gateway (IH 35E/US 67 Transportation Study) Online Project Information - Project News.* <http://www.thesoutherngateway.org/servlet/com.hntb.cs.servlets.NewsDocumentManagement?option=1&projectid=21>. Accessed Sept. 24, 2008.

Texas Department of Transportation and Texas Parks and Wildlife Department. 1998. *Memorandum of Agreement between Texas Department of Transportation and Texas Parks and Wildlife Department for Finalization of 1998 MOU, Concerning Habitat Descriptions and Mitigation*.

Texas Historical Commission (THC). 2002a. *The National Historic Preservation Act*. <http://www.achp.gov/NHPA.pdf>. Accessed Sept. 24, 2008.

---------. 2002b. *The Texas Antiquities Code*. <http://www.thc.state.tx.us/rulesregs/RulesRegsPDF/AntiqCode.pdf>. Accessed Sept. 24, 2008.

---------. 2002c. *Preserving Our Heritage: A Statewide Plan for Texas*. <http://www.thc.state.tx.us/publications/reports/Statewideplan.pdf>. Accessed Sept. 24, 2008.

---------. 2002d. *Visionaries in Preservation Program*. <http://www.thc.state.tx.us/visioninpres/vpprogram.shtml>. Accessed Sept. 24, 2008.

Texas Natural Heritage Program. 1993. *Plant Communities of Texas (Series Level)*.

Texas Natural Resource Conservation Commission. 1996. *The State of Texas Water Quality Inventory Volume 2*. 13th Edition. Austin: TNRCC.

Texas Parks and Wildlife Department (TPWD). 1984. *The Vegetation Types of Texas*. <http://www.tpwd.state.tx.us/publications/pwdpubs/pwd_bn_w7000_0120/>. Accessed Sept. 24, 2008.

---------. 1997. *The Great Trinity Forest Master Plan*.

---------. 2002a. *Land and Water Resources Conservation Plan (Draft)*.

---------. 2002b. *Texas Wetlands*. <http://www.tpwd.state.tx.us/landwater/water/habitats/wetland/ecology/texas_wetlands.phtml>. Accessed Sept. 24, 2008.

---------. 2007. Natural Diversity Database (NDD), *Annotated County List of Rare Species - Dallas County*.

Texas Transportation Institute (TTI). 2003. *The 2003 Urban Mobility Report*. <http://tti.tamu.edu/documents/ums/mobility_report_2003.pdf> Accessed Sept. 24, 2008.

---------. 2005. *The 2005 Urban Mobility Report*. http://tti.tamu.edu/documents/ums/mobility_report_2005_wappx.pdf. Accessed Sept. 24, 2008.

---------. 2007. *The 2007 Urban Mobility Report*. <http://tti.tamu.edu/documents/mobility_report_2007_wappx.pdf >. Accessed Sept. 24, 2008.

Texas Turnpike Authority (TTA). 1973. *Trinity Route of the Dallas Fort Worth Turnpike*.

Texas Workforce Commission (TWC). 2003. *Labor Market and Career Information*. <http://www.lmci.state.tx.us/>. Accessed Sept. 24, 2008.

---------. 2007. *Unemployment Rates - Dallas, Texas.* <http://www.tracer2.com/cgi/dataanalysis/AreaSelection.asp?tableName=Labforce>. Accessed Sept. 24, 2008.

Transportation Research Board (TRB). 1997. National Research Council. *Highway Capacity Manual 2000*. Washington, D.C.

---------. 2002. National Research Council. *Desk Reference for Estimating the Indirect Effects of Proposed Transportation Projects.* National Cooperative Highway Research Program. Report 466. National Academy Press. Washington, D.C.

---------. 2007. *Forecasting Indirect Land Use Effects on Transportation Projects.* National Cooperative Highway Research Program Project 25-25, Task 22.

Trinity River Authority of Texas (TRA). 1999. *Regional Assessment of Water Quality, Trinity River Basin*.

---------. 2000a. *Trinity River Basin Summary Report*. <http://www.trinityra.org/BasinPlan/basin_summary_of_water.htm>. Accessed Sept. 24, 2008.

---------. 2000b. *Trinity River Basin Water Quality*

---------. 2001. *Trinity River Basin Master Plan*. <http://www.trinityra.org/PDF_files/Master%20Plan%20Justified%20REV.pdf>. Accessed Sept. 24, 2008.

Tull, D. and G.O. Miller. 1991. *A Field Guide to Wildflowers, Trees and Shrubs of Texas*. Texas Monthly Field Guide Series. Houston: Gulf Publishing Company.

U.S. Army Corps of Engineers (USACE). 1977. *Section 404(b)(1) Guidelines for Specification of Disposal Sites for Dredged or Fill Material*. <http://www.usace.army.mil/cw/cecwo/reg/40cfr230.pdf>. Accessed Sept. 24, 2008.

---------. 1982. *Water Resources Policies and Authorities - Modifications to Completed Projects.* Engineering Regulation (ER) 1165-2-119. <http://www.usace.army.mil/publications/eng-regs/er1165-2-119/entire.pdf>. Accessed Sept. 24, 2008.

---------. Waterways Experiment Station. 1987. *Wetlands Delineation Manual*. Wetlands Research Program Technical Report Y-87-1.

---------. 1988. *Environmental Quality - Procedures for Implementing NEPA.* Engineering Regulation (ER) 200-2-2. <http://www.usace.army.mil/publications/eng-regs/er200-2-2/entire.pdf>. Accessed Sept. 24, 2008.

---------. 1989. *Retaining and Flood Walls*. Engineering and Design, EM 1110-2-2502. <http://www.usace.army.mil/publications/eng-manuals/em1110-2-2502/entire.pdf>. Accessed Sept. 24, 2008.

---------. 1995a. *Waterstops and Other Preformed Joint Materials for Civil Works Structures*. Engineering and Design, EM 1110-2-2102. <http://www.usace.army.mil/publications/eng-manuals/em1110-2-2102/entire.pdf>. Accessed Sept. 24, 2008.

---------. Waterways Experiment Station. 1995b. *Wetland Research Program Technical Report WRP-DE-9*.

---------. 1995c. *A Guidebook for Application of Hydrogeomorphic Assessments to Riverine Wetlands.* Wetlands Research Program Technical Report WRP-DE-11.

---------. Fort Worth District. 1999. *Final General Re-Evaluation Report and Integrated Environmental Impact Statement: Dallas Floodway Extension*.

---------. Fort Worth District. 2000. *Final Programmatic Environmental Impact Statement: Upper Trinity River Basin, Trinity River, Texas*.

---------. 2002. *Regulatory Guidance Letter No. 02-2.* <http://www.swf.usace.army.mil/pubdata/environ/regulatory/permitting/mitigation/rgl2-02.pdf>. Accessed Sept. 24, 2008.

---------. Fort Worth District. 2003a. *Final Supplement No. 1 to the Environmental Impact Statement for the Dallas Floodway Extension, Trinity River, Texas.*

---------. Fort Worth District. 2003b. *Criteria for Construction within the Limits of Existing Federal Flood Protection Projects*. Pamphlet No. SWFP 1150-2-1. (See SDEIS Appendix E.)

---------. Memorandum. October 23, 2006. *Policy and Procedural Guidance for the Approval of Modification and Alteration of Corps of Engineer Projects.*

---------. Fort Worth District. February 2008. *Final Report Phase II Environmental Site Assessment, Dallas Floodway, Upper Trinity River, Dallas, Texas.*

U.S. Census Bureau. 1990. Census 1990.

---------. 2000. Census 2000.

U.S. Congress. 1899. *Rivers and Harbors Act of 1899.* 33 U.S.C. § 403.
< http://www.epa.gov/owow/wetlands/regs/sect10.html >. Accessed Sept. 24, 2008.

---------. 1918. *Migratory Bird Treaty Act of 1918.* 16 U.S.C. §§ 703-712.
<http://www.fws.gov/laws/lawsdigest/migtrea.html>. Accessed Sept. 24, 2008.

---------. 1934. *Fish and Wildlife Coordination Act.* 16 U.S.C. §§ 661-667e.
<http://www.fws.gov/laws/lawsdigest/fwcoord.html>. Accessed Sept. 24, 2008.

---------. 1964. *Civil Rights Act of 1964.* 42 U.S.C §§ 2000d-2000d-7.
<http://www.usdoj.gov/crt/cor/coord/titlevistat.htm>. Accessed Sept. 24, 2008.

---------. 1965a. *Land and Water Conservation Fund Act of 1965.* 16 U.S.C. §§ 460l-4 through 460l-11.
<http://www4.law.cornell.edu/uscode/uscode16/usc_sup_01_16_10_1_20_LXIX_30_B.html>.
Accessed Sept. 24, 2008.

---------. 1965b. *River And Harbors Act of 1965.* Public Law 89-298.
<http://www.fws.gov/habitatconservation/Omnibus/R&HA1965.pdf>. Accessed Sept. 24, 2008.

---------. 1966a. *National Historic Preservation Act of 1966.* 16 U.S.C. § 470 et seq.
<http://www.achp.gov/NHPA.pdf>. Accessed Sept. 24, 2008.

---------. 1966b. Department of Transportation Act of 1966. 49 U.S.C. § 303.
<http://www.nps.gov/history/local-law/FHPL_DOTAct.pdf>. Accessed Sept. 24, 2008.

---------. 1968. *Wild and Scenic Rivers Act.* 16 U.S.C. § 1271-1287.
<http://www.rivers.gov/wsract.html>. Accessed Sept. 24, 2008.

---------. 1970a. *National Environmental Policy Act of 1969 (NEPA).* 42 U.S.C. §§ 4321-4347.
<http://ceq.hss.doe.gov/nepa/regs/nepa/nepaeqia.htm >. Accessed. Sept. 24, 2008.

---------. 1970b. *Clean Air Act (CAA)*. 42 U.S.C. § 7401 et seq.
<http://www.epa.gov/airprogm/oar/caa/index.html>. Accessed Sept. 24, 2008.

---------. 1971. *Uniform Relocation Assistance and Real Property Acquisition Policies For Federal and Federally Assisted Programs*. <http://www.access.gpo.gov/uscode/title42/chapter61_.html>. Accessed Sept. 24, 2008.

---------. 1972. *Marine Protection, Research and Sanctuaries Act.* 16 U.S.C. §§ 1431-1445. <http://www.fws.gov/laws/lawsdigest/MARPROT.HTML>. Accessed Sept. 24, 2008.

---------. 1973. *Endangered Species Act (ESA)*. § 7 U.S.C. 136; § 16 U.S.C. 460 et seq. <http://www.access.gpo.gov/uscode/title16/chapter35_.html>. Accessed Sept. 24, 2008.

---------. 1974. *HUD Housing and community Development Act of 1974.* 42 U.S.C. § 5309. <http://www.usdoj.gov/crt/cor/byagency/hud5309.htm>. Accessed Sept. 24, 2008.

---------. 1979a. *Resource Conservation and Recovery Act.* 42 U.S.C. § 6901 et seq. <http://www.access.gpo.gov/uscode/title42/chapter82_.html>. Accessed Sept. 24, 2008.

---------. 1979b. *Archaeological Resources Protection Act of 1979*. 16 U.S.C. §§ 470aa-mm. <http://www.nps.gov/history/local-law/FHPL_ArchRsrcsProt.pdf>. Accessed Sept. 24, 2008.

---------. 1980a. *Clean Water Act (CWA)*. 33 U.S.C. § 1251 et seq. <http://www.access.gpo.gov/uscode/title33/chapter26_.html>. Accessed Sept. 24, 2008.

---------. 1980b. *Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)* 42 U.S.C. § 9601 et seq. <http://www.access.gpo.gov/uscode/title42/chapter103_.html>. Accessed Sept. 24, 2008.

---------. 1988. *Civil Rights Restoration Act of 1987.* Public Law 100-259. 102 Stat. 28. <http://www.fhwa.dot.gov/environment/ejustice/facts/restoration_act.htm>. Accessed Sept. 24, 2008.

---------. 1990a. *Americans with Disabilities Act of 1990*. 42 U.S.C. § 12101 et seq. <http://www.usdoj.gov/crt/ada/adahom1.htm>. Accessed Sept. 24, 2008.

---------. 1990b. *Clean Air Act Amendments*. Public Law 101-549. <http://www.epa.gov/oar/caa/caaa.txt>. Accessed Sept. 24, 2008.

---------. 1991. *Intermodal Surface Transportation Efficiency Act (ISTEA)*. Public Law 102-240. <http://ntl.bts.gov/DOCS/istea.html>. Accessed Sept. 24, 2008.

---------. 1998. *Transportation Equity Act for the 21st Century (TEA-21)*. Public Law 105-178. <http://www.fhwa.dot.gov/tea21/>. Accessed Sept. 24, 2008.

---------. 1999. *Water Resources Development Act of 1999.* 33 U.S.C. § 2201. <http://www.fws.gov/habitatconservation/Omnibus/WRDA1999.pdf>. Accessed Sept. 24, 2008.

---------. 2002. *Small Business Liability Relief and Brownfields Revitalization Act.* Public Law 107-118. <http://www.epa.gov/swerosps/bf/sblrbra.htm>. Accessed Sept. 24, 2008.

---------. 2005. *Safe, Accountable, Flexible, Efficient, Transportation Equity Act (SAFETEA-LU).* Public Law 109-59. <http://www.fhwa.dot.gov/safetealu/index.htm>. Accessed Sept. 24, 2008.

---------. 2007. *Water Resources Development Act of 2007.* Public Law 110-114.

U.S. Department of Agriculture (USDA). Soil Conservation Service in cooperation with Texas Agricultural Experiment Station. 1980. *Soil Survey of Dallas County, Texas.* Washington, D.C.: U.S. Government Printing Office.

---------. 1998. *Stream Visual Assessment Protocol*. National Water and Climate Center Technical Note 99-1.

U.S. Department of Commerce, Bureau of Economic Analysis. 2003. *Regional Input/Output Modeling System (RIMS II).*

U.S. Department of Housing and Urban Development (HUD). 2005. *Housing of Last Resort*. <http://www.hud.gov/offices/cpd/affordablehousing/training/web/relocation/lastresort.cfm>. Accessed Sept. 24, 2008.

U.S. Department of Health and Human Services (HHS). Public Health Service, Agency for Toxic Substances and Disease Registry. 1997. *Toxicological Profile for Benzene*.

---------. 2008. HHS Poverty Guidelines. <http://aspe.hhs.gov/poverty/08poverty.shtml>. Accessed Sept. 24, 2008.

U.S. Department of Interior. Bureau of Outdoor Recreation. 1977. *National Urban Recreation Study, Dallas/Fort Worth*.

U.S. Department of Labor. Bureau of Labor Statistics. 2007. *Local Area Unemployment Statistics - Dallas, Texas.* <http://data.bls.gov/cgi-bin/surveymost?la+48>. Accessed Sept. 24, 2008.

U.S. Environmental Protection Agency (EPA). 1974. *A Guide for Considering Air Quality in Urban Planning*. Publication No. EPA 450/3-74-020.

---------. 1979. *Environmental Monitoring of Benzene.* Office of Toxic Substances. Publication No. EPA 560/679/006.

---------. 1985. *Final Draft for Drinking Water Criteria Document on Benzene.* Office of Drinking Water. Publication No. PB86-118122.

---------. 1994a. *Evaluation of Ecological Impacts from Highway Development.* Office of Federal Activities, OCLC: 32298658.

---------. Office of Federal Activities. 1994b. *Evaluation of Ecological Impacts from Highway Development*.

---------. 1996a. *National Air Toxics Assessment (NATA).* <http://www.epa.gov/ttn/uatw/nata/>. Accessed Sept. 24, 2008.

---------. 1996b. *Proposed Guidelines for Carcinogen Risk Assessment*. Office of Research and Development. Publication No. EPA/600/P-92/003C.

---------. 1997. *Health and Environmental Effects of Ground-Level Ozone*. <http://www.epa.gov/ttn/oarpg/naaqsfin/o3health.html>. Accessed Sept. 24, 2008.

---------. 1998a. *Final Guidance for Incorporating Environmental Justice Concerns in EPA's NEPA Compliance Analyses*. <http://www.epa.gov/Compliance/resources/policies/ej/ej_guidance_nepa_epa0498.pdf>. Accessed Sept. 24, 2008.

---------. 1998b. *Carcinogenic Effects of Benzene: An Update*. National Center for Environmental Health, Office of Research and Development. Publication No. EPA/600/P-97/001F.

---------. 1999a. *Consideration of Cumulative Impacts in EPA Review of NEPA Documents*. <http://www.epa.gov/Compliance/resources/policies/nepa/cumulative.pdf>. Accessed Sept. 24, 2008.

---------. 1999b. *Indicators of the Environmental Impacts of Transportation*. Publication No. EPA 230-R-96-009.

---------. 1999c. *Considering Ecological Processes in Environmental Impact Assessments*.

---------. Office of Federal Activities. 1999d. *Considering Ecological Processes in Environmental Impact Assessments*. <http://www.epa.gov/Compliance/resources/policies/nepa/ecological-processes-eia-pg.pdf>. Accessed Sept. 24, 2008.

---------. 1999e. *Guidelines for Carcinogen Risk Assessment* (Review Draft). Risk Assessment Forum. Publication No. NCEA-F-0644.

---------. 1999f. *Regulatory Impact Analysis – Control of Air Pollution from New Motor Vehicles: Tier 2 Motor Vehicle Emissions Standards and Gasoline Sulfur Control Requirements*. Engine Programs and Compliance Division, Office of Mobile Sources. Publication No. EPA420-R-99-023.

---------. 2001a. *Final Rule for Controlling Emissions of Hazardous Air Pollutants from Mobile Sources*. 66 FR 17229. March 29, 2001.

---------. Center for Environmental Information and Statistics. 2001b. *National Emissions Trend Database, Tons of Criteria Air Pollutant Emissions for 1986-1996, Dallas County, Texas*. <http://www.epa.gov/ceis>. Accessed Sept. 24, 2008.

---------. 2001c. *National Emissions Inventory Database, Tons of Criteria Air Pollutants for 1996-2001, Dallas County, Texas.* U.S. EPA online data and maps. <http://www.epa.gov/air/data/reports.html>. Accessed Sept. 24, 2008.

---------. 2002. *2002 National Emissions Inventory Data & Documentation, Version 3 Tier Summary File for All Sectors*. Created October, 2007. <http://www.epa.gov/ttn/chief/net/2002inventory.html>. Accessed Sept. 24, 2008.

---------. Office of Air Quality Planning and Standards. 2008. *National Ambient Air Quality Standards (NAAQS).* <http://www.epa.gov/air/criteria.html>. Accessed Nov. 21, 2008.

---------. (no date). IRIS Database. Weight of Evidence Characterization Summary. <http://www.epa.gov/iris/>. Accessed Sept. 24, 2008.

U.S. Fish and Wildlife Service (USFWS). 1997. *Report of the U.S. Fish and Wildlife Service on the Dallas Floodway Extension Project, Dallas Texas*.

---------. 2002a. *Status and Trends of Wetlands in the Conterminous United States 1998 to 2004*. <http://wetlandsfws.er.usgs.gov/status_trends/national_reports/trends_2005_report.pdf>. Accessed Sept. 24, 2008.

---------. 2002b. *Development Projects in North Texas*. <http://www.fws.gov/southwest/es/arlingtontexas/Development.htm>. Accessed Sept. 24, 2008.

---------. 2007. *Endangered, Threatened, and Candidate Species Listed by County for the Arlington Field Office's Area of Responsibility*. <http://www.fws.gov/southwest/es/EndangeredSpecies/lists/>. Accessed Sept. 24, 2008.

U.S. Forest Service, et al. 1990. *National Wild and Scenic Rivers System*. Map Number 38077-BQ-NA-05M-00.

U.S. Geological Survey (USGS). 1981a. Topographical Quadrangle Map "Dallas, Texas."

---------. 1981b. Topographical Quadrangle Map "Irving, Texas."

---------. 1981c. Topographical Quadrangle Map "Oak Cliff, Texas."

---------. 1999. The Quality of Our Nation's Waters - Nutrients and Pesticides. USGS Circular 1225.

---------. 2007. *USGS Surface Water Data for Texas.* USGS National Water Information System (NWIS). <http://www.floodsafety.com/texas/USGSdemo/USGS_map_pages/peakdata/08057000.htm>. Accessed Sept. 24, 2008.

USA Church. 2007. *List of Churches by Zip Code (Zip Codes 75247, 75212, 75208, 75203, 75216, 75215, and 75235).* <http://www.usachurch.com/texas/dallas/churches.htm>. Accessed Sept. 24, 2008.

WFAA.com Dallas/Fort Worth Channel 8. 2007. *Truck wreck snarls Mixmaster traffic.* <http://www.wfaa.com/sharedcontent/dws/wfaa/cvega/stories/wfaa071205_wz_i35wreck.6cedf48f.html>. Accessed Sept. 24, 2008.

Wilbur Smith Associates (WSA). 1998. *Proposed Parkway Preliminary Feasibility Analysis*.

---------. 2000. *Proposed Trinity Parkway EIS Traffic Development Study*.

NOTE:

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[END OF CHAPTER 13]