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SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT & DRAFT SECTION 4(f) EVALUATION

TRINITY PARKWAY

FROM IH-35E/SH-183 TO US-175/SH-310 DALLAS COUNTY, TEXAS

Executive Order 13274 Project

On August 18, 2004, the Trinity Parkway was designated as a Priority Project for expedited agency environmental review under EO 13274.

U.S. Department of Transportation Federal Highway Administration

Texas Department of Transportation

NTTA NORTH TEXAS TOLLWAY AUTHORITY

FEBRUARY 2009

FHWA-TX-EIS-02-02-DS

TRINITY PARKWAY
FROM IH-35E/SH-183 TO US-175/SH-310, DALLAS COUNTY, TEXAS

SUPPLEMENTAL DRAFT ENVIRONMENTAL IMPACT STATEMENT
AND
DRAFT SECTION 4(f) EVALUATION

Submitted Pursuant to 42 USC 4332 (2)(c), 49 USC 303, and
40 CFR 230

By the:
U.S. Department of Transportation
Federal Highway Administration
Texas Department of Transportation
North Texas Tollway Authority

Cooperating Agencies:
U.S. Environmental Protection Agency
U.S. Army Corps of Engineers

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for North Texas Tollway Authority

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Abstract: This Supplemental Draft Environmental Impact Statement (SDEIS) discusses new information and circumstances not presented in the initial Draft EIS (DEIS) that have bearing on the alternatives under consideration for the proposed Trinity Parkway project. Supplemental information includes new studies and analyses of cultural resources and natural resources, including vegetation, waters of the U.S., including wetlands, and floodplains. New mitigation measures for these resources are also presented. Revised information and analyses are provided for construction impacts and cumulative effects. Included is a Draft Section 4(f) Evaluation in compliance with 49 USC 303 and 23 USC 138.

Comments on the SDEIS are due 45 days from the date the Notice of Availability is published in the *Federal Register* and should be sent to the North Texas Tollway Authority, Plano, Texas.

Price per copy: $300.00 *(additional shipping fees are not included in this price)*.

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FOREWORD

The National Environmental Policy Act of 1969 (NEPA) establishes a process that requires the preparation of detailed environmental documentation when federal actions are proposed with potentially significant environmental impacts. An Environmental Impact Statement (EIS) identifies the probable environmental consequences (beneficial and/or adverse) of each alternative, including ways to mitigate unavoidable impacts.

This Supplemental Draft Environmental Impact Statement (SDEIS) has been prepared according to the regulations of the U.S. Department of Transportation's (USDOT) Federal Highway Administration (FHWA) [23 Code of Federal Regulations (CFR) Part 771]. The Draft 4(f) Evaluation has been prepared according to 23 CFR Part 774. These regulations prescribe the policies for implementing NEPA and the regulations of the federal Council on Environmental Quality (CEQ) (40 CFR Parts 1500-1508). This document is also consistent with the FHWA regulations governing metropolitan transportation planning (23 CFR Section (§) 450.318).

This SDEIS and Draft Section 4(f) Evaluation for the Proposed Trinity Parkway Project from Interstate Highway (IH)-35E/State Highway (SH)-183 to U.S. Highway (US)-175/SH-310 in the City of Dallas, Dallas County, Texas updates the Draft Environmental Impact Statement (DEIS) published in February 2005. The SDEIS was prepared by the FHWA, the Texas Department of Transportation (TxDOT), and the North Texas Tollway Authority (NTTA) in cooperation with the U.S. Environmental Protection Agency (USEPA) and the U.S. Army Corps of Engineers (USACE), to provide new or additional information and data which the decision makers and general public need prior to determining what, if any, federal action may be undertaken. Specifically, new information relative to the following major items has been included in the SDEIS:

- Development and inclusion of two additional Build Alternatives (and associated impact analysis);
- Additional hydrologic and hydraulic modeling for all Build Alternatives;
- Additional mapping and analysis of potential impacts to vegetation and waters of the U.S., including wetlands;
- Analysis of mobile source air toxics;
- Use of updated data, analysis, and projections provided by the North Central Texas Council of Governments (NCTCOG) and documented in *Mobility 2030: The Metropolitan Transportation Plan (MTP) for the Dallas-Fort Worth Area*. The U.S. Department of Transportation (FHWA/FTA)

found the MTP to conform to the State Implementation Plan (SIP) on June 12, 2007 (TCEQ, 2007d), and the *2008-2011 Transportation Improvement Program* (TIP) was found to conform on October 31, 2007 (TxDOT, 2007a);

- Revisions to the Indirect Effects section;
- Revisions to the Cumulative Effects section;
- Updated Draft 4(f) Evaluation;
- Clarification and explanation of construction, operation, maintenance, and emergency response within the Dallas Floodway;
- Clean Water Act (CWA) Draft Section 401 Water Quality Certification assessment;
- Revisions to the Environmental Justice analysis;
- Discussion of electronic toll collection (ETC) and the incorporation of ETC gantries;
- Discussion concerning 33 U.S. Code (U.S.C.) 408 procedures; and
- Additional discussion and materials associated with requirements of Section 404 of the CWA and Section 10 of the Rivers and Harbors Act of 1899.

As mentioned, this document was prepared in close coordination with the USACE, Fort Worth District, a Cooperating Agency, as it addresses resources that are within the USACE's jurisdiction as defined by federal law. The USEPA is also participating as a Cooperating Agency for the proposed project, as it is an agency with special expertise in the areas of NEPA, Clean Air Act conformity, and Section 404 of the Clean Water Act. The following discussion outlines the background and reasoning for preparation of the SDEIS and provides an update on important events affecting the proposed project that have occurred since the FHWA approved the DEIS for circulation to government agencies and the general public on January 28, 2005 (published February 2005).

BACKGROUND AND REASONING FOR PREPARATION OF THE SDEIS

The CEQ has promulgated regulations implementing NEPA (40 CFR Part 1500). These regulations specify the requirements for preparing environmental impact statements by Lead Federal Agencies, as well as the roles and duties of Cooperating Agencies. Under 40 CFR Section 1501.6, a Federal Agency "which has jurisdiction by law, shall be a Cooperating Agency upon request of the Lead Agency." The USACE has "jurisdiction by law" because several of the alternatives developed to implement the proposed project could affect land and/or water resources within or immediately adjacent to the Dallas Floodway - an existing Federal Flood Control Project. Potentially, each of these alternatives would require the USACE to issue permits under Section 404 of the CWA (for discharge of dredged or fill material into waters of the U.S., including wetlands) and Section 10 of the Rivers and Harbors Act of 1899 (for any work or activity in, or affecting, navigable waters of the U.S. [40 CFR Part 1500, Appendix II]). The USACE Trinity Regional Environmental Impact Statement Record of Decision (ROD) criteria and the

Trinity River Corridor Development Certificate (CDC) process would also apply to the proposed project. The USACE would have authority under 33 U.S.C. 408 to ensure that the proposed project would not be injurious to the public interest (i.e., a public interest determination) and would not impact the current flood control benefits provided by the Dallas Floodway, or those that would be implemented in the future to increase/improve the flood control benefits of the Dallas Floodway. Unless covered under USACE Engineering Regulation (ER) 1165-2-119 (Water Resources Policies and Authorities - Modifications to Completed Projects), the authority to make this determination and to approve modifications to Federal Flood Control Projects under 33 USC 408 has been delegated to the Chief of Engineers.

The CEQ and USACE regulations pertaining to cooperating agencies "with jurisdiction by law" were established to ensure that NEPA documents prepared by a Lead Federal Agency, such as the FHWA, would also satisfy the NEPA requirements for the jurisdictional actions to be taken by the Cooperating Agency (in this case, the USACE). Consequently, these regulations emphasize close coordination between Lead and Cooperating Agencies throughout the development of an EIS, and require the Cooperating Agency to provide detailed input to ensure that the dual purpose of the NEPA documentation is met (40 CFR § 1501.6b and 33 CFR § 325.1b). For example, the CEQ rules at 40 CFR Section 1503.3 impose the following requirements on "jurisdictional" Cooperating Agencies:

> "(c) A Cooperating Agency shall specify in its comments whether it needs additional information to fulfill other applicable environmental reviews or consultation requirements and what information it needs. In particular, it shall specify any additional information it needs to comment adequately on the Draft statement's analysis of significant site-specific effects associated with the granting or approving by that Cooperating Agency of necessary federal permits, licenses, or entitlements.
>
> (d) When a Cooperating Agency with jurisdiction by law objects to, or expresses reservations about, the proposal on grounds of environmental impacts, the agency expressing the objection or reservation shall specify the mitigation measures it considers necessary to allow the agency to grant or approve applicable permit, license, or related requirements or concurrences."

This point is also emphasized in the USACE's NEPA guidance (ER 200-2-2 [Procedures for Implementing NEPA], 33 CFR Part 230) that require the USACE, when exercising its permit review responsibilities, to coordinate with the Lead Agency for the following purpose:

> ". . . to insure that agency's resulting EIS may be adopted by the Corps for purposes of exercising its regulatory authority. As a Cooperating Agency the Corps will be

> responsible to the Lead Agency for providing environmental information which is directly related to the regulatory matter involved and which is required for the preparation of an EIS." (Paragraph 8c of Appendix B, 33 CFR Part 325)

In April 2005, the USACE provided FHWA with its initial jurisdictional Cooperating Agency comments pursuant to the guidance discussed above. Since that time, there has been coordination with the USACE in an effort to clarify and address the USACE environmental and technical issues of concern. As a result of these comments, and the changes necessary to satisfy the USACE concerns, the FHWA has exercised its discretion under CEQ and FHWA regulations, and decided to supplement the DEIS after determining that the purposes of NEPA would be furthered by doing so (40 CFR § 1502.9[c][(2]). This SDEIS, therefore, represents a collaborative effort with the USACE to develop NEPA documentation that would support the decisions and/or permitting action(s) that each agency would be required to make regarding the proposed project.

In addition to providing information relevant to the regulatory jurisdiction of the USACE, the DEIS is being supplemented with other information that has become available to more accurately reflect the expected next steps in further evaluation of the proposed project. It is important to note that subsequent to a March 2005 public hearing for the Trinity Parkway DEIS, the Dallas City Council, on April 13, 2005, identified Alternative 3B (Combined Parkway - Modified) as its locally-preferred alternative. On April 20, 2005, the NTTA Board of Directors issued a resolution in support of Alternative 3B as the interim locally-preferred alternative, with the acknowledgement that "the locally-preferred alternative may require modification…" and selection of an alternative was subject to completion of the environmental review and documentation process followed by a final decision by the FHWA. As this SDEIS provides additional information about the Trinity Parkway Build Alternatives not available in the DEIS, the FHWA will request the City of Dallas and NTTA to reevaluate their identification of a locally-preferred alternative after public and agency review and comment on the SDEIS. To date, the FHWA has not identified a preferred alternative, but will make such a determination in the Final EIS (FEIS) after considering the comments of government agencies and the public on the SDEIS.

ORGANIZATION OF THE SDEIS AND NEXT STEPS

The organization, format, and content of this document are based on FHWA Technical Advisory T 6640.8A (1987) for preparation of environmental projects and documents. The structure of this document correlates with the organizational format in the DEIS as published in February 2005 and is as follows:

- **Executive Summary**: The summary briefly discusses all important project issues.
- **Chapter 1 - Need and Purpose for Proposed Action**: This chapter discusses the project justification and support. It describes the project planning status, system linkages, capacity issues, transportation demand, modal interrelationships, safety issues, and roadway deficiencies.
- **Chapter 2 - Alternatives Considered**: This chapter reviews the project's history leading up to the selection of the range of alternatives, describes the alternatives under consideration, and those alternatives that have been withdrawn from consideration.
- **Chapter 3 - Affected Environment**: This chapter describes the overall physical, biological, cultural, and socioeconomic conditions as they currently exist in the project study area.
- **Chapter 4 - Environmental Consequences**: This chapter provides a detailed description of the anticipated environmental impacts associated with the proposed action.
- **Chapter 5 - Draft Section 4(f) Evaluation**: This chapter describes the potential impacts to Section 4(f) resources that may be affected by the proposed action.
- **Chapter 6 - Financial Analysis and Evaluation**: This chapter provides details concerning cost estimates and funding mechanisms associated with the proposed action.
- **Chapter 7 - Mitigation Measures and Commitments**: This chapter discusses the proposed mitigation measures to avoid or minimize the effects described in **Chapters 4** and **5**.
- **Chapter 8 - List of Preparers**: This chapter provides a list of the principal authors of this SDEIS and consultants who prepared technical studies.
- **Chapter 9 - Circulation of the SDEIS**: This chapter lists all of the agencies, organizations, and individuals to which copies of this document are sent.
- **Chapter 10 - Comments and Coordination**: This chapter provides a review of the cooperating agencies, project development team, and scoping/public involvement process.
- **Chapter 11 - Commonly Used Acronyms**
- **Chapter 12 - Index**
- **Chapter 13 - Bibliography**

As mentioned previously, this SDEIS serves as an update and supplement to the DEIS published in February 2005. However, for ease of use by the public and involved agencies, the SDEIS includes the entire contents of the DEIS (edited and updated), plus supplemental material inserted in the appropriate places within the body of the document. For instance, the descriptions of the two new Build Alternatives are added in **Sections 2.3.9, 2.3.10** and **2.3.11** of **Chapter 2**, right after the descriptions of the original six DEIS Build Alternatives. There is no attempt to identify new and revised material in the text, because the changes are widespread and a "redline" version would be very difficult to read. The extent of changes is due to multiple factors, including the time lapse since the DEIS publication, the update to 2030 traffic

modeling, the extensive agency consultation since the DEIS publication, and the adoption of new impact analysis guidelines and methodologies for certain resources.

As described above, the SDEIS is a “stand-alone” document. However, for comparative purposes, the February 2005 DEIS may be viewed at the locations listed in **Appendix G-3**, Page 6. The DEIS is also available on the NTTA web site at www.ntta.org. A bound copy of the DEIS or a CD-ROM version of the document in Adobe Acrobat format may also be purchased by contacting Ms. Shelly Stancill, Halff Associates, Inc. at (214) 346-6391. These items may be picked up locally (Richardson, Texas) to avoid shipping and handling charges.

In accordance with CEQ and FHWA regulations, this SDEIS will be circulated and processed in the same manner as the original DEIS (40 CFR § 1502.9[c][4] and 23 CFR § 771.130[d]). After publishing a notice of availability (NOA) of the SDEIS, a public hearing will be held. Comments received from the public during the comment period and from government agencies will be included in the FEIS, along with the responses to comments received (40 CFR § 1503.1[a]). Comments received from agencies and the public in connection with the initial public comment period for the DEIS (March-April 2005) are included in **Appendix G** in this SDEIS. The FHWA will make a recommendation in the FEIS after evaluating the project’s impacts and considering the comments from all sources. Completion of the environmental review and impact documentation process, followed by an anticipated ROD by the FHWA, the receipt of the required permits, the execution of any necessary funding agreements, and authorization by the NTTA Board of Directors or TCC, would permit the proposed action to proceed to the final design and construction phases unless the No-Build Alternative is the preferred alternative. The ROD issued by the FHWA would be made in accordance with 23 USC Section 109(h), which directs that final project decisions be made in the best overall public interest, taking into account:

- The need for fast, safe, and efficient transportation;
- Public services;
- A broad array of social, economic, and environmental effects; and
- The costs of eliminating or minimizing adverse effects.

(END OF CHAPTER)

EXECUTIVE SUMMARY

S-1 INTRODUCTION

The Trinity Parkway is a proposed new toll road located in the City of Dallas, Dallas County, Texas. The Trinity Parkway would provide a reliever route generally to the west of downtown Dallas, connecting from the IH-35E/SH-183 interchange in the north to the US-175/SH-310 interchange in the south, a distance of approximately nine miles. The Federal Highway Administration (FHWA, lead agency), North Texas Tollway Authority (NTTA), Texas Department of Transportation (TxDOT), and the City of Dallas are sponsors of the Trinity Parkway project. The U.S. Environmental Protection Agency (EPA) and the U.S. Army Corps of Engineers (USACE) are cooperating agencies for the project.

The Environmental Impact Statement (EIS) for the Trinity Parkway is being prepared pursuant to the National Environmental Policy Act (NEPA) and in compliance with the NEPA regulations issued by the Council on Environmental Quality (CEQ) and the FHWA. The NEPA regulations are a mandate for federal agencies to examine the potential environmental consequences of their proposals, consult with other agencies, document the analysis, and make the information available to the public prior to making a decision. An EIS presents detailed socioeconomic, environmental, and engineering information about a project so that the general public and federal, state, and local agencies can appropriately review and comment.

At the time of publication of this document, the EIS process for the Trinity Parkway is roughly midway through its course. Completion of the environmental review and impact documentation process, followed by an anticipated Record of Decision (ROD) by the FHWA, would permit the proposed action to proceed to final design and construction phases unless the No-Build Alternative is the preferred alternative.

S-2 THE RELATIONSHIP OF THE TRINITY PARKWAY DEIS AND SDEIS

A Draft Environmental Impact Statement (DEIS) for the proposed Trinity Parkway project was circulated in February 2005 by FHWA (2005a). A Public Hearing for the DEIS was conducted on March 29, 2005 and public comments were received in the period February 10 through April 8, 2005. The current document is a supplement to the 2005 DEIS, called a Supplemental Draft Environmental Impact Statement (SDEIS). The contents of the DEIS are republished in their entirety in the SDEIS, along with new or revised material.

FHWA's decision to prepare a SDEIS for the Trinity Parkway was made in late 2005 in consultation with the sponsoring agencies and the cooperating agencies. In particular, the USACE requested additional analyses and technical corrections to the DEIS, primarily to sections addressing cumulative effects, floodplains, and waters of the US, including wetlands. The FHWA has exercised its discretion under CEQ and FHWA regulations to supplement the DEIS after determining the purposes of NEPA would be furthered by doing so. This SDEIS, therefore, represents a collaborative effort with the USACE to develop NEPA documentation that would support the decisions that both FHWA and USACE would be required to make regarding the proposed project.

The SDEIS is organized into major sections that describe the project, its need and purpose, the alternatives considered, the affected environment, and the environmental consequences of the various alternatives. The information is presented in the identical chapter structure as the DEIS. The SDEIS also includes, in **Appendix G**, documentation from the public and agency involvement process for the 2005 DEIS, including public hearing transcripts, and responses to written and verbal comments.

The information presented in this Executive Summary is discussed in more detail in the body of the SDEIS.

S-3 PROJECT DESCRIPTION

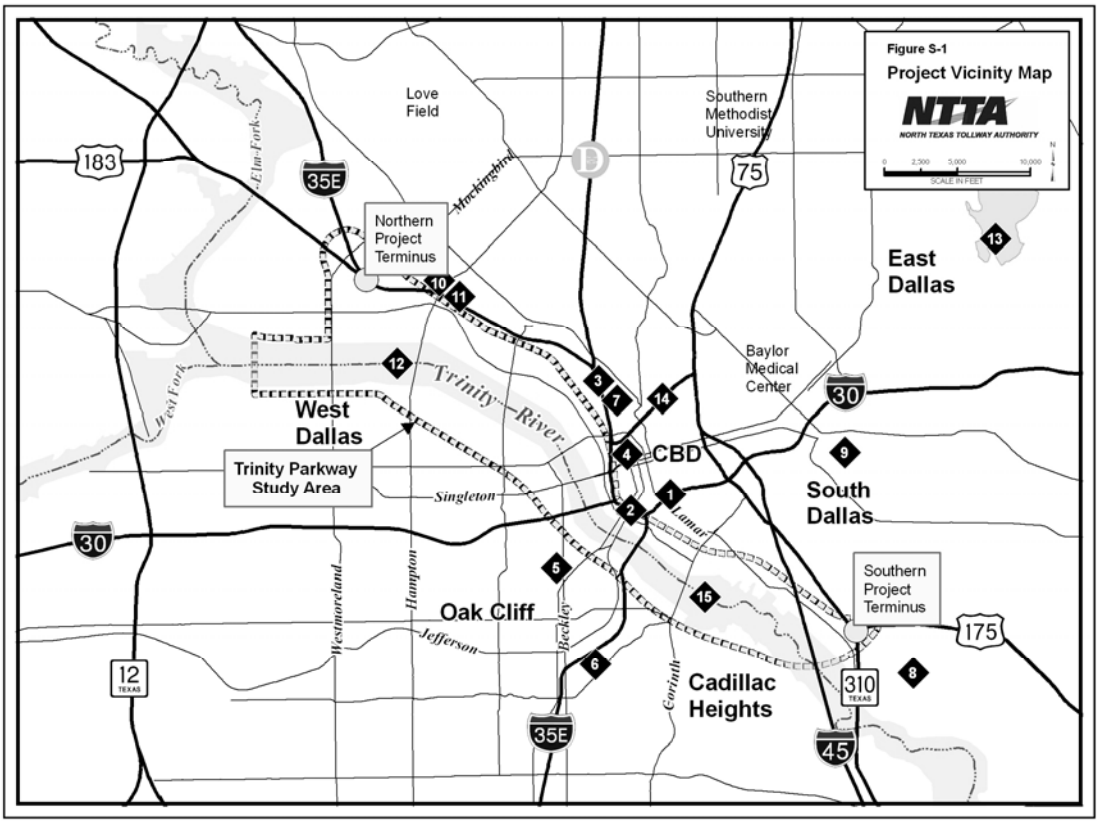
The NTTA proposes to design, construct, operate, and maintain a limited-access toll facility in the City of Dallas extending from the IH-35E/SH-183 interchange in the north to the US-175/SH-310 interchange in the south, a distance of approximately nine miles. The proposed project, known as the Trinity Parkway, would provide a needed reliever route and would be located generally west of the existing freeway loop that encircles downtown Dallas. The proposed facility would ultimately consist of six mixed-flow tolled main lanes, local street interchanges, and freeway-to-freeway interchanges at the northern terminus, southern terminus, Woodall Rodgers Freeway, and IH-45 (see **Chapter 2, Alternatives Considered**). The number and configuration of interchanges vary among the Build Alternatives considered. The Trinity Parkway is proposed to be constructed in stages (see **Section 2.5.4, Staged Construction**). The northern segment, extending from the IH-35E/SH-183 interchange southeast to Continental Avenue/Woodall Rodgers, is proposed to be constructed as a six lane facility. The segment extending from Continental Avenue/Woodall Rodgers to IH-45 is proposed to initially be constructed as a four lane facility. The proposed four lane segment would be constructed with sufficient space available within the center median to add two lanes without additional right-of-way requirements. Two lanes in this segment would be added as traffic demand and conditions warrant, and subject to funding availability, other agency considerations, and NEPA documentation (as needed). The segment from IH-45 to the south

terminus at the US-175/SH-310 interchange would be six lanes. This SDEIS examines the social, economic, and environmental impacts of the six lane ultimate configuration.

The proposed North Central Texas project is located in Dallas County, which is part of the EPA designated nine-county nonattainment area for the eight-hour standard for the pollutant ozone (see **Section 3.6**); therefore, the transportation conformity rule applies. The proposed project design concept and scope and project cost are not yet consistent with the conforming Metropolitan Transportation Plan (*Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area*) (NCTCOG, 2007a) and the *2008-2011 Transportation Improvement Program* (TIP), as revised (NCTCOG, 2007g), as proposed by the North Central Texas Council of Governments. Measures are being taken to address the issue. Prior to FHWA taking final action on this proposed project, it will be consistent with a conforming MTP and TIP/STIP. The U.S. Department of Transportation (FHWA/FTA) found the current MTP to conform to the State Implementation Plan (SIP) on June 12, 2007 (TCEQ, 2007d), and the 2008-2011 TIP was found to conform on October 31, 2007 (TxDOT, 2007a). All projects in the NCTCOG's TIP that are proposed for federal or state funds were initiated in a manner consistent with federal guidelines in Section 450, of Title 23 CFR and Section 613.200, Subpart B, or Title 49 CFR. Energy, environment, air quality, cost and mobility considerations are addressed in the programming of the TIP. The appropriate MTP and Statewide TIP pages are located in **Appendix L-7**.

The congestion management process (CMP) is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The project was developed from NCTCOG's operational CMP, which meets all requirements of amended 23 U.S.C. 134(k)(3) and 49 U.S.C. 5303(k)(3), amendments incorporating the transportation planning requirements of the Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), enacted August 10, 2005 as Public Law 109-59. The project vicinity map is shown in **Figure S-1** below.

FIGURE S-1. PROJECT VICINITY MAP



Places of Interest

1 - Canyon (IH-30)	6 - Dallas Zoo	11 - Dallas Market Center
2 - Mixmaster (IH-35E/IH-30)	7 - American Airlines Center	12 - Dallas Floodway
3 - Lower Stemmons (IH-35E)	8 - Rochester Park	13 - White Rock Lake
4 - West End & Dealey Plaza	9 - Fair Park	14 - Woodall Rodgers Freeway
5 - Methodist Medical Center	10 - Parkland Hospital	15 - DART Rail River Crossing

Notes:

- IH-35E north of Dallas Central Business District (CBD) is referred to as "Stemmons Freeway."
- IH-35E south of the Dallas CBD is referred to as "South R.L. Thornton Freeway."
- IH-30 west of the Dallas CBD is referred to as the "Tom Landry Freeway."
- IH-30 east of the Dallas CBD is referred to as "East R.L. Thornton Freeway."
- The levee-protected portion of the Trinity River main stem, from the DART Rail Bridge (see Item 15 in the map above) to the Elm Fork Confluence, is referred to as the "Dallas Floodway."

No identification of a preferred alternative is made in this SDEIS. During the public comment period, the regulatory agencies, the public, and other interested parties are invited to provide comments on the technical analyses presented in the SDEIS. All additional information and relevant comments will be evaluated and considered prior to recommending a preferred alternative in the FEIS.

S-4 NEED AND PURPOSE FOR ACTION

The proposed project is needed to address current and projected congestion problems and transportation system demands and deficiencies in the area. There is severe congestion in the "Canyon/Mixmaster" road system on the south and west sides of downtown Dallas comprising segments of IH-30, IH-35E and the IH-30/IH-35E interchange. On an average weekday, there is traffic congestion for more than 6 hours in the Canyon/Mixmaster, with average speeds as low as 20 mph. The American Automobile Association (AAA) has designated the IH-35E Mixmaster as one of the top ten "Most Notorious Traffic Bottlenecks" in the nation. On a typical weekday morning, northbound traffic on IH-35E queues from the Dallas Zoo (12th Street) to the Dallas North Tollway exit, a distance of approximately 4.3 miles. Eastbound traffic begins to queue west of the Trinity River Bridge (Wycliff/Sylvan Avenue), with the queue continuing through the entire Canyon area on IH-30, a distance of approximately 3.3 miles. Similar queuing problems occur during the evening rush hours on IH-35E and IH-30 in the opposite directions.

Population and employment growth within the Dallas-Fort Worth (DFW) metropolitan area during the last several decades, combined with other traffic generating factors, have led to the current levels of congestion in the vicinity of the Dallas CBD. The effects of this congestion - increased traffic accidents and rising costs due to travel delays - suggest the need to take action. Other transportation problems in the study area stem from a poorly developed roadway network that is constrained in its ability to meet the mobility and access needs of the study area's population, local commuters, through traffic, and major employment and public facilities. Regional population and employment growth projections, public and private development initiatives, local land use plans and policies, and an anticipated increase in trade-related trucking activity indicate that study area congestion problems would continue to worsen unless action is taken.

The primary purpose of the Trinity Parkway is to manage traffic congestion on IH-35E, IH-30, and other major transportation facilities within the Trinity Parkway study area in order to improve mobility and safety, and to increase accessibility to businesses and public facilities.

S-5 ALTERNATIVES CONSIDERED

The current planning for the Trinity Parkway has been developed from TxDOT's *Trinity Parkway Corridor Major Transportation Investment Study* (MTIS) published in March 1998 (TxDOT, 1998a). The Trinity Parkway Corridor MTIS focused on transportation needs in the vicinity of the Dallas CBD, and developed a seven point plan of action as follows:

1. Enhanced work trip reduction measures;
2. Bicycle and pedestrian facilities;

3. Enhanced transportation facility management;
4. Improvements to the Canyon, Mixmaster, and Lower Stemmons Freeway corridors;
5. Extension of Woodall Rodgers Freeway westward across the Dallas Floodway to connect to Singleton Boulevard and Beckley Avenue;
6. A continuous HOV system through the Canyon, Mixmaster, and Lower Stemmons corridors; and
7. A Trinity Parkway reliever route (proposed action).

Various parts of this plan of action are being planned and implemented by local agencies, including TxDOT, Dallas Area Rapid Transit (DART), North Central Texas Council of Governments (NCTCOG), and the City of Dallas. The Trinity Parkway environmental studies focus only on Item 7, the reliever route, and NTTA has taken a lead role in this effort. Alternatives considered in the SDEIS for the Trinity Parkway include a No-Build and eight Build Alternatives:

- Alternative 1 - No-Build
- Alternative 2A - Irving/Industrial Boulevard - Elevated
- Alternative 2B - Irving/Industrial Boulevard - At-Grade
- Alternative 3A - Combined Parkway - Riverside (Original)
- Alternative 3B - Combined Parkway - Riverside (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

Figures S-2, S-3 and **S-4** below show simplified layouts of the Build Alternatives. More detailed layouts of the Build Alternatives are shown in SDEIS **Chapter 2**.

FIGURE S-2. SIMPLIFIED LAYOUT MAP - TRINITY PARKWAY ALTERNATIVES 2A & 2B

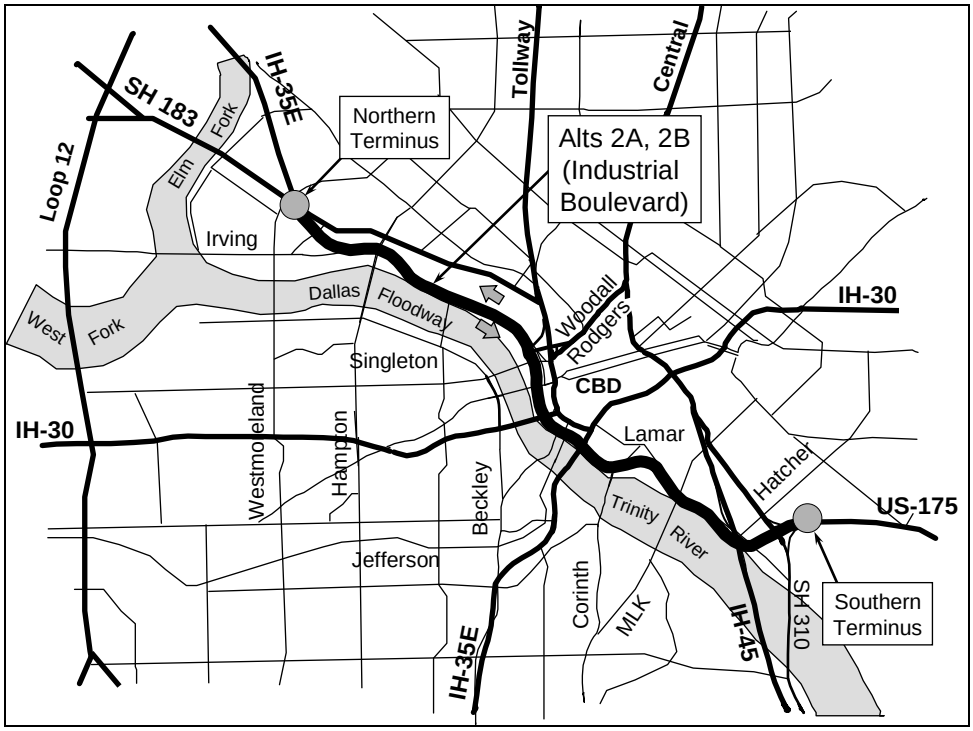


FIGURE S-3. SIMPLIFIED LAYOUT MAP - TRINITY PARKWAY ALTERNATIVES 3A, 3B & 3C

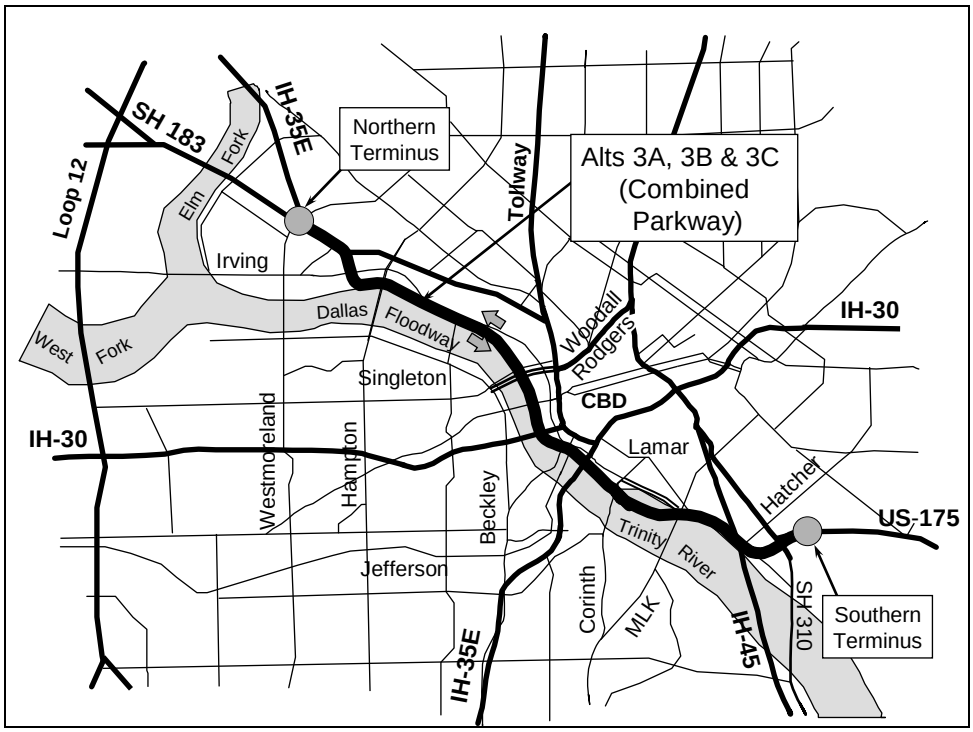
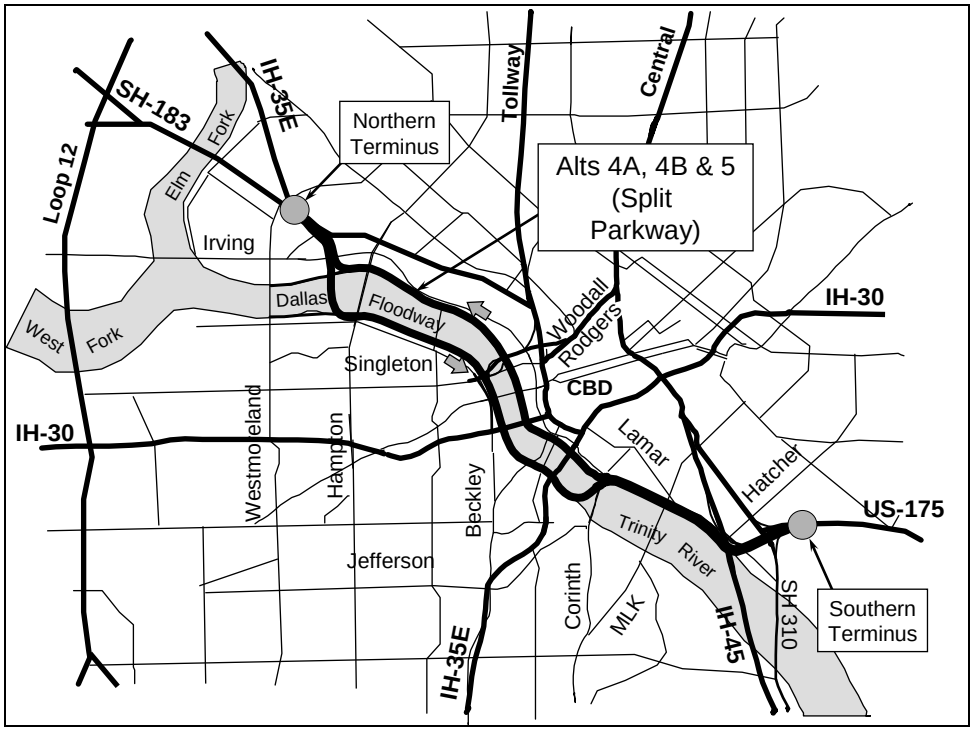


FIGURE S-4. SIMPLIFIED LAYOUT MAP - TRINITY PARKWAY ALTERNATIVES 4A, 4B & 5



S-6 PROPOSED STRATEGY FOR ENVIRONMENTAL PROCESSING OF TRINITY PARKWAY AND DALLAS FLOODWAY PROJECTS

As shown in the figures above, several of the Trinity Parkway alternatives are located in or around the Dallas Floodway, most notably Alternatives 3A, 3B, 3C, 4A, and 4B that are located riverside of the floodway levees for some distance. On December 13, 2005, the USACE Fort Worth District conducted a public scoping meeting related to its intent to prepare a Draft EIS for Potential Multipurpose Projects for Ecosystem Restoration, Flood Damage Reduction and Recreation Development within and along the West and Elm Forks and Main Stem of the Trinity River in Dallas, Dallas County, Texas. There are therefore two federal actions potentially affecting the Dallas Floodway area, the FHWA-sponsored Trinity Parkway EIS and the USACE-sponsored EIS of the Trinity River in Dallas. In the DEIS, the City of Dallas' proposed system of parks, trails, and recreational amenities (the Balanced Vision Plan, or BVP) was identified as a third reasonably foreseeable federal action. However, with the recent passage of the Water Resources Development Act in November 2007, the BVP was included as part of the USACE proposed federal action within this reach of the Trinity River.

As additionally described in **SDEIS Section 1.12.5 Update on the Planning Process**, FHWA, USACE, NTTA and other involved agencies have defined a coordinated strategy for environmental processing of the Trinity Parkway project and other projects in the Dallas Floodway. The proposed strategy is intended to allow the Trinity Parkway and Dallas Floodway projects, which have independent utility, to be closely

coordinated between the federal proponents to ensure that the spirit of NEPA is upheld and all impacts are fully considered before any federal action is determined. In this regard, in October 2005, USACE Fort Worth District agreed to become a cooperating agency in the preparation of the Trinity Parkway EIS, and stated its focus areas as: the Section 404 and Section 10 permit approval process; consideration of approval of all construction activities within the limits of the existing federal Dallas Floodway project; and consideration of potential effects the roadway alternatives would have on plan formulation of the USACE Dallas Floodway study. In November 2005, USACE Fort Worth District stated its intent to use the Trinity Parkway EIS to support its decisions related to Section 404 of the Clean Water Act and Section 10 of the Rivers and Harbors Act, as they may apply to the Trinity Parkway.

Subsequent to the circulation of the SDEIS, the next expected steps for the Trinity Parkway project are the publication of a FEIS, and processing of this document through public and agency review and comment. The FEIS will include responses to comments received on the SDEIS. Following approval of the FEIS and publication of the notice of availability of the FEIS, it is anticipated that a ROD would be signed. The ROD would describe the selected alternative, explain the reasons for the decision, and summarize any mitigation measures and monitoring that would be incorporated in the project.

S-7 ENVIRONMENTAL CONSEQUENCES

Chapter 4, Environmental Consequences, in the SDEIS describes the anticipated impacts (beneficial and/or adverse) to existing social, economic, and environmental resources in the study area for each of the Trinity Parkway alternatives, including the No-Build Alternative. **Table S-1** (next page) below is a compilation of the impact analyses in **Chapter 4** of the SDEIS. This table summarizes impact information in categories that permit distinctions to be made about the alternatives. The table has been updated from the DEIS to reflect new information developed primarily from hydraulic modeling and vegetation analyses.

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TABLE S-1. COMPARISON OF SDEIS ALTERNATIVES

Comparison Factors	Unit of Measure	Trinity Parkway Alternatives								
		1 (No-Build)	2A	2B	3A	3B	3C	4A	4B	5
Roadway Characteristics										
Total Length	Miles	---	8.83	8.83	8.67	8.67	8.67	8.84	8.84	8.90
Total Estimated Right-of-Way	Acres	---	264	350	371	372	379	462	490	372
Total Cost (Construction + Agency + Right-of-Way)	2007 Dollars ($) (Millions)	---	2,079	1,606	1,079	1,142	1,290	1,216	1,384	1,479
Traffic Utilization for Year 2030[1]										
Commonwealth to Hampton/Inwood	Average Daily Traffic (ADT)	---	122,200	122,200	127,000	94,900	94,900	126,000	126,000	126,000
Hampton/Inwood to Wycliff/Sylvan		---	100,900	100,900	118,800	128,300	128,300	111,100	111,100	111,100
Wycliff/Sylvan to Woodall Rodgers		---	111,600	111,600	127,900	127,800	127,800	119,000	119,000	119,000
Woodall Rodgers to Houston/Jefferson		---	100,400	100,400	112,600	106,900	106,900	113,600	113,600	113,600
Houston/Jefferson to Corinth		---	107,000	107,000	103,800	113,200	113,200	106,300	106,300	106,300
Corinth to MLK		---	96,100	96,100	89,300	105,100	105,100	99,700	99,700	99,700
MLK to IH-45		---	100,200	100,200	119,500	124,900	124,900	105,100	105,100	105,100
IH-45 to US-175		---	127,900	127,900	109,000	111,400	111,400	101,300	101,300	101,300
Measures of Effectiveness for Year 2030 (Measured within the Trinity Parkway Study Area)[1]										
Daily VMT	Vehicle Miles Traveled (M)	10.27	10.47	10.47	10.50	10.50	10.50	10.45	10.45	10.45
Daily VHT	Vehicle Hours Traveled	293,784	288,936	288,936	288,983	291,131	291,131	289,344	289,344	289,344
Average Speed	mph	34.96	36.22	36.22	36.35	36.07	36.07	36.11	36.11	36.11
Lane Length	Miles	1,349	1,366	1,366	1,389	1,399	1,399	1,379	1,379	1,379
Congestion Delay	Vehicle Hours	44,917	41,097	41,097	40,412	41,679	41,679	41,167	41,167	41,167
Lane Miles at LOS D, E or F	Percent	46.03	42.69	42.69	41.83	43.08	43.08	42.31	42.31	42.31

TABLE S-1. COMPARISON OF SDEIS ALTERNATIVES

Comparison Factors	Unit of Measure	Trinity Parkway Alternatives								
		1 (No-Build)	2A	2B	3A	3B	3C	4A	4B	5
Socioeconomic										
Consistent with Local Plans and Policies (e.g., BVP[2])	Yes/No	No	No	No	No	Yes	Not Known[10]	No	Not Known[10]	No
Residential Relocations	Number	---	8	6	6	6	6	11	11	20
Commercial Displacements	Number	---	272	228	27	34	29	30	24	39
Community and Public Facility Displacements[3]	Number	---	5	11	---	---	---	---	---	3
Consistent with EJ Order	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Change in Parks/Recreation Areas[4]	Acres	---	-1	-5	-174	-154	-177	-214	-270	-84
Physical Environment										
Archeological Sites[5]	Number	---	---	---	3	3	3	3	3	2
Historic Properties[6]	Number	---	7	3	5	4	4	5	3	7
Air Quality - Consistent with the conforming TIP/MTP	Yes/No	No[11]	No[11]	No[11]	No[11]	No[11]	No[11]	No[11]	No[11]	No[11]
Projected CO Concentrations Below the NAAQS	Yes/No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
MSATs – Expected change[7]	Decrease/Increase	Decrease	Decrease	Decrease	Decrease	Decrease	Decrease	Decrease	Decrease	Decrease
Noise Receivers Impacted	Number	---	209	202	128	128	128	166	166	226
Hazardous Material Sites Impacted [8]	Number	---	34	35	15	17	17	16	16	21
Water Quality Impacts	Yes/No	No	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Visual Impacts	Low/Med/High	Low	High	Med	Med	Med	Med	Med	Med	Med
Natural Environment										
Waters of the U.S. including Wetlands	Acres	---	-4	-9	-83	-81	-91	-86	-111	-12
100-Year (Base) Floodplain Impacts	Acres	---	53	76	303	290	297	384	418	267

TABLE S-1. COMPARISON OF SDEIS ALTERNATIVES

Comparison Factors	Unit of Measure	Trinity Parkway Alternatives								
		1 (No-Build)	2A	2B	3A	3B	3C	4A	4B	5
100-year Valley Storage	Acre-Feet (% Change)	41758	---	---	41480 (-0.7)	42071.1 (+0.7)	42575.5 (+2.0)	42048.9 (+0.7)	42742.7 (+2.4)	---
SPF Valley Storage	Acre-Feet (% Change)	71547.5	---	---	70080.6 (-2.1)	71215.1 (-0.5)	71565.2 (+0.0)	71626.1 (+0.1)	71043 (-0.7)	---
SPF Max. Increase in Flood Elevation	Feet	---	---	---	+0.05	+0.09	+0.03	+0.19	+0.71	---
SPF Flood Level at Elm/West Fork	Feet, relative to 435.99 feet	---	---	---	-0.51	-0.25	-0.16	-0.08	+0.45	---
Max. SPF Velocity in Channel Area	Feet/Second	---	---	---	10.6	10.6	11.23	11.12	11.26	---
Max. SPF Velocity in Overbank Area	Feet/Second	---	---	---	5.37	4.89	5.11	4.63	4.8	---
Threatened/ End. Species	Yes/No	No	No	No	No	No	No	No	No	No
Woodlands	Acres	---	-5	-6	-27	-27	-33	-27	-29	-11
Maintained Grass Areas[9]	Acres	---	-12	-31	-479	-467	-468	-557	-573	-190
Section 4(f) Involvement										
Potential Sec. 4(f) Properties - Parks	Yes/No	No	No	No	No	No	No	No	No	No
Potential Sec. 4(f) Properties - NRHP Historic Districts	Number	---	1	1	---	---	---	---	---	---
Potential Sec. 4(f) Properties - NRHP Historic Bridges	Number	---	2	1	5	4	4	5	3	6
Potential Sec. 4(f) Properties - NRHP Historic Properties	Number	---	4	1	---	---	---	---	---	1

Notes: The information for Alternatives 3A, 3B, and 4A is shaded to denote for the reader that these alternatives are not considered feasible by the USACE due to concerns detailed in Section 2.3.9.
M = Millions; ADT = Average Daily Traffic; VMT = vehicle miles traveled; VHT = vehicle hours traveled; LOS = Level of Service; NRHP = National Register of Historic Places; EJ = Environmental Justice; TIP = Transportation Improvement Program; MTP = Metropolitan Transportation Plan; SPF = Standard Project Flood; mph = miles per hour; --- = no impacts anticipated for this alternative.

1. Subject to change pending the 2009 update to the MTP.
2. The "BVP" is the City of Dallas Balanced Vision Plan, a master plan for parks and lakes in the Trinity Floodway.
3. The number shown is the total number of buildings displaced at these facilities, not the number of facilities affected.
4. Right-of-way would be required from within the Trinity River Greenbelt Park, and access rights for construction, operation, and maintenance are proposed to be established by an operating agreement with the City of Dallas. 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).

TABLE S-1. COMPARISON OF SDEIS ALTERNATIVES

Comparison Factors	Unit of Measure	Trinity Parkway Alternatives								
		1 (No-Build)	2A	2B	3A	3B	3C	4A	4B	5

5. The number shown includes archeological sites identified within proposed right-of-way limits and potential borrow areas for roadway embankment material.
6. The number shown is the total number of NRHP-listed or eligible properties identified within the area of direct impact (i.e. proposed right-of-way or adjacent), but does not reflect potential effects.
7. The EPA predicts substantial future MSAT reductions as the agency's new light-duty and heavy-duty on-road fuel and vehicle rules come into effect (Tier II, light-duty vehicle standard, Heavy-Duty Diesel Vehicle standards and low sulfur diesel fuel, and the EPA's proposed Off-Road Diesel Engine and Fuel Standard). These projected air emission reductions will be realized even with the predicted continued growth in vehicle miles traveled.
8. Hazardous waste/material sites within or adjacent to proposed right-of-way.
9. The figures for impacts to maintained grass areas for Alternatives 3A, 3B, 3C, 4A, and 4B include an estimated 258 acres from excavation sites.
10. These alternatives are new and the public has yet to comment.
11. Implementation of the No Build Alternative would require an MTP revision and new conformity determination. In regards to the Build Alternatives, although the MTP includes a Trinity Parkway reliever route as a key element to the functioning of the plan, the proposed project design concept and scope and project cost are not yet consistent with the conforming MTP and 2008-2011 TIP. Measures are being taken to address the issue. Prior to FHWA taking final action on this proposed project, it will be consistent with a conforming MTP and TIP/STIP.

[END OF CHAPTER]

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CHAPTER 1

NEED AND PURPOSE FOR PROPOSED ACTION

CHAPTER 1
NEED AND PURPOSE FOR PROPOSED ACTION

1.0 INTRODUCTION

Transportation improvements are necessary in the Trinity Parkway corridor to address current and projected transportation needs and facility deficiencies. The primary purpose of the Trinity Parkway project is to provide a safe and efficient transportation solution to manage traffic congestion and improve safety in the area of the Dallas CBD. The project particularly focuses on congestion in the IH-30/IH-35E (Mixmaster) interchange on the west edge of downtown Dallas; the depressed segment of IH-30 (Canyon) south of the CBD; and the segment of IH-35E from the Mixmaster north to the DNT (Lower Stemmons).

The proposed project is located in the DFW Metroplex of north central Texas. The study area is located on the west side of the Dallas CBD in central Dallas County (see **Figure 1-1**). The area boundary extends from the Dallas CBD to the east to West Dallas on the west. The southern boundary is the US-175/SH-310 interchange, and the northern boundary is the IH-35E/SH-183 interchange. The study area includes the Dallas Floodway, a federal flood conveyance and levee system carrying the main stem drainage flows of the Trinity River. **Figure 1-2** shows the project study area and is intended to provide a reference for place names used throughout this Supplemental Draft Environmental Impact Statement (SDEIS).

FHWA in cooperation with TxDOT and NTTA have prepared this SDEIS to fulfill their responsibilities as joint lead agencies for the proposed construction of the Trinity Parkway reliever route. FHWA is the lead federal agency for the study. The EPA has agreed to be a cooperating agency for this SDEIS. In October 2005, USACE also agreed to become a cooperating agency in the preparation of the Trinity Parkway Environmental Impact Statement (EIS) (see **Section 1.12.4**).

The remainder of this chapter describes the need and purpose for transportation improvements in the Trinity Parkway study area and summarizes the planning context for the development of the project proposals. Subsections within this chapter include a description of the proposed project and its history, a description of the study area's characteristics and congestion problems, and details of the planning process in the context of long-range local and regional transportation goals.

FIGURE 1-1. REGIONAL STUDY AREA MAP

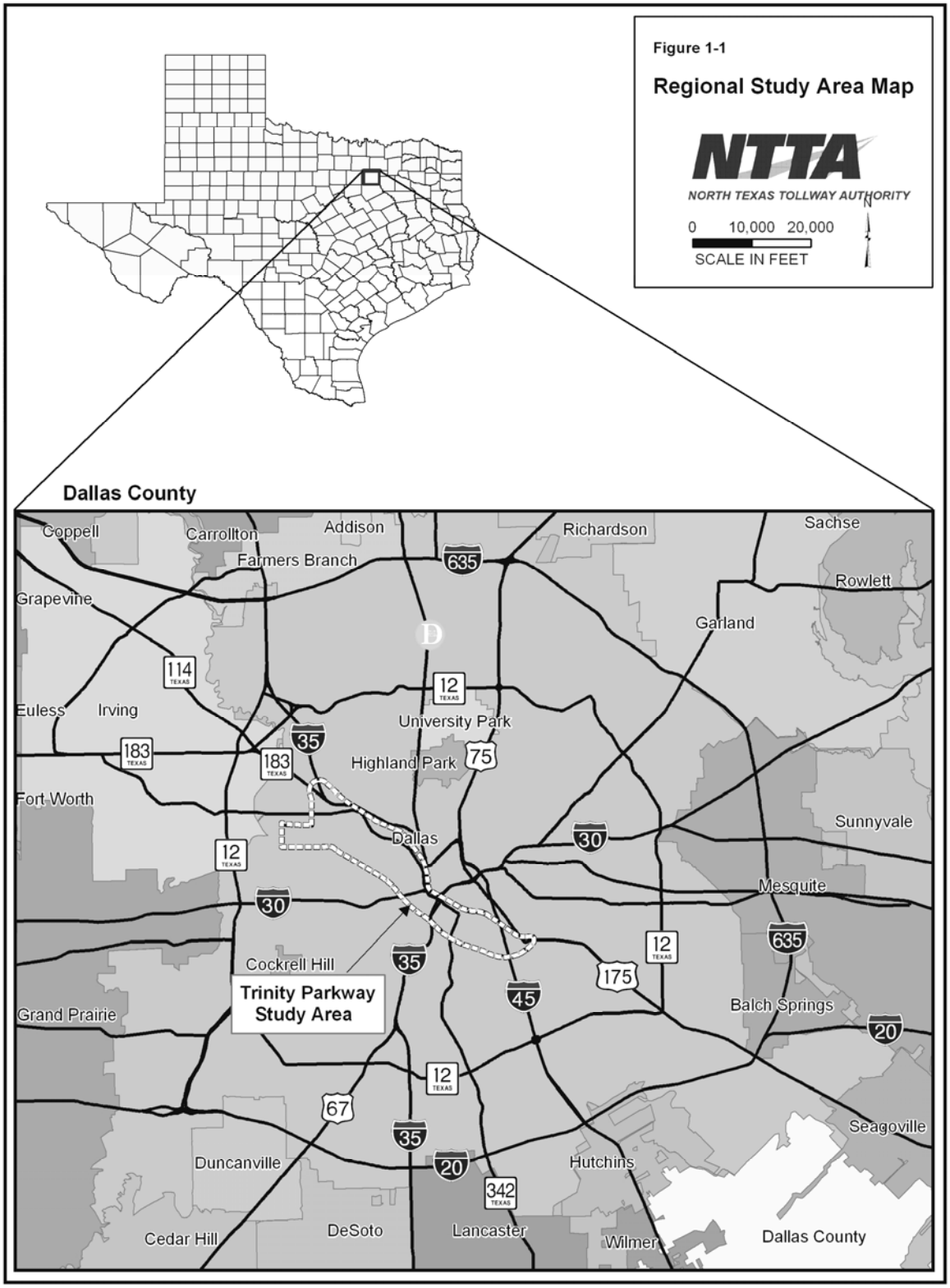
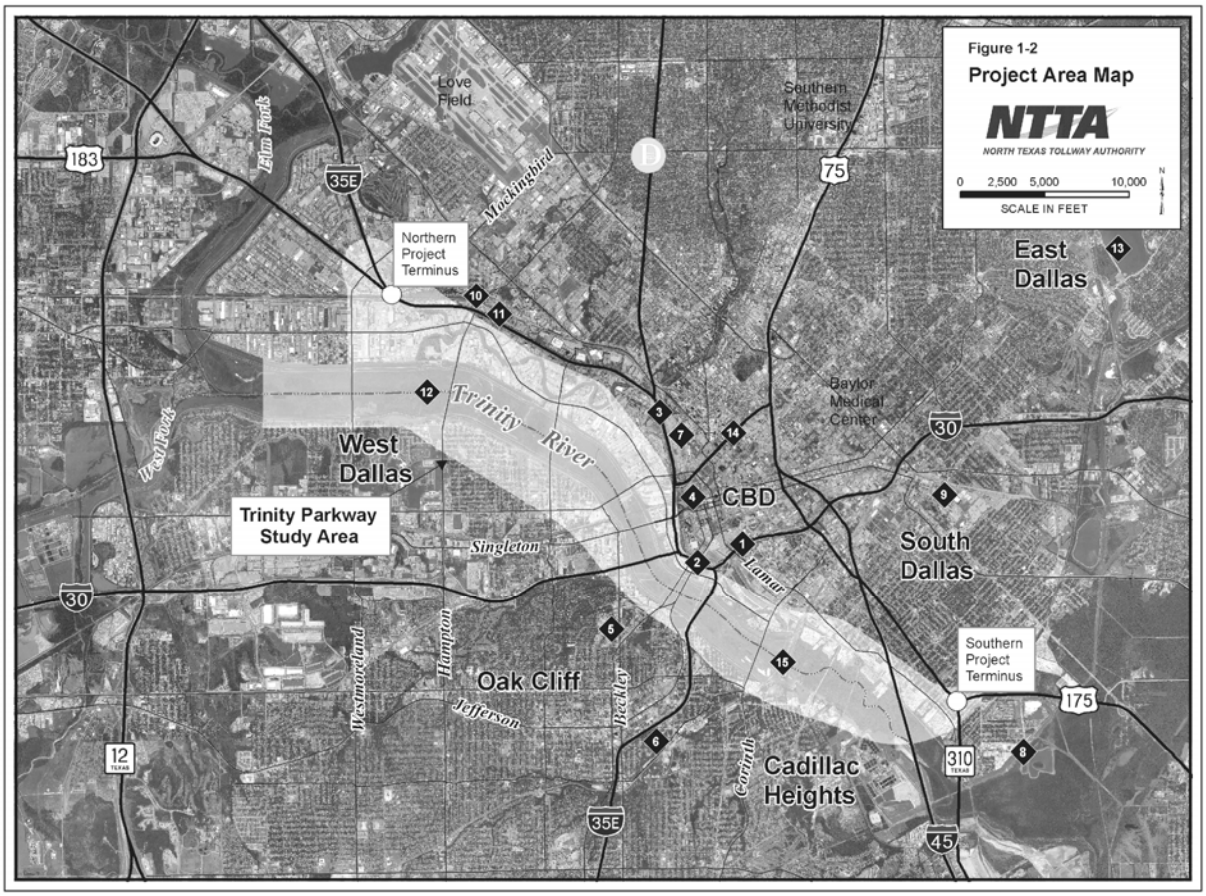


FIGURE 1-2. PROJECT STUDY AREA MAP



Places of Interest

1 - Canyon (IH-30)	6 - Dallas Zoo	11 - Dallas Market Center
2 - Mixmaster (IH-35E/IH-30)	7 - American Airlines Center	12 - Dallas Floodway
3 - Lower Stemmons (IH-35E)	8 - Rochester Park	13 - White Rock Lake
4 - West End and Dealey Plaza	9 - Fair Park	14 - Woodall Rodgers Freeway
5 - Methodist Medical Center	10 - Parkland Hospital	15 - DART Rail River Crossing

1.1 PROJECT DESCRIPTION

The proposed project (Trinity Parkway) is the construction of a limited-access toll facility from the IH-35E/SH-183 interchange (north terminus) to the US-175/SH-310 interchange (south terminus), a distance of approximately 9 miles, in the City of Dallas, Dallas County, Texas. The proposed project would provide a needed reliever route around the existing freeway loop, which encircles downtown Dallas. The proposed project would ultimately consist of six mixed-flow main lanes, local street interchanges, and freeway-to-freeway interchanges at the north terminus, south terminus, Woodall Rodgers Freeway, and IH-45. Additional interchange connections are included, but vary between each of the Build Alternatives considered in this SDEIS (see **Chapter 2, Table 2-6 Interchange Access Comparison**). Access/service roads would be provided for areas affected by the discontinuation of an existing street, or

where property access must be restored. Toll collection facilities (toll gantries) would comprise main lane installations, ramp installations, and ancillary facilities (see also **Section 2.5.2 Toll Collection Facilities**).

The Trinity Parkway is proposed to be constructed in stages (see **Section 2.5.4, Staged Construction**). The northern segment, extending from the IH-35E/SH-183 interchange southeast to Continental Avenue/Woodall Rodgers, is proposed to be constructed as a six lane facility. The segment extending from Continental Avenue/Woodall Rodgers to IH-45 is proposed to initially be constructed as a four lane facility. From IH-45 to the south project terminus at the US-175/SH-310 interchange would be six lanes. **Plates 2-14** and **2-15** at the end of **Chapter 2** show examples of the proposed staged construction applied to two Build Alternatives. The ultimate configuration of the Parkway is six main lanes throughout, as shown on **Plates 2-1** through **2-8**. The addition of two lanes between Continental Avenue/Woodall Rodgers and IH-45 would be added as traffic demand and conditions warrant, and subject to funding availability, other agency considerations, and NEPA documentation (as needed). The proposed facility would be constructed with sufficient space available within the center median to add two lanes without additional right-of-way requirements. Actual construction of the project may also be accomplished in sections, meaning that specific roadway segments may be completed and opened to traffic prior to the completion and opening of the entire length of the facility. Funding for the proposed project is anticipated to be provided by local, state, and federal sources, and through the collection of tolls. **Chapter 2 Alternatives Considered** describes the proposed action in detail.

The FHWA has developed general criteria that must be met in the selection of logical termini for a transportation project and in the documentation of its independent utility [23 CFR § 771.111(f)]. These criteria state that a proposed action shall:

- Connect logical termini (major crossroads, population centers, major traffic generators, or major highway control elements) and be of sufficient length to address environmental matters on a broad scope (ensure a meaningful analysis);
- Have independent utility or independent significance (be usable and be a reasonable expenditure even if no additional transportation improvements in the area are made); and
- Not restrict consideration of alternatives for other reasonably foreseeable transportation improvements.

As presented in this SDEIS, the logical termini for the purpose of evaluating alternatives and impacts of the proposed improvements are junctions at IH-35E/SH-183 and US-175/SH-310. The proposed action has independent utility and would not preclude other foreseeable transportation improvements as further described in **Chapter 2**.

1.2 NEED AND PURPOSE

The transportation needs in the Trinity Parkway study area, simply stated, are:

- There is insufficient transportation capacity (freeway lanes, city streets, transit, etc.) in the Canyon/Mixmaster area near downtown Dallas to carry needed trips flowing north-south (generally along IH-35E) and east-west (generally along IH-30). This is most evident in the morning and evening rush hours on weekdays, with the heaviest traffic flows northbound and westbound in the morning hours, and southbound and eastbound in the evening hours. On an average weekday, there is traffic congestion for more than 6 hours in the Canyon/Mixmaster, with average speeds as low as 20 mph during the peak-hour. The severity of traffic congestion is evidenced by the September 2000 designation of the Mixmaster as one of the top ten "Most Notorious Traffic Bottlenecks" in the nation by the American Automobile Association (AAA).

- The traffic problems in the Canyon and Mixmaster are made worse by the layout of main lanes, service roads, ramps, and surface streets in the area, which fail to properly provide for the routes and destinations of the traveling public. The types of secondary problems include forced lane changes, abrupt and unexpected merges, weaves, and exits, missing connections for direct freeway-to-freeway movements, high accident rates, and poor access for emergency response.

The need for action in the Trinity Parkway corridor is further described in **Section 1.7**. The problems in the corridor are the result of many causes, including high population growth, changing employment patterns, trade-related transportation, lack of alternative routes, and high use of single-occupant vehicles (SOVs). These problems result in many effects, including slow travel speeds, extended hours of congestion, accidents, reduced air quality due to congestion, and poor attraction of businesses to adjacent areas. Population and economic growth projections for the region indicate that corridor congestion problems would continue to worsen unless action is taken.

Congestion in the Trinity Parkway corridor also slows travel for many miles along freeways feeding into the city center, such as IH-35E (Stemmons and South R.L. Thornton Freeways), IH-30 (Tom Landry Freeway and East R.L. Thornton Freeway), SH 183 (Airport Freeway), SH-114, and IH-45. Proposals for improving outlying segments of these freeways would not be entirely effective and cannot be effectively implemented until traffic capacity is increased in and around the downtown area. The purpose of the Trinity Parkway is to manage congestion on IH-35E, IH-30, and other major transportation facilities within the Trinity Parkway study area in order to improve mobility, safety, and increase accessibility to businesses and public facilities.

1.3 PROJECT HISTORY

The proposed Trinity Parkway reliever route has been part of the long-range transportation plan in the Dallas area since the mid-1960s, and remains an integral component of current transportation plans and programs. The following summarizes the history of the project and its predecessor proposals and proponents.

- The 1967 *DFW Regional Transportation Study,* prepared by local government agencies and the State Department of Highways and Public Transportation (SDHPT) (predecessor of TxDOT), identified a major thoroughfare corridor extending westward from the Dallas CBD along the Trinity River to a point west of Belt Line Road in the City of Irving. The plan called for a new freeway or "River Freeway," which would serve as an extension of Woodall Rodgers Freeway westward along the east levee of the Dallas Floodway.

- In 1969, the Dallas Park Board published the *Coordinated Plan - Open Space Development Trinity River System in Dallas, Texas*. This plan called for multiple uses of the Dallas Floodway, including recreation, drainage, transportation, water supply, flood control, effluent disposal, and utility service. One of the major non-recreation components specified in the plan was the proposed Trinity River Freeway.

- In 1972, the Industrial Properties Corporation donated a major portion of the Dallas Floodway land to the City of Dallas for use as park and transportation facilities, including roadways, navigation, and flood protection. The donation was a 930-acre tract of land situated between the Dallas Floodway east and west levees, from approximately 2,100 feet west of Hampton Road to the AT&SF Railroad Bridge at the southern end of the Dallas Floodway. The City of Dallas used the donation to request a $2.23 million grant from the U.S. Department of Housing and Urban Development (HUD) to acquire the remaining privately-owned property between the Dallas Floodway levees. The city acquired the remaining privately-owned property between the levees by January 1, 1974, and included in the deeds of purchase the provision for use as park and transportation facilities.

- In 1973, the Texas Turnpike Authority (TTA) (predecessor of NTTA) completed the first detailed study of this corridor. The study, titled *Trinity Route of the Dallas-Fort Worth Turnpike*, included a schematic design for a facility to serve the projected increase in traffic volumes within the Dallas to Fort Worth corridor. The schematic design showed a multi-lane highway generally following the Trinity River floodplains between Dallas and Fort Worth, having a length of over 27.5 miles.

- In 1975, the City of Dallas published *A Preliminary Design Report for Town Lake for the City of Dallas, Texas*. This plan provided details for construction of a lake and surrounding parks in the floodplain of the Trinity River between downtown Dallas and Oak Cliff. According to the report, the Town Lake project could make a major contribution to regional transportation system through its assistance to the proposed Trinity River Freeway. The report indicated widening the east levee upstream from the lake could provide a foundation for the thoroughfare.

- In 1980, the Dallas County Commissioners Court published the *Dallas County Open Space Plan*. One of the planned major public works projects described in the plan was the proposed "Trinity Valley Parkway." The plan showed a general alignment following the Trinity River floodplain from the western limits of Dallas County to IH-45 southeast of downtown Dallas (Marvin Springer and Associates and Schrickel, Rollins, and Associates, 1980).

- In 1984, the City of Dallas published the *Chain of Lakes Park Plan*. According to this plan, the Chain of Lakes Park would encompass a series of lakes, recreational facilities, outdoor special event areas, athletic facilities, open space areas, etc., extending from Oak Cliff to the confluence of the Elm Fork and West Fork of the Trinity River. The plan indicated a "reserved zone," approximately 150 feet in width along the inside of each levee from Corinth Street upstream to the confluence of the Elm Fork and West Fork, had been reserved for future roadways.

- In 1986, the NCTCOG approved a Metropolitan Transportation Plan (MTP) (*Mobility 2000*) for the DFW metropolitan area as part of a federally mandated program. The "Trinity Parkway" was among the new projects recommended in *Mobility 2000.*

- In 1988, the TTA completed an exploratory investigation of possible routes for the "Trinity Turnpike." The West Fork and Trinity River segments connected SH-121 northeast of the Fort Worth CBD with US-175 and IH-35E southeast of the Dallas CBD.

- In 1996, the TxDOT initiated the *Trinity Parkway Corridor Major Transportation Investment Study* (MTIS) (1998a). This Trinity Parkway Corridor MTIS was completed in order to develop a locally preferred plan (LPP) to address transportation problems within the Trinity Parkway corridor, and to integrate with community plans and goals for the Dallas Floodway. The MTIS developed a seven-element, multi-modal plan of action for the corridor, one of which was the Trinity Parkway reliever route (proposed action) (see **Section 1.5 Trinity Parkway Corridor MTIS**).

- On September 10, 1997, the Dallas City Council approved the Trinity Parkway Corridor MTIS, including endorsement of the "Split Parkway Riverside" route of the Trinity Parkway as the locally preferred plan. The Dallas County Commissioners Court on September 30, 1997, and the Dallas Area Rapid Transit (DART) Board of Directors also approved this plan on October 28, 1997.

- On March 12, 1998, the Regional Transportation Council (RTC) adopted a resolution officially integrating the Trinity Parkway proposed action plan into the MTP, where it was listed as a tolled facility (*Mobility 2020*) (NCTCOG, 1996). Since that time, the Trinity Parkway has been integrated as a tolled facility into subsequent MTP's, which include *Mobility 2025* (NCTCOG, 2000a), *Mobility 2025 Update* (NCTCOG, 2001a), *Mobility 2025 - 2004 Update* (NCTCOG, 2004), *Mobility 2025 - Amended April 2005* (NCTCOG, 2005b), and the current MTP, *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area* (NCTCOG, 2007a).

- On May 2, 1998, Dallas voters authorized the issuance of General Obligation Bonds, which included $84 million for the Trinity Parkway reliever route and $34 million for other proposed transportation improvements in the corridor.

- In 1998, in view of substantial regional shortfalls and delays in funding of needed highway projects, and of the perceived feasibility of the Trinity Parkway reliever route as a toll road, a decision was made among local transportation funding agencies to assign the advanced development of the Trinity Parkway to NTTA. This was followed by resolutions of the Dallas City Council and the Dallas County Commissioners Court requesting that NTTA "take such actions and conduct such studies as may be necessary to determine the viability of jointly developing and financing all or some portion of the Trinity Parkway with a combination of turnpike revenue bonds, city bonds, and federal and/or state transportation funds." Subsequently, on November 18, 1998, the Dallas City Council authorized an Interlocal Agreement with the NTTA for completion of an EIS and preliminary design schematics.

- On June 16, 1999, the FHWA, in cooperation with the NTTA, TxDOT, and the City of Dallas, issued a Notice of Intent (NOI) in the *Federal Register* to officially begin preparation of the Trinity Parkway DEIS.

- 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, which is located in the Dallas Floodway portion of the Trinity Parkway study area. The supplementary NOI was issued because additional analysis would be needed to fully address the impacts of coordinated development of these projects (see **Section 1.11** of this chapter).

- On August 18, 2004, the U.S. Department of Transportation (USDOT) announced the Trinity Parkway project had been selected as one of six new nationwide priority projects subject to Executive Order (EO) 13274 (2002) - Environmental Stewardship and Transportation Infrastructure Project Reviews, signed by President Bush on September 18, 2002. EO 13274 was issued to enhance environmental stewardship while streamlining the decision-making process for major transportation projects. For priority projects on the USDOT list, the EO requires *"… agencies shall to the maximum extent practicable expedite their reviews for relevant permits or other approvals, and take related actions as necessary, consistent with available resources and applicable laws, including those relating to safety, public health, and environmental protection."*

- On January 28, 2005, FHWA approved the Trinity Parkway Draft Environmental Impact Statement (EIS) for public release, and the Draft EIS was subsequently released for public review in February 2005. On March 29, 2005, a Public Hearing for the Trinity Parkway Draft EIS was held at the Dallas Convention Center Arena. On April 8, 2005, the public comment period for the Draft EIS was concluded.

- On April 13, 2005, the City of Dallas Council affirmed support for Trinity Parkway as an NTTA tollroad, and recommended Alternative 3B (Combined Parkway Modified) as the locally preferred alignment. On April 20, 2005, the NTTA Board of Directors issued a resolution in support of Alternative 3B as the interim locally-preferred alternative, with the acknowledgement that "the locally-preferred alternative may require modification…" and selection of an alternative was subject to completion of the environmental review and documentation process followed by a final decision by the FHWA.

- On November 17, 2005, FHWA, in consultation with USACE, agreed to publish a SDEIS for Trinity Parkway (see **Section 1.12.5**).

- On June 29, 2007, a group named "Trinity Vote Committee" submitted a petition to the City of Dallas calling for prohibition of construction, maintenance, or improvement of certain roadways within the Trinity River levees from Westmoreland Road to IH-45. On August 15, 2007, the City Secretary reported to the Dallas City Council that the petition had been signed by the requisite number of qualified voters. The Council then ordered a special election to be held on the matter on November 6, 2007. The petition, if supported by Dallas voters, would have prohibited city adoption of several Trinity Parkway alternatives shown in **Chapter 2** of this SDEIS. After extensive media coverage and public debate (see **Appendix G-8**), the petition failed to gain voter

approval, allowing continued consideration of Trinity Parkway alignment alternatives within the Trinity River levees.

1.4 REGIONAL PLANNING CONTEXT

NCTCOG serves as the Metropolitan Planning Organization (MPO) for transportation in the DFW area. It serves a 16-county metropolitan region centered around Dallas and Fort Worth. Since the early 1970s, MPOs have had the responsibility of developing and maintaining a MTP. The MTP is federally mandated; it serves to identify transportation needs, and guides federal, state, and local transportation expenditures. There have been ten metropolitan transportation plans in the DFW region, starting in 1974. The current plan is titled *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area*. In the DFW area, the RTC is the independent transportation policy body of the MPO. The RTC is comprised of 40 members, including 33 local elected or appointed officials representing cities and counties, and seven transportation provider representatives. The RTC endorsed the current MTP in January 2007.

A major emphasis of *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area* is the management of the regional transportation system. As required by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991, and subsequently by the Transportation Equity Act for the 21st Century (TEA-21) and the Safe, Accountable, Flexible and Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU), the plan is constrained to match available financial resources. The plan must also conform to the State Implementation Plan (SIP) for air quality as required by the federal Clean Air Act (CAA) (TCEQ, 2007d). The MTP focuses on cost-effective improvements, identifying additional funding sources for needed transportation improvements, and more aggressive strategies to manage the regional transportation system.

Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area presents a system of transportation improvements needed to maintain mobility in the DFW area in the period up to year 2030, and serves as a guide for the expenditure of state and federal funds for the region. Its development was coordinated among local governments, transit authorities, NTTA, and TxDOT. The plan was formulated through a process of forecasting future travel demand, evaluating system alternatives, and selecting options which best meet the mobility needs of the region. A major emphasis of the MTP is management of the regional transportation system.

Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area was developed in accordance with federal planning requirements. The development of the plan was guided by a set of goals, which were presented and refined at technical workshops, policy meetings, and public meetings. The travel forecasting conducted for the MTP illustrates various scenarios of congestion in the DFW

metropolitan area based on assumptions regarding the extent of transportation improvements in place. **Figure 1-3** illustrates the baseline condition, representing congestion levels under the committed system for 2007.

FIGURE 1-3. 2007 CONGESTION LEVELS

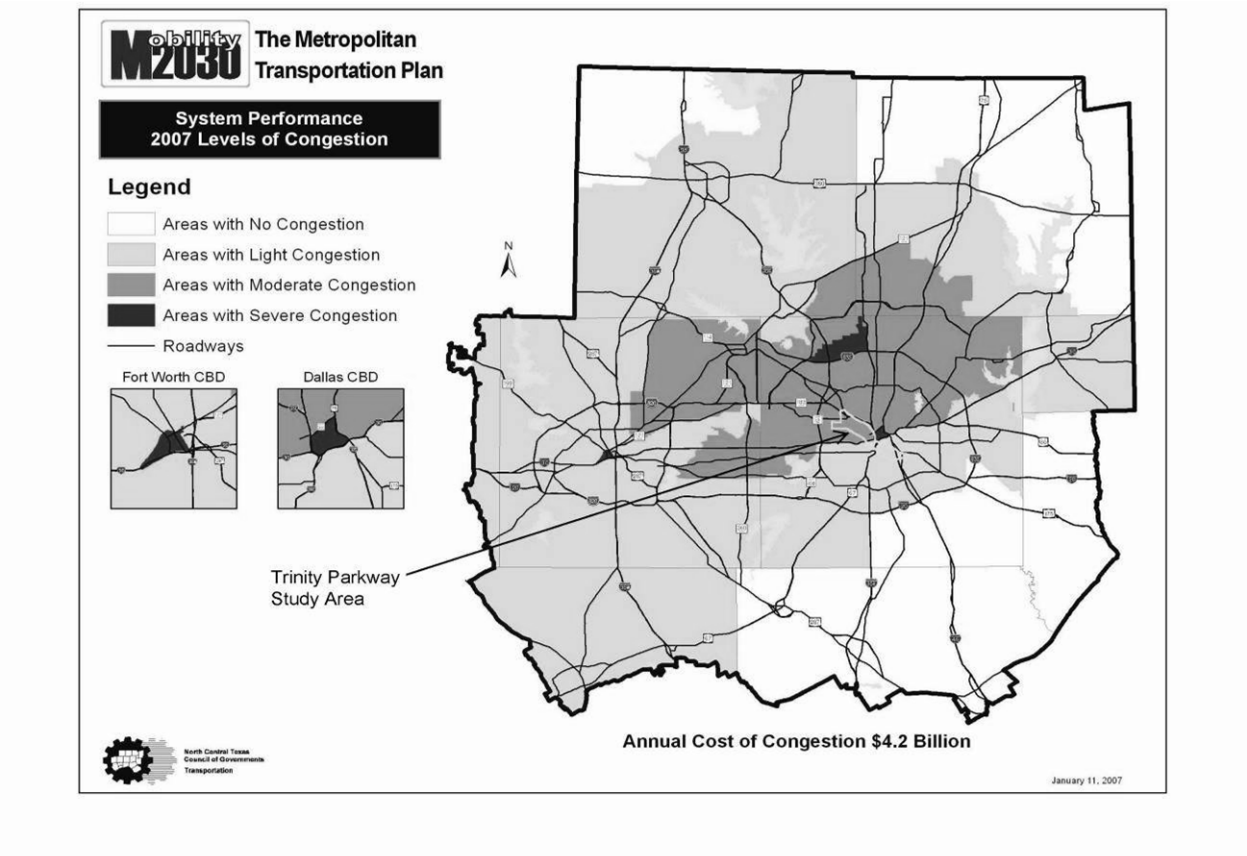
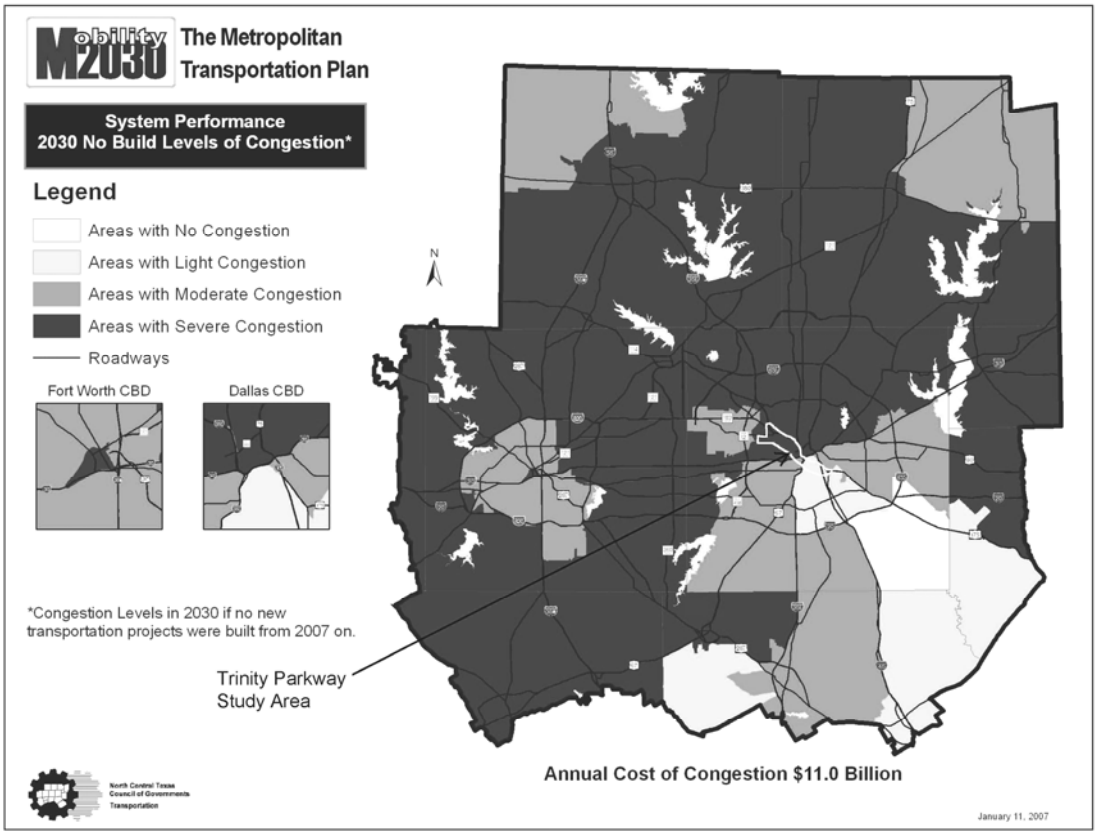


Figure 1-4 shows projected congestion levels in 2030 if no new transportation projects are built after 2007. This so-called "No-Build" scenario illustrates the deterioration in congestion levels in the unlikely event transportation investments are stopped completely, and demonstrates the need for additional transportation improvements. The figure also illustrates the public cost of the No-Build scenario, since the regional annual cost of congestion rises from $4.2 billion in 2007 to $11.0 billion in 2030.

FIGURE 1-4. 2030 CONGESTION WITH 2007 NETWORK ONLY

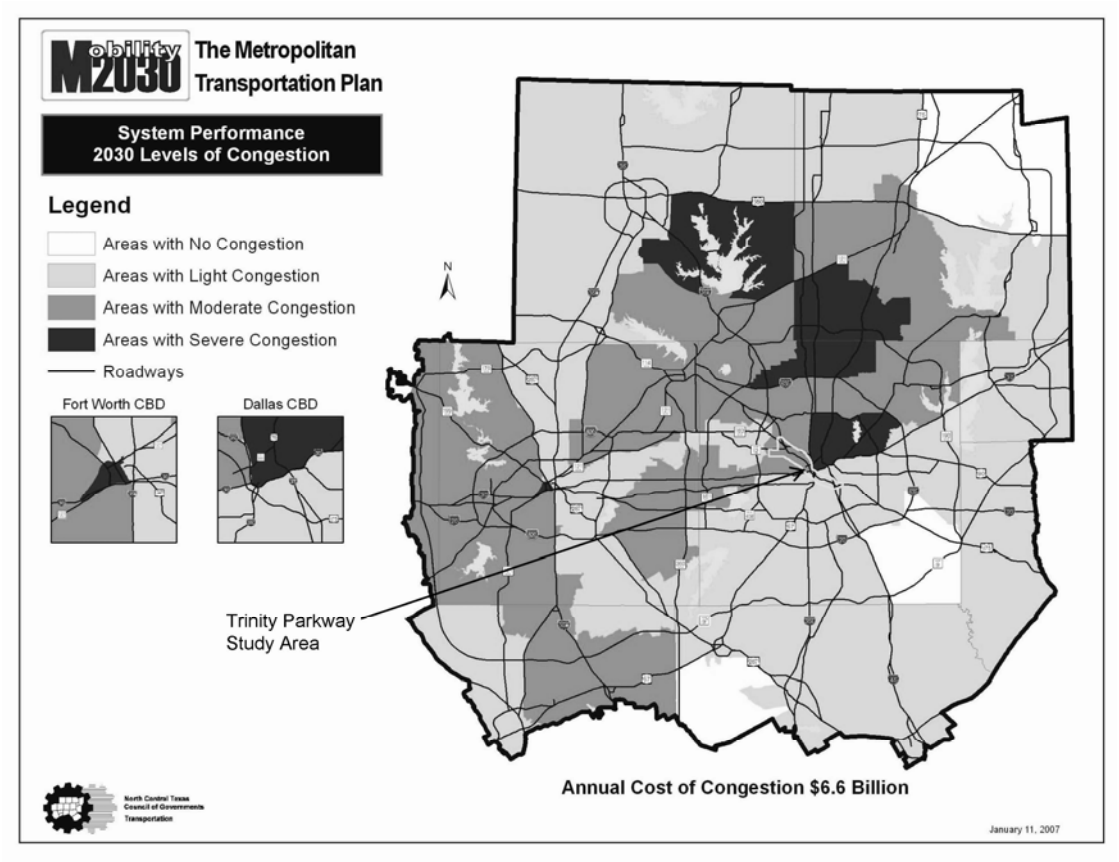


The DFW metropolitan area has been designated as a non-attainment area for ozone by the EPA (see **Section 3.6**). In accordance with the metropolitan planning regulations, the MTP must include a congestion management process (CMP) to systematically address congestion. The MPO's evaluation of additional transportation system improvements beyond the committed system began with a detailed assessment of transportation improvements that would not require building additional facilities for SOVs. Various improvements/modes including congestion management strategies, bicycle and pedestrian facilities, rail facilities, and HOV lanes were investigated prior to determining the need for additional freeway capacity improvements.

Transportation system performance information was developed as a product of the DFW Regional Travel Model (DFWRTM) throughout the MTP development process. This information guided development of the system alternatives and indicated the impact of various improvements. The improvements recommended in *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area* include regional congestion management strategies, bicycle and pedestrian facilities, high occupancy vehicle/managed (HOV/M) lanes, light rail and commuter rail, bus transit improvements, intelligent transportation system (ITS) technology, freeway and tollway lanes, and improvements to the regional arterial and local thoroughfare system such as intersection improvements and signal timing. The MTP

includes nearly $71 billion (2006 dollars) in recommended improvements that would be funded, which is approximately 55 percent of the total transportation improvements needed (nearly $130 billion) to address severe traffic congestion for 2030. The MTP indicates that the implementation of this system would maintain close to current mobility levels in the DFW metropolitan area. **Figure 1-5** illustrates the congestion level for 2030 with the recommended improvements.

FIGURE 1-5. 2030 CONGESTION WITH MOBILITY 2030: THE MTP RECOMMENDATIONS



The freeway and tollway system evaluation in the MTP recommends the construction of the Trinity Parkway as a new tollway facility between the proposed termini locations of IH-35/SH-183 and US-175/SH-310, both in Dallas County, Texas. The Trinity Parkway is a substantial and long-standing component of the region's long-range transportation plan. It would provide a needed reliever route around the Dallas CBD, balancing planned capacity improvements on the radial freeways IH-35E, IH-45, SH -183, SH-114, and IH-30. Proposals for improving outlying segments of these freeways could not be effectively implemented until traffic capacity is increased in and around the downtown area. The inclusion of the Trinity Parkway in the MTP also indicates regional support. Various municipalities and agencies such as NCTCOG, RTC, TxDOT, DART, Dallas County, and the City of Dallas have demonstrated long-term support for the project.

1.5 TRINITY PARKWAY CORRIDOR MTIS

This section provides an overview of the federal Major Investment Study (MIS) process and includes a summary of the published TxDOT *Trinity Parkway Corridor Major Transportation Investment Study* (MTIS) (1998a).

1.5.1 Overview of the Federal MIS Process

Major Investment Studies were called for in the ISTEA of 1991, and MIS requirements were initially implemented by Section 450.318 of the joint FHWA/FTA planning regulations issued in the Federal Register in 1993. A major investment is officially described as a "highway or transit improvement of substantial cost that is expected to have a significant effect on capacity, traffic flow, level of service, or mode share at the transportation corridor or subarea scale." The ISTEA and the 1993 implementing regulations required the DOT to consider a broad range of evaluation criteria during the preparation of "corridor" or "sub-area" studies. On June 9, 1998, the TEA-21 was enacted as Public Law (PL) 105-178. Section 1308 of the TEA-21 directed the DOT to eliminate the stand-alone MIS requirement originally set forth in Section 450.318, and promulgate regulations requiring that, for federally funded highway and transit projects, analyses under the planning provisions of the act and the NEPA of 1969 be integrated. A Final Rule was issued in the Federal Register, Volume 72, Page 7261, on February 14, 2007 amending the joint FHWA/FTA planning regulations in 23 CFR Parts 450 and 500 and 49 CFR Part 613, and implementing the requirements of TEA-21, thus linking planning and NEPA.

The corridor or sub-area planning approach provides broader involvement of the local community in developing the design concept and scope of proposed major transportation investments. The planning and decision making process is coordinated with the MPO and other affected agencies, such as the state departments of transportation. In addition, integrated environmental analysis must be conducted, as well as modal trade-off analyses. Effective collaboration with diverse interest groups is extremely important during evaluation of alternatives and development of a consensus plan.

MIS procedures stress the integration of social, economic, and environmental considerations early in planning analyses and transportation decision making. For instance, the MIS must include provisions for achieving compliance with clean air goals by conforming to the SIP. In addition, the principles and specific requirements of the NEPA philosophy and policy mandates are stressed throughout the planning regulation. The MIS is not a separate requirement, but a more targeted sub-element of the planning process that draws on the general integration of planning within the broader NEPA principles.

At the time of initiation of the Trinity Parkway Corridor MTIS, there were two strategies available for coordinating the MIS process with NEPA documentation requirements (23 CFR § 450.318). These were called “Option 1” and “Option 2” as follows:

- Option 1: The MIS is completed prior to beginning the NEPA documentation process; and
- Option 2: The NEPA documentation process is completed concurrent with the MIS selection of the preferred alternative.

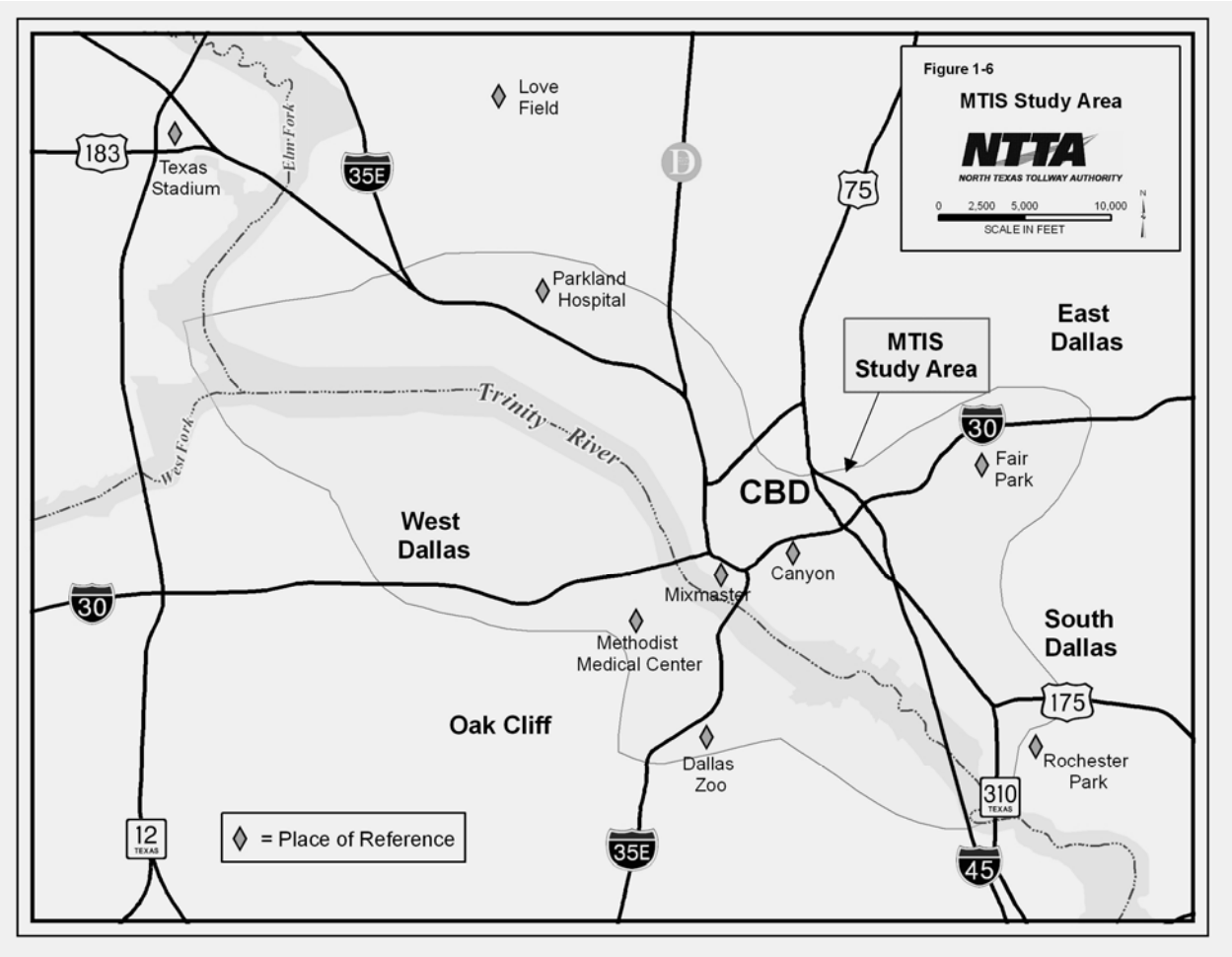
1.5.2 Summary of the Trinity Parkway Corridor MTIS

TxDOT conducted the Trinity Parkway Corridor MTIS in 1996 and 1997, and the findings of the study were published in *Study Report, Trinity Parkway Corridor* in March 1998 (TxDOT, 1998b) [TxDOT Dallas District, Control-Section-Job (CSJ) No. 0918-45-121,122]. The MTIS study area is shown on **Figure 1-6**.

The MTIS was prepared in accordance with “Option 1” of the then current MIS process. The MTIS focused on transportation needs in the area of the Dallas CBD. The MTIS study area extended beyond the downtown to cover a reasonable area of influence of the Canyon, Mixmaster, and Lower Stemmons segments on area transportation facilities.

The MTIS used a three-stage process to develop a recommended plan of action. The first stage identified the transportation demand on the roadway and rail transit system within the study area and analyzed conceptual improvements that might serve this demand. The second stage developed preliminary alignments of alternatives identified for further study from the first-stage process. The third stage developed layouts of alternatives identified for further study from the second stage. Third stage alternatives were screened and combined to form a recommended plan of action.

FIGURE 1-6. TRINITY PARKWAY CORRIDOR MTIS STUDY AREA



The MTIS recommended plan of action is composed of seven elements, which include improvements to existing facilities, promoting alternative transportation modes, and new facility construction. These include:

1. Enhanced work trip reduction measures;
2. Bicycle and pedestrian facilities;
3. Enhanced transportation facility management;
4. Improvements to the Canyon, Mixmaster, and Lower Stemmons Freeway corridors;
5. Extension of Woodall Rodgers Freeway westward across the Dallas Floodway to connect to Singleton Boulevard and Beckley Avenue;
6. A continuous HOV system through the Canyon, Mixmaster, and Lower Stemmons corridors; and
7. A Trinity Parkway reliever route (proposed action).

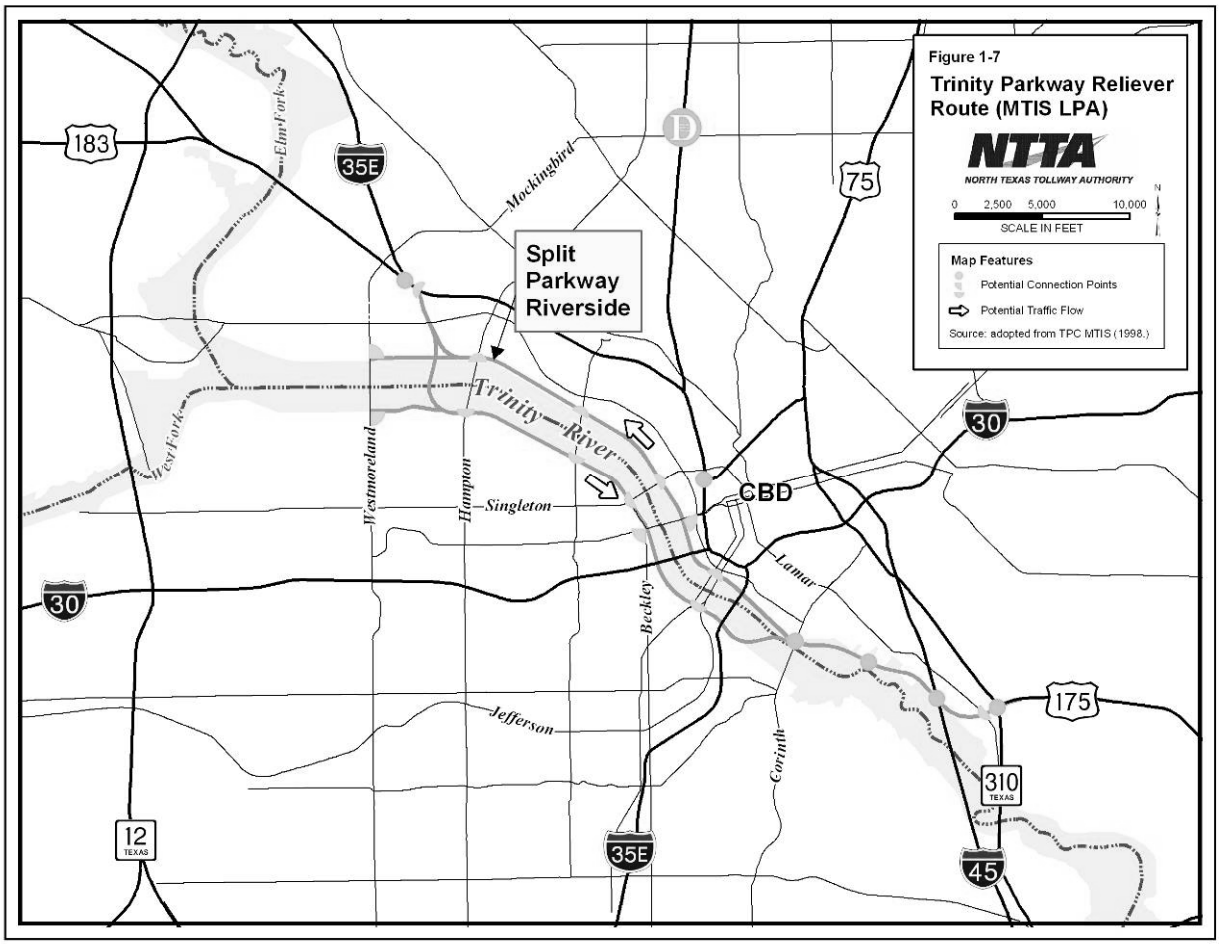
Various agencies, including NTTA, TxDOT, DART, and the City of Dallas have taken responsibility for implementation of portions of the plan. For instance, Items 4 and 6 are being advanced by TxDOT under its “Project Pegasus” planning study, and Item 5 is being advanced by TxDOT and the City of Dallas as the “Margaret Hunt Hill” signature bridge over the Trinity River. Item 7 from the plan, the proposed Trinity Parkway reliever route, is the subject of this SDEIS. The MTIS indicated that an eight-lane reliever route (reducing to six lanes in the southern segment) would provide approximately 50 percent of the goal for transportation capacity improvement in the Canyon, Mixmaster, and Lower Stemmons Freeway corridors (see **Figure 2-1**). Details concerning the transportation capacity goal and the evaluation of alternatives conducted during the MTIS are provided in **Chapter 2 Alternatives Considered**.

During the MTIS process, three potential corridors were considered in detail during the study:

1. IH-35E;
2. Irving/Industrial Boulevard; and
3. The Dallas Floodway.

Based on the evaluation of social, economic, and environmental effects; construction and right-of-way costs; engineering considerations; and extensive agency/public involvement, a reliever route alternative located primarily within the Dallas Floodway was identified as the Locally Preferred Alternative (LPA). The concept adopted for this alternative was an eight-lane split parkway (reducing to six lanes in the southern segment) with controlled access and a design speed of 50 mph with a posted speed limit of 45 mph. The general location of the LPA reliever route is shown on **Figure 1-7**.

FIGURE 1-7. TRINITY PARKWAY RELIEVER ROUTE (MTIS LPA)



The possibility of implementing the Trinity Parkway reliever route as a toll facility was outlined in the MTIS. However, as noted in **Section 1.3**, the agreements to pursue the toll facility implementation did not occur until some time after completion of the original study. The toll proposal is being pursued due to regional transportation funding shortfalls; the expectation that substantial delays in implementation of the roadway would occur if non-toll funding is used; and the obligation that toll facilities be pursued according to the RTC's policy of evaluating toll feasibility on all new freeway facilities in new rights-of-way. As a result, NTTA has been designated to take the lead on Trinity Parkway as it is being pursued as a toll facility. NTTA is the Regional Tollway Authority, organized under Chapter 366 of the Texas Transportation Code, for the area of Collin, Dallas, Denton, and Tarrant counties in north central Texas.

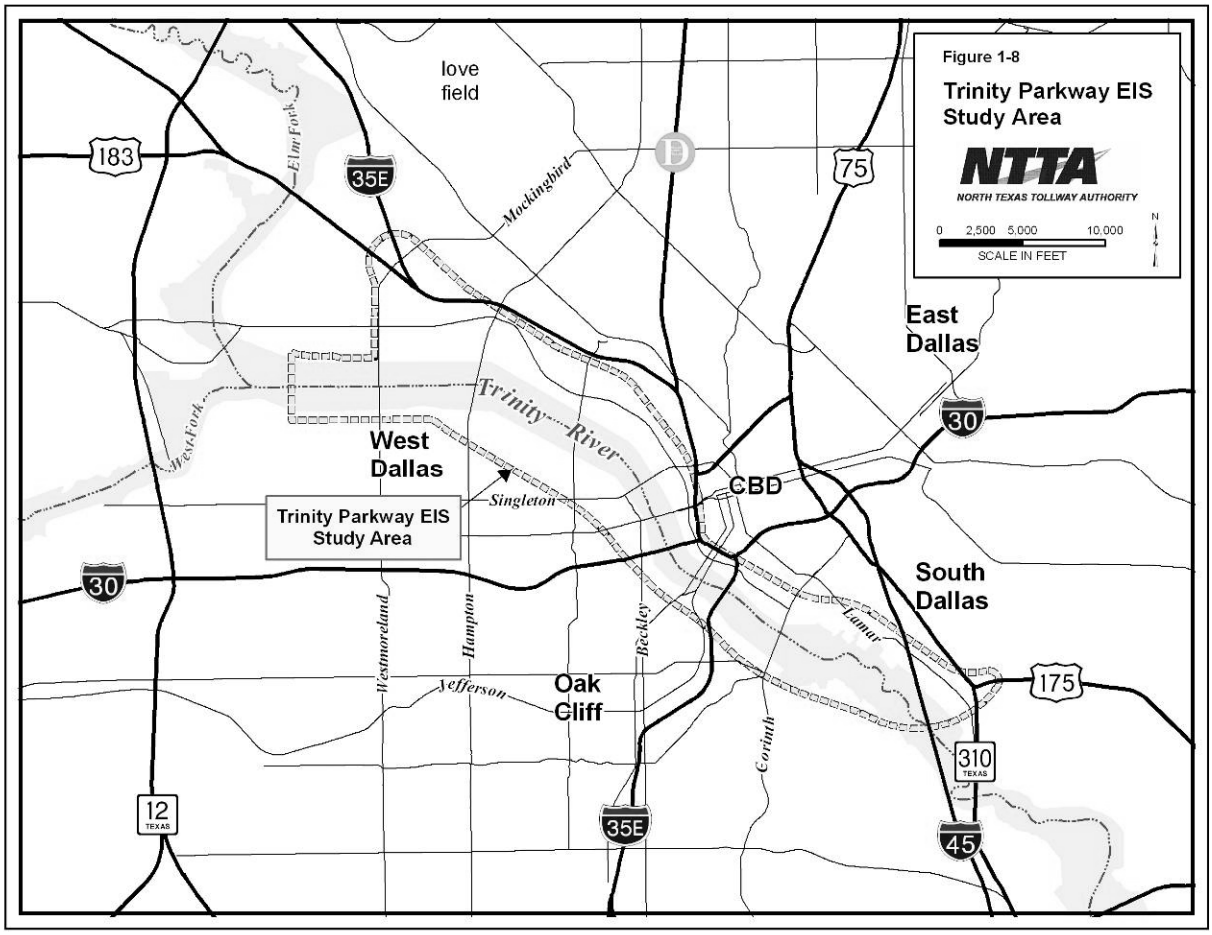
The conversion of the road to a toll facility has caused some modifications to the original MTIS reliever road concept. Aside from the obvious changes (i.e., toll gantries, etc.) needed for the operation of a toll facility, the operating speed of the facility has been increased from 45 mph to 55 mph. The speed increase is required to allow a more attractive travel time advantage on the toll road compared to other

available toll-free (tax supported) roads. The increase in speed has affected the control of access on the roadway, preventing previously proposed left side exits from the roadway main lanes to the adjacent park areas. This issue is further discussed in **Section 2.4.2** of this SDEIS. The Dallas City Council also requested the Trinity Parkway be reduced to six main-lanes as part of their deliberations for the *Balanced Vision Plan for the Trinity River Corridor* (City of Dallas, 2003a). During the public input stages for this planning study, the council stated a preference that the roadway not exceed six lanes due to scale and visual impact concerns in the vicinity of the Dallas Floodway.

1.6 OVERVIEW OF THE STUDY AREA

The Trinity Parkway SDEIS study area is narrowed from the original study area in the Trinity Parkway Corridor MTIS to focus more specifically on the reliever route corridor. **Figure 1-8** shows the SDEIS study area.

FIGURE 1-8. TRINITY PARKWAY SDEIS STUDY AREA



The study area is influenced by a number of important traffic generators, including the Dallas CBD, Stemmons corridor, and communities in south and west Dallas. In addition, major tourist/visitor attractions are located near the study area, including the American Airlines Center Arena/Victory Park and the Dallas West End Historic District. The West End Historic District includes the Sixth Floor Museum, located in the Texas School Book Depository, and Dealey Plaza, the location where President John F. Kennedy was assassinated in November 1963.

1.7 THE NEED FOR ACTION

The effects of traffic congestion in the City of Dallas are widespread. Congestion directly affects the mobility of people and goods, and contributes to poor air quality. Other effects include increased travel time, increased fuel consumption, and lost productivity of people and businesses. Each year since 1982, the Texas Transportation Institute (TTI) has published The Urban Mobility Study for selected U.S. urban transportation systems, including the City of Dallas.

Recent mobility studies have shown gradually worsening trends in all measures of transportation across the Dallas area. Of particular note is a finding that in recent years, over 60 percent of peak period travel occurs in congested conditions. The 2007 Urban Mobility Report indicates that in 2005, Dallas citizens spent an average of 58 hours delayed in traffic. Over the entire Dallas-Fort Worth area, the costs accumulate to an estimated annual total of $2.747 billion in lost time and 106 million gallons in wasted fuel (TTI, 2003; TTI, 2005; TTI, 2007).

1.7.1 Traffic Volumes and Level of Service

Existing and Forecasted Traffic Volumes

In October 2007, NCTCOG completed the traffic study for the Trinity Parkway project based on the modeling assumptions in *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area*. This analysis is subject to change pending the 2009 update to the MTP. For the purposes of the study, traffic volumes are expressed as average daily traffic (ADT). The ADT volumes reflect average travel conditions on a particular highway rather than daily or seasonal variations. Forecasted volumes, which were developed from the NCTCOG's DFWRTM, are based on historic traffic counts and associated growth trends, data from regional and local plans that include present and future land use and development trends, and demographic data such as changes in population and employment. **Table 1-1** summarizes existing and forecasted traffic (2030) for various segments of study area roadways.

TABLE 1-1. EXISTING AND FORECASTED AVERAGE DAILY TRAFFIC (ADT) UNDER THE NO-BUILD ALTERNATIVE

Roadways	Existing Conditions ADT (2007)	Forecasted Conditions ADT (2030)
IH-35E		
North of SH-183	138,100	184,300
SH-183 to DNT	264,800	326,100
DNT to IH-30	274,700	375,500
South of IH-30	195,600	263,900
IH-30		
West of IH-35E	160,100	207,100
East of IH-35E	254,000	333,000
East of IH-45	228,000	334,100
SH-183		
West of IH-35E	183,000	247,900
US-175		
East of SH-310	102,200	129,000
IH-45		
North of Trinity River	94,200	147,700
US-75		
North of IH-30	173,600	214,600
North of Woodall Rodgers	254,700	298,900
Source: NCTCOG DFWRTM, 2007.		

Capacity and Level of Service

Capacity analyses were conducted to determine year 2030 LOS for various segments of existing study area highways and arterials. LOS is a measure of the roadway's ability to handle traffic demand. Traffic parameters and roadway design factors such as ADT volumes, peak-hour volumes, truck percentages, number of driving lanes, lane widths, vertical grades, passing opportunities, presence, or absence of traffic signals, and access type/spacing affect the LOS. The Transportation Research Board has established guidelines for appropriate LOS on roadways. **Table 1-2** defines LOS ranges from "A" to "F" in order of decreasing operational quality.

TABLE 1-2. LEVEL OF SERVICE DEFINITIONS FOR BASIC FREEWAY/TOLLWAY SECTIONS

LOS	Density Range (passenger cars /mile/lane)	Minimum Speed (mph)	Description
A	0-11	70.0	The operation of vehicles is virtually unaffected by the presence of other vehicles, and operations are constrained only by the geometric features of the highway and by drive performances.
B	>11-18	70.0	Although the presence of other vehicles becomes noticeable, drivers have slightly less freedom to maneuver. Minor disruption in the traffic flow can be easily absorbed. Average speeds are the same as in LOS A.
C	>18-26	>50	The influence of traffic density on traffic operation becomes marked. The ability to maneuver is clearly affected. Minor disruptions can cause serious local deterioration in service, and queues will form behind any significant disruption.
D	>26-35	45 - 60	The ability to maneuver is severely restricted due to traffic congestion. Travel speed is reduced with the increase in traffic volume. Minor disruption can be absorbed without extensive queues forming and the service deteriorating.
E	>35-45	42 -50	Represents operation at or near capacity, an unstable flow. The densities vary, depending on the free-flow-speed. Vehicles are operating with minimum spacing. Disruptions often cause queues to form and services deteriorate to LOS F.
F	> 45	<30	Represents forced or breakdown flow. Sections of the facility are operating at near capacity. Operations within the queues are highly unstable and vehicles experience stop-and-go operation and excessive delays.

Source: Transportation Research Board, National Research Council, Washington, D.C., 1997.
Note: The traffic operation on freeways is characterized by three performance measures: Density which is defined as the number of passenger vehicles per mile per lane, Speed as defined in terms of mean passenger speed per mile per lane, and Volume-to-capacity ratio. All these factors are interrelated and can be calculated if two of the measures are known. Each of these measures indicates how well the highway accommodates traffic flow.

Predicted future LOS for various roadway segments, as shown in **Table 1-3**, indicate some roadway corridors in the study area would improve under the No-Build scenario, which is likely due to other planned transportation improvements in the area (see **Sections 1.9.5** and **1.10.3**). However, the majority of segments would operate at LOS “E” or LOS “F,” most notably segments of IH-35E from SH-183 south beyond IH-30 (includes Lower Stemmons) and the segment of IH-30 east of IH-35E (i.e., the “Canyon”). This is characterized by slower travel speeds and unstable traffic flow operations, resulting in stop-and-go long backups and delay.

TABLE 1-3. FORECASTED LEVEL OF SERVICE (LOS) UNDER THE NO-BUILD ALTERNATIVE

Roadway	Existing Conditions LOS (2007)	2030 LOS
IH-35E		
North of SH-183	D-E	C-D
SH-183 to DNT	F	F
DNT to IH-30	F	D-F
South of IH-30	F	F
IH-30		
West of IH-35E	F	D-E
East of IH-35E	F	F
East of IH-45	F	E-F
SH-183		
West of IH-35E	F	E-F
US-175		
East of SH-310	E-F	D-E
IH-45		
North of Trinity River	D-E	A-C
US-75		
North of IH-30	F	D-E
North of Woodall Rodgers	F	F
Source: NCTCOG DFWRTM, 2007.		

Under these conditions it is likely that some traffic would continue to divert to local city streets and other secondary roadways, placing additional traffic demands on routes not intended to function as a regional, state, and national travel route. The existing roadway network would not operate efficiently, and it is likely accident frequency would increase if no improvements are made in the study area.

1.7.2 Regional Travel Growth

Rapid growth in the DFW region is surpassing the transportation system's ability to accommodate it, resulting in increased traffic congestion. In 1990, the DFW region ranked second nationwide and surpassed all Texas cities in daily travel per person. Transportation demand for the DFW region was 125 million vehicle miles of travel (VMT) in 1999, meaning that on a typical weekday drivers travel a total of approximately 125 million miles on area freeways, arterials, and local streets. Regional VMT steadily increased from 66 million in 1980 to 125 million 1999. This represents an 89 percent increase over this 19-year period. Average VMT per person has also increased from 22.8 miles per day in 1980 to 27.6 miles per day in 1999, representing a 21 percent increase per person. Factors involved in increased VMT include:

- Increasing automobile ownership;
- Increased suburbanization (see **Section 1.7.3**);
- Reduction in vehicle occupancies (see **Section 1.7.4**); and
- Regional population and employment growth (see **Section 1.7.5**).

The increased travel is having a negative impact on the DFW area roadway system. While travel is increasing, revenues to support construction and maintenance of the roadway system have not kept pace with the resulting travel demand. A substantial increase in VMT occurred between 1980 and 1999. However, highway expenditures during the same period remained relatively constant in real terms. This imbalance between travel demand and roadway supply has resulted in a substantial increase in congestion and roadway maintenance needs.

1.7.3 Increased Suburbanization

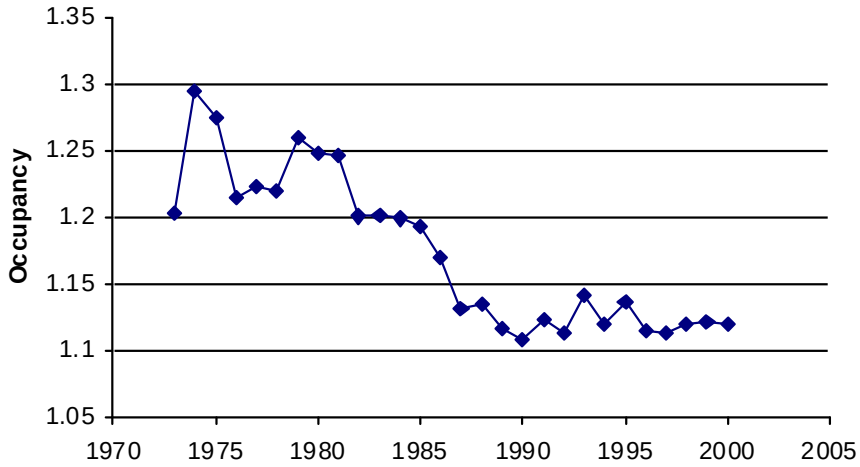
The travel patterns of area residents have been altered due to changes in land use associated with suburbanization, a growth pattern sometimes referred to as "urban sprawl." In the past, commuting patterns involved a high percentage of trips to the central city. Today's commuting patterns are more widely scattered as inter- and intra-suburban travel has increased. There is a reduced ability to provide effective transit service for this type of travel because of the dispersal of destinations. As a result, the private automobile has become the dominant mode of travel in the DFW metropolitan area.

Since distances between employment, retail, and residential areas tend to be greater in suburban areas, trip frequencies, trip lengths, and travel times also tend to be greater. The DFW area has experienced suburbanization much like the rest of the U.S. Households located near the central city (i.e., urban residential) travel approximately 70.0 miles per day, while households in rural areas travel approximately 110.0 miles per day (NCTCOG, *2007a*).

1.7.4 Reduction in Vehicle Occupancies

Residents in the metropolitan Dallas area use several different modes of transportation to travel to and from work. In 1990, approximately 79 percent of the residents drove alone, 14 percent car pooled, 3 percent worked at home, 2 percent used public transit, 2 percent walked, and 1 percent used other means of transportation, such as bicycling (NCTCOG, 2007a). Historically, the proportion of travel by people driving alone has been generally increasing in Dallas, with a corresponding decline in average vehicle occupancies. **Figure 1-9** shows the historical data for vehicle occupancies in Dallas County from 1973 to 2000.

FIGURE 1-9. 1973 TO 2000 VEHICLE OCCUPANCIES



Source: TxDOT, 2000a.

Figure 1-9 shows that average vehicle occupancy in Dallas County had steadily declined through the 1970s and 1980s, leveling out in the last decade. Regional efforts toward transit and HOV implementation are expected to begin an upward trend in vehicle occupancies over the next decades, and thereby slow down the growth in VMT. The MTP (*Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area*) projects average vehicle occupancy of 1.25 in the year 2030.

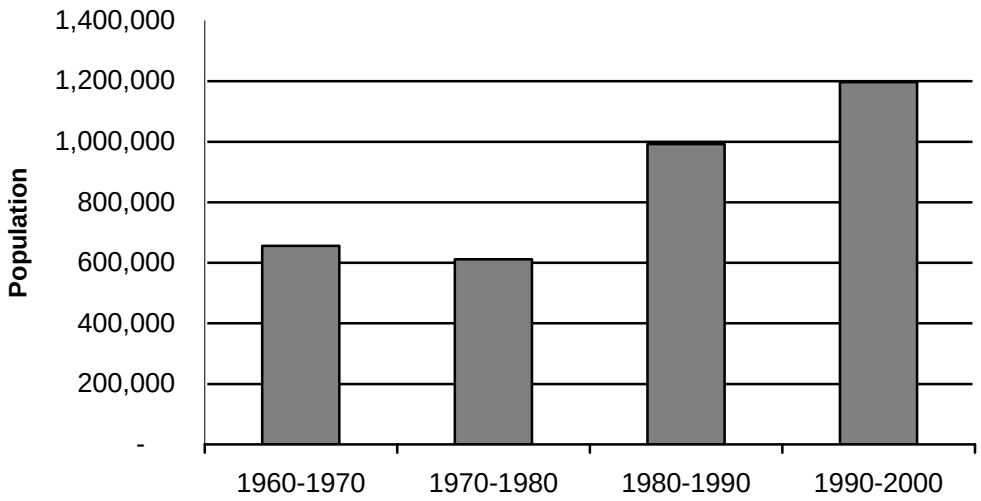
1.7.5 Regional Population and Employment Growth

Population

According to the U.S. Census Bureau, the 2000 population of the DFW region (DFW refers to the NCTCOG 16-county north central Texas region) is 5,309,277, which is larger than the population of 36 U.S. states. The DFW region grew by 1,197,529 people or 29.1 percent between 1990 and 2000 - more than twice the national growth rate of about 13 percent during the same period. This represents an average annual growth rate of around 2.6 percent. The region is a major economic, social, and political center of both Texas and the U.S., with rapid growth in population and employment expected to continue. DFW is now the largest regional economy in Texas, comprising approximately 25 percent of the state's economy, 25 percent of the population, 31 percent of population growth, 34 percent of employment growth, 29 percent of employment, and 25 percent of retail sales. By the year 2030, the region is expected to attract over 3 million new residents and over 2 million new jobs (NCTCOG, 2007a).

The DFW region is one of the fastest-growing large urban areas in the nation and has joined a group of nine U.S. metropolitan regions with populations exceeding 5 million people (NCTCOG, 2003e). **Figure 1-10** shows the regional population increase by decade from 1960 through 2000.

FIGURE 1-10. REGIONAL POPULATION INCREASE BY DECADE (1960-2000)



Source: NCTCOG, 2003e.

The total population of the DFW region at the start of 2007 was estimated as 6,406,500. The region experienced a growth rate of more than 150,000 persons per year from 1999 through 2005, and added 135,350 new residents in 2006, marking the eleventh consecutive year to add over 100,000 residents (NCTCOG, 2007b).

The four core counties in the region (Collin, Dallas, Denton, and Tarrant) captured 85 percent of all regional growth in the 1990s or 847,100 persons. In 2006, these counties captured 80 percent of all regional growth, adding 108,200 persons. Dallas County added over 17,000 persons in 2006 and now has 2,417,650 persons (NCTCOG, 2007b).

Employment

From 1990 to 2000, employment in the DFW region grew 45.9 percent adding 935,107 non-construction jobs for a year 2000 total of 3,158,200. These employment figures represent an average increase of approximately 93,500 jobs per year since 1990. The labor market performance of the late 1990s was the strongest in a decade both nationally and locally (NCTCOG, 2003a).

During this period of exceptional growth, the City of Dallas continued to dominate regional employment by capturing approximately 24 percent of all job growth (228,664) bringing their total employment base to

1,038,314. Employment within the city is focused substantially in traditional core markets in the CBD and the Stemmons corridor, both of which directly influence the Trinity Parkway study area. **Table 1-4** summarizes recent employment trends for the major cities in the region from 1990-2000.

TABLE 1-4. EMPLOYMENT TRENDS FOR TOP FIVE CITIES (1990-2000)

City	1990 Employment	2000 Employment	1990-2000 Total Change	1990-2000 Percent Change
Dallas	809,650	1,038,314	228,664	28.2
Fort Worth	330,350	449,793	119,443	36.2
Irving	106,600	165,435	58,835	55.2
Plano	54,450	115,048	60,598	111.3
Richardson	57,750	94,792	37,042	64.1

Source: NCTCOG, 2003a
Note: The NCTCOG 2000 employment estimate report includes 71 cities within Collin, Dallas, Denton, Rockwall, and Tarrant counties, as well as portions of Ellis, Johnson, Kaufman, and Parker counties.

Table 1-5 provides a summary of projections for DFW metropolitan area population and employment for 2000 through 2030. The NCTCOG metropolitan area demographic forecast is conducted for the 10 counties surrounding the DFW urban core (Collin, Dallas, Denton, Ellis, Johnson, Kaufman, Parker, Rockwall, Tarrant, and Wise counties).

TABLE 1-5. DFW DEMOGRAPHIC FORECAST (2000-2030)

Demographic Statistic	2000	2010	2020	2030
Population	5,067,400	6,328,200	7,646,600	9,107,900
Employment	3,158,200	3,897,000	4,658,700	5,416,700

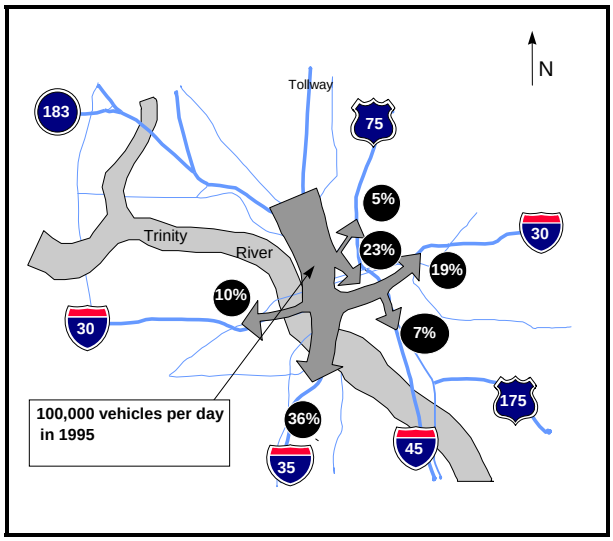
Source: NCTCOG, 2003b.
Notes: (a) Population increases of approximately 135,000 persons per year.
(b) Employment increase of approximately 75,000 jobs per year.

As shown in **Table 1-5**, the DFW metropolitan area is expected to have approximately 9.1 million residents in 2030, supporting approximately 5.4 million jobs. On average, the region is expected to add population at a rate of approximately 135,000 persons per year and employment at a rate of approximately 75,000 jobs per year over the 30-year period. This is equivalent to adding nearly four cities the size of Dallas, or nearly eight cities the size of Fort Worth in this time period.

1.7.6 Traffic Flow Characteristics near the Dallas CBD

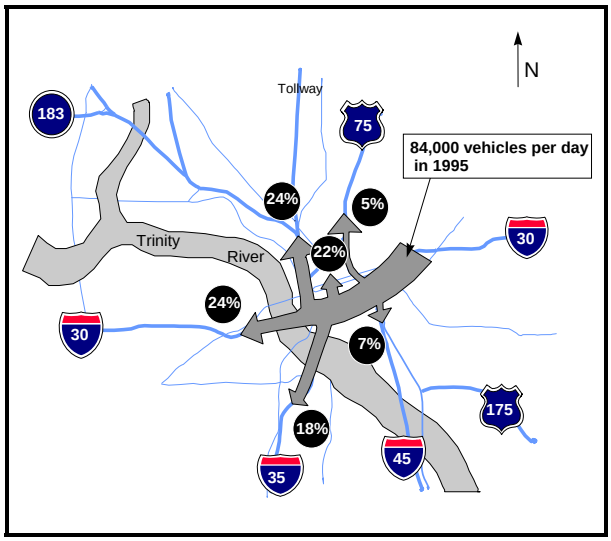
Figures 1-11 through **1-14** from the Trinity Parkway Corridor MTIS show the directional distribution of traffic originating from the radial freeways around the Dallas CBD. These figures are based on 1995 traffic data provided by the NCTCOG and are expected to be reasonably representative of the current directional distribution.

FIGURE 1-11. DAILY TRAFFIC ENTERING THE MIXMASTER FROM THE NORTH



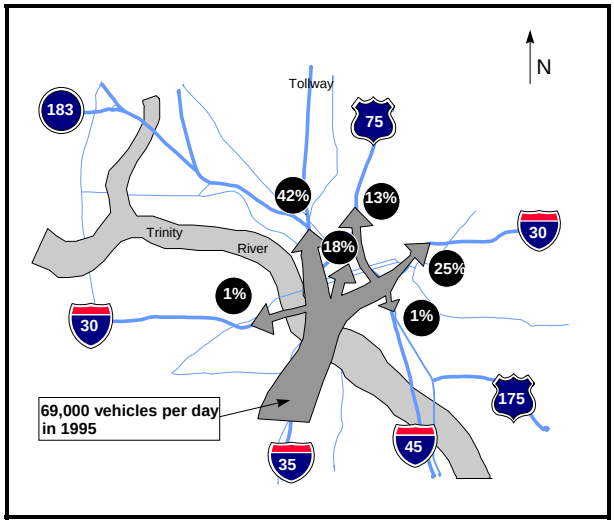
Note: Not to scale

FIGURE 1-12. DAILY TRAFFIC ENTERING THE MIXMASTER FROM THE EAST



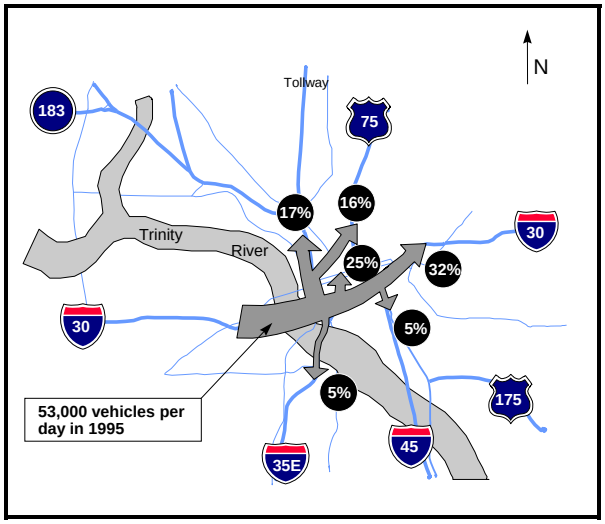
Note: Not to scale

FIGURE 1-13. DAILY TRAFFIC ENTERING THE MIXMASTER FROM THE SOUTH



Note: Not to scale

FIGURE 1-14. DAILY TRAFFIC ENTERING THE MIXMASTER FROM THE WEST



Note: Not to scale

Figures 1-11 through **1-14** indicate that approximately one out of every five drivers on the Canyon/Mixmaster system is destined for downtown Dallas. The remaining four out of five drivers are trying to travel past the downtown to other destinations. This travel pattern is very different from the original intent and use of the freeway system in the 1960s, which was focused on the downtown as the primary destination (TxDOT, 1998b).

Under current conditions, the Canyon, Mixmaster, and Lower Stemmons segments are critically congested and operate in a stop-and-go traffic condition every business day. The American Automobile Association (AAA) named the Mixmaster in 1996 and again in 2000 as one of the top ten "*Most Notorious Traffic Bottlenecks*" in the nation.

On a typical weekday morning, northbound traffic on IH-35E queues from the Dallas Zoo (12th Street) to the Dallas North Tollway exit, a distance of approximately 4.3 miles. Eastbound traffic begins to queue west of the Trinity River Bridge (Wycliff/Sylvan Avenue), with the queue continuing through the entire Canyon area on IH-30, a distance of approximately 3.3 miles. Westbound queues stretch from Ferguson Road to the Mixmaster, a distance in excess of 5.0 miles. Similar queuing problems occur during the evening rush hours on IH-35E and IH-30 in the opposite directions.

The Canyon, Mixmaster, and Lower Stemmons Freeway segments were built between 1958 and 1962. Notably, the existing Commerce Street interchange with IH-35E was in place at the time of the John F. Kennedy assassination and was used as an escape route from Dealey Plaza by the presidential motorcade. These freeway segments present numerous shortfalls when measured against current design standards. Some of the most notable shortfalls are:

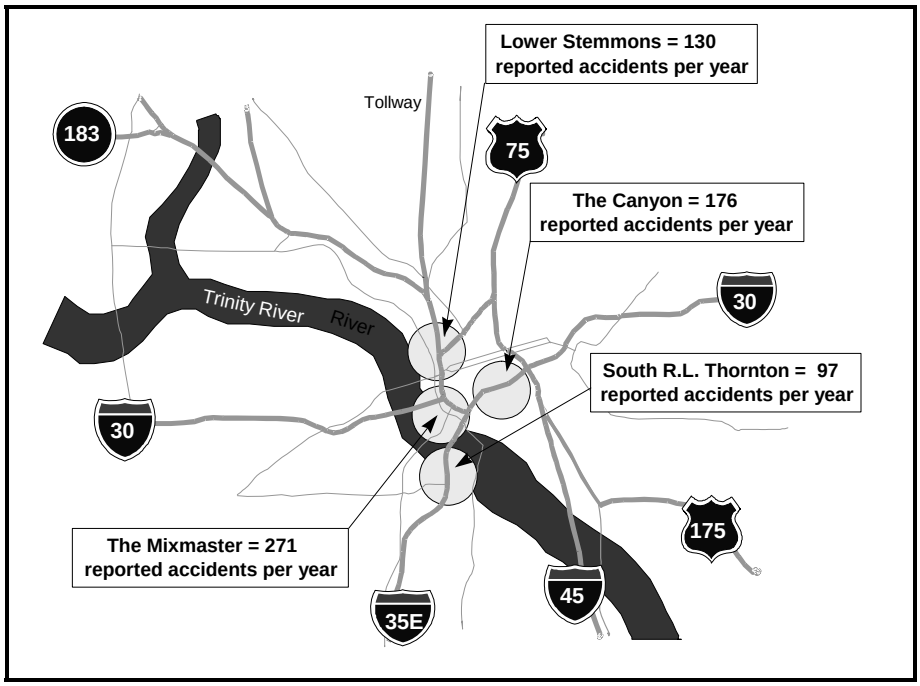
- Traffic going southbound on IH-35E through the Mixmaster must make an exiting movement (from the right lanes) in order to stay on IH-35E south of the Mixmaster.
- Traffic traveling between the southern segment of IH-35E (South R.L. Thornton) and the western segment of IH-30 (Tom Landry Freeway) must exit the freeway to Industrial Boulevard in order to access the interchange.
- There are numerous left-hand entries and exits, such as the northbound entrance from Commerce Street to IH-35E and the westbound exit from IH-30 to south IH-35E.

1.7.7 Safety

The volume of traffic in the Canyon, Mixmaster, and Lower Stemmons corridors, along with the complexity of merges and weaving in the area has resulted in a high rate of accidents. In addition, the inefficient layout of ramps and service roads in the area slows emergency response and prevents efficient detouring of traffic around accident sites. **Figure 1-15** shows the accident history for these segments expressed as an annual average for the period from 1997 to 1999. This is based on listings of reported accidents provided by the TxDOT Dallas District. The data includes accidents resulting from roadway geometric deficiencies, driver error, adverse weather conditions, construction hazards, and poor roadway conditions. The accident rates in the Canyon, Mixmaster, and Lower Stemmons corridors appear to be more than double the nationally reported accident rates for U.S. Highways (approximately 210 annual

accidents per 100.0 million vehicle miles of travel, compared to an FHWA reported average for highways of around 80 annual accidents per 100.0 million vehicle miles of travel).

FIGURE 1-15. AVERAGE ANNUAL ACCIDENT RATES IN THE STUDY AREA - 1997 TO 1999



The lane curvature and design speed at some locations has also caused a high number of truck overturns and load spills. On November 14, 1996, accidents in the Mixmaster involving two separate truck incidents completely shut down IH-35E for 6 hours. From February to June of 2007, four separate major accidents involving overturned semi-trucks occurred in the Mixmaster area, resulting in multiple lane closures and traffic delays of several hours. In particular, on February 14, 2007, an overturned truck that caused a fuel spill required over 8 hours to remove (myfoxdfw.com, 2007; NBC5i.com, 2007a-b; WFAA.com, 2007).

As traffic volumes increase on the study area roadways, the numbers of accidents would also be likely to increase. Increased traffic volumes lead to increased congestion, which interrupts normal traffic flow, leads to a greater number of vehicle conflicts, and tends to result in a greater number of accidents. This trend is seen under existing conditions and is expected to continue. In the future, without improvements, additional study area roadway links and intersections are likely to have “higher than expected” accident rates. In addition, as traffic continues to spread to other secondary roads to avoid congestion on major roads, these roads are likely to experience deterioration in safety as well.

The Trinity Parkway project proposes a reliever route around the Canyon, Mixmaster, and the Lower Stemmons area, without addressing construction or modifications to the existing highways. This is

because TxDOT is the lead agency in developing proposals for capacity and safety improvements in the Canyon, Mixmaster, and Lower Stemmons (i.e., Project Pegasus), as well as the extension of Woodall Rodgers Freeway. Several hundreds of millions of dollars of improvements are separately programmed for these facilities (partially committed to date).

1.7.8 Assumed Horizon Year System

The horizon year for the Trinity Parkway study has been set at the year 2030. This matches the adopted planning horizon used by NCTCOG in the current MTP (*Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area*).

The projection of future traffic conditions is based on many assumptions, which have to be estimated from the best available current information. These assumptions include population growth, modal choices in future years, projected vehicle occupancies, and an assumption of what improved facilities would be in place in future years. The following paragraphs discuss these factors as they apply to the Trinity Parkway corridor modeling.

Projections of future population in the DFW area were developed by the Research and Information Services Department of the NCTCOG and are discussed in **Section 1.7.5**. These data on population and employment patterns are used by many agencies in the region to plan future services and facilities. The NCTCOG has utilized these demographic projections, along with statistical data on trip patterns and purposes, to develop traffic modeling for future years in the Trinity Parkway study area.

Assumptions regarding the road and transit systems, which should be in place at the horizon year (2030), are based on existing and committed projects and the improvements planned in the MTP (*Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area*). The following list summarizes the other assumptions included in the future conditions model:

- DART rail transit is assumed to be in place to the full extent shown on the ”Passenger Rail Recommendations” map within *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area*. This includes light rail lines to South Oak Cliff, Pleasant Grove, West Oak Cliff, North Central, Northwest Corridor (Farmers Branch and DFW Airport), and Garland and commuter rail lines to Fort Worth via Irving (the Trinity Railway Express line) and Arlington (the UP Line).
- All committed road improvements included in the *2008-2011 TIP* (NCTCOG, 2007g) are assumed to be in place (see **Table 1-9**). This includes Trinity River crossings at Hampton Road, and Woodall Rodgers (Spur-366) Extension (now Margaret Hunt Hill Signature Bridge).

- All freeway and HOV improvements in the *2008-2011 TIP* outside of the study area are assumed to be in place. For the purposes of traffic modeling, freeway and HOV improvements in the Canyon, Mixmaster, and Lower Stemmons corridors are assumed to be in place by year 2030.
- Trip reduction programs under the regional CMP are assumed to be in place and having effect. This includes programs for car pools, van pools, and employer transit pass subsidies.
- The system management initiatives programmed under the regional CMP is assumed to be in place. This includes reconstruction of intersections in the study area upgrading and sequencing of signal light installations, and bottleneck removals on freeways.
- The projected average vehicle occupancy rate for all road vehicles in the study is assumed to be 1.25 at the horizon year (2030).
- The extension of Woodall Rodgers Freeway westward across the Dallas Floodway connecting to Singleton Boulevard and Beckley Avenue is assumed to be in place.

The population and facility assumptions listed above form the baseline condition, against which all alternatives developed in the SDEIS are modeled. Additionally, the current traffic modeling is based on toll conditions on the Trinity Parkway. That is to say, the traffic projections are reduced from those that might be expected on a “toll-free” (tax-supported) road to reflect the sensitivity of motorists to paying tolls.

1.7.9 Future Year Traffic Conditions

Assuming the baseline improvements are in place, the year 2030 model projections show very unfavorable traffic conditions. The modeling data show an increasing bottleneck effect in the downtown area, with hours of congestion growing from 6 to 9 hours per day. This would result in an overlapping of the morning and afternoon peaks into a continuous period of congestion.

The model shows the effect of adding more population and traffic pressure to an already highly congested system of roads. The time of congestion gets longer because the system is only capable of metering through a limited amount of traffic per hour. As a result, people may have to substantially change their work hours, seek other longer routes through any available streets, or change jobs or residences in order to avoid protracted delays on the freeways. **Table 1-6** provides a summary of the modeled daily travel demand performance for the Trinity Parkway study area in the horizon year 2030. This analysis is subject to change pending the 2009 update to the MTP.

TABLE 1-6. DAILY TRAVEL DEMAND PERFORMANCE SUMMARY FOR THE STUDY AREA

Measure of Effectiveness (MOE) [1] Parameter	2030 No-Build[7]	2030 (Alts. 2A, 2B) [7]	2030 (Alt. 3A) [7]	2030 (Alts. 3B, 3C) [7]	2030 (Alt. 4A, 4B, 5) [7]
Vehicle Miles of Travel per day [2]	10,271,372	10,466,507	10,503,443	10,499,887	10,447,530
Vehicle Hours of Travel per day [3]	293,784	288,936	288,983	291,131	289,344
Average Speed (mph) [4]	34.96	36.22	36.35	36.07	36.11
Lane Miles in Study Area	1,349	1,366	1,389	1,399	1,379
Congestion Delay (vehicle-hours) [5]	44,917	41,097	40,412	41,679	41,167
Percent Lane Miles at LOS D, E or F [6]	46.03	42.69	41.83	43.08	42.31

Source: NCTCOG DFWRTM, 2007.
Notes:
LOS = level of service
mph = miles per hour

1. MOEs focus on the identified project needs and also provide a method to determine the degree that traffic conditions, such as congestion and mobility, could be improved by each of the Build Alternatives.
2. Vehicle Miles of Travel (VMT) = the total number of miles driven by all vehicles in the study area on an average day.
3. Vehicle Hours of Travel (VHT) = the total time spent driving vehicles in the study area on an average day.
4. Average Speed (mph) = VMT divided by the VHT.
5. Congestion Delay (vehicle hours) determines whether vehicles are experiencing delays on the roadways and gauges the degree that congestion could be managed by the various alternatives.
6. Percent Lane Miles at LOS D, E or F = percent of lane miles operating in congested conditions at LOS D, E or F.
7. Alternatives 2A and 2B would be located primarily along Irving/Industrial Boulevards. Alternatives 3A, 3B, 3C, 4A, 4B, and 5 would be located primarily along the Dallas Floodway. All of the Trinity Parkway alternatives, including the No-Build Alternative (Alternative 1) are fully described in **Chapter 2 Alternatives Considered**.

As shown in **Table 1-6**, the measure Congestion Delay is substantially higher for the No-Build Alternative. **Chapter 2 Alternatives Considered** provides additional information regarding the No-Build Alternative and the Build Alternatives.

1.8 PURPOSES OF THE PROPOSED ACTION

The nine proposed project alternatives, including the No-Build Alternative, evaluated in this SDEIS are considered in terms of how well they meet the following project purposes:

- **Improve Mobility, Manage Congestion, Increase Safety, and Accommodate Future Travel Demands**

  As is detailed in **Sections 1.7.1** through **1.7.9,** capacity constraints on existing streets, highways, and transit systems in the study area have resulted in severe congestion and high accident rates. The proposed facility should manage congestion and increase safety near downtown Dallas, offer improved access to employment centers, and offer travel time savings, both for those who use the facility as well as for users of other streets in the corridor. The proposed facility should also accommodate projected future travel demands in the study area.

- **Minimize the Physical, Biological, and Socioeconomic Effects on the Human Environment**

  The Trinity Parkway study area includes the environmental setting of the Dallas Floodway and Trinity River, and several of the proposed Build Alternatives are located within or near the Dallas

Floodway. This major area of open space provides biological resources, water/wetland resources, recreation resources (existing and planned), and aesthetic resources. In addition, the study area includes certain areas that may be susceptible to adverse social, economic, and environmental impacts, including established businesses, residential neighborhoods, and cultural resources. Citizens of these areas have expressed a high level of interest in the potential impacts (beneficial and/or adverse) associated with the Trinity Parkway. Avoiding, minimizing, and mitigating adverse impacts will be of great importance to the development of the Trinity Parkway project.

- **Provide Compatibility with Local Development Plans**

  Due to the multiple planning objectives under consideration in the project study area (i.e., transportation, recreation, flood control, economic development, and environmental preservation), compatibility with local planning objectives is an important consideration. Compatibility and/or synergy with local development plans should be considered among the project purposes and needs**.** Throughout the project planning process, stakeholders have stressed that a major transportation improvement is likely to influence and shape local development. Local government agencies, as well as private citizens and developers, all anticipate some improvements or changes with respect to traffic circulation and economic development within the Trinity Parkway corridor. Therefore, this secondary purpose is included to assure specific consideration of local compatibility issues. Compatibility with regional planning is addressed in **Section 1.10**.

- **Act on Voter Approval for the Trinity Parkway Project**

  The Trinity Parkway project is endorsed for financial support in the City of Dallas Bond Program, which voters approved on May 2, 1998. The Trinity Parkway reliever route is considered one of the highest priority transportation projects in the City of Dallas. The 1998 Bond Program provides $84 million toward the construction of the proposed Trinity Parkway (City of Dallas, 1998a). See also **Section 1.3 Project History**, regarding the November 6, 2007 special election resulting from the "Trinity Vote Committee" petition to the City of Dallas. The failure of the petition allowed continued consideration of Trinity Parkway alignment alternatives within the Trinity River levees.

- **Provide Enhancement of Modal Interrelationships**

  As previously mentioned, the proposed facility would help to manage traffic congestion along the major roadway corridors throughout the study area. This would have a direct beneficial effect in improving DART bus service because buses are presently experiencing the same congestion as other vehicles traveling through the study area, particularly during the peak periods. DART has a large number of bus routes within the study area serving local and commuter patrons (see

Plate 3-15). Several of these routes cross the study area near planned interchanges and could provide additional intermodal connections.

1.9 OTHER TRANSPORTATION PLANNING INFLUENCES

1.9.1 Interstate Context and Through-Traffic Growth

The interstate system of national defense highways was initiated after World War II to provide a nationwide network of limited-access highways to link key population centers. These highways serve a vital role in the metropolitan Dallas area and in the entire north central Texas region.

The IH-35 corridor serves the central U.S. from Mexico to Canada. Interstate traffic travels along IH-35E through the Dallas area from Mexico and cities such as Laredo, San Antonio, and Austin to the south and the cities of Denton, Oklahoma City, Kansas City, Des Moines, Minneapolis, and Duluth to the north. The IH-35E segment in Dallas has also become a main thoroughfare for residents and commuters. Interstate travelers and truck drivers must compete with Dallas commuters for limited capacity on the interstate highways in and around the city, especially in the Canyon, Mixmaster, and Lower Stemmons corridors. Even when drivers plan well to avoid peak hours in the Dallas area, they must travel interstates with congestion problems and a high number of accidents and incidents during a major portion of daylight hours.

After the ratification of NAFTA in 1993, accommodating increases in trade traffic has become an important issue for the region. Since NAFTA was enacted, trade from the DFW area to Mexico and Canada has increased substantially. Approximately 80 percent of overland trade between the U.S. and Mexico travels through Texas. Trade from the DFW Metropolitan area to Mexico and Canada has almost doubled to $1.46 billion since 1993, the initial year of NAFTA (NCTCOG, 2007a).

The IH-35 corridor was identified in the ISTEA as Corridor 23, which designates IH-35 as a national high-priority trade route. Currently, the IH-35 corridor carries approximately 32 percent of all NAFTA-related traffic in the state. Referred to as the NAFTA “Superhighway,” this major north-south route represents a “backbone” of goods movement. The Interstate also connects to other major regional trade routes, such as IH-20, IH-30, IH-45, IH-635, IH-820, and US-75.

As IH-35 corridor trade increases in the future, the travel demands will continue to grow, placing additional pressures on a burdened interstate system and arterial facilities in the areas around Dallas. In order to prevent an overburdening of the local roadway network, additional capacity must be provided to serve the current and future demands for the movement of people and goods within the region.

In response to growth in interstate traffic in Texas, Texas Governor Rick Perry and the Texas Transportation Commission announced in January 2002 the creation of the *Trans Texas Corridor Plan* (TxDOT, 2002). The plan envisioned transportation corridors across Texas, having a total length of approximately 4,000 miles and providing a major addition to the interstate highway network. The corridors conceptually would have a right-of-way width of up to 1,200 feet, and encompass roadway, freight rail, passenger rail, and utility components. The *Trans Texas Corridor Plan* identified four priority corridors, one of which ("TTC-35") crossed Texas in a north-south orientation, generally parallel to and to the east of IH 35. In January 2009, TxDOT announced an updated vision for the Trans Texas Corridor. As a result of new legislation and public involvement since 2002, the initial concept has evolved into a program of potential solutions for major corridors, appropriately altered with regard to right-of-way widths, transportation mode, and use of existing facilities in order to meet the needs of individual communities. The current plan can be described as being in a developmental phase, with funding sources and construction schedules not firmly established. Additional information on the proposal is available from TxDOT (www.dot.state.tx.us).

Plans for the IH 35 corridor have the potential to reduce traffic in the Trinity Parkway corridor due to the routing of some portion of the long-distance interstate traffic around Dallas. However, planned facilities would not be anticipated to substantially affect the need for the Trinity Parkway Project. The Trinity Parkway would be primarily a commuter route and is proposed to be restricted to automobiles only (see **Section 1.12.7 Truck Prohibition**). There is a relatively small portion of the overall traffic volume in the region that is attributable to pass-through interstate traffic. Pass-through travelers, and particularly long distance freight operators, are also more likely to avoid travel in peak hours through the region. Even with all components of *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area* in place, there would still be a projected "moderate" to "severe" peak hour congestion in the Trinity Parkway corridor at year 2030 (see **Figure 1-5**). The hours of congestion may be reduced, but not to the extent that the programming for the Trinity Parkway would be changed.

1.9.2 Tourists/Visitors

According to the Dallas Convention and Visitors Bureau, the City of Dallas is the number one visitor destination in Texas, attracting over 14 million visitors annually. It is one of the leading convention cities in the nation, attracting nearly 4 million convention delegates attending over 3,600 conventions per year, who contribute more than $4.2 billion to the local economy. The majority of these conventions are held in the Dallas CBD area, which includes the Dallas Convention Center and other major hotel/convention facilities. There are approximately 65,000 hotel rooms in the Dallas area. The direct economic impact from travel expenditures on the local economy is estimated to be over $6 billion, with the travel industry providing numerous jobs in the Dallas area (Dallas Convention and Visitors Bureau, 2003).

One notable tourist attraction in Dallas is the West End Historic District, a National Register of Historic Places (NRHP) district comprising over 20 city blocks in the northwest section of downtown, adjacent to IH-35E and Woodall Rodgers Freeway. The district features a renovated warehouse district and includes Dealey Plaza, the location of the President John F. Kennedy assassination. Tourist attractions in and around Dealey Plaza include the historic Texas School Book Depository and 6th Floor Museum and the John F. Kennedy Memorial Plaza. Expanding north from the West End Historic District is the new 70-acre "Victory Park" development, which includes the American Airlines Center Arena used for professional ice hockey, basketball, and other public events.

1.9.3 Intermodal Considerations

Intermodal freight facilities provide an economical means for goods to reach distant markets and distribution points by linking two or more methods of transport. North central Texas has one of the most extensive surface and air transportation networks in the world, providing extensive trade opportunities for the more than 600 motor/trucking carriers and almost 100 freight forwarders that operate out of the area (NCTCOG, 2007a).

The U.S. class I railroads coordinate shipping activities with trucking companies at four intermodal freight centers located on or near major highway corridors around Dallas. Several of these facilities are serviced by major highways and freight rail lines, such as Union Pacific (UP), Burlington Northern and Santa Fe (BNSF), and Kansas City Southern (KCS). At these intermodal facilities, containers and truck trailers are transferred between truck and rail modes. For example, the BNSF Intermodal and Carload Transportation Center at Alliance Airport north of the City of Fort Worth is one of the largest facilities of its kind in the U.S. The nearest intermodal freight facility to the Trinity Parkway corridor is the old Southern Pacific Miller Yard (now operated by UP Railroad Company), located at IH-45 and Linfield Road, approximately 2.0 miles south of the southern terminus (US-175/SH-310). In late 2005, Union Pacific Railroad also opened a new 350 acre intermodal container facility on IH-45 in the cities of Wilmer and Hutchins, Texas, approximately 10.0 miles south of the southern terminus.

DFW International Airport is located approximately 11 miles northwest of the study area. The airport is a major national and international hub, ranked third in the U.S. in total passenger activity. The airport covers more than 29.8 square miles, ranking it as the second largest in the U.S. in terms of land area. In 2006, the airport handled 60,226,138 passengers, 699,773 operations (take-offs and landings), and 834,643 tons of cargo. The airport is also host to a 2,500-acre foreign trade zone. During the next 20 years, the airport plans to spend approximately $5.5 billion to expand its passenger, cargo, and other facilities. This expansion is projected to generate nearly $69 billion to the regional economy over the next

two decades, creating 53,000 additional jobs and personal income totaling $34 billion. Dallas Love Field, located approximately 2.0 miles north of the study area, also maintains air cargo facilities and handles approximately 24,000 tons per year. The airport serves a mix of commercial flights and general aviation. In 2006, the airport served approximately 6.9 million passengers and 248,805 aircraft operations (DFW Visitors Guide, 2007).

1.9.4 Proposed DFW Strategic Routing System

In response to the need to improve freight mobility in the region and the projected growth in both national and international trade, TxDOT has proposed a "strategic routing system" to address goods movement in north central Texas. The strategic routing system is a comprehensive approach to goods movement planning and is planned to consist of the following elements:

- The deployment of ITS including traveler information dissemination and advanced traffic management;
- Highway capacity enhancements along major freight corridors, such as IH-35, IH-45, and connector routes;
- Freeway and arterial bottleneck removals;
- Interchange improvements; and
- Freight facility access improvements.

The combined goal of these elements is the reduction and/or elimination of freight mobility impediments, as well as improved safety. One element of the strategic routing system is the ITS deployment along the IH-35 NAFTA corridor. The use of existing and planned traveler information technologies and systems would help the mobility of trucks and traffic that use this corridor. The application of real-time traffic information to drivers either en-route (e.g., via changeable message signs or in-vehicle devices) or pre-trip (e.g., via electronic kiosks), would allow decision-making to plan a trip more efficiently. For instance, route selections can be made based on known congestion and incident information. This could allow an information service provider to provide assistance to drivers by suggesting alternative travel routes. The IH-35 corridor is a prime target for improvements recommended by the strategic routing system concept. Other heavily used freight travel corridors are also targeted for improvements.

1.9.5 Other Recent and Planned Improvements

Several transportation improvement projects, separate from this study, have been implemented, planned, or are currently being evaluated in the study area. **Table 1-7** provides a summary of key projects.

TABLE 1-7. KEY TRANSPORTATION PROJECTS IN THE STUDY AREA

Project	Proposal	Status
TxDOT - Dallas District		
IH-30 at Trinity River	Bridge Reconstruction	Detailed Design
IH-30 (Canyon)	Reconstruction with HOV	Preliminary Design
IH-30 (Canyon)	Ramp Reversals/Auxiliary Lane Installation	Complete
IH-35E at Trinity River	Bridge Replacement	Preliminary Design
IH-35E (Mixmaster)	Reconstruction with HOV	Preliminary Design
IH-35E (Lower Stemmons)	Reconstruction with HOV	Preliminary Design
IH-35E - Southbound Frontage Road	Extension from Edison Street to Hi Line Drive	Complete
IH-35E - IH-30 to US-67 (South RLT)	Reversible (Interim) HOV Lane Installation	Complete
Corinth Street Viaduct	Bridge Rehabilitation	In Progress
Corinth Street Viaduct	Bridge Couplet	Planning Phase
Houston Street Viaduct	Bridge Rehabilitation	Complete
Continental Avenue Viaduct	Bridge Rehabilitation w/ Potential Conversion to Pedestrian Only Use	Planning Phase
Hampton/Inwood Bridge	Bridge Replacement	Under Construction
Woodall Rodgers Extension	New Bridge Crossing	Under Construction
City of Dallas and Dallas County		
Sylvan/Wycliff Bridge	Bridge Replacement	Detailed Design
Beckley Avenue	Widen to Six Lanes	Detailed Design
Commerce Street Viaduct	Bridge Maintenance	Complete

Source: City of Dallas, 2008; TxDOT-Dallas District, 2007b-d.
Note: The status indicated is as of August 2008.

1.10 CONSISTENCY WITH REGIONAL PLANNING

The development of proposed alternatives for Trinity Parkway is a result of a long-standing effort. Since the mid-1960s, a roadway along this corridor has been included in the long-range MTPs, and many local thoroughfare systems were drawn from these plans. The Trinity Parkway would serve as a regional facility by creating a reliever route needed to allow motorists to bypass the Canyon, Mixmaster, and Lower Stemmons corridors near the Dallas CBD. The need for the project has been justified by regional traffic and design studies. This project fits well into the regional transportation system and would manage traffic congestion, increase mobility and safety, and allow more efficient movement of people and goods through the study area and beyond.

1.10.1 Consistency with Metropolitan Transportation Plan

As stated in **Section 1.4**, the MTP is federally mandated and guides federal, state, and local transportation expenditures. There have been 10 metropolitan transportation plans in the DFW region, starting in 1974. The current MTP is titled *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area* (approved in January 2007 by the Regional Transportation Council).

The current MTP represents a system of transportation improvements needed to maintain mobility in the DFW metropolitan area through the year 2030, and serves as a guide for the implementation of multi-modal transportation improvements, policies, and programs. The recommendations of the MTP reflect

ongoing efforts to implement mobility projects, programs, and policies, including the latest information available from ongoing major investment studies in the region. The plan includes sustainable development initiatives, recognizing the relationship between community development and transportation. The MTP also recognizes the need to provide a balanced transportation system, responsive to all residents, including historically under-served populations. Historically under-served populations are evaluated in the SDEIS based on EO 12898 (1994) and Title VI (Title VI of the Civil Rights Act of 1964, as amended), measuring mobility and accessibility for the identified protected class populations and non-protected class populations.

As stated in **Section 1.4**, the current MTP includes the Trinity Parkway as a major element of the freeway/tollroad plan. The proposed project design concept and scope and project cost are not yet consistent with the MTP, and measures are being taken to address the issue. Prior to FHWA taking final action on this proposed project, it will be consistent with a conforming MTP. This project and the associated Canyon/Mixmaster/Lower Stemmons (i.e., Project Pegasus) reconstruction are seen as needed components for the efficient implementation of the radial freeways and HOV systems, which surround downtown Dallas.

1.10.2 Consistency with the DFW Travel Demand Forecast

Travel demand forecasting is the process used to predict travel behavior and resulting demand for a specific future horizon year, based on assumptions dealing with land use, the number and character of trip makers, and the nature of the transportation system. The travel demand forecasting for Trinity Parkway has been carried out by NCTCOG using the DFWRTM for the design year 2030. This analysis is subject to change pending the 2009 update to the MTP. All proposed CMP strategies, rail and bus transit recommendations, and HOV and managed facility recommendations are included in the baseline conditions. The DFWRTM is the same model as used by NCTCOG for *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area*, and is therefore consistent with the DFW Travel Demand Forecast.

Table 1-8 summarizes the regional performance for Dallas County on the validated 1995 and 1999 systems, and *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area*.

TABLE 1-8. ALTERNATIVE PERFORMANCE SUMMARY FOR DALLAS COUNTY

PERFORMANCE MEASURE	1995	1999 VALIDATION	MOBILITY 2030
Population	1,925,370	2,021,124	2,829,580
Employment	1,391,760	1,594,792	2,540,076
Average Trips Per Person per day	3.0	3.1	3.0
Vehicle Miles of Travel (Millions per day)	53.5	61.8	95.7
Percent Time Spent in Delay	32.5	36.6	35.9
Percent Lane Miles Congested	38.9	46.3	55.3
Annual Cost of Congestion ($Millions)	$2,260	$3,006	$2,740
Source: NCTCOG**,** 2007a.			

The freeway/toll road system evaluation component of the MTP recommends the construction of the Trinity Parkway as a six lane toll road between the proposed termini locations of IH-35/SH-183 and US-175/SH-310.

1.10.3 Consistency with CMP Commitments/Congestion Reduction Strategies

The CMP is a systematic process for managing congestion that provides information on transportation system performance and on alternative strategies for alleviating congestion and enhancing the mobility of persons and goods to levels that meet state and local needs. The CMP is developed, established, and implemented as part of the metropolitan transportation planning process for all Transportation Management Areas (TMA's) in Texas. The proposed action was developed from the NCTCOG's operational CMP, which meets all requirements of amended 23 U.S.C. 134(k)(3) and 49 U.S.C. 5303(k)(3), amendments incorporating the transportation planning requirements of SAFETEA-LU.

Although major capital investments are still needed to meet the growing travel demand, the CMP also develops lower-cost strategies that complement the capital investment recommendations. The result is more efficient and effective transportation systems, increased mobility, and leveraging of resources. The CMP involves the following programs and activities:

- TDM;
- TSM;
- Advanced Transportation Management;
- Analysis of expected benefits and costs for TDM and TSM strategies; and
- Other projects.

Operational improvements and travel demand reduction strategies are commitments made by the region at two levels: program level and project level implementation. Program-level commitments are inventoried in the regional CMP, which was adopted by the NCTCOG. They are included in the

financially constrained *Mobility 2030: The Metropolitan Transportation Plan for the Dallas-Fort Worth Area*, and future resources are reserved for their implementation.

The CMP element of the plan includes an inventory of all project commitments, detailing the type of strategy, implementing responsibilities, schedules, and expected costs. At the project programming stage, travel demand reduction strategies and commitments would be added to the regional TIP or included in the construction plans. The regional TIP provides for programming of these projects at the appropriate time with respect to the SOV facility implementation and project-specific elements.

Committed congestion reduction strategies and operational improvements within the project study area would consist of signalization/intersection improvements, pedestrian/bicycle facilities, rail transit, ITS, HOV, lane additions, and a park-and-ride rail station. **Table 1-9** lists individual operational improvement projects within the study area.

TABLE 1-9. OPERATIONAL IMPROVEMENT PROJECTS WITHIN THE STUDY AREA

Project Location	TIP Project Code	Project Type	Implementing Agency	Year of Implementation	Total Project Cost
Motor Street from Harry Hines to Maple Avenue	661.0009	Addition of Lanes	City of Dallas	2006	$3,404,000
Various Locations	783.000	Intersection Improvement	City of Dallas	2005	$21,152,534
Various Locations	788.0000	Intersection Improvement	City of Dallas	2005	$4,955,000
Commonwealth at IH-35E	788.0004	---	---	---	---
US 67/IH-35E from IH 20 to Dallas North Tollway	1211.2000	HOV	TxDOT-Dallas/DART	1999	$29,430,265
Various Locations	2208.0000	Intersection Improvement	Dallas County	2005	$2,194,624
SH-356 (Irving Boulevard) at Mockingbird Lane	2216.0000	Intersection Improvement	Dallas County	2005	$800,000
Dallas County - IH-30, IH-35E, IH-635, US-67	2493.1000	ITS	TxDOT-Dallas	2000	$2,700,000
Dallas County - IH-30, IH-35E, IH-635, US-67, Woodall Rodgers Freeway	2493.2000	ITS	TxDOT-Dallas	1997	$1,600,000
Hampton Road/Inwood Road from Canada Drive to Harry Hines Boulevard	3069.0000	Addition of Lanes	TxDOT-Dallas	2005	$29,250,000
Oak Lawn Avenue from IH-35E to Maple Avenue	3070.0000	Addition of Lanes	NTTA	2005	$14,719,111
Mockingbird Lane	4076.0000	Intersection Improvement	TxDOT-Dallas	1999	$1,258,316
TRE/ Railtran from Dallas County Line to Dallas CBD	4189.0000	Rail Transit	DART	1994	$30,495,000
IH-35 Connector to SPUR 366/Woodall Rodgers	11016.0000	Addition of Lanes	TxDOT-Dallas	2005	$621,920
Katy Trail from Katy Trail from 0.048 mile south of American Road to south to & Katy Trail from Lyte Street to Trinity Park Corridor	11018.0000	Bike/ Pedestrian	City of Dallas	2005	$3,100,125
Beckley Avenue	11040.0000	Intersection Improvement	City of Dallas	2002	$297,440
Convention Center Light Rail Pocket Track - Victory Station	11044.0000	Rail Transit	DART	2002	$2,311,873
TRE Double-Tracking - Lisa to Perkins Sidings from Medical/Market Station to Union Station	11047.0000	Rail Transit	DART	2001	$4,900,000
TRE Platform - Victory Station at AA Arena	11093.0000	Park & Ride/Rail Station	DART	2002	$7,019,152
Misc. Double-Tracked Segments For TRE from Union Station to Centreport Station	11095.0000	Rail Transit	DART	2003	$34,979,786
IH-30 IDRS from IH-35E to IH-635	11126.0000	ITS	TxDOT-Dallas	2003	$3,613,947
Spur-366 from IH-35E to Beckley/Singleton	11232	New Roadway	TxDOT-Dallas	2005	$58,000,000
Cedars Station/South Side Pedestrian (DART) from Lamar from McKee to the Convention Center and to Belleview from Akard to Austin	11315.0000	Bike/ Pedestrian	DART	2005	$5,665,213
VA from Confluence of West Fork and Elm Fork to Corinth Street (one side of the river)	0918-45-196	Bike/ Pedestrian	TxDOT-Dallas	2005	$2,478,000
Singleton Boulevard from Hampton Road to Canada Drive	DAC 212	Addition of Lanes	Dallas County	2005	$13,980,184

Source: NCTCOG: *TIPINS* Interactive Map (on-line), 2007c
Notes: The projects listed above include transportation improvements within the study area. These do not include regional or citywide projects or programs, such as alternative fuels, TDM, traffic signal improvements, etc.

In an effort to manage congestion and reduce SOV travel demand in the region, the NTTA, TxDOT, and the NCTCOG will continue to promote appropriate congestion reduction strategies through the congestion management and air quality (CMAQ) program, the CMP, and the MTP.

1.11 OTHER AGENCY ACTIONS

Several local, state, and federal government agencies are in the process of planning, implementing, or constructing various small- and large-scale projects within the Trinity Parkway study area. Representative agencies include the City of Dallas, Dallas County, TxDOT - Dallas District, NCTCOG, and the USACE - Fort Worth District. These projects include flood control, transportation, recreation; utilities, land use planning, and environmental restoration (see **Sections 3.1.1.4** and **3.5.6.4**). Details concerning the transportation projects in the study area are presented in **Section 3.2.7**. Assessments of the anticipated effects of the Trinity Parkway in regard to these other agency actions are provided in **Chapter 4 Environmental Consequences**.

Section 1.11.1 provides a description of the City of Dallas' "Trinity River Corridor Project" and its relationship to the Trinity Parkway. This includes background information on the 1998 City of Dallas Bond election; a brief description of individual projects included within the bond program; potential coordinated design projects (see **Sections 1.11.2** through **1.11.4**); and references to other relevant sections of the SDEIS where additional details can be found.

1.11.1 City of Dallas Trinity River Corridor Project

The City of Dallas has widely publicized its "Trinity River Corridor Project (City of Dallas, 2007a)," which is actually a generic name for a series of proposed projects which occur along the main stem and Elm Forks of the Trinity River in Dallas. This project is being managed by a separate Trinity Project office within the city. The project elements are described in detail on the City of Dallas website: www.trinityrivercorridor.org.

The Trinity River Corridor Project is funded from the May 2, 1998 City of Dallas Bond election, in which voters approved $246 million for multiple projects along the main stem and Elm Forks of the Trinity River in Dallas. The Trinity Parkway study area overlays a portion of the cities' Trinity River Project corridor, and the city Trinity River bonds include an $84 million direct contribution towards the cost of the Trinity Parkway. However, the projects within the 1998 bond program each have <u>independent purpose and utility</u>, and generally could proceed whether or not other projects in the program are successfully implemented. In order to provide a better understanding regarding these projects, the following is a master list of Dallas Trinity River bond items, along with comments on any interrelationships each item may have with the Trinity Parkway:

- <u>Elm Fork Improvements</u>. This item includes floodplain management actions, recreational amenities, environmental restoration, and mitigation in the area of the Elm Fork of the Trinity

River, generally north of Regal Row in Dallas and well beyond the Trinity Parkway study area. The bond allocation for this item included funding for both a study and a portion of the implementation of improvements. This project is independent of the Trinity Parkway (see **Table 4-58** and **Figure 4-5,** Map ID #2)).

- Great Trinity Forest Improvements. This item provides $41.8 million for public acquisition of land within the "Great Trinity Forest," an approximate 6,000 acre forested area located along the main channel of the Trinity River, beginning downstream of the DART Rail Crossing (see **Figure 1-2, Place of Interest #15**) and continuing about 7.0 miles to IH-20. In addition to land acquisition, the project includes an interpretive learning center, hike and bike trails, equestrian facilities, canoe launches, and gateway parks. This project is independent of the Trinity Parkway (see **Section 3.3.2.3**).

- Woodall Rodgers Extension. This item provides $28 million in matching funds, intended to support a partnership with TxDOT to upgrade the proposed Woodall Rodgers extension from a conventional bridge to a long-span "signature" bridge (the "Margaret Hunt Hill Bridge".) The Woodall Rodgers extension provides an alternative route for traffic from Oak Cliff and West Dallas, connecting to downtown Dallas area and avoiding the Canyon and Mixmaster. The Woodall Rodgers extension has independent utility, and would serve traffic even if Trinity Parkway were not in place. The extension is now under construction by TxDOT. The Trinity Parkway Build Alternatives all assume that the extension would be in place, and use this roadway as a point of access to downtown Dallas (see **Section 1.9.5, Chapter 2,** and **Section 3.2.7**).

- Beckley Avenue Improvements. This item provides $6 million for the widening of existing Beckley Avenue to six lanes from IH-30 to Singleton Boulevard. This project is independent of the Trinity Parkway (see **Sections 1.9.5, Chapter 2,** and **Section 3.2.7**).

- Dallas Floodway Extension. This item provides $24.7 million in matching funds intended to be spent in partnership with USACE for an extension of flood protection improvements downstream of the existing end of the Dallas Floodway levee system. The project includes levees protecting the Lamar Street and Cadillac Heights subdivision areas, a chain of wetlands, trail systems, and environmental restoration features. The project has independent purpose and utility, focused primarily on flood control and environmental restoration. It is intended to be separately funded by the City and USACE, and would not require Trinity Parkway to be in place to be effective. The DFE project is further described in **Sections 1.11.2, 3.1.1.4,** and **3.5.6.4** of this SDEIS.

- Dallas Floodway Improvements. This item covers development of lakes and recreational facilities along the Dallas Floodway, generally from Westmoreland Road to the DART Rail Crossing. The City of Dallas intends to develop these improvements in partnership with USACE, which has an interest in providing flood damage reduction and environmental restoration along the Dallas Floodway as part of its Upper Trinity River Feasibility Study. The lakes and associated facilities proposed by the City of Dallas have not been approved by USACE. Approval of the features is subject to 33 CFR 208.10 or 33 USC 408, as applicable, USACE Pamphlet No 1150-2-1 (2003) and USACE design standards. The Dallas Floodway improvements anticipated by the City have independent purpose and utility, and could proceed with or without the Trinity Parkway. However, the Dallas Floodway projects are in geographic proximity to the Trinity Parkway project and could have relationship with several of the Trinity Parkway alternatives. For instance, some of the Trinity Parkway Build Alternatives considered in this SDEIS occupy portions of the Dallas Floodway, and the roadway embankments could be constructed using material excavated from the city-proposed lakes. The City and USACE Dallas Floodway improvements are, therefore, given substantial emphasis in this SDEIS, and are subject to cooperative environmental processing as further described in **Section 1.12.3** of this chapter.

- Trinity Parkway (Proposed Action). This item provides $84 million in matching funds directly in support of the development of the Trinity Parkway. The kinds of expenditures anticipated include engineering costs, right of way acquisition, and construction. Although the city has spent some of these funds to date on the preliminary engineering and environmental studies for the Trinity Parkway, the majority of the bonds funds may not be spent if the No-Build Alternative were adopted.

1.11.2 USACE Dallas Floodway Extension Project

The DFE is a flood control project proposed by the USACE, with the City of Dallas as the local sponsor. Major components of the project include construction of a chain of wetlands, generally on the western edge of the Trinity River floodplain from the area of the DART light-rail bridge downstream to Loop 12, a distance of approximately 4.6 miles. The project also includes construction of levee systems on the eastern edge of the floodplain, from the area of the DART Bridge downstream to Rochester Park, and on the western edge around Cadillac Heights. Other elements of the project include trail systems and environmental restoration and mitigation features (see **Sections 3.1.1.4** and **3.5.6.4**). The DFE project has been separately processed through an EIS, and a Record of Decision (ROD) for the project was signed on December 1, 1999 (USACE, 1999).

The Trinity Parkway DEIS and SDEIS consider the DFE as an approved, but not constructed, project. From the perspective of hydraulic and hydrologic analyses, the DFE project is considered to be in place, so that projected flood levels can be accurately modeled. From the perspective of specific environmental effects (e.g., wetland loss, grassland impacts, and archeological impacts), the DFE project is not considered to be in place, so that impacts are conservatively stated. This SDEIS may actually double-count impacts compared to the environmental documentation for the DFE project. However, this only applies in a short segment downstream of the DART light-rail bridge, where the proposed DFE Lamar Levee and the proposed riverside alignments of the Trinity Parkway cross each other. Similarly, due to uncertainties in the timing of construction of the USACE project, the cost estimates for earthwork, land acquisition, and related items shown in this SDEIS do not rely on the USACE project being in place prior to the proposed Trinity Parkway. If the USACE project actually precedes the construction of the Trinity Parkway, and depending on the preferred alternative identified (see **Chapter 2 Alternatives Considered**), there may be some cost savings to the Trinity Parkway project due to prior construction work and acquisitions done for the DFE project. Additional details concerning the DFE project are provided throughout this SDEIS.

1.11.3 USACE Upper Trinity River Project - Possible Dallas Floodway Improvements

The USACE - Fort Worth District is currently studying the Upper Trinity River Basin and published a *Final Programmatic Environmental Impact Statement, Upper Trinity River Basin, Trinity River, Texas* in June 2000, which received a ROD on September 15, 2000. This Final Programmatic EIS (FPEIS) served as an update to the public on the past 10 years of progress with the ongoing Upper Trinity River Feasibility Study and other associated projects. The document also summarizes the USACE progress with its ongoing EIS for the Dallas Floodway, which is being conducted for the City of Dallas as part of the Upper Trinity River Feasibility Study. The USACE is considering possible flood control improvements that are focused on the Dallas Floodway segment from the DART light-rail bridge (southeast of downtown), upstream to the general area of the confluence of the West Fork and Elm Fork of the Trinity River. These flood control improvements may include development of conveyance lakes, raising of the Dallas Floodway Levees, and modification of the abandoned AT&SF Railroad Bridge. Other USACE initiatives for this Dallas Floodway segment may include environmental restoration features, such as channel meanders and revegetation, while also providing recreation facilities (see **Sections 3.1.1.4** and **3.5.6.4**). The City of Dallas intends to act as the cost sharing local sponsor for this USACE project.

In regard to the possible Dallas Floodway improvements by the USACE, the Trinity Parkway SDEIS makes the following assumptions for Dallas Floodway transportation alignment alternatives (see **Chapter 2**):

- For the purposes of hydraulic modeling of existing conditions, the crest elevations of the Dallas Floodway levees are assumed to be the same as those shown in the Corridor Development Certificate (CDC) model provided by the USACE in May 2007. The levee side slopes are assumed to be as is, which varies from 3-horizontal/1-vertical to 4-horizontal/1-vertical side slopes.
- For the purposes of hydraulic modeling of proposed conditions, roadway alternatives within the Floodway are configured to be compatible with possible levee raises and slope modifications under consideration by USACE in its ongoing EIS. The FPEIS indicates that a 2-foot levee raise above the Standard Project Flood (SPF) elevation may be pursued. Where earth material is required to be borrowed for construction of roadway embankments, this material is assumed excavated from the locations of lakes identified in the City of Dallas' master plan (see **Section 1.11.4**), with any affected areas subject to excavation, but not impoundment. A USACE/City of Dallas initiative may convert these excavated areas into lakes subsequent to the start of the Trinity Parkway project.

- For the purposes of other environmental impacts (e.g., vegetation, wetlands, cultural resources, etc.), the levee modifications necessary for transportation alternatives within the Dallas Floodway are addressed within this SDEIS. Any further environmental impacts of a levee raise would be subsequently addressed with the USACE's ongoing EIS.

- The abandoned AT&SF Railroad Bridge is assumed to be left in place.

- The other environmental restoration features being considered by the USACE for the Dallas Floodway are assumed not to be in place.

1.11.4 Trinity River Corridor Master Implementation Plan and Balanced Vision Plan

The City of Dallas has developed a conceptual master plan for extensive development of recreational facilities, environmental restoration, and lakes for the Dallas Floodway. This information is published in the *Trinity River Corridor, Master Implementation Plan, Lake Design and Recreational Amenities Report* (City of Dallas, 1999a) and amended by a supplementary city report *A Balanced Vision Plan (BVP) for the Trinity River Corridor* (City of Dallas, 2003a). The plan represents a 10-year vision for the Dallas Floodway to be achieved with city and federal/state partnerships. The master plan incorporates three large lakes proposed to be located within the Dallas Floodway. One approximately 90-acre lake and one approximately 60-acre lake would be located between the Continental Street and Corinth Street Bridge crossings of the Trinity River, requiring the river channel to be realigned to the west around these berm-protected lakes. The third lake of approximately 80 acres would be located on the west over-bank of the

Dallas Floodway in the area of Westmoreland Road. All of the proposed lakes would be located off-channel, and subject to infrequent inundation so that a higher quality of lake water can be maintained. The lakes would also have a mixture of edge treatments, ranging from promenades to natural banks. The water source for maintaining lake levels would be the effluent from the Central Wastewater Treatment Plant (CWWTP). All lakes may be implemented with city, USACE, and NTTA (limited to excavation only) coordinated participation (see **Sections 3.1.1.4** and **3.5.6.4**).

The master plan for the Dallas Floodway is closely related to the Trinity Parkway plan because lake excavation presents an available source of earth fill material for roadway embankments (see **Chapter 2 Alternatives Considered**). Furthermore, for Alternatives 3A, 3B, 3C, 4A, 4B, and 5, the excavation of embankment material from the lake areas would serve to mitigate the effects of the embankments on Dallas Floodway conveyance and to some extent would offset the effect of embankments on valley storage. It is expected that the earth borrow needed for a tollway within the Dallas Floodway would require that all three city lakes be fully excavated in a first phase of tollway construction. Thus, if a river alternative (Alternative 3A, 3B, 3C, 4A, 4B, or 5) is identified as the preferred alternative, the tollway construction within the Dallas Floodway could create efficiencies for both the tollway construction and the ultimate development of Dallas Floodway lakes. Having such an available and close source of embankment material could benefit the tollway project, while the lakes could be fully excavated as part of the tollway project. These initiatives would need to be closely coordinated as the projects proceed.

In regard to the proposed Dallas Floodway improvements by the City of Dallas, the Trinity Parkway SDEIS makes the following assumptions for Dallas Floodway transportation alignment alternatives:

- For the purposes of hydraulic modeling, the location of the lakes identified in the city's master plan would be subject to full excavation, but not impoundment. A USACE/City of Dallas initiative may convert these excavated areas into lakes subsequent to the start of the tollway project. Any further city work concerning edge treatment for the lakes would not be part of the transportation project.

- Recreation and environmental restoration initiatives by the city would not be considered part of the transportation project.

Additional details concerning the above-mentioned projects, as well as other agency actions planned within the Trinity Parkway study area, are described throughout this SDEIS, including **Chapter 2 Alternatives Considered**, **Chapter 3 Affected Environment**, **Chapter 4 Environmental Consequences,** and **Chapter 6 Financial Analysis and Evaluation**.

1.12 PLANNING CONTEXT

This section provides a description of past and future planning steps for the proposed action. It includes a discussion concerning the role of the Trinity Parkway Corridor MTIS, DEIS and SDEIS in project development, and an outline of the process that would be followed to approve, construct, and operate the proposed action.

1.12.1 Relationship to the Trinity Parkway Corridor MTIS

The decision-making process concerning the proposed action (Trinity Parkway) originates from the Trinity Parkway Corridor MTIS (see **Section 1.5**). This study was adopted in March 1999 into the regional MTP (*Mobility 2020* and subsequent plans). The MTIS concluded with a recommended plan of action (see **Section 1.5.2**), which includes the Trinity Parkway reliever route, the Project Pegasus (Canyon-Mixmaster) proposals, the Woodall Rodgers Extension and several other elements. The proposed reliever route is being processed independently from, but in coordination with, the remaining elements of the MTIS recommended plan of action. These remaining elements are being addressed in separate NEPA documents prepared by others.

In regard to the Trinity Parkway, NTTA, as project sponsor, is required to fulfill the requirements of the NEPA by satisfying regulations and guidelines promulgated by the federal CEQ and FHWA. These regulations and guidelines require a process ensuring that reasonable and feasible alternatives are evaluated and their related environmental impacts thoroughly assessed. In June 1999, the NTTA initiated the project development process for the proposed action by starting preparation and public scoping of the Draft EIS. The documentation presented in the DEIS was prepared in accordance with CEQ (40 CFR § 1500-1508) and FHWA regulations (23 CFR § 771).

1.12.2 Role of the DEIS/SDEIS in Project Development

The information presented in the 2005 Trinity Parkway DEIS is based on preliminary environmental/engineering studies and reflects comments received during public/agency review and coordination activities and information from the Trinity Parkway Corridor MTIS (see **Section 1.5.2**). The purpose of the DEIS was to assist decision makers in the assessment of impacts associated with the reasonable Build Alternatives, including the No-Build Alternative.

In late 2005, FHWA made a decision to prepare a SDEIS for the Trinity Parkway (see **Section 1.12.5**). This decision was made in consultation with the sponsoring agencies and the cooperating agencies. The

FHWA exercised its discretion under CEQ and FHWA regulations to supplement the DEIS after determining the purposes of NEPA would be furthered by doing so. The contents of the DEIS are reproduced in their entirety in this SDEIS, along with new or revised material. Therefore, this SDEIS serves as the primary document to facilitate review of the proposed action by federal, state, and local agencies, as well as the general public. The SDEIS details the need and purpose for the project and includes a discussion of the alternatives considered. The document also shows the anticipated social, economic, and environmental impacts associated with the proposed action and provides a discussion of potential mitigation measures.

1.12.3 Draft Development Strategy Prior to 2005 DEIS Publication

This section outlines the previous strategy for development of the Trinity Parkway EIS, but which has since been amended by **Section 1.12.5**. In this strategy, FHWA recognized that there may be integration and coordination issues with foreseeable flood control and lake improvements proposed by the USACE and City of Dallas within the Dallas Floodway (see **Sections 1.11.2** through **1.11.4**). However, since the Trinity Parkway DEIS included alternative routes located within and outside the Dallas Floodway, it was not possible to fully determine the degree of integration with other proposed Dallas Floodway improvements as they were less fully developed at the time.

The strategy assumed the Trinity Parkway DEIS would be released for Public Hearing and public comment, after which the FHWA, TxDOT, and the NTTA Board of Directors would make a decision on the identification of a preferred alternative. Dependent on the selection of alternatives, one of the following development strategies was expected to occur:

1. If a build alternative is identified <u>within the Dallas Floodway</u>, subsequent NEPA documentation, which would further address the lakes, flood control, environmental restoration, and recreational improvements proposed in the Dallas Floodway, would be developed.
2. If a build alternative is identified <u>outside of the Dallas Floodway</u>, FHWA/TxDOT/NTTA would proceed to finalization of the Trinity Parkway FEIS (i.e., an FEIS would be prepared) independent of the proposals by USACE and the City of Dallas in the Dallas Floodway.
3. If <u>No-Build</u> is identified as the preferred alternative, FHWA/TxDOT/NTTA would stop work on the Trinity Parkway EIS and pertinent study materials would be forwarded to the City of Dallas. The proposals by the USACE and City of Dallas in the Dallas Floodway would not be directly affected by this alternative, and would be processed independently.

The specific development strategies (Options 1, 2, and 3) were further described in a letter to the FHWA prepared and signed by representatives of the NTTA, USACE, and City of Dallas, dated January 29, 2003 (see **Appendix A-1, Page A-48**).

As described in **Sections 1.12.4** and **1.12.5**, the involved agencies consulted extensively after publication of the 2005 DEIS, and a decision was made to publish this SDEIS, postponing identification of a preferred Trinity Parkway alternative until after its publication. **Section 1.12.5** discusses the proposed revised strategy, reflecting the addition of the SDEIS to the development steps. The options (1, 2, and 3) described above still apply to the Trinity Parkway development, but would apply after publication of the SDEIS and identification of a preferred alternative.

If a build alternative is identified <u>within the Dallas Floodway</u> (Option 1), FHWA recognizes that if subsequent NEPA documentation raises substantial unforeseen issues, which affect the transportation analysis, there may need to be revisions or a reevaluation of the transportation sections of the EIS and it is conceivable, in such event, that the interim locally-preferred alternative may need to change. Such a change would include public/agency involvement and be fully disclosed in the Final EIS. Completion of the environmental review and impact documentation process, followed by an anticipated ROD by the FHWA, would permit the proposed action to proceed to the final design and construction phases unless the No-Build Alternative is the preferred alternative.

1.12.4 Coordination with USACE

The following agency actions, made subsequent to the February 2005 publication of the Trinity Parkway DEIS, relate to coordination with the USACE regarding the development of the Trinity Parkway EIS.

- In July 2005, FHWA sent a letter to the USACE Fort Worth District requesting the USACE to become a cooperating agency in the preparation of the Trinity Parkway EIS. In September 2005, the USACE Fort Worth District replied to the FHWA agreeing to this request (see **Appendix G-6**), and listing the USACE focus as: the Section 404 and Section 10 permit application process; consideration of approval of all construction activities within the limits of the existing Federal Dallas Floodway project; and the potential effects the roadway alternatives would have on plan formulation of the Corps Dallas Floodway study.
- In November 2005, the USACE Fort Worth District restated its intent to use the Trinity Parkway EIS to support its decisions related to Section 404 of the Clean Water Act (CWA) and Section 10 of the Rivers and Harbors Act as they may apply to Trinity Parkway, and whether to approve construction within the limits of a federal flood control project (see **Appendix G-6**). Accordingly, the information required by the USACE for these permits and approval is included in preliminary

form in the SDEIS (see **Appendices H, I,** and **J**) and would be finalized in the Trinity Parkway FEIS.

- On December 13, 2005 the USACE Fort Worth District conducted a public scoping meeting in West Dallas related to its intent to prepare a Draft EIS for Potential Multipurpose Projects for Ecosystem Restoration, Flood Damage Reduction, and Recreation Development within and along the West and Elm Forks and Main Stem of the Trinity River in Dallas, Dallas County, Texas.

1.12.5 Update on the Planning Process

The following agency actions, made subsequent to publication of the Trinity Parkway DEIS, relate to the environmental processing of the Trinity Parkway project. This information amends and updates the discussion of the environmental process in **Section 1.12.3**.

Representatives of the FHWA, USACE, EPA, NTTA, TxDOT, NCTCOG, and the City of Dallas met on May 11, 2005 and November 17, 2005 to further define a strategy for environmental processing of the Trinity Parkway project and other projects in the Dallas Floodway (see **Section 1.11**). The proposed strategy, developed as a result of these meetings, recognizes the geographic proximity of the Trinity Parkway and Dallas Floodway projects, in addition to re-affirming the commitment of the FHWA and USACE to coordinate their efforts on these projects. This recognition and commitment does not alter the independent utility of these projects. None of these projects depend on the others for their independent utility or design, in whole or part, and therefore the projects are not “connected actions” that are required to be considered in a single EIS. The anticipated environmental effects of the USACE’s Dallas Floodway project and other Dallas Floodway projects are, however, included as part of the cumulative effects analysis for the Trinity Parkway (see **Section 4.24.2**).

The proposed strategy is intended to allow the Trinity Parkway and Dallas Floodway projects to be considered independently, but with close coordination between the federal proponents to ensure that the spirit of NEPA is upheld and all impacts are fully considered before any federal action is determined. The revised procedures replace those outlined in the interagency letter of January 29, 2003 (see **Section 1.12.3** and **Appendix A-1, Page A-48**). The proposed strategy is intended to better facilitate the timely development of the required environmental documents for these actions, while enabling the public to understand the projects, their impacts and net effects after mitigation, and ultimately, to make an informed decision regarding these projects.

A narrative explaining the proposed strategy is provided below. **Figure 1-16**, located towards the end of this subsection, shows the strategy in the form of a flowchart.

FHWA/TxDOT/NTTA Process:

Step 1: The FHWA/TxDOT/NTTA approved the Trinity Parkway DEIS for circulation on January 28, 2005. The public hearing was conducted on March 29, 2005. The public comment period ran from February 11 through April 8, 2005. The NTTA has processed and analyzed public and agency comments on the DEIS, and has included public hearing transcripts and a summary and analysis of views as part of this SDEIS (Step 2). The NTTA has responded directly to the USACE to resolve specific USACE comments on the DEIS, and such responses have been incorporated in the SDEIS (Step 2).

Step 2: The FHWA/TxDOT/NTTA has prepared and will publish this SDEIS for the Trinity Parkway which incorporates additional information and corrections, primarily hydraulic modeling of Build Alternatives in the Dallas Floodway, roadway construction criteria and intended operations within the Dallas Floodway, CWA Section 404 (wetlands) analysis, cumulative impacts analysis, historic properties analysis, and flood emergency response planning. The FHWA/TxDOT/NTTA will coordinate the SDEIS with other government agencies and hold a public hearing.

Step 3: The FHWA/TxDOT/NTTA will publish a Final EIS (FEIS), and may conduct a public hearing, after which FHWA may issue a ROD. The FEIS would include information from the SDEIS public hearing (Step 2), including a summary and analysis of views.

The USACE Fort Worth District will act as a cooperating agency in the preparation of the SDEIS and FEIS (Steps 2 and 3). The USACE jurisdiction and involvement as a cooperating agency will focus on the following: the Section 404 and Section 10 permit application process; consideration of approval of all construction activities within the limits of the existing USACE Dallas Floodway project; and the potential effects the roadway alternatives would have on plan formulation of the USACE Dallas Floodway study. The USEPA is also a cooperating agency involved in advising and reviewing the SDEIS and FEIS by virtue of its special expertise in the following areas: NEPA; Clean Air Act conformity; and, Section 404.

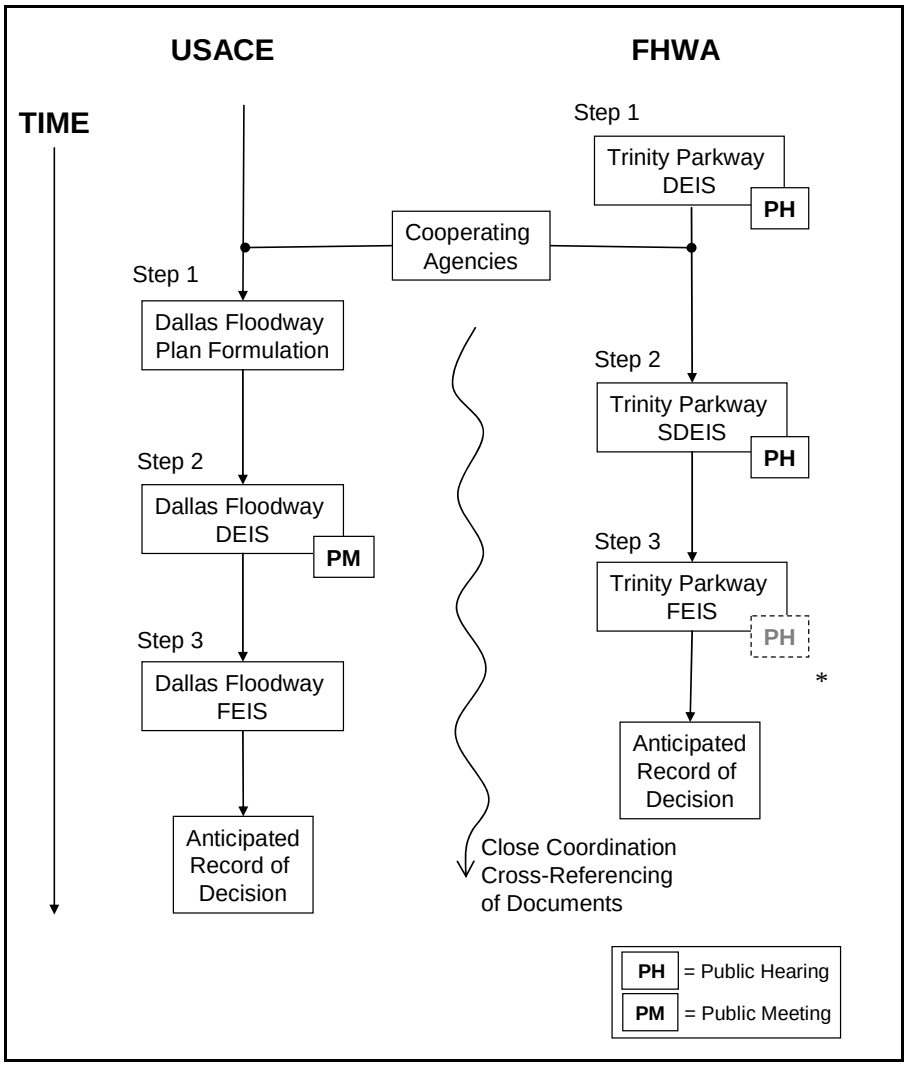
USACE Process:

Step 1: The USACE will prepare a separate DEIS and plan formulation document in customary USACE format for its proposed actions in the existing Dallas Floodway. The Dallas Floodway DEIS and plan formulation will address actions including flood damage reduction, lake construction, development of recreational features, water quality improvement, and ecosystem restoration. The NCTCOG will be the local sponsor for this study. The USACE will incorporate, by reference, relevant information on the roadway proposal from the Trinity Parkway DEIS, SDEIS, and FEIS (if available).

Step 2: The USACE will prepare and process the Dallas Floodway DEIS and other supporting documents through a release of the documents for public and agency review and a public meeting.

Step 3: After appropriate resolution of issues raised in the DEIS process, the USACE would prepare and advertise availability of a FEIS for the Dallas Floodway, after which USACE may issue a separate ROD.

FIGURE 1-16. FLOW CHART FOR PROPOSED STRATEGY FOR DEVELOPMENT OF THE TRINITY PARKWAY EIS AND THE DALLAS FLOODWAY EIS



* Dashed box indicates that a public hearing may be held.

To maintain a high degree of coordination between the Trinity Parkway EIS and the Dallas Floodway EIS: (1) the FHWA agrees to become a “Cooperating Agency" with the USACE on the Dallas Floodway EIS; and (2) the USACE agrees to become a “Cooperating Agency" with the FHWA on the Trinity Parkway EIS. When possible, FHWA and USACE representatives will attend public meetings and hearings for

both the Trinity Parkway and Dallas Floodway projects, so that the public can be made aware of appropriate opportunities to participate in these projects as the studies continue.

By acting as cooperating agencies on each project and implementing, to the extent necessary or desirable, cooperative efforts to meet the USACE requirements under NEPA (33 CFR 230), CWA Section 404 (33 CFR 323 and 325), Section 10 of the Rivers and Harbors Act (33 CFR 322), and approval for construction within flood protection works (33 USC 408), the USACE and FHWA seek to achieve cooperation and coordination for the Dallas Floodway and Trinity Parkway projects. As each agency proceeds toward final action, this approach will assure a "hard look" under NEPA, determination of the federal interest, and compliance with current Clean Air Act conformity requirements.

1.12.6 Discussion of the Section 404 Permit Process and the 33 USC 408 Approval Process

As stated in **Section 1.12.4**, the USACE Fort Worth District intends to use the Trinity Parkway EIS, to the extent possible, to support its decisions related to Section 404 of the CWA as it may apply to Trinity Parkway. An important aspect of the CWA Section 404 permit process is the public interest review requirements of USACE regulations governing regulatory evaluations of permits (see 33 CFR Section 320.4). These regulations require USACE to evaluate the potential impacts of issuing a permit on the "public interest." This evaluation includes consideration of the need for the proposed project, whether there are reasonable alternative locations and methods to accomplish the objective of the project, and the extent to which the project would have beneficial and detrimental effects on the uses to which the area is suited. The public interest review aspect of the permitting process requires USACE to strike a balance between expected benefits of a project and the foreseeable detriments. This balancing process is an integral part of USACE's requirements in fashioning appropriate mitigation measures for every permit it issues.

The evaluation of the probable impact which the proposed project may have on the public interest requires careful weighing of all those factors which may be relevant including conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplain values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, water quality, energy needs, safety, food and fiber production, mineral needs, considerations of property ownership, and, in general, the needs and welfare of the people. The specific weight USACE gives to each factor is determined by its importance and relevance to the proposed action. The following is a list of several of the review factors in 33 CFR § 320.4 that are particularly relevant to the USACE's review of the CWA Section 404 permit application for the proposed project:

- Wetlands - Wetlands perform many functions considered important to the public interest. These resources serve significant natural biological functions, including food chain production, general habitat and nesting, spawning, rearing, and resting sites for aquatic and land species. Wetlands are also important in terms of shielding other areas from erosion or storm damage, providing valuable storage areas for storm and flood waters, and water purification functions. The destruction or alteration of wetlands may detrimentally affect natural drainage characteristics, sedimentation patterns, or other environmental characteristics. Alteration of important wetlands is weighed against the benefits of the proposed alteration.

- Fish and Wildlife - In consideration of the public interest, consultation must occur with the U.S. Fish and Wildlife Service (USFWS) and the Texas Parks and Wildlife Department (TPWD) with a view to the conservation of wildlife resources by prevention of their direct and indirect loss and damage due to the proposed action.

- Water Quality - Activities are evaluated for compliance with applicable effluent limitations and water quality standards during the construction and subsequent operation of the proposed action.

- Historic, Cultural, Scenic, and Recreational Values - Consideration must be given to the effect a proposed action may have on values associated with public parks and recreation areas, historic properties and National Landmarks, archeological resources, and other such areas.

- Floodplain Management - For activities that occur in or impact floodplains, the USACE must ensure that the impacts of potential flooding on human health, safety, and welfare are minimized, the risks of flood losses are minimized, and the natural and beneficial values served by floodplains are restored and preserved to the extent practicable.

Part of the function of this document is to assist the USACE in meeting its regulatory decision-making responsibilities. Information regarding the public interest review factors noted above may be found throughout this SDEIS. Discussions regarding the need for the proposed project and the various alternatives considered are presented in previous sections in this chapter and in **Chapter 2**, respectively. As mentioned above, the need and practicability of using reasonable alternatives to accomplish the purpose of the proposed action are included in the criteria to be considered in the evaluation of every permit application. The existing social, economic, and environmental setting for the area affected by the proposed project alternatives is presented in **Chapter 3**, and discussions of the potential impacts of the proposed project relative to the factors outlined above are presented in **Chapters 4** and **5**. Mitigation is an important aspect of the review and balancing process and may include avoiding, minimizing, rectifying, reducing, or compensating for resource losses. Discussions of mitigation measures proposed for the

project are included in **Chapter 7**. **Appendix H** provides a preliminary Section 404(b)(1) Guidelines Analysis for the Project, and **Appendix J** provides a preliminary Section 404 Mitigation Report.

In the event of selection of one of the Build Alternatives within the Dallas Floodway (Alternatives 3A, 3B, 3C, 4A, 4B, and 5), USACE review and approval by the Chief of Engineers in accordance with 33 USC 408 would be required prior to construction. USACE issued an October 23, 2006 Memorandum (USACE, 2006) describing policy and procedural guidance for the approval of modification of USACE projects. The memorandum is presented in **Appendix E**.

1.12.7 Prohibition of Heavy Trucks from Trinity Parkway

The Trinity Parkway Corridor MTIS (see **Section 1.5**) refers to a proposed prohibition of heavy trucks from Trinity Parkway in the event the roadway is located in the Dallas Floodway. The heavy truck prohibition was requested by the City of Dallas in 1998, and is included in Chapter 7.0 Recommended Plan of Action of the MTIS as an "unresolved issue" (TxDOT, 1998). MTIS Section 7.3 states the prohibition of heavy trucks "must be resolved prior to the approval of the environmental and schematic design of the Trinity Parkway."

The discussion of the truck prohibition issue in Section 7.3 of the MTIS is as follows:

> ***Prohibition of Heavy Trucks*** *To improve compatibility with the proposed adjacent park development, it is recommended that heavy vehicles (trucks) be prohibited on the Trinity Parkway reliever route, except for emergency services and special delivery vehicles specifically permitted by the City. This prohibition could apply from the northern terminus down to the interchange of Cedar Crest Boulevard (Martin Luther King, Jr. Boulevard). Heavy trucks could be allowed to enter the proposed Trinity Parkway and go east from Cedar Crest. Westbound in the area of the southern terminus, heavy trucks would be forced to exit the Trinity Parkway no later than Cedar Crest. The process to prohibit heavy trucks would involve concurrence from Federal and State transportation agencies after the Dallas City Council passed a City Ordinance to ban heavy trucks on the Trinity Parkway (if Federal and/or State money is used for construction).*

Subject to City of Dallas direction, NTTA would support prohibition of heavy trucks from Trinity Parkway for roadway alternatives located in the Dallas Floodway. If so directed by the City, NTTA would cooperate with the City, Federal, and State authorities to affect such a prohibition. This issue would be expected to be further developed prior to publication of a Final EIS for Trinity Parkway.

[END OF CHAPTER 1]

CHAPTER 2

ALTERNATIVES CONSIDERED

CHAPTER 2
ALTERNATIVES CONSIDERED

2.0 INTRODUCTION

This chapter presents and describes the alternatives considered for meeting the need and purpose for the Trinity Parkway, including those eliminated from further analysis. In accordance with guidelines provided in FHWA's Technical Advisory T 6640.8A (1987), all reasonable alternatives have been evaluated. In addition to an assessment of traditional approaches to increasing capacity, this chapter provides a discussion of congestion management strategies and public transportation alternatives considered as part of the planning process for the proposed Trinity Parkway. A preferred alternative is not identified in this document. The identification of a preferred alternative will not be made until after consideration of impacts and public hearing comments (see **Sections 1.12.3** and **1.12.5**).

Potential alternatives were evaluated according to the project's need and purpose as described in **Chapter 1 Need and Purpose for Proposed Action**. Eight Build Alternatives are considered in this SDEIS. These are identified as Alternatives 2A, 2B, 3A, 3B, 3C, 4A, 4B, and 5. The No-Build Alternative is identified as Alternative 1. This SDEIS provides an objective evaluation of the eight Build Alternatives and the No-Build Alternative. Each Alternative is described in detail in **Section 2.3** of this chapter.

2.1 SUMMARY OF ALTERNATIVES ANALYSIS FROM TRINITY PARKWAY CORRIDOR MTIS

As previously discussed in **Chapter 1 Need and Purpose for Proposed Action**, the Trinity Parkway DEIS and SDEIS build on the work completed by TxDOT for the *Trinity Parkway Corridor Major Transportation Investment Study* (MTIS) (TxDOT, 1998a). The document, *Study Report, Trinity Parkway Corridor*, published in March 1998, provides the foundation for the alternatives analysis used in the current study, and the reasons that the current SDEIS is more narrowly focused on a roadway project, rather than a more expansive list of transportation alternatives, such as transit, bicycle-pedestrian facilities, and/or congestion management initiatives (TxDOT, 1998b). The Trinity Parkway Corridor MTIS developed these proposals and established a plan of action that encompasses an appropriate range of transportation modes and funding sources. This SDEIS is intended to advance only one component from the MTIS, the Trinity Parkway reliever route (proposed action). Readers who desire to learn more about the MTIS are encouraged to contact Advance Project Development at the TxDOT - Dallas District Office at (214) 320-6100 to obtain a copy of the published report [TxDOT Dallas District, Control-Section-Job (CSJ) No. 0918-45-121]. **Section 1.5** in **Chapter 1** also provides a brief overview of the study.

2.1.1 Trinity Parkway Corridor MTIS Alternatives Analysis

As stated in **Chapter 1 Need and Purpose for Proposed Action**, the Trinity Parkway Corridor MTIS evaluated alternative plans for solving the corridor's transportation problems, focusing on congestion relief in the Canyon/Mixmaster/Lower Stemmons corridors. The study process occurred between the first quarter of 1996 and the third quarter of 1997, and included over 100 public and agency presentations and meetings. The study report was published in the first quarter of 1998. The study analyzed over 40 improvement alternatives, all of which had to be acted on at some level of detail to move the process forward. The work started with identification of the transportation problem and ended with the identification of a locally preferred plan of action, one component of which was the Trinity Parkway reliever route.

The alternatives analyses process 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 of the study. This analysis process reduced the number of alternatives over time and allowed a higher level of detailed analysis on the remaining candidates. Comparisons of alternatives for the Trinity Parkway corridor were developed under the following categories:

- Environmental Effects
- Social and Economic Effects
- Mobility Benefits
- Cost Effectiveness and Affordability
- Compatibility with Other Corridor Projects
- 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, archeological and historic sites, etc. The subdivision into categories was for convenience and was not intended to imply any kind of ranking or relative importance.

Various types of measurements were developed for the MTIS. The measurements were both quantitative and qualitative depending on the type of information involved. Quantitative measurements were used where possible. No attempt was made to merge the results of various criteria into one score based on weighting factors or other means. The aim was to compare the alternatives within each criterion so that an alternative could be seen performing, on average, better or worse than the group. 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.

A high level of engineering detail was impractical early in the study because of the large number of alternatives that stakeholders requested to be processed. The set of criteria and analysis techniques used in the early stages was simplified to allow the efficient processing of a large number of alternatives.

During the course of the alternatives analysis process, minimum performance goals were established by consensus of the stakeholders for some or all of the criteria used. For instance, it was decided to reject alternatives that fail to serve a certain minimum number of person trips per day. Similarly, alternatives that cause substantial net loss of wetlands or woodlands were rejected. Some of these minimum goals were already set by federal and/or state regulations. For instance, the federal CAA placed several specific restrictions on transportation projects in the DFW region because the area was not in current compliance with the air pollution standard for ozone.

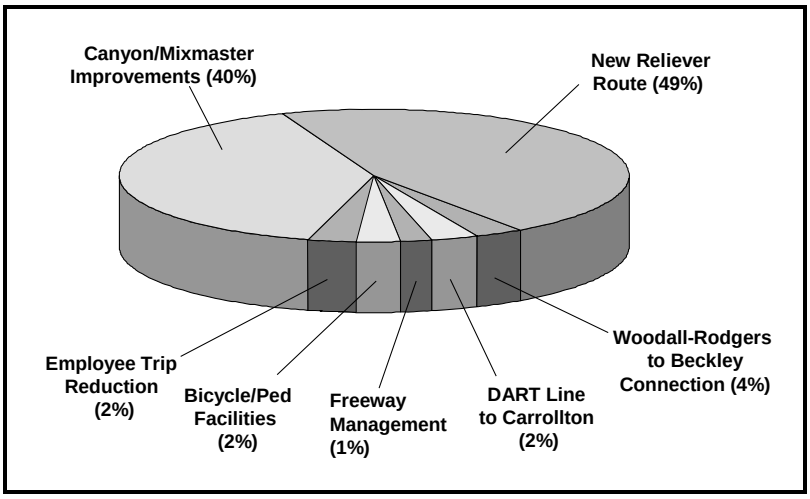
2.1.2 Trinity Parkway Corridor MTIS Adopted Plan of Action

Based on the alternatives analysis process and public and agency coordination undertaken for the Trinity Parkway Corridor MTIS, the following plan of action was recommended, subject to appropriate environmental and engineering processing and clearances:

1. Enhanced work trip reduction measures;
2. Bicycle and pedestrian facilities;
3. Enhanced transportation facility management;
4. Improvements to the Canyon, Mixmaster, and Lower Stemmons Freeway;
5. Extension of Woodall Rodgers Freeway and improvements to Beckley Avenue;
6. A continuous HOV system through the Canyon, Mixmaster, and Lower Stemmons Corridors; and
7. A Trinity Parkway reliever route (proposed action).

Figure 2-1, obtained from the MTIS report, shows the plan of action represented as a pie chart, with sizes of individual slices shown in proportion to the approximate amount of transportation improvement provided. The chart is based on an overall goal from the MTIS of providing an additional 250,000 daily person trips of capacity added or demand reduced in the Canyon, Mixmaster, and Lower Stemmons corridors. The pie chart is somewhat simplified because the various action items have slightly different proportionate shares in different segments of the corridor. Nevertheless, the chart emphasizes the importance of Items 4 (Canyon/Mixmaster/Lower Stemmons) and 7 (proposed action) to the overall transportation solution.

FIGURE 2-1. TRINITY PARKWAY CORRIDOR MTIS PLAN OF ACTION



2.1.3 Supporting Transportation Improvements (No-Build Alternative)

The No-Build Alternative for the SDEIS is defined as the currently planned transportation improvements defined in the NCTCOG's Metropolitan Transportation Plan (MTP) *Mobility 2030: The Metropolitan Transportation Plan for the Dallas- Fort Worth Area* excluding the proposed action. Existing roadways would continue to be operated and maintained. The improvements identified are those that could be funded by projected transportation revenues, which are estimated to be almost $71 billion (2006 dollars) for the region through the year 2030. Of this $71 billion, $10.7 billion or 15 percent is for operation and maintenance (NCTCOG, 2007a).

Transportation improvements within the Trinity Parkway study area are ongoing in a continuing effort by local, state, and federal agencies to address the travel needs of this growing region. A variety of improvements are currently underway and others are planned for future years, including improvements to existing roadways and several traffic congestion management programs, policies, and projects (see **Tables 1-7 and 1-9**). In addition to the Trinity Parkway, the majority of these major improvements are elements of the Trinity Parkway Corridor MTIS recommended plan of action.

This section briefly summarizes ongoing transportation improvements in the study area and includes a discussion concerning their potential to assist in accomplishing the Trinity Parkway's need and purpose. **Section 3.2 Transportation Setting (Chapter 3)** provides an additional detailed description of the existing transportation network within the Trinity Parkway study area.

Improvements to Existing Roadways

Chapter 1 Need and Purpose for Proposed Action of this SDEIS references efforts already underway by TxDOT to improve traffic flow and safety on IH-35E and other major roadways in the study area. These improvements address deficiencies in on- and off-ramps, lane and shoulder widths, design standards, roadway configuration, geometry, and provide for additional travel lanes where possible. Additional capacity for IH-35E, IH-30, and other major roadways within the project area would be provided through the construction of additional main lanes, HOV lanes, and frontage roads, which are further discussed in the following subsections.

Canyon/Mixmaster Improvements

The MTIS included an extensive analysis of improvements needed for the Canyon, Mixmaster, and Lower Stemmons highway segments to develop the maximum practical vehicular capacity within, as nearly as possible, the existing right-of-way. The MTIS-recommended plan for the Canyon/Mixmaster includes the following major elements:

- Construction of additional main lanes in the Canyon, and where practical, addition of frontage roads along both sides;
- Reconfiguration of the Mixmaster (IH-35E/IH-30 interchange) to allow through-traffic on IH-30 and IH-35E to stay in the same lanes through the interchange, rather than being forced to change lanes under the current configuration;
- Addition of direct-connect ramps in the Mixmaster connecting IH-35E (South R.L. Thornton Freeway) to IH-30 (Tom Landry Freeway) for the northbound to westbound and eastbound to southbound traffic movements;
- Construction of collector-distributor roads alongside IH-35E in the segment from Woodall Rodgers Freeway to the connection with the DNT, with allowance for separating the traffic streams to and from Woodall Rodgers Freeway and the DNT; and
- Construction of HOV lanes and ramps serving IH-35E (Stemmons Freeway and South R. L. Thornton Freeway) and IH-30 (Tom Landry Freeway and East R. L. Thornton Freeway).

Extension of Woodall Rodgers Freeway

The MTIS also recommended the extension of Woodall Rodgers Freeway west across the Trinity River to connect Singleton Boulevard and Beckley Avenue. The extension maintains a connection between Industrial Boulevard and Woodall Rodgers Freeway to the east. As proposed, the extension of Woodall Rodgers Freeway could provide an important access point from the downtown area to the Trinity Parkway (proposed action). The proposal also includes widening Beckley Avenue to six lanes from Singleton Boulevard south to IH-30.

HOV System Implementation

As previously described, the MTIS recommended the construction of an HOV system to serve the major radial highways serving the Dallas CBD. The proposed HOV routes consist of the following:

- IH-30 (East R.L. Thornton Freeway) - This proposal is for a two-lane reversible HOV system serving westbound traffic during the a.m. peak period and eastbound traffic during the p.m. peak period. This system would enter the CBD area as a two-lane facility. An exit (a.m. peak period) and entrance (p.m. peak period) would be provided at the Pearl-Central area with a lane drop. The HOV lane would continue west as a one-lane facility through the Canyon, providing an exit (a.m. peak period) and entrance (p.m. peak period) in the Reunion Arena area, and would continue north on IH-35E, merging in the area of the Market Center near Oak Lawn Avenue.

- IH-35E (South R.L. Thornton Freeway and Stemmons Freeway) - The South R.L. Thornton proposal is for a two-lane reversible HOV system serving northbound traffic during the a.m. peak period and southbound traffic during the p.m. peak period. This HOV system would enter the Dallas CBD from the south as a two-lane facility and drop a lane with an exit (a.m. peak period) and entrance (p.m. peak period) at the Houston-Jefferson Viaducts. The HOV would continue as a one-lane facility through the Mixmaster and then north along IH-35E (Stemmons Freeway), merging in the area of the Market Center near Oak Lawn Avenue. The Stemmons Freeway HOV proposal is for a two-lane reversible HOV north of Market Center, serving southbound traffic during the a.m. peak period and northbound traffic during the p.m. peak period.

- IH-30 (Tom Landry Freeway) - This proposal is for a one-lane reversible HOV system serving eastbound traffic during the a.m. peak period and westbound traffic during the p.m. peak period. This HOV system would enter the Dallas CBD as a one-lane facility, splitting into a north segment through the Mixmaster and an east segment through the Canyon. The north segment would provide an exit (a.m. peak period) and entrance (p.m. peak period) in the Reunion Arena area and would terminate north of the Reunion Arena area with a merge to the mainlanes of IH-35E. The east segment would travel as a one-lane HOV through the Canyon, serving eastbound traffic during the a.m. peak period and westbound traffic during the p.m. peak period. This HOV lane would terminate in the area of Pearl-Central, providing ramp access to the Farmers Market area, as well as a merge to the main lanes of IH-30 (East R.L. Thornton Freeway).

Although these major planned improvements to existing roadways within, and in the vicinity of, the study area are substantial and would prove beneficial to the transportation system, they are capable of only partially fulfilling the need for additional transportation capacity in the corridor. The MTIS estimated that the Canyon/Mixmaster/Lower Stemmons improvements, including HOV lanes, would contribute approximately 40 percent of the overall goal of providing an additional 250,000 daily person trips of

capacity added or demand reduced in these corridors (see **Figure 2-1**). The travel demand analysis conducted by NCTCOG for the long-range transportation plan also shows a need for additional capacity, including construction of the Trinity Parkway.

Transportation Systems Management/Travel Demand Management

Transportation Systems Management (TSM) refers to a set of transportation policies or strategies that were first articulated in the 1970s as a means of managing existing highway facilities more efficiently in order to move more vehicles without automatically resorting to widening or new construction. The most prominent TSM strategies in use today include traffic signal timing, improvements in intersection geometry, and the designation of HOV lanes. While still focused on increasing roadway capacity, TSM strategies introduced the idea of relatively low-cost measures that can be implemented primarily within existing roadway rights-of-way.

As transportation planning began to shift from moving vehicles to moving people, a set of strategies called Travel Demand Management (TDM) emerged. The goal of TDM strategies is to reduce the number of vehicles on the road, particularly during peak travel periods. This is done through various programs and policies aimed at increasing the number of occupants per vehicle, encouraging motorists to avoid driving during morning, noon, and evening “rush hours,” and encouraging people to use alternative modes of transportation for some of their trips. Examples include parking preferences and price breaks for van pools or car pools, creation of HOV lanes for use by buses, car pools and van pools, “flex time” in the workplace to allow people to travel outside the most congested times, and improved transit service. Other programs and policies focus on improving peoples’ access to what they need so that not every trip has to involve getting in one’s car and driving long distances. This approach involves the integration of transportation planning with broader urban design and land use initiatives, such as higher densities, mixed land use, and increased use of telecommunications.

These TSM/TDM programs and policies are all strongly encouraged by and made an integral part of the NCTCOG long-range transportation plan and associated funding. Their implementation and success is subject to a number of factors including project approvals by government agency sponsors, the degree of employer participation, changes in local land development regulations, and even human behavior and travel preferences. A variety of TSM/TDM measures are currently included in the congestion management programs for the DFW metropolitan area. They also form part of the long-range multi-modal transportation system plan for this area. Over time, efforts aimed at increasing the use of alternative travel modes through the application of various TSM/TDM programs and policies would prove beneficial. Still, these measures alone cannot fully address the purpose of and need for the Trinity Parkway.

As described previously in **Chapter 1**, the roadway network parallel to IH-35E is largely characterized by disjointed major and minor arterials, resulting in congestion and operating inefficiencies. TSM/TDM measures are not designed to address this type of problem and therefore cannot offer a complete solution. For the large portion of the traveling public that is expected to continue to rely on private automobiles for their primary mode of travel, TSM/TDM strategies alone would not meet future travel needs. This conclusion is supported by NCTCOG's long-range transportation plan (*Mobility 2030: The Metropolitan Transportation Plan for the Dallas- Fort Worth Area)*, which recommends the expansion of the roadway system - including construction of the Trinity Parkway - in addition to public transportation improvements and other TSM/TDM strategies.

Intelligent Transportation Systems (ITS)

ITS represent an array of technology aimed at reducing traffic congestion and improving traffic safety. ITS includes the use of video surveillance cameras and speed and volume detectors for monitoring traffic and detecting traffic incidents such as accidents or vehicle breakdowns. Information from the cameras and detectors is typically monitored at a centralized location, such as a traffic management center. More advanced systems offer remote control of intersection signals and ramp meters and the ability to communicate information to motorists through roadside changeable message signs, highway advisory radio and television broadcasts, and the Internet.

The DFW metropolitan area is currently involved in the planning, programming, and implementation of ITS programs and projects. Traffic monitoring, incident detection and response systems are currently operating on portions of the freeway system in Dallas. Operation of the TxDOT - Dallas District/ Dallas Area Rapid Transit (DART) satellite traffic management center is ongoing, and a permanent traffic management center, DalTrans, located at the TxDOT Dallas District Office opened in January 2008. The ITS components of the traffic management system include closed-circuit television, lane control signals, dynamic message signs, ramp meters, mobility assistance controls, and vehicle detectors on the limited-access facilities. NTTA has existing ITS components on its facilities to support toll road operations, and is currently working on software and other interoperability issues with a goal to fully integrate its systems into the TxDOT ITS regional system.

Table 1-9 in **Chapter 1** provides a summary of the various ITS measures currently planned for major roadway segments in the Trinity Parkway study area. The deployment of ITS throughout the North Texas region would help reduce delays caused by high traffic volumes, accidents, and other incidents and enhance emergency responses. In addition, the use of automatic vehicle identification (AVI) and other electronic payment systems allows motorists to pay tolls with little or no delay, resulting in reduced congestion in and around toll gantries.

Public Transportation

A major transit authority, DART, serves the City of Dallas and 12 surrounding member cities. DART provides bus, rail, paratransit (dial-a-ride), vanpool services, and HOV system management in the Dallas area. Eleven billion dollars of rail and bus transit system improvements are included in the DFW Region in NCTCOG's long-range MTP (*Mobility 2030: The Metropolitan Transportation Plan for the Dallas- Fort Worth Area*), representing funding for DART and similar agencies in Fort Worth (Fort Worth Transportation Authority) and Denton County (Denton County Transportation Authority). Along with the existing network, this fixed-guideway network is located within "principal transit corridors," specially designated areas that would feature frequent service and transit-supportive infrastructure and land use. For the DART service area, these corridors generally originate in the Dallas CBD and radiate out to the suburban communities surrounding the city.

Although extensive, the public transportation network assumed for the DFW metropolitan area in 2030 is not capable of alleviating the need for roadway improvements. The travel demand analysis conducted by NCTCOG for the long-range MTP still shows a need for improvements to the Canyon/ Mixmaster/Lower Stemmons corridors and for construction of the Trinity Parkway. Public transportation accounts for a relatively low percentage of trips in the DFW metropolitan area. Whereas the long-range MTP generally assumes growth in transit use, there nevertheless remains a heavy reliance on privately owned vehicles. Public transportation also has difficulty in cost-effectively serving lower density suburban and rural areas, which generate longer distance trips through the study corridor. The long-range transit plan for the Dallas metropolitan area is a radial system centered on improved access to the Dallas CBD. Although beneficial, the existing and proposed fixed-guideway transit system is not designed to fully correct the mobility deficiencies within the study corridor.

Bicycle and Pedestrian Improvements

Bicycle and pedestrian improvements focus on providing cost-effective, safe access for bicycles and pedestrians. These improvements also develop strategies for increasing the use of bicycles as an alternative means of transportation. National research suggests that bicycle commuting occurs most often when the distance from home to work is 5.0 miles or less. One mile or less is considered a reasonable distance for walking from home to work. Bicycling and walking can also be considered as an effective mode of transportation for home to school, entertainment, shopping, traveling between and within residential neighborhoods, and recreation. Currently, about 5 percent of the commuters in the region either walk or bicycle to work. The goal established in the *Mobility 2030: The Metropolitan Transportation Plan for the Dallas- Fort Worth Area* is 8 percent.

The largest bicycle facility in the region is the 300+-mile system of signed, on-street bicycle routes in the City of Dallas. The system was designed to provide bicyclists assistance in finding routes around Dallas

that minimize interaction with high-speed, high-volume traffic and maximize opportunities for increased bicycle usage on the existing roadway system. A total of ten signed, on-street bicycle routes are located in the Trinity Parkway study area (see **Section 3.2.5**).

Mobility 2030: The Metropolitan Transportation Plan for the Dallas- Fort Worth Area plan also proposes the construction of several new facilities in a bicycle network called the regional Veloweb. The Veloweb is essentially a system of off-system trails primarily designed for bicycle use. The purpose of the Veloweb is to provide regional connectivity to interregional routes that favor bicycle travel to encourage increased use of the bicycle for utilitarian purposes. The Veloweb is also designed to encourage concurrent pedestrian transportation use. Several Veloweb links are planned within the Trinity Parkway study area, which includes the Katy Trail, Santa Fe Trestle Trail, Trinity Strand Trail, and Great Trinity Trail.

Summary

The supporting transportation improvements detailed in this section (i.e., improvements to existing roadways, TSM/TDM, ITS, public transportation, and bicycle/pedestrian improvements) cannot separately or collectively satisfy the need for and purpose of the Trinity Parkway project. All of the programmed improvements described above are scheduled for implementation in the *Mobility 2030: The Metropolitan Transportation Plan for the Dallas- Fort Worth Area.* 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 manage congestion on major roadways in the study area and to provide needed relieving lanes to offload traffic from the radial highways SH-183, IH-35E, and US-175 and IH-45. All of the *Mobility 2030: The Metropolitan Transportation Plan for the Dallas- Fort Worth Area* projects, including the Trinity Parkway, provide a balanced transportation system to improve the transportation network and manage congestion throughout the region. Additional information concerning transportation system impacts are provided in **Section 4.4** of this SDEIS.

2.2 ROADWAY ALTERNATIVES CONSIDERED AND WITHDRAWN

The Trinity Parkway Corridor MTIS developed specific roadway alternatives on corridors now under consideration in the SDEIS. The roadway proposals were developed with varied operational assumptions such as freeway, parkway, tollway, reversible lanes, and High-Occupancy Vehicle/High-Occupancy Toll (HOV/HOT) lanes (note “High Occupancy Toll” lanes, also referred to as “Managed” lanes, refer to various operational and design strategies that increase roadway efficiency to better match regional goals. Single Occupant Vehicle [SOV] users are charged the full toll rate and HOV users are charged the full rate or a reduced rate). The four corridors considered in the MTIS were:

1. IH-35E;
2. Irving/Industrial Boulevard;
3. The east Trinity River levee; and
4. The west Trinity River levee.

All of the corridors were considered between the identical termini locations (IH-35E/SH-183 and US-175/SH-310) used in this SDEIS.

Several alternative cross sections and operational scenarios were developed for each of these four corridors. Alignments were selected based on three general strategies for providing needed capacity improvements:

1. providing all HOV/HOT and general-use lane reliever capacity;
2. providing only HOV/HOT capacity; and
3. providing only general-use lane reliever capacity.

Tables 2-1 through **2-4** provide an abbreviated record of the range of alternatives considered. As stated in **Section 2.1**, additional information regarding these alternatives can be obtained from the MTIS published report.

TABLE 2-1. IH-35E (STEMMONS FREEWAY) CORRIDOR ALIGNMENTS

Alignment	Description
I35-1a	Four-lane elevated freeway with two at-grade HOV/HOT lanes and two additional general-purpose lanes (eight additional lanes total) with compensatory widening [55 feet on each side]. Requires rebuilding IH-35E within project limits.
I35-1b	Eight-lane elevated freeway with two at-grade HOV/HOT lanes (10 additional lanes total) with minimal compensatory widening [12 feet on each side]. Requires rebuilding IH-35E within project limits.
I35-2A	Two-lane elevated HOV/HOT lanes with two at-grade HOV/HOT lanes on IH-35E (four additional lanes total) with minimal compensatory widening [12 feet on each side]. This alignment requires totally rebuilding existing IH-35E within the project limits.
I35-2b	Two-lane elevated HOV/HOT lanes with two at-grade HOV/HOT lanes (two additional lanes total). Takes two existing general-purpose lanes from IH-35E with no compensatory widening. Requires rebuilding existing IH-35E within project limits.
I35-3	Four-lane at-grade HOV/HOT lanes (four additional lanes total) with compensatory widening [36 feet on each side]. This alignment requires totally rebuilding existing IH-35E within the project limits.
I35-4	Four-lane at-grade HOV/HOT lanes. Requires four existing general-purpose lanes from IH-35E with no compensatory widening.
I35-5a	Two-lane HOV/HOT lanes on elevated structure (two additional lanes total) with no widening required. Provides HOV/HOT capacity without taking or rebuilding any existing general-purpose lanes on IH-35E.
I35-5b	Two-lane at-grade HOV/HOT lanes on IH-35E. Takes two existing general-purpose lanes from IH-35E with no compensatory widening.
I35-5c	Two-lane at-grade HOV/HOT lanes on IH-35E (two additional lanes total) with compensatory widening. Requires rebuilding IH-35E within project limits.

TABLE 2-2. IRVING/INDUSTRIAL BOULEVARD CORRIDOR ALIGNMENTS

Alignment	Description
IND-1	Eight-lane elevated freeway with two elevated HOV/HOT lanes (10 additional lanes total) with compensatory widening [47 feet on each side]. Existing Irving/Industrial Boulevard remains in place. Requires reconstruction or double decking of lanes to connect back to the Mixmaster area.
IND-2	Four-lane at-grade freeway with four-lane at-grade HOV/HOT lanes and access roads (eight additional lanes total) with right-of-way widening [247 feet on one side]. Existing Irving/Industrial Boulevard replaced with access roads. Requires reconstruction or double decking of lanes at Mixmaster area.
IND-3	Eight-lane at-grade "super" thoroughfare with grade separation at major intersections (eight lanes replaced existing six lanes). Requires right-of-way widening of 20 feet on each side. Requires rebuilding existing Irving/Industrial Boulevard within project limits.
IND-4	Four-lane elevated HOV/HOT lanes (four additional lanes total). Requires right-of-way widening of 12.5 feet on each side of the existing roadways. Existing Irving/Industrial Boulevard remains in place.
IND-5	Two-lane elevated HOV/HOT lanes (two additional lanes total) on a "T" bridge within the existing median of Irving/Industrial Boulevard. Requires no additional right-of-way. Existing Irving/Industrial Boulevard remains in place.

TABLE 2-3. TRINITY PARKWAY CORRIDOR ALIGNMENTS

Alignments	Description
TL-1a, TL-1b, and TL-1c	Directional parkway along both levees (five lanes on each side with three reversible lanes). Requires reconstruction of 12 and 16 cross- street bridges, respectively.
TL-2A, TL-2b, and TL-2c	Conventional thoroughfare along the east or west levee (six lanes with median).
TL-3a, TL-3b, and TL-3c	Asymmetrical thoroughfare along both levees (six lanes on each side - four lanes in one direction and two in the opposite direction). Requires reconstruction of eight and 16 cross-street bridges respectively.
TL-4a, TL-4b, and TL-4c	Split freeway along both levees with southbound lanes on the west levee and northbound lanes on the east levee (four lanes on each side). Requires reconstruction of eight and 16 cross-street bridges, respectively.
TL-5a, TL-5b, and TL-5c	Full freeway section along the east levee (eight lanes). Requires reconstruction of six and eight cross-street bridges, respectively.
TL-7a, TL-7b, and TL-7c	Divided parkway along both levees (four lanes on each side). Requires reconstruction of eight and 16 cross-street bridges, respectively.
TL-6a, TL-6b, and TL-6c	HOV/HOT lanes along the east levee (two lanes). Requires reconstruction of six cross-street bridges each.
TL-8a, TL-8b, and TL-8c	Full freeway section along the east or west levee with two-lane HOV/HOT lanes (eight lanes total). Requires reconstruction of six and eight cross-street bridges, respectively.

TABLE 2-4. TRINITY PARKWAY CORRIDOR - SOUTHERN TERMINUS

Alignment	Description
1 - Lamar Street	Full eight-lane parkway following the alignment of Lamar Street, with access roads replacing Lamar Street.
2 - Railroad	Full eight-lane parkway generally following the east side of the UP Railroad.
3 - East Levee	Full eight-lane parkway generally following the proposed east Lamar Levee extension.
4- Split West-East Levee	Split eight-lane parkway generally following the proposed Dallas Floodway levee extensions.
5 - Combined East Levee/Railroad	Full eight-lane parkway following the proposed east Lamar Levee extension down to MLK, then following the east side of the UP Railroad.

The conclusion drawn from the MTIS roadway analysis was that a full expansion of capacity on IH-35E was not practical, primarily due to excessive cost, extreme difficulties in carrying additional lanes through the Mixmaster, and adverse impacts on adjacent properties. The preferred approach was to place HOV/HOT lanes along IH-35E, to expand and improve the Canyon and Mixmaster to the extent practical due to physical constraints, and to seek additional capacity through a reliever along another route. At the time of the MTIS, the reliever was generally believed to be best located along the Dallas Floodway. However, additional route alternatives along Irving/Industrial Boulevard have been included in this SDEIS for more detailed consideration because of interest from the environmental community.

The MTIS included developmental work on route alternatives along the Trinity River corridor, specifically TL-5a (a combined parkway with eight general-purpose lanes along the riverside of the east levee), TL-7a (a split parkway with four general-purpose lanes along the riverside of both levees), and TL-7c (a split parkway with four general-purpose lanes along the landside of both levees).

2.3 DESCRIPTION OF THE SDEIS ALTERNATIVES

As previously described in **Section 2.1**, the alternatives advanced from the Trinity Parkway Corridor MTIS for further analysis in the SDEIS, only address the reliever route component of the MTIS recommended plan of action. In accordance with FHWA Technical Advisory T 6640.8A, all reasonable alternatives are to be presented and evaluated in an EIS. This serves to simplify and focus the consideration of social, economic, and environmental impacts. 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 are 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. In addition, a design option involving Trinity Parkway access to/from IH-35E (South R. L. Thornton Freeway) has been considered for all Build Alternatives. The City of Dallas and several involved public groups requested this addition.

As previously described in **Chapter 1 Need and Purpose for Proposed Action**, the MTIS recommended an interim locally-preferred alternative (LPA) for the reliever route, which is shown in **Figure 1-7**. This alternative, with modifications, is identified within the SDEIS as Alternative 4A. Although this was the LPA identified during the MTIS, all alternatives in this SDEIS are under equal consideration and the identification of a preferred alternative will not be made until the results of the SDEIS circulation and the public involvement process have been fully evaluated.

2.3.1 No-Build Alternative

The No-Build Alternative (Alternative 1) represents the case in which the Trinity Parkway would not be constructed. Other transportation improvements, including those identified in the MTP (*Mobility 2030: The Metropolitan Transportation Plan for the Dallas- Fort Worth Area*), may or may not be constructed, depending on project development and funding availability issues for each such improvement. **Section 1.7.8 (Chapter 1)** and **Section 2.1.3 (Chapter 2)** describe the planned roadway and transit

system improvements, bicycle/pedestrian, ITS, and TSM/TDM measures assumed to be included in the baseline condition for the study area. All of these improvements comprise the No-Build Alternative.

There are costs involved with the No-Build Alternative, however, and these include:

- Maintenance of the existing system - the longer improvements and/or reconstruction are postponed, the higher this figure becomes;
- Increased vehicle operating costs on under-designed, inadequate facilities;
- Increased costs due to higher rates of accidents and incidents on existing facilities;
- The monetary value of time lost by motorists due to lower operating speeds, congested roadway conditions, and restricted maneuverability on area roadways;
- The intangible costs associated with the inconvenience for emergency services and annoyance for average motorists caused by the above deficiencies; and
- Increased costs of other programmed improvements to the Canyon/Mixmaster/Lower Stemmons Corridors due to lack of the proposed action (Trinity Parkway) which could otherwise provide a detour route during construction.

The No-Build Alternative has the advantage of avoiding any adverse impacts associated with new construction, such as relocation, land use changes, and environmental disruption. Another important advantage would be that it could allow construction funds to be shifted to other projects. Although the No-Build Alternative avoids construction impacts, the problems associated with the lack of a northwest-southeast reliever route around downtown Dallas remain. The costs associated with the No-Build Alternative along with the adverse impacts related to traffic congestion, such as air pollution, noise, and decreased pedestrian and vehicular safety could create an undesirable urban environment that would have more long-term adverse impacts than the short-term construction impacts.

In all but no-growth scenarios, the No-Build Alternative would be by necessity a deferral of difficult choices. Growth would eventually cause congestion so intolerable that action would be unavoidable. When that time comes, right-of-way acquisition in developed areas of the corridor may be substantially more expensive and disruptive, and construction costs would likely be higher. The community could end up paying a high cost for its lack of action.

As previously described in **Chapter 1 Need and Purpose for Proposed Action**, the MTP (*Mobility 2030: The Metropolitan Transportation Plan for the Dallas- Fort Worth Area*) includes a Trinity Parkway reliever route, which is a key element to the functioning of the plan. Implementation of the No-Build Alternative would seriously jeopardize the balance and efficiency of the entire transportation system by not addressing any of the stated project needs.

2.3.2 Description of the Build Alternatives

Eight Build Alternatives have been identified as reasonable for meeting the need and purpose of the Trinity Parkway. These are identified as Alternatives 2A, 2B, 3A, 3B, 3C, 4A, 4B, and 5. **Plates 2-1** through **2-8** show the schematic plans for these alternatives. **Plate 3-1** at the end of **Chapter 3** shows the alternatives on an aerial photograph. All of the Build Alternatives share common northern and southern termini. The northern terminus would be located at the Stemmons Freeway (IH-35E) interchange with John W. Carpenter Freeway (SH-183). The southern terminus would be at the US-175 interchange with SH-310. All of the proposed Build Alternatives would be designated as controlled-access toll roads, with grade separations at crossings of existing highways and local arterial streets. The facilities for toll collection would have a similar basic layout in each alternative, with main-lane toll gantries and ramp toll gantries in similar locations for each. Some alternatives may have reduced numbers of ramp gantries if specific ramp connections are not feasible due to geometric constraints. Alternative 3B differs in that it has only one main-lane gantry (located at the north end), rather than two main-lane gantries (north and south) as shown for the other alternatives. Because the southern main-lane gantry is deleted for Alternative 3B, the northern main-lane gantry must collect approximately twice as much toll as the northern gantry in other alternatives to pay for the entire length of the trip at one location.

All of the Build Alternatives would utilize the proposed extension of Woodall Rodgers Freeway for connection to the northern area of the Dallas CBD. This project has been processed separately as an environmental assessment by the TxDOT - Dallas District (CSJ No. 0196-07-018). The Woodall Rodgers Freeway extension project is funded in part by the City of Dallas using proceeds from the May 2, 1998 bond election. The Margaret Hunt Hill (Woodall Rodgers) Bridge over the Dallas Floodway is now under construction, designed as a cable-stayed “signature” bridge over the City of Dallas lake proposed in the area.

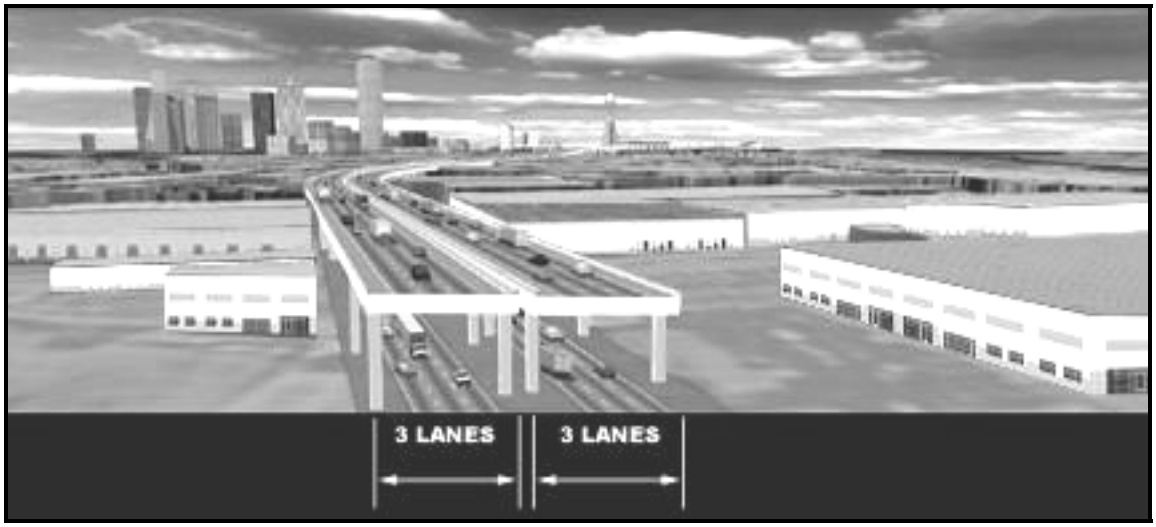
The following paragraphs describe each of the eight Build Alternatives indicating their location with respect to key features of the natural and human environment. The overall length, estimated right-of-way, and construction costs for each Build Alternative are summarized in **Table 2-7** (see **Section 2.3.13 Comparison of Alternatives**).

2.3.3 Alternative 2A (Irving/Industrial Boulevard - Elevated)

Alternative 2A would be formed by the combination of Trinity Parkway Corridor MTIS alignments IND-1 (north segment) and 1 (south segment) (see **Tables 2-2** and **2-4**). Alignment IND-1 would be modified to exclude two elevated HOV/HOT lanes shown in the MTIS. These lanes are now planned along the IH-

35E corridor. IND-1 would be narrowed (from eight lanes) in the northern segment to provide six main lanes throughout. Alignment 1 (south segment) would be modified from an at-grade version in the MTIS to an elevated version in this SDEIS.

FIGURE 2-2. COMPUTER RENDERING, TRINITY PARKWAY ALTERNATIVE 2A IRVING / INDUSTRIAL BOULEVARD - ELEVATED

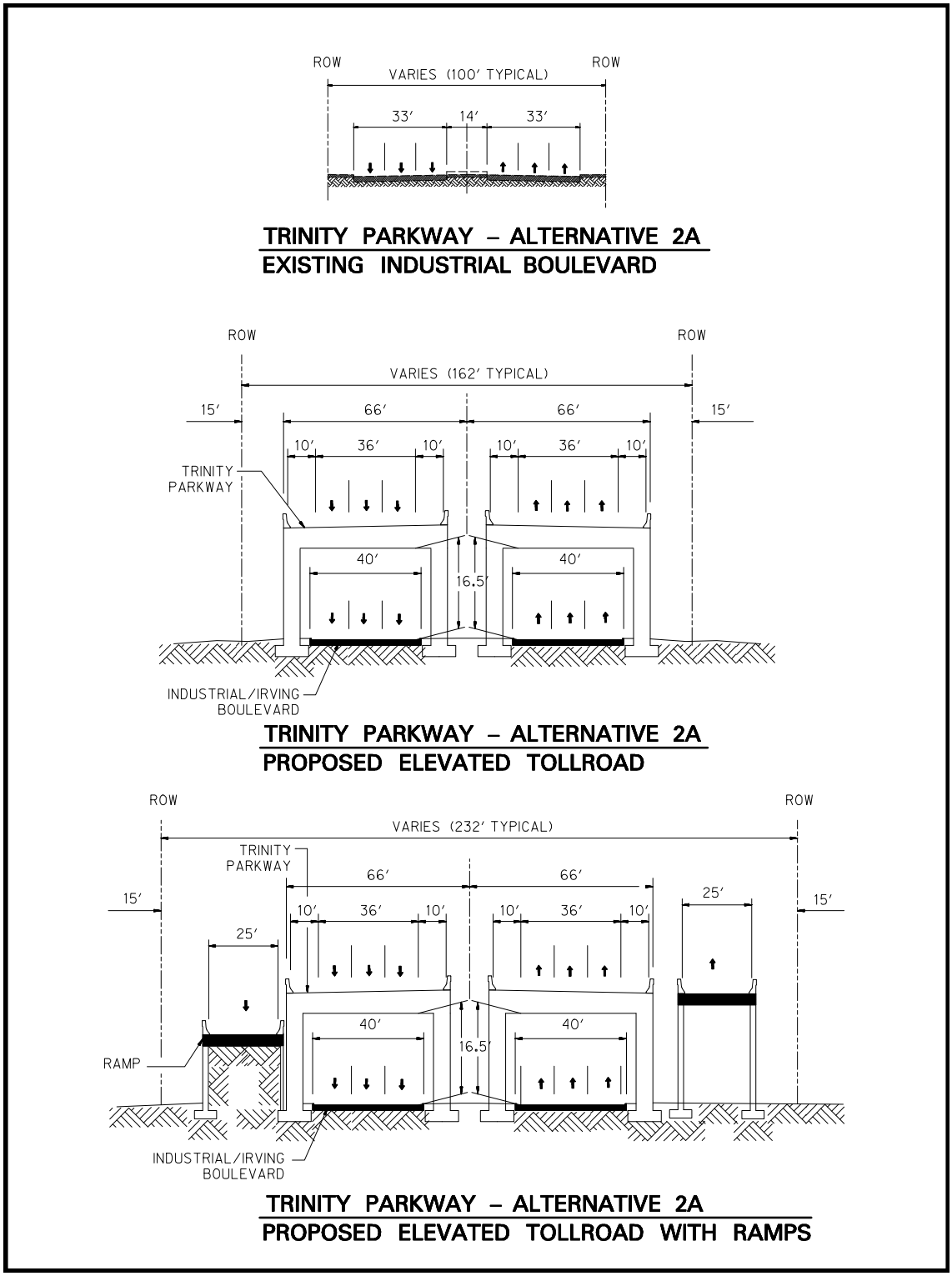


Alternative 2A would travel south-west from the IH-35E/SH-183 interchange, passing over Commonwealth Boulevard, and turning to the south-east to follow Irving Boulevard. The route would follow Irving and Industrial Boulevards for approximately 5.6 miles, passing south of downtown, and reaching Corinth Street near the Longhorn Ballroom site. In this segment, the roadway would be installed as a double-deck structure, above the existing city streets. Irving/Industrial Boulevards would be almost totally reconstructed with this alternative to resolve conflicts with the supporting structures for the tollway above. The roadways would nevertheless remain in service to serve local access and through traffic movement. South of Corinth Street, the route would follow a new alignment for approximately 1.2 miles, bending in an easterly direction to reach Lamar Street east of MLK. From this point, the route would travel south-east along Lamar Street as a double-deck roadway, including an overpass of IH-45. The route then would turn east at Starks Street and follow it to the US-175/SH-310 interchange.

It should be noted Alternatives 2A and 2B would follow Lamar Street (MTIS Southern Alignment 1) south of Corinth Street, whereas Alternatives 3A, 3B, 3C, 4A, 4B and 5 would follow the levee of the proposed Dallas Floodway Extension (DFE) (USACE, 1999) and the UP Railroad (MTIS Southern Alignment 5). Alignment 1 was chosen in this area because it continues the same concept as used in the northern part of the corridor along Irving/Industrial Boulevard (double-deck above an arterial street). As a practical matter, the southern ends of Alternatives 2A and 2B could follow the same southern segment route as used for Alternatives 3A, 3B, 3C, 4A, 4B, and 5.

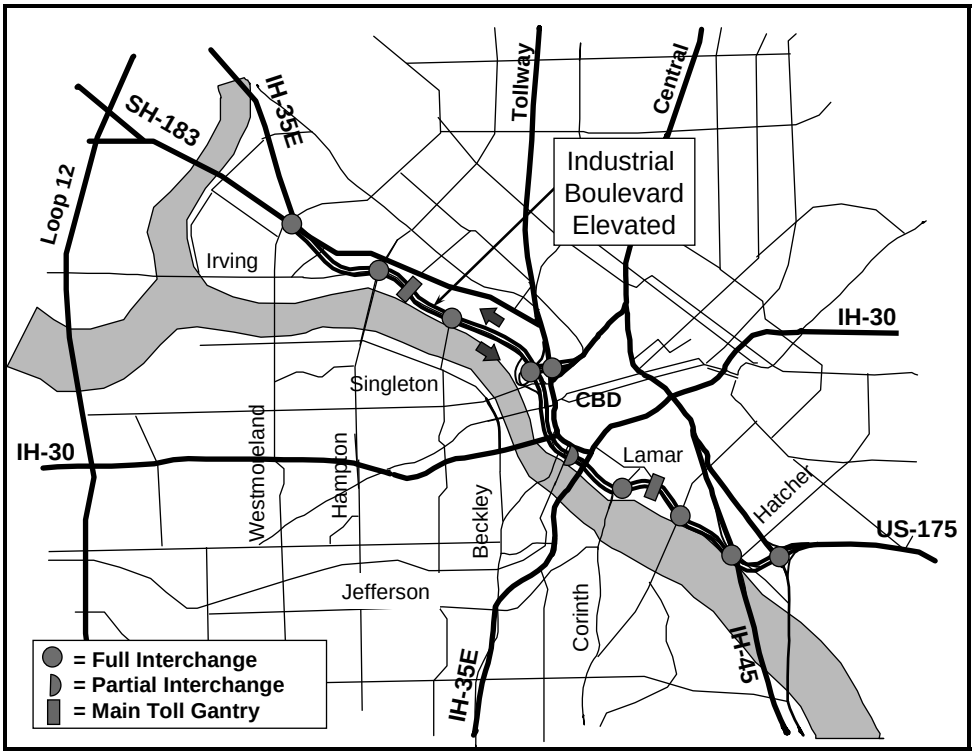
Figure 2-2 shows a computer-generated rendering of Alternative 2A, with the bridgework graphically cut away to show the local street underneath. **Figure 2-3** shows the typical cross-section, and **Figure 2-4** shows a layout map of the alignment. **Plate 2-1** at the end of this chapter provides the schematic plan.

FIGURE 2-3. ALTERNATIVE 2A - IRVING / INDUSTRIAL BOULEVARD (ELEVATED) TYPICAL SECTIONS



Note: There would typically be three main lanes of travel in each direction (six lanes total). Auxiliary lanes may be added in some segments, where required to properly accommodate merging areas between ramps.

FIGURE 2-4. LAYOUT MAP, TRINITY PARKWAY ALTERNATIVE 2A



There would typically be three lanes in each direction of travel (six lanes total), with the proposed tollway main lanes each 12 feet in width. The proposed right-of-way would vary depending on the need for ramps, the locations of ancillary buildings, and other geometric considerations. The width would typically be 162 feet in segments with main lanes, but no ramps. The width would typically be 232 feet in segments where entry or exit ramps are present. In segments built as a double-deck over city streets, the tollway structure would be elevated to provide 16.5 feet of clearance above the pavement surface. A standard concrete traffic barrier would separate northbound and southbound traffic on the tollway main lanes, and paved shoulders would be provided adjacent to the inside and outside lanes.

The existing right-of-way on Irving/Industrial Boulevards is typically 100 feet in width. Substantial property acquisition would be needed because the proposed tollway is wider than the existing road and because the tollway cannot precisely follow the existing centerlines of Irving/Industrial Boulevards due to differences in design speed and curvature. Additional property acquisition would also be needed at specific locations due to the influence of ramps and ancillary buildings.

Alternative 2A would be approximately 8.83 miles in length, would require approximately 264 acres of right-of-way, and would cost approximately $2.07 billion to construct. Other major features associated with Alternative 2A include:

- Direct connections at IH-35E/SH-183 (north terminus), US-175/SH-310 (south terminus), Woodall Rodgers Freeway, and IH-45;
- Full diamond interchanges at Hampton/Inwood Road, Sylvan/Wycliff, Corinth Street, MLK, and Lamar Street/SH-310; and
- Half diamond interchange at the Houston/Jefferson Street Viaducts.

2.3.4 Alternative 2B (Irving/Industrial Boulevard - At-Grade)

Alternative 2B would be formed by the combination of the Trinity Parkway Corridor MTIS preliminary alignments IND-1 (north segment) and 1 (south segment) (see **Tables 2-2** and **2-4**). Alignment IND-1 would be modified to be an at-grade facility and excludes two elevated HOV/HOT lanes, which are now planned along the IH-35E corridor. Similar to Alternative 2A, the facility would be modified to six main-lanes throughout. The existing lanes on Irving/Industrial Boulevards and Lamar Street would be replaced as access (frontage) roads. The location of this alignment would be similar to Alternative 2A. **Figure 2-5** shows a computer-generated rendering of Alternative 2B.

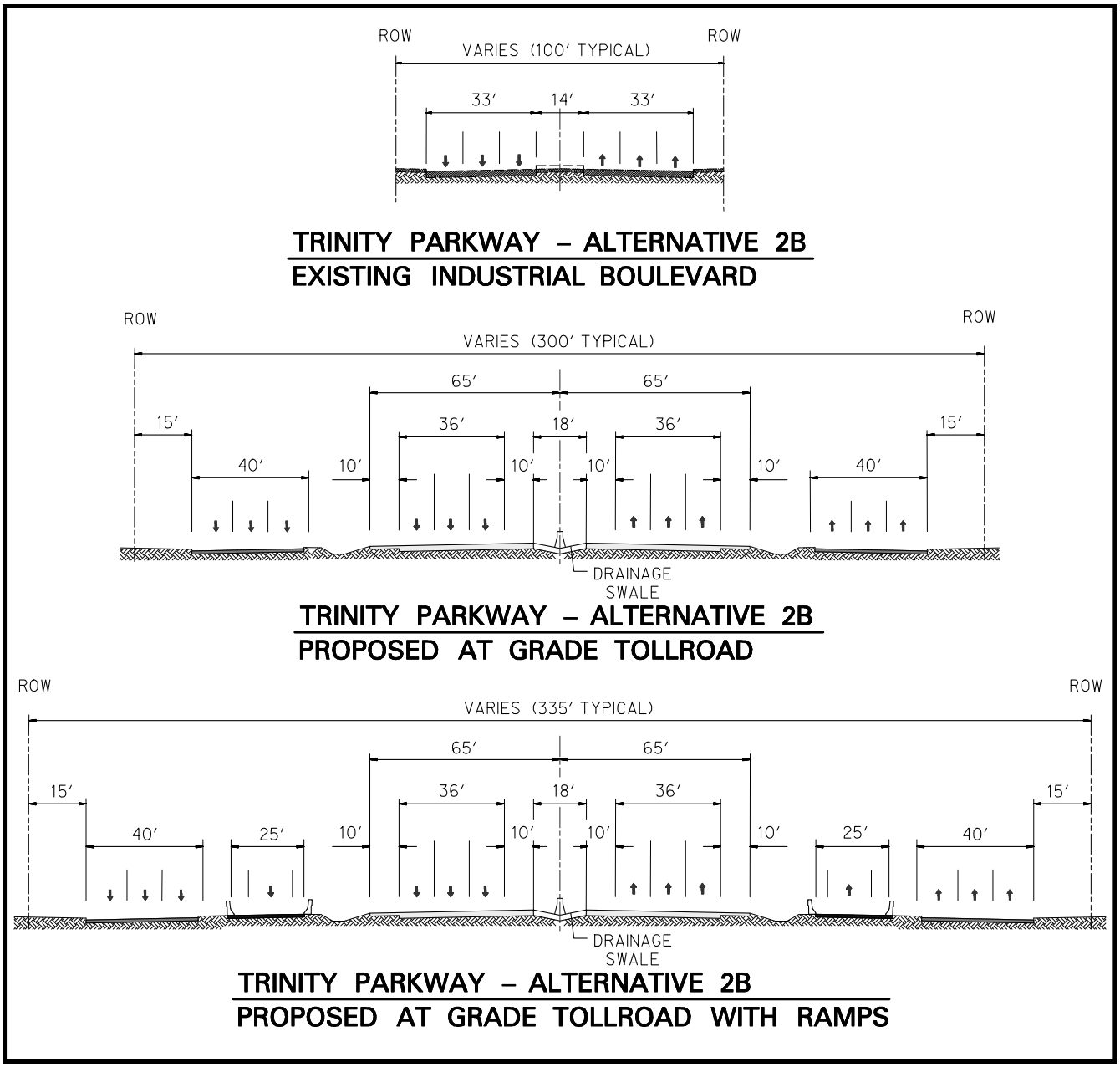
FIGURE 2-5. COMPUTER RENDERING, TRINITY PARKWAY ALTERNATIVE 2B IRVING / INDUSTRIAL BOULEVARD - AT-GRADE

Alternative 2B would travel southwest from the IH-35E/SH-183 interchange, passing over Commonwealth Boulevard and turning to the south-east to follow Irving Boulevard. Similar to Alternative 2A, the route would follow Irving and Industrial Boulevards for approximately 5.6 miles to Corinth Street. However, in this segment, the road would be installed predominantly at-grade, with service roads provided to make up for the loss of the arterial streets. One-way service roads on each side of the tollway would serve local access and through traffic. South of Corinth Street, the route would follow a new alignment for about 1.2 miles, bending in an easterly direction to reach Lamar Street east of MLK. From this point, the route

would travel southeast along Lamar Street as a double-deck structure, identical to that proposed for Alternative 2A. The southern terminus of Alternative 2B would be the same as Alternative 2A, with the route following Starks Street to the US-175/SH-310 interchange. The same comment made above for Alternative 2A regarding use of the MTIS Southern Alignment 5 applies to Alternative 2B.

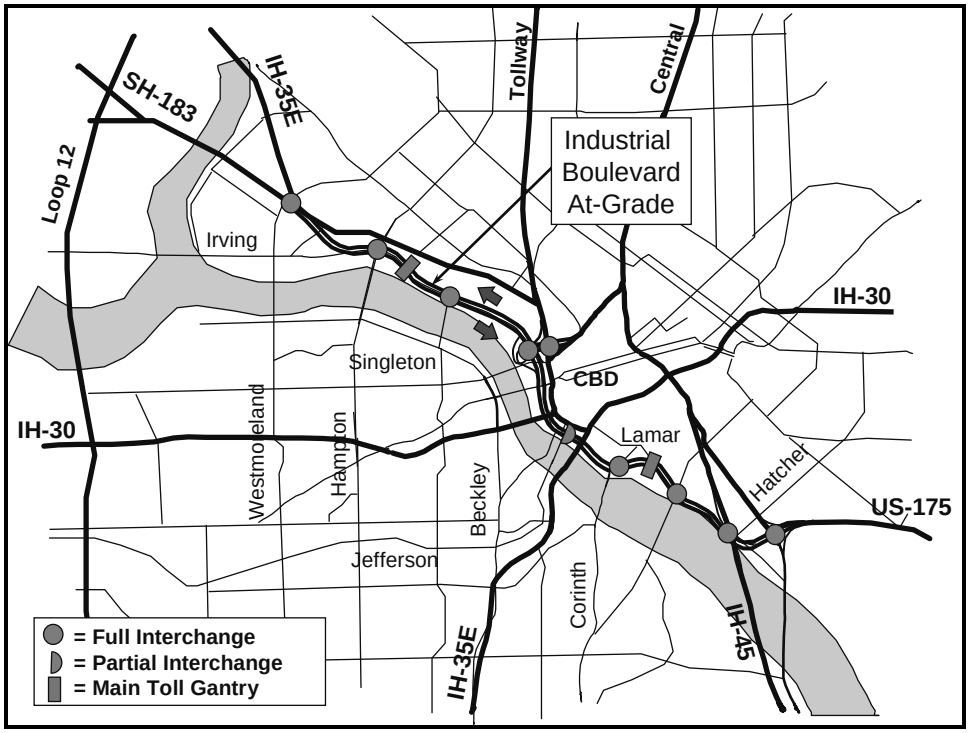
Figure 2-6 shows the typical design cross-section, and **Figure 2-7** shows a route map of the alignment. **Plate 2-2** at the end of this chapter provides the schematic plan.

FIGURE 2-6. ALTERNATIVE 2B - IRVING / INDUSTRIAL BOULEVARD (AT-GRADE) TYPICAL SECTIONS



Note: There would typically be three main lanes of travel in each direction (six lanes total). Auxiliary lanes may be added in some segments, where required to properly accommodate merging areas between ramps.

FIGURE 2-7. LAYOUT MAP, TRINITY PARKWAY ALTERNATIVE 2B



There would typically be three lanes in each direction of travel (six lanes total), with the proposed tollway main lanes each 12 feet in width. The proposed right-of-way would vary depending on the need for ramps, the locations of ancillary buildings, and other geometric considerations. The width would typically be 300 feet in segments with main lanes, but no ramps. The width would typically be 335 feet in segments where entry or exit ramps are present. The tollway would overpass city arterial streets along this segment with the structures elevated to provide 16.5 feet clearance above the pavement surface. A standard concrete traffic barrier would separate northbound and southbound traffic, and paved shoulders would be provided adjacent to the inside and outside lanes.

The existing right-of-way on Irving/Industrial Boulevard is typically 100 feet in width. Substantial property acquisition would be needed because the proposed tollway would be wider than the existing road and because the tollway cannot precisely follow the existing centerlines of Irving/Industrial Boulevards due to differences in design speed and curvature. Additional property acquisition would also be needed at specific locations due to the influence of ramps and ancillary buildings.

Alternative 2B would be approximately 8.83 miles in length, would require approximately 350 acres of right-of-way, and would cost approximately $1.60 billion to construct. Other major features associated with Alternative 2B include:

- Direct connections at IH-35E/SH-183 (north terminus), US-175/SH-310 (south terminus), Woodall Rodgers Freeway, and IH-45;
- Full diamond interchanges at Hampton/Inwood Road, Sylvan/Wycliff, Corinth Street, MLK, and Lamar Street/SH-310; and
- Half diamond interchange at the Houston/Jefferson Street Viaducts.

2.3.5 Alternative 3A (Combined Parkway - Original)

Alternative 3A would be formed by the combination of the Trinity Parkway Corridor MTIS preliminary alignments TL-5a (north segment) and 5 (south segment) (see **Tables 2-3** and **2-4**), except that the main-lanes would be modified to six lanes throughout. The alternative is called "Original" to differentiate it from the "modified" versions of Combined Parkway (Alternatives 3B and 3C) which were generated in 2003 and 2007 respectively based on agency input. From the IH-35E/SH-183 interchange, Alternative 3A would travel southwest, passing over Commonwealth Boulevard and Irving Boulevard, and reaching the Dallas Floodway in the area west of Hampton/Inwood Road. The alignment would then turn south along the riverside of the east Dallas Floodway levee.

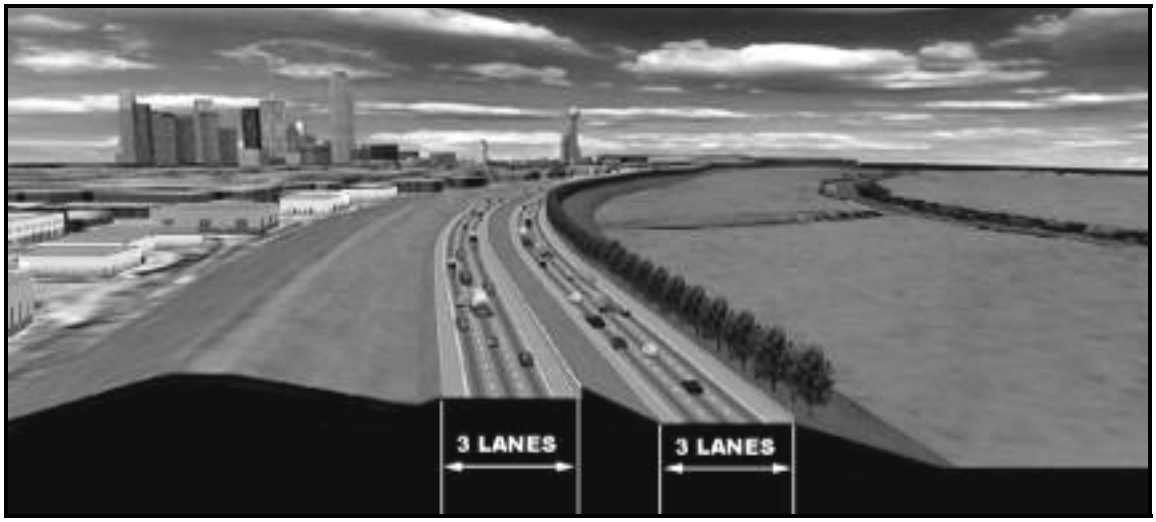
In the Dallas Floodway segment, the tollway would be placed on an earthen embankment, typically set above the 100-year flood level to provide appropriate protection of the road against inundation. However, at points where the alignment meets existing bridge crossings of the Dallas Floodway, the tollway would be depressed to pass under the existing structures. At these locations, a floodwall along the riverside of the tollway would be provided to protect the roadway from inundation during a 100-year flood event. Additionally, pump stations would be provided to drain the low points of the road at times that the Trinity River is in flood stage (see **Section 2.4.7**). Over a portion of its length, the proposed roadway embankment would be offset sufficiently from the face of the existing levee so that a proposed raising of the levee tops (under consideration by the City of Dallas and USACE) could be constructed without the need for retaining walls. However, at depressed locations in the vicinity of downtown Dallas, Alternative 3A would require retaining walls to be placed on the levee-side of the roadway to accommodate the levee raise (see Typical Section on **Plate 2-3A**). North of Sylvan Avenue, the median of the roadway would be of sufficient width to allow up to five feet of vertical difference in grades between the northbound and southbound lanes without the use of retaining walls. This feature would allow the northbound lanes to be elevated above the grade of the southbound lanes in some areas to allow northbound drivers/occupants to see the Dallas Floodway area more readily.

Alternative 3A would follow the riverside edge of the east Dallas Floodway levee southeast to the DART light rail bridge, a total distance of 5.6 miles. The alignment would then cross the levee and follow the landside of the future USACE DFE east levee extension (Lamar Levee) to IH-45, where it would pass

under the main lanes of the Interstate. The route would then turn east, pass over Lamar Street, and follow Starks Street to the US-175/SH-310 interchange. This segment would have frontage roads added to maintain local access.

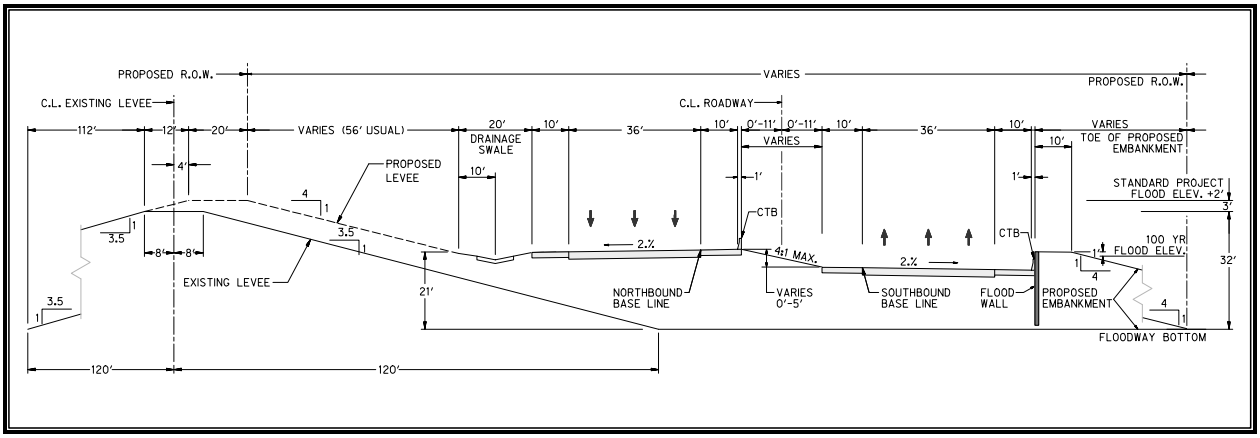
Figure 2-8 shows a computer-generated rendering of Alternative 3A, **Figure 2-9** shows the typical design section, and **Figure 2-10** shows a route map of the alignment. **Plate 2-3** at the end of this chapter provides the schematic plan.

FIGURE 2-8. COMPUTER RENDERING, TRINITY PARKWAY ALTERNATIVE 3A COMBINED PARKWAY - ORIGINAL



Note: The row of trees shown on the roadway embankment within the floodway is conceptual only. Landscaping and vegetation within the floodway would be subject to City and USACE review and approval.

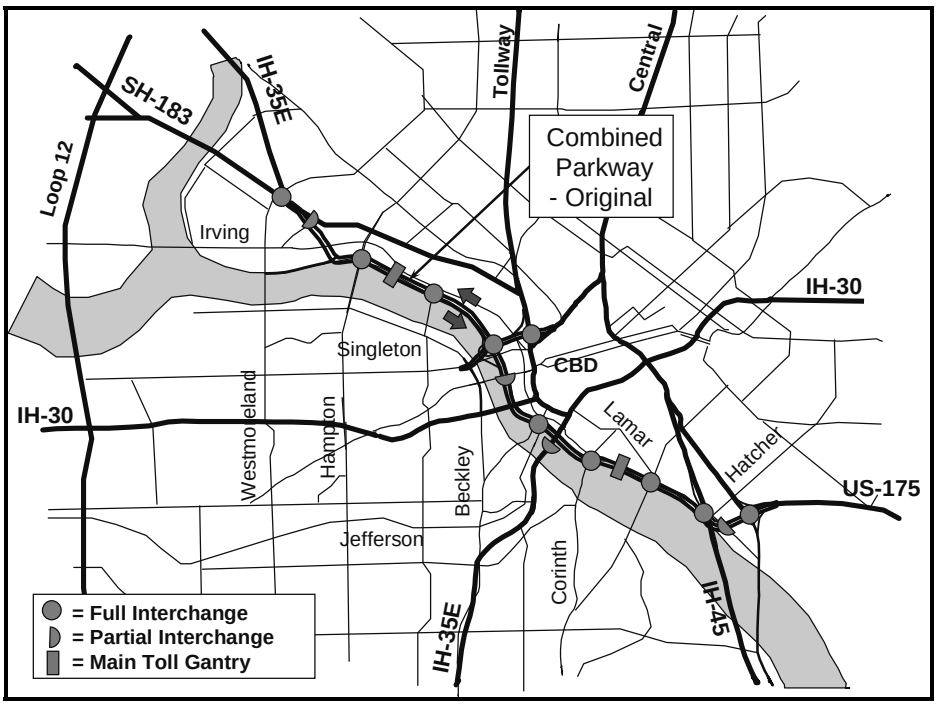
FIGURE 2-9. ALTERNATIVE 3A - COMBINED PARKWAY (ORIGINAL) TYPICAL SECTION



Notes:

1. There would typically be three main lanes of travel in each direction (six lanes total). Auxiliary lanes may be added in some segments, where required to properly accommodate merging areas between ramps.
2. Flood elevations, levee heights, and slopes would vary. Those used in the section would be typical.
3. Modifications and improvements to existing levees would be performed by others.

FIGURE 2-10. LAYOUT MAP, TRINITY PARKWAY ALTERNATIVE 3A



The proposed tollway main-lanes would each be 12 feet in width. There would typically be three lanes in each direction of travel (six lanes total). Outside the Dallas Floodway, the tollway is proposed to be constructed on an acquired right-of-way. The right-of-way width would vary depending on the extent of

bridge structures, the need for ramps and service roads, the locations of ancillary buildings, and other geometric considerations (see the Typical Sections on **Plates 2-3A** and **2-3B**). In the Dallas Floodway segment, the tollway operations area would be established by an agreement with the City of Dallas, rather than fee simple acquisition (see **Section 2.4.8**). Paved shoulders would be provided adjacent to the inside and outside of the main lanes. The center median would typically be protected on both sides by a standard concrete traffic barrier. In the segment near downtown Dallas, the inside shoulders would be reduced below the standard width of 10 feet in order to clear existing piers of the historic bridges - Continental, Commerce, Corinth and Houston (see **Section 3.3.1 Cultural Resources** regarding historic bridge issues). **Plate 2-3C** at the end of this chapter provides a detail of the segment with reduced inside shoulders.

Alternative 3A would be approximately 8.67 miles in length, would require approximately 371 acres of right-of-way, and would cost approximately $1.07 billion to construct. Other major features associated with Alternative 3A include:

- Direct connections at IH-35E/SH-183 (north terminus), US-175/SH-310 (south terminus), Woodall Rodgers Extension, and IH-45;
- Full diamond interchanges at Hampton/Inwood Road, Sylvan/Wycliff, Houston/Jefferson Streets, Corinth Street, MLK, and Lamar Street/SH-310;
- Half diamond interchanges at Commonwealth and Commerce Street; and
- Floodwall protection at major bridge underpasses, which include Continental Avenue, Woodall Rodgers Extension, UP Railroad Bridge, IH-30, IH-35E, Corinth Street, and the DART Bridge.

2.3.6 Alternative 3B (Combined Parkway - Modified)

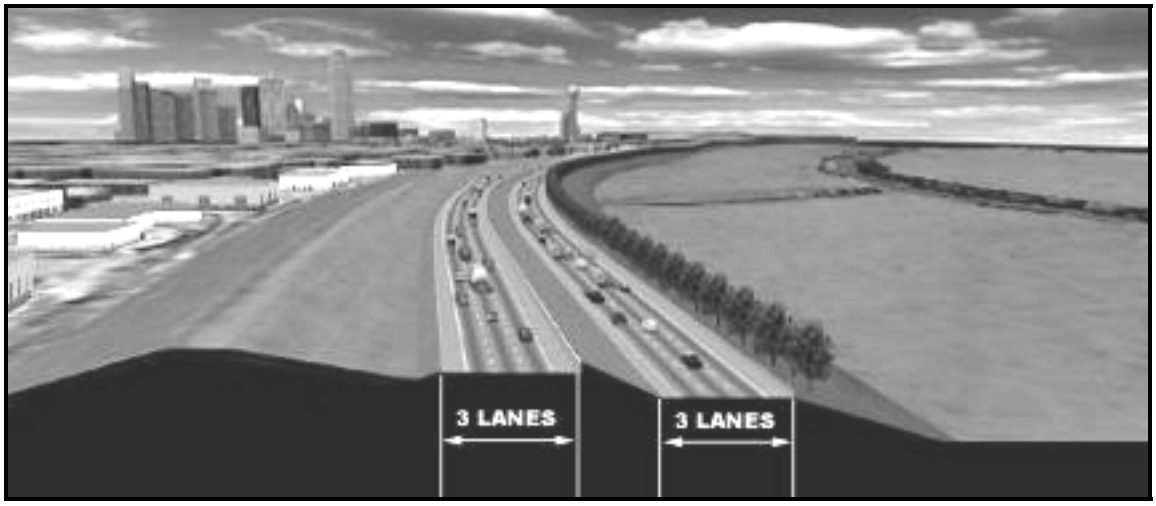
The original Combined Parkway (Alternative 3A) was presented in concept in the July 1999 scoping meeting for the Trinity Parkway DEIS, and was developed during the early stages of preparation of the DEIS. This was followed by the addition of Alternative 3B (Combined Parkway-Modified) to the list of DEIS Build Alternatives at the request of the City of Dallas in the fall of 2003. The alternative was developed as part of a yearlong planning study of the Trinity River corridor initiated in 2002 by then City of Dallas Mayor Laura Miller and former Dallas County Judge Lee Jackson. The study was published in the report *A Balanced Vision Plan for the Trinity River Corridor* (City of Dallas, 2003a). Alternative 3B would be a variant of the original Combined Parkway, and would be distinguished by geometric changes, primarily deletion and modification of ramps, in the general area of downtown Dallas and proposed City of Dallas floodway lakes (see **Section 1.11.4**). The city has requested that Alternative 3B be included due to its reduced ramp intrusion in the Dallas Floodway area compared to Alternative 3A, and its revision of the tolling plan to exclude any main toll gantries from the Dallas Floodway.

From the IH-35E/SH-183 interchange, Alternative 3B would travel southwest, passing over Commonwealth Boulevard and Irving Boulevard, reaching the Dallas Floodway in the area west of Hampton/Inwood Road. The alignment would then turn south along the riverside of the east Dallas Floodway levee. In the Dallas Floodway segment, the tollway would be placed on an earthen embankment, typically set above the 100-year flood level to provide appropriate protection of the road against inundation. However, at points where the alignment would meet existing bridge crossings of the Dallas Floodway, the tollway would be depressed to pass under the existing structures. At these locations, a floodwall along the riverside of the tollway would be provided to protect the roadway from inundation during a 100-year flood event. Additionally, pump stations would be provided to drain the low points of the road at times that the Trinity River is in flood stage. Over much of its length, the proposed roadway embankment would be offset sufficiently from the face of the existing levee so that a proposed raising of the levee tops (under consideration by the City of Dallas and USACE) could be constructed without the need for retaining walls. However, at depressed locations in the vicinity of downtown Dallas, Alternative 3B would require retaining walls to be placed on the levee-side of the roadway to accommodate the levee raise (see **Section 2.3.9**). North of Sylvan Avenue, the median of the roadway would be of sufficient width to allow up to 5 feet of vertical difference in grades between the northbound and southbound lanes without the use of retaining walls. This feature would allow the northbound lanes to be elevated above the grade of the southbound lanes in some areas, to allow northbound drivers and vehicle occupants to see the Dallas Floodway area more readily.

Alternative 3B would follow the riverside edge of the east Dallas Floodway levee southeast to the DART light rail bridge, a total distance of 5.6 miles. The alignment would then cross the levee and follow the landside of the future USACE DFE east levee extension (Lamar Levee) to IH-45, where it would pass under the main lanes of the Interstate. The route would then turn east, pass over Lamar Street, and follow Starks Street to the US-175/SH-310 interchange.

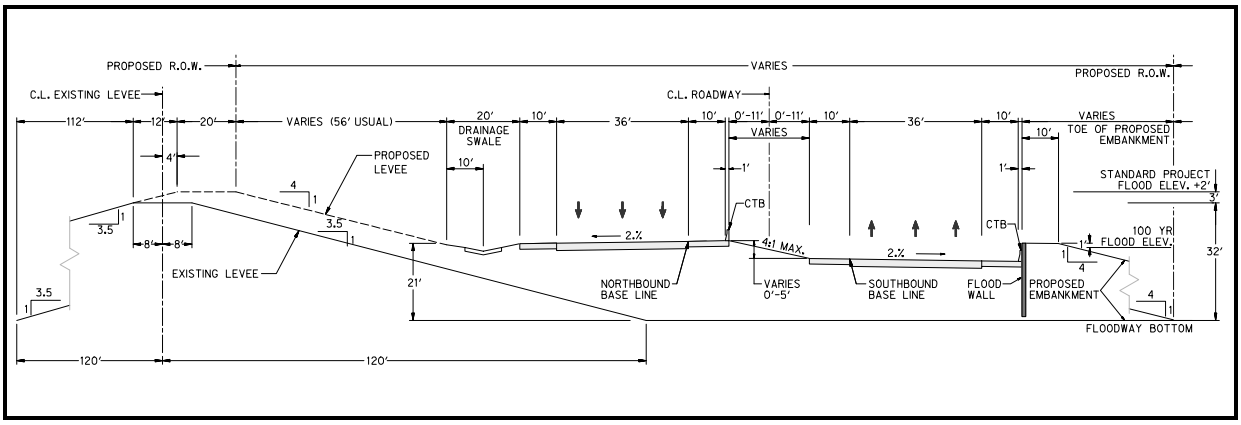
Figure 2-11 shows a computer-generated rendering of Alternative 3B, **Figure 2-12** shows the typical design section, and **Figure 2-13** shows a route map of the alignment. **Plate 2-4** at the end of this chapter provides the schematic plan.

FIGURE 2-11. COMPUTER RENDERING, TRINITY PARKWAY ALTERNATIVE 3B COMBINED PARKWAY - MODIFIED



Note: The row of trees shown on the roadway embankment within the floodway is conceptual only. Landscaping and vegetation within the floodway would be subject to City and USACE review and approval.

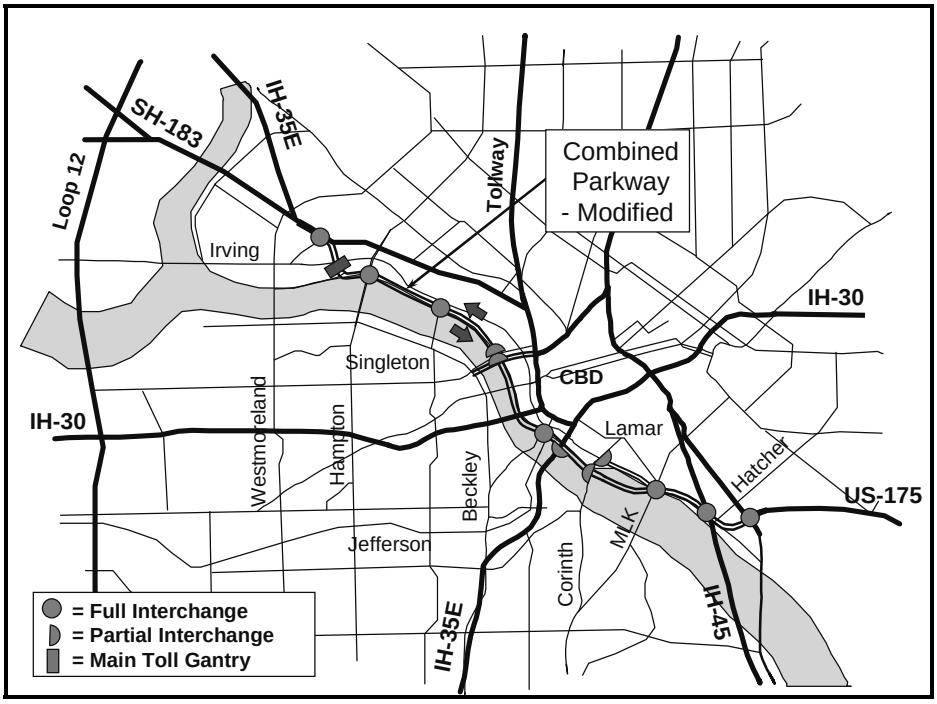
FIGURE 2-12. ALTERNATIVE 3B - COMBINED PARKWAY - (MODIFIED) TYPICAL SECTION



Notes:

1. There would typically be three main lanes of travel in each direction (six lanes total). Auxiliary lanes may be added in some segments, where required to properly accommodate merging areas between ramps.
2. Flood elevations, levee heights, and slopes would vary. Those used in the section would be typical.
3. Modifications and improvements to existing levees would be performed by others.

FIGURE 2-13. LAYOUT MAP, TRINITY PARKWAY ALTERNATIVE 3B



The proposed tollway main-lanes would each be 12 feet in width. There would typically be three lanes in each direction of travel (six lanes total). Outside the Dallas Floodway, the tollway is proposed to be constructed on an acquired right-of-way. The right-of-way width would vary depending on the extent of bridge structures, the need for ramps and service roads, the locations of ancillary buildings, and other geometric considerations (see the Typical Sections on **Plates 2-4A** and **2-4B**). In the Dallas Floodway segment, the tollway operations area is proposed to be established by an agreement with the City of Dallas, rather than fee simple acquisition (see **Section 2.4.8**). Paved shoulders would be provided adjacent to the inside and outside of the main lanes. The center median would typically be protected on both sides by a standard concrete traffic barrier. In the segment near downtown Dallas, the inside shoulders would be reduced below the standard width of 10 feet in order to clear existing piers of the historic bridges - Continental, Commerce, Corinth and Houston (see **Section 3.3.1 Cultural Resources** regarding historic bridges). **Plate 2-4C** at the end of this chapter provides a detail of the segment with reduced inside shoulders.

As noted in the introductory paragraph to this **Section 2.3.6**, the tolling scheme for the Trinity Parkway would be modified in Alternative 3B in order to exclude main toll gantries from the Dallas Floodway. Whereas the other Build Alternatives each have two main gantries (north and south), Alternative 3B is proposed to have only one (north) main gantry. Because the southern main gantry would be eliminated, the toll at the northern main gantry would be increased to pay for the entire trip in one installment, rather than in two installments. Additionally, the northern main gantry would be relocated out of the Dallas

Floodway area to the vicinity of Irving Boulevard, where the gantry would be located on structure (see **Figure 2-13**).

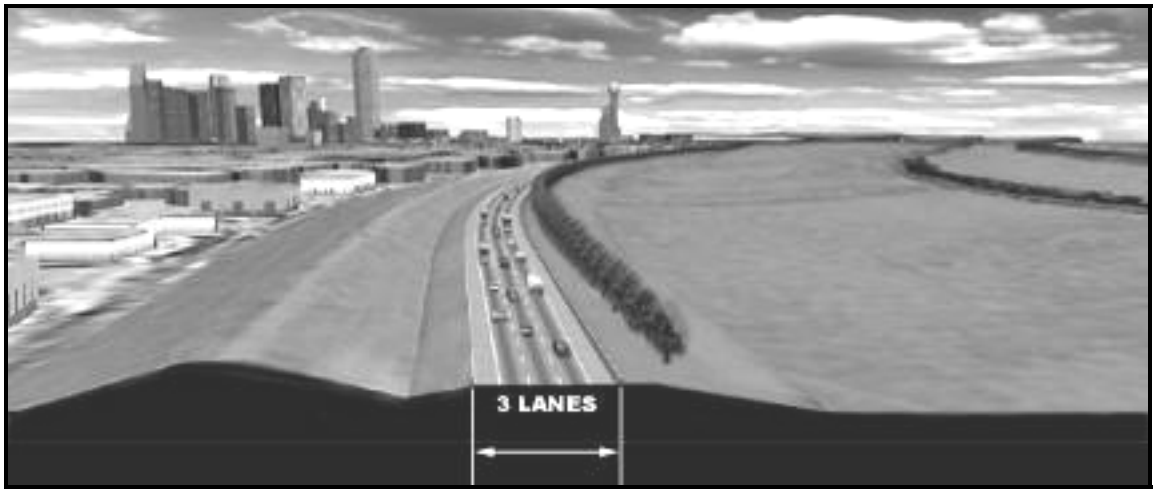
Alternative 3B would be approximately 8.67 miles in length, would require approximately 372 acres of right-of-way, and would cost approximately $1.14 billion to construct. Other major features associated with Alternative 3B include:

- Direct connections at IH-35E/SH-183 (north terminus), US-175/SH-310 (south terminus), Woodall Rodgers Extension, (north-side only) and IH-45;
- Full diamond interchanges at Hampton/Inwood Road, Sylvan/Wycliff, Houston/Jefferson Streets, MLK, and Lamar Street/SH-310;
- Half diamond interchanges at Commonwealth, Continental and Corinth Streets;
- Direct connection to Corinth/Industrial intersection via a braided ramp pair originating in the area of MLK; and
- Floodwall protection at major bridge underpasses, which include Continental Avenue, Woodall Rodgers Extension, UP Railroad Bridge, IH-30, IH-35E, Corinth Street, and DART Bridge.

2.3.7 Alternative 4A (Split Parkway Riverside - Original)

Alternative 4A would be formed by the combination of preliminary alignments TL-7a (north segment) and 5 (south segment) (see **Tables 2-3** and **2-4**), with the main-lanes modified to six lanes throughout. From the IH-35E/SH-183 interchange, this alternative would travel south-west, passing over Commonwealth Boulevard and Irving Boulevard, reaching the Dallas Floodway in the area west of Hampton/Inwood Road. From this point, Alternative 4A would split, with the southbound lanes bridging across the Trinity River to the riverside face of the west levee and the northbound lanes remaining on the riverside face of the east levee. The alignment would remain in a split configuration along the Dallas Floodway to a point just east of IH-35E for a total split distance of approximately 5.4 miles. **Figure 2-14** shows a computer-generated rendering of the northbound lanes of Alternative 4A.

FIGURE 2-14. COMPUTER RENDERING, TRINITY PARKWAY ALTERNATIVE 4A SPLIT PARKWAY - RIVERSIDE (ONLY NORTHBOUND LANES ARE SHOWN)



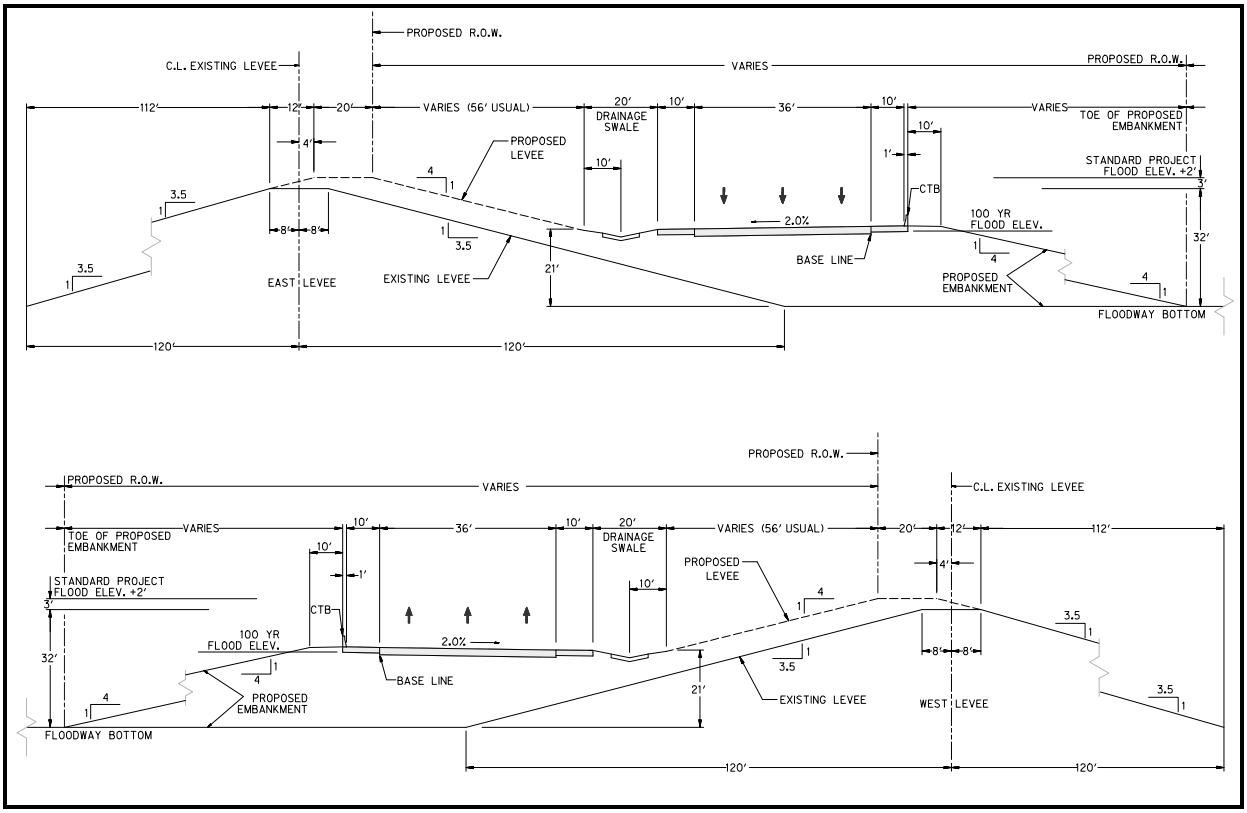
Note: The row of trees shown on the roadway embankment within the floodway is conceptual only. Landscaping and vegetation within the floodway would be subject to City and USACE review and approval.

In the Dallas Floodway segment, the tollway would be placed on earthen embankments, typically set above the 100-year flood level to provide appropriate protection of the road against inundation. However, at points where the alignment would meet existing bridge crossings of the Dallas Floodway, the tollway would be depressed to underpass the existing structures. At these locations, a floodwall along the riverside of the tollway would be provided to protect the roadway from inundation during a 100-year flood event. Additionally, pump stations would be provided to drain the low points of the road at times that the Trinity River is in flood stage. Over much of its length, the proposed roadway embankment would be offset sufficiently from the face of the existing levees so that a proposed raising of the levee tops (under consideration by the City of Dallas and USACE) could be constructed without the need for retaining walls. However, at depressed locations in the vicinity of downtown Dallas, Alternative 4A would require retaining walls to be placed on the levee-side of the roadway to accommodate the levee raise (see **Section 2.3.9**).

As stated above, the split configuration would end at a point east of IH-35E. The roadway would transition back to a combined configuration with the southbound lanes crossing from the west levee to the east on a bridge structure. The joining of the southbound and northbound lanes would occur on the east levee near Corinth Street. East of Corinth Street, Alternative 4A would follow the identical route to the US-175/SH-310 interchange as described for Alternatives 3A and 3B.

Figure 2-15 shows the typical design cross-section, and **Figure 2-16** shows a route map of the alignment. **Plate 2-5** at the end of this chapter provides the schematic plan.

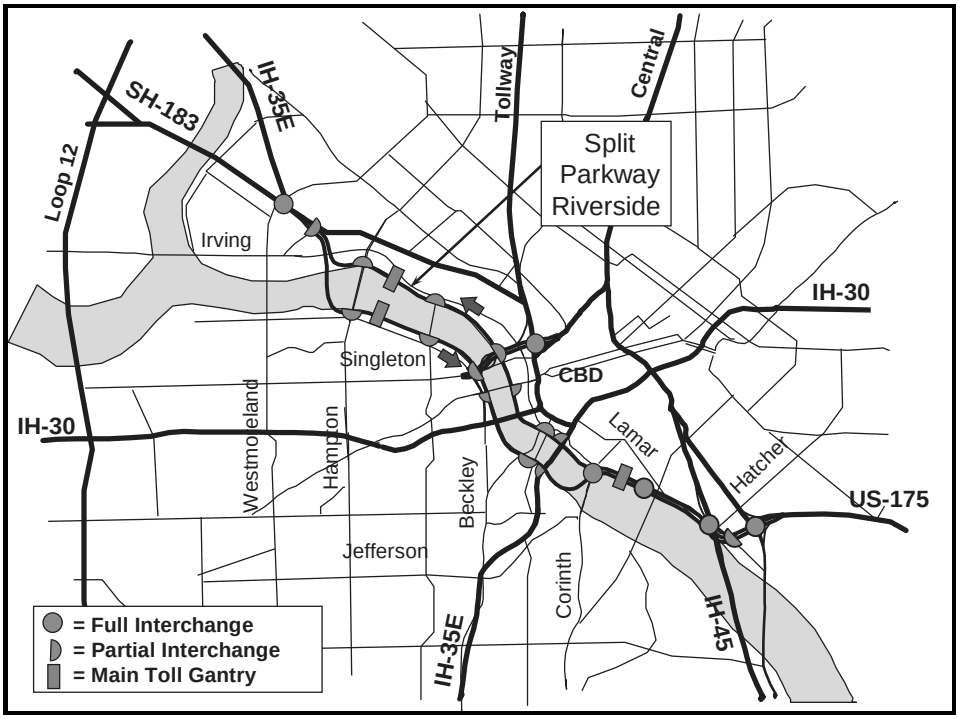
FIGURE 2-15. ALTERNATIVE 4A - SPLIT PARKWAY RIVERSIDE TYPICAL SECTION



Notes:

1. There would typically be three lanes of travel in each direction (six lanes total) with the northbound lanes adjacent to the east levee and the southbound lanes adjacent to the west levee. Auxiliary lanes may be added in some segments, where required to properly accommodate merging areas between ramps. The west levee section would be similar to the east levee section.
2. Flood elevations, levee heights, and slopes would vary. Those used in the section would be typical.
3. Modifications and improvements to existing levees would be performed by others.

FIGURE 2-16. LAYOUT MAP, TRINITY PARKWAY ALTERNATIVE 4A



The proposed tollway main lanes would each be 12 feet in width. There would typically be three lanes in each direction of travel (six lanes total). The proposed right-of-way would vary depending on the need for ramps, the locations of ancillary buildings, and other geometric considerations. In the Dallas Floodway segment, the width would typically be 246 feet for each direction of travel (492 feet total), measured from the crest of each levee to the toe of the tollway embankment (note the width includes some levee slopes, maintenance of which may ultimately be the responsibility of the City of Dallas or USACE, rather than NTTA). In long segments on structure, the right-of-way width would typically be 180 feet for a dual-direction roadway and 100 feet (per direction) for a single-direction roadway. A standard concrete traffic barrier would separate northbound and southbound traffic in areas of opposing traffic. Paved shoulders would be provided adjacent to the inside and outside lanes. In split segments, the center median area would be protected by a standard concrete traffic barrier. Additionally, in split segments, a drainage swale would be located on the levee side of the roadway.

Alternative 4A would be approximately 8.84 miles in length, would require approximately 462 acres of right-of-way, and would cost approximately $1.21 billion to construct. Other major features associated with Alternative 4A include:

- Direct connections at IH-35E/SH-183 (north terminus), US-175/SH-310 (south terminus), Woodall Rodgers Extension, and IH-45;

- Full diamond interchanges at Hampton/Inwood Road, Sylvan/Wycliff Street, Houston/Jefferson Streets, Corinth Street, MLK, and Lamar/SH-310;
- Half diamond interchanges at Commonwealth and Commerce Street; and
- Floodwall protection at major bridge underpasses, which include Continental Avenue, Woodall Rodgers Extension, UP Railroad Bridge, IH-30, IH-35E, Corinth Street, and the DART Bridge.

2.3.8 Alternative 5 (Split Parkway - Landside)

Alternative 5 would be formed by the combination of preliminary alignments TL-7c (north segment) and 5 (south segment) (see **Tables 2-3** and **2-4**), with the main-lanes modified to six lanes throughout. This alternative would be a split configuration, with its route very similar to Alternative 4A with the exception of being located on the landside of the river levees. The landside location would have two notable effects on the roadway installation:

1. The embankment would have to be installed with retaining walls along much of its landside edge to avoid spillover of fill material into the adjacent drainage sumps; and
2. The effects on local arterial streets would be more pronounced, requiring rebuilding and raising of substantial lengths of these streets at points of crossing.

Figure 2-17 shows a computer-generated rendering of Alternative 5.

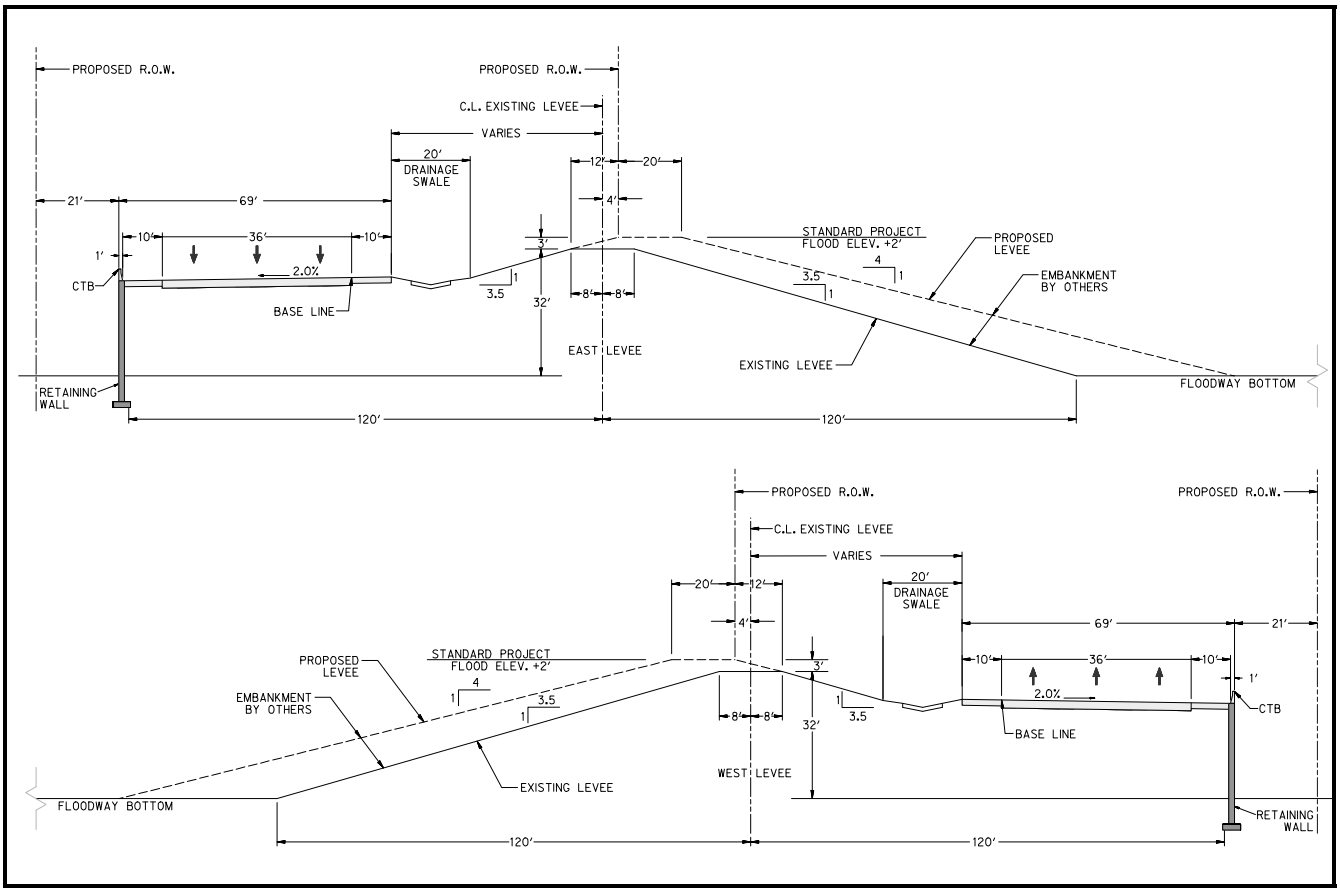
FIGURE 2-17. COMPUTER RENDERING, TRINITY PARKWAY ALTERNATIVE 5 SPLIT PARKWAY - LANDSIDE (ONLY NORTHBOUND LANES ARE SHOWN)

In the Dallas Floodway segment, the tollway would be placed on earthen embankments and walls set against the landside of the east and west Dallas Floodway levees. This would avoid the effect of inundation from the Dallas Floodway, but would require the road to be designed for the normal drainage

conditions in the levee-protected zones. At points where the alignment would meet existing arterial roadways, the tollway would generally be depressed to underpass the existing road, but at the same time, the arterial would need to be raised, affecting adjacent property.

Similar to Alternative 4A, the split configuration would end east of IH-35E. The roadway would then transition back to a combined configuration with the southbound lanes crossing from the west levee to the east on a bridge structure. The joining of the southbound and northbound lanes would occur on the east levee near Corinth Street. East of Corinth Street, Alternative 5 would follow the identical route to the US-175/SH-310 interchange as described for Alternatives 3A, 3B and 4A **Figure 2-18** shows the typical design cross-section, and **Figure 2-19** shows a route map of the alignment. **Plate 2-6** at the end of this chapter provides the schematic plan.

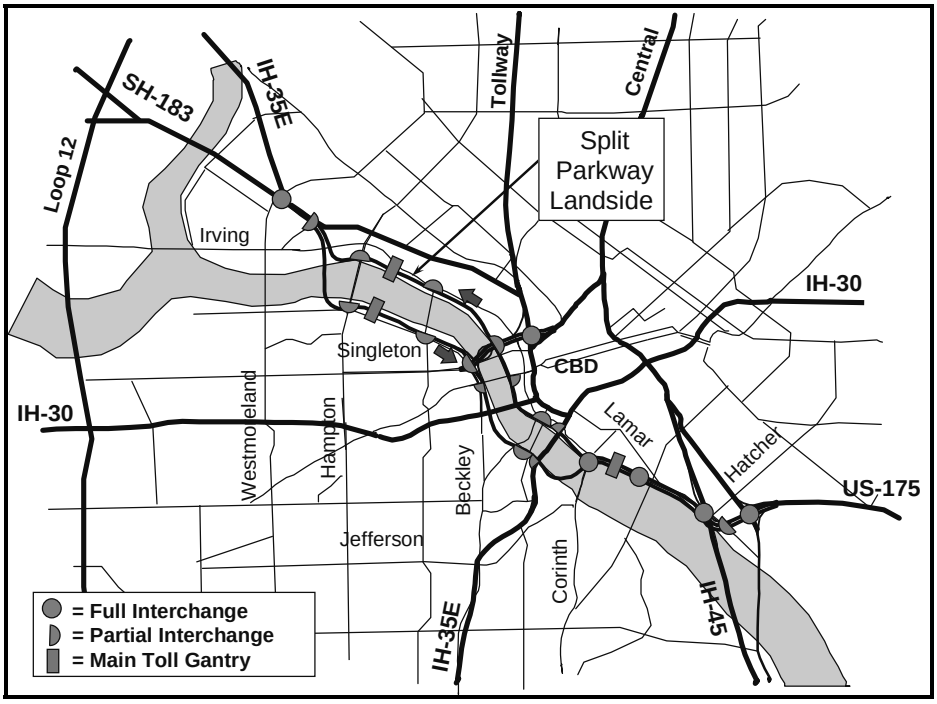
FIGURE 2-18. ALTERNATIVE 5 - SPLIT PARKWAY - LANDSIDE TYPICAL SECTION



Notes:

1. There would typically be three lanes of travel in each direction (six lanes total) with the northbound lanes adjacent to the east levee and the southbound lanes adjacent to the west levee. Auxiliary lanes may be added in some segments, where required to properly accommodate merging areas between ramps. The west levee section would be similar to the east levee section.
2. Flood elevations, levee heights, and slopes would vary. Those used in the section would be typical.
3. Modifications and improvements to existing levees would be performed by others.

FIGURE 2-19. LAYOUT MAP, TRINITY PARKWAY ALTERNATIVE 5



The proposed tollway main lanes would each be 12 feet in width. There would typically be three lanes in each direction (six lanes total). The proposed right-of-way would vary depending on the need for ramps, the locations of ancillary buildings, and other geometric considerations. In the Dallas Floodway segment, the width would typically be 150 feet for each direction of travel (300 feet total), measured from the crest of each levee to a distance outside the toe of the retaining wall (note that this width would include some levee slopes, which ultimately may be the responsibility of the City of Dallas or USACE, rather than NTTA). In long segments on structure, the right-of-way width would typically be 180 feet for a dual-direction roadway and 110 feet (per direction) for a single direction roadway. A standard concrete traffic barrier would separate northbound and southbound traffic, and paved shoulders would be provided adjacent to the inside and outside lanes. In split segments, both sides of the road would be protected by a standard concrete traffic barrier.

Alternative 5 would be approximately 8.90 miles in length, would require approximately 372 acres of right-of-way, and would cost approximately $1.47 billion to construct. Other major features associated with Alternative 5 include:

- Direct connections at IH-35E/SH-183 (north terminus), US-175/SH-310 (south terminus), Woodall Rodgers Extension, and IH-45;
- Full diamond interchanges at Hampton/Inwood Road, Sylvan/Wycliff Street, Houston/Jefferson Streets, Corinth Street, MLK, and Lamar Street/SH-310; and

- Half diamond interchanges at Commonwealth and Commerce Street.

2.3.9 2006 USACE Consultation Regarding Dallas Floodway Alternatives

In October 2005, the USACE Fort Worth District agreed to become a cooperating agency in the preparation of the Trinity Parkway EIS (see **Section 1.12.4**). In October 2006, the USACE Fort Worth District provided comments on a draft version of the SDEIS provided to the District in July 2006. In the comments, USACE raised several concerns about Trinity Parkway, specifically focusing on the Build Alternatives located in the Dallas Floodway (Alternatives 3A, 3B, 4(A) and 5) as detailed in the February 2005 DEIS. USACE expressed concern that these alternatives, as proposed, appeared to adversely impact operations and maintenance requirements within the Dallas Floodway, an existing Federal flood damage reduction project. The USACE concerns are summarized as follows:

- *The lands associated with the existing Dallas Floodway and Dallas Floodway Extension cannot be purchased or otherwise conveyed to the North Texas Tollway Authority, Texas Department of Transportation or Federal Highway Administration for the Trinity Parkway.*
- *The Trinity Parkway must be constructed and operated in accordance with applicable U.S. Army Corps of Engineers regulations, and will be subject to the requirement that if future operations by the United States require its removal, relocation, or other alteration, the action will take place without expense to the United States.*
- *The project cannot interfere with the U.S. Army Corps of Engineers' or City of Dallas' ability to operate and maintain the Dallas Floodway, conduct flood fighting activities, or restore or improve the flood damage reduction capability of the Federal project.*
- *No cuts, floodwalls, or retaining walls will be allowed that impact the existing or planned expansion of the Dallas Floodway or Dallas Floodway Extension levees.*
- *The plans for this alternative have not been sufficiently developed to allow a complete evaluation of the alternative relative to the impacts on the existing Dallas Floodway and proposed Dallas Floodway improvements. To accurately incorporate this alternative into its plan formulation and design process, USACE would need to know locations and configurations of various appurtenances such as ramps and interchanges, including their foundation systems.*

NTTA and FHWA entered into consultation with the USACE and City of Dallas representatives through the fourth quarter of 2006 and first and second quarters of 2007 to attempt to resolve these concerns. The SDEIS reflects these consultations, including the discussions of construction and operations in the Dallas Floodway in **Sections 2.4.6** through **2.4.8**, and the deletion of levee-side fences previously shown

in the typical sections of Alternatives 3A, 3B, and 4(A). However the most substantial change made in response to the USACE consultation has been the addition of two new alternatives to the SDEIS, Alternative 3C (Combined Parkway - Further Modified) and Alternative 4B (Split Parkway - Riverside Modified). These alternatives have been added because changes in the roadway layouts were required to address several of the USACE comments above. The following summarizes the roadway layout changes made in Alternatives 3C and 4B:

- Ramps are deleted to Westmoreland Road to avoid possible adverse impacts to access and circulation for operations and maintenance (O&M), flood fighting and surveillance.
- The Trinity Parkway lanes are elevated at (i) the North Dallas Floodway Entry (main lanes), (ii) the Woodall Rodgers connection (ramps), (iii) the Industrial Boulevard connection (ramps), (iv) the South Dallas Floodway Exit (main lanes), and (v) the IH-45 connection (ramps) to provide 15 feet vertical clearance over the levee top to allow city service vehicles to underpass the structures.
- Reinforced concrete diaphragm walls are added at crossing points (i) thru (v) listed above to reinforce the levees and offset any negative effects of levee penetrations. These walls would be subject to later design and USACE concurrence, but (conceptually) they would be located on the riverside edge of the new levee top; they would be constructed using slurry wall techniques; they would extend down to rock or unweathered shale to cut off possible under-seepage; they would be 3 to 4 feet thick and reinforced to free-stand as flood walls in the event a portion of the levee was washed away; they would extend upstream and downstream of the zone of levee penetrations at the crossings, giving a variable length in the range 300 to 1400 feet depending on the site. The walls would reinforce the levee, but would be considered secondary to the levee itself in the flood protection system. They are not intended to replace any sections of the levee. Finally, the engineering details for the walls would need to clearly show construction phase details, such as the limits of work platform, discussion of construction procedures, and measures to be utilized to insure that the floodway will perform under all design flood levels during the period of construction. Similar to the wall design itself, such construction phase details would be subject to USACE concurrence.
- The levee-side ramps at diamond interchanges to existing cross-street bridges, such as Hampton and Sylvan, are redesigned to move the ramps closer to the main lanes so they do not overlay the levee top. The ramps are now elevated using retaining walls and fill, in lieu of bridges, to avoid drill shaft penetrations of the levee.
- Gates and bridges are provided on the NB-WB ramp at IH-35E to facilitate access across/under the ramp by city maintenance personnel and vehicles.
- Longitudinal maintenance roads are replaced and reconnected in segments affected by the Trinity Parkway embankments.

The design changes listed above might interchangeably be applied to Trinity Parkway Alternatives 3A, 3B and 4A. However, Alternatives 3C and 4B also include unique changes related to relocation of the roadway main lanes in the area of downtown Dallas. As stated in **Sections 2.3.5, 2.3.6** and **2.3.7**, Alternatives 3A, 3B, and 4A require retaining walls to be placed on the levee-side of the roadways at depressed locations in the vicinity of downtown Dallas to accommodate a future levee raise anticipated by USACE and the City. USACE has indicated in its consultation that it intends to reject any riverside alternative with walls on the levee side. Alternatives 3C and 4B avoid the need for levee-side retaining walls by moving the roadway away from the levee in the downtown segment. Generally the road would be moved to the next available span under the cross street bridges, resulting in a shift of about 60 to 100 feet towards the river.

2.3.10 Alternative 3C (Combined Parkway - Further Modified)

Alternative 3C is a variant of Alternative 3B (Combined Parkway-Modified), and is distinguished by relocation of the main lanes of the roadway approximately 60 to 100 feet towards the river in the general area of downtown Dallas and the proposed City of Dallas Floodway lakes. The alternative has been produced in response to USACE consultation in Fall 2006 (see **Section 2.3.9**).

From the IH-35E/SH-183 interchange, Alternative 3C would travel southwest, passing over Commonwealth Boulevard and Irving Boulevard, reaching the Dallas Floodway in the area west of Hampton/Inwood Road. The main lanes would be elevated at the crossing point of the Dallas Floodway levees to allow 15 feet vertical clearance between the low chord of the bridge structure and the top of future improved levee. This would result in the main lanes being elevated over the Hampton Road bridge rather than under the bridge as in Alternatives 3A and 3B. (An alternative vertical alignment showing the main lanes nearer the levee top elevation is also shown on the Alternative 3C schematic plans. This variant would be supported by the City of Dallas, but would be subject to USACE/City consultation regarding any impacts to levee operations, maintenance, flood fighting, and surveillance at this location).

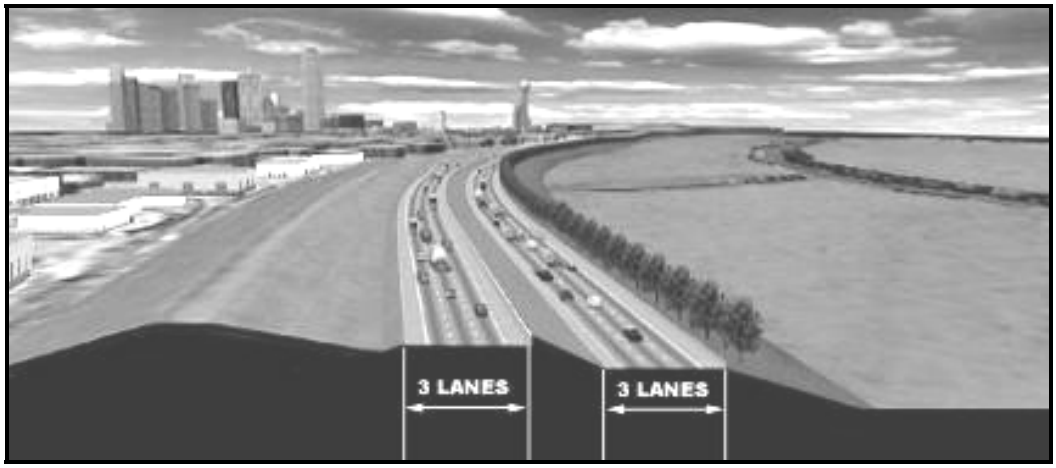
The Alternative 3C alignment would turn south along the riverside of the east Dallas Floodway levee, with the main lanes placed on an earthen embankment, typically set above the 100-year flood level to provide appropriate protection of the road against inundation. However, at points where the alignment would meet existing bridge crossings of the Dallas Floodway, the tollway would be depressed to pass under the existing structures. At these locations, a floodwall along the riverside of the tollway would be provided to protect the roadway from inundation during a 100-year flood event. Additionally, pump stations would be provided to drain the low points of the road at times that the Trinity River is in flood stage.

In the northern segment of the Dallas Floodway, the Alternative 3C main lanes would follow the same alignment as Alternative 3B. Similar to Alternative 3B, the median of the roadway north of Sylvan Avenue would be of sufficient width to allow up to 5 feet of vertical difference in grades between the northbound and southbound lanes without the use of retaining walls. This feature would allow the northbound lanes to be elevated above the grade of the southbound lanes in some areas, allowing northbound vehicle occupants to see the Dallas Floodway area more readily. At a point roughly midway between Sylvan Avenue and Continental Avenue, the alignment would turn slightly towards the river so that at Continental Avenue, the main lanes would be about 100 feet further away from the levee than the Alternative 3B main lanes. The increased offset from the levee would be maintained for approximately three miles down to the DART rail crossing, with the offset varying from 60 to 100 feet based on the actual locations of columns under the existing cross street bridges. Due to the increased offset, the proposed main lanes would be moved sufficiently away from the face of the existing levee so that a proposed raising of the levee tops (under consideration by the City of Dallas and USACE) could be constructed without the need for retaining walls.

South of the DART light rail bridge, Alternative 3C would be built on structure, and offset approximately 50-feet from the riverside edge of the future USACE DFE east levee extension (Lamar Levee) up to a location approximately 1,500 feet downstream of MLK Jr. Boulevard. At this point, the Trinity Parkway would cross to the landside of the levee, with the main lanes elevated sufficiently to allow 15-feet clearance over the levee top for maintenance/emergency vehicle access. The alignment would follow the landside of the future DFE east levee to IH-45, where it would pass under the main lanes of the Interstate. The route would then turn east, pass over Lamar Street, and follow Starks Street to the US-175/SH-310 interchange.

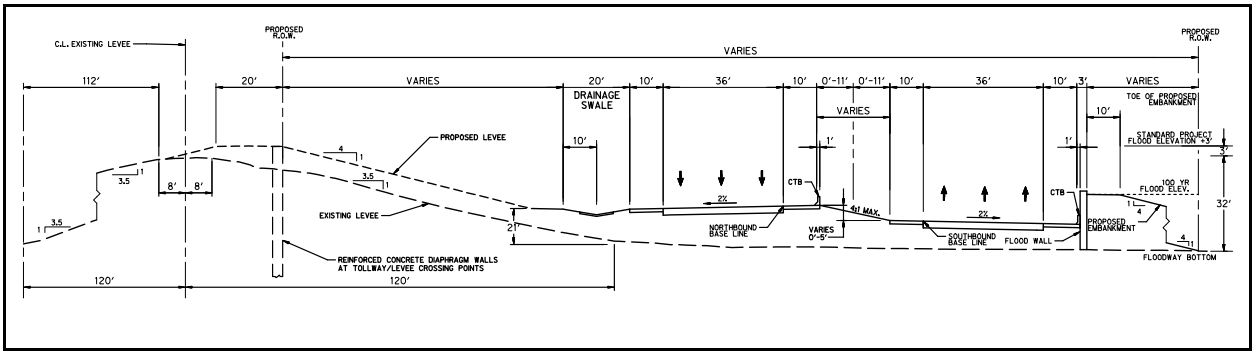
Figure 2-20 shows a computer-generated rendering of Alternative 3C, **Figure 2-21** shows a typical design section in the increased offset segment south of Sylvan and **Figure 2-22** shows a route map of the alignment. **Plate 2-7** at the end of this chapter provides the schematic plan.

FIGURE 2-20. COMPUTER RENDERING, TRINITY PARKWAY ALTERNATIVE 3C COMBINED PARKWAY - FURTHER MODIFIED



Note: The row of trees shown on the roadway embankment within the floodway is conceptual only. Landscaping and vegetation within the floodway would be subject to City and USACE review and approval.

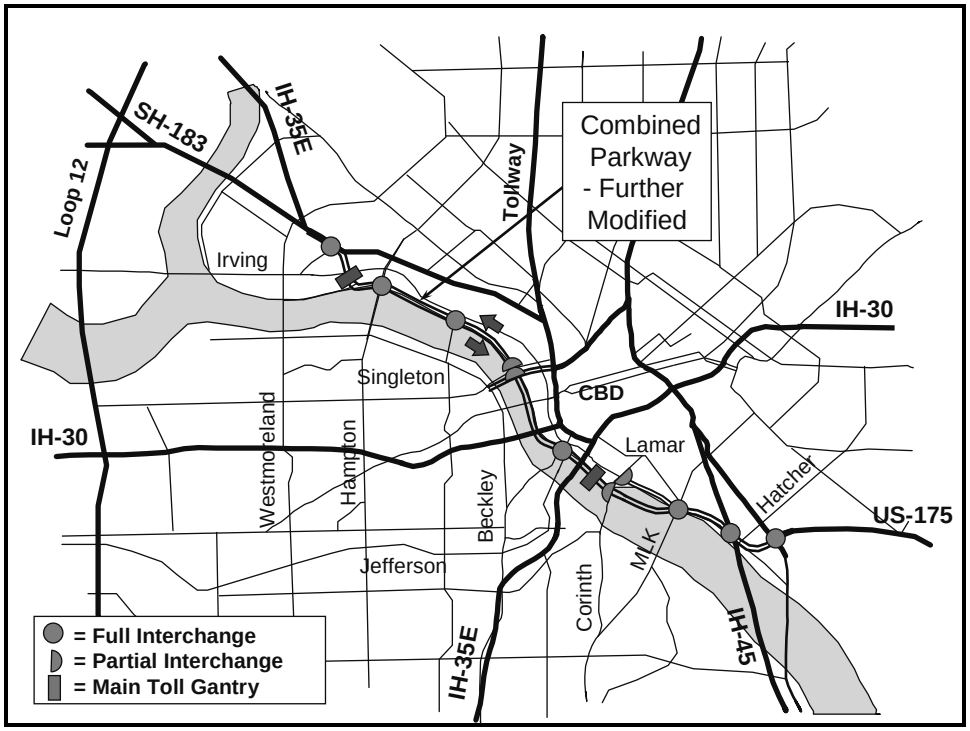
FIGURE 2-21. ALTERNATIVE 3C - COMBINED PARKWAY - (FURTHER MODIFIED) TYPICAL SECTION



Notes:

1. There would typically be three main lanes of travel in each direction (six lanes total). Auxiliary lanes may be added in some segments, where required to properly accommodate merging areas between ramps.
2. Flood elevations, levee heights, and slopes would vary. Those used in the section would be typical.
3. Modifications and improvements to existing levees would be performed by others.

FIGURE 2-22. LAYOUT MAP, TRINITY PARKWAY ALTERNATIVE 3C



The proposed tollway main-lanes would each be 12 feet in width. There would typically be three lanes in each direction of travel (six lanes total). Outside the Dallas Floodway, the tollway is proposed to be constructed on an acquired right-of-way. The right-of-way width would vary depending on the extent of bridge structures, the need for ramps and service roads, the locations of ancillary buildings, and other geometric considerations (see the Typical Sections on **Plates 2-7A** and **2-7B**). In the Dallas Floodway segment, the tollway operations area is proposed to be established by an agreement with the City of Dallas, rather than fee simple acquisition (see **Section 2.4.8**). Paved shoulders would be provided adjacent to the inside and outside of the main lanes. The center median would typically be protected on both sides by a standard concrete traffic barrier. In the segment near downtown Dallas, the inside shoulders would be reduced below the standard width of 10 feet in order to clear existing piers of the historic bridges - Continental, Commerce, Corinth and Houston (see **Section 3.3.1 Cultural Resources** regarding historic bridges). **Plate 2-7C** at the end of this chapter provides a detail of the segment with reduced inside shoulders.

Alternative 3C would be approximately 8.67 miles in length, would require approximately 379 acres of right-of-way, and would cost approximately $1.29 billion to construct. Other major features associated with Alternative 3C include:

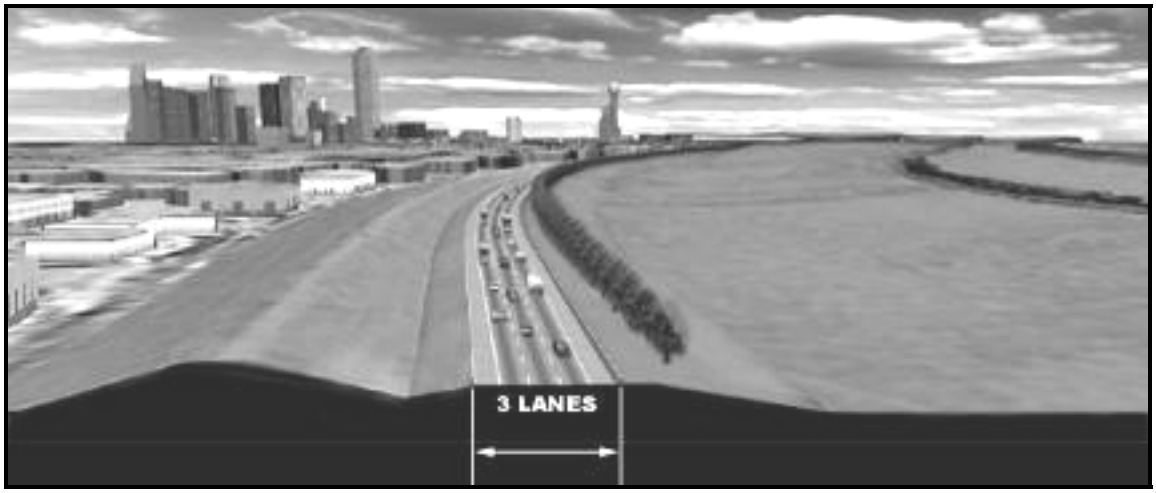
- Direct connections at IH-35E/SH-183 (north terminus), US-175/SH-310 (south terminus), Woodall Rodgers Extension, (north-side only) and IH-45;
- Full diamond interchanges at Hampton/Inwood Road, Sylvan/Wycliff, Houston/Jefferson Streets, MLK, and Lamar Street/SH-310;
- Half diamond interchanges at Commonwealth, Continental and Corinth Streets;
- Direct connection to Corinth/Industrial intersection via a braided ramp pair originating in the area of MLK; and
- Floodwall protection at major bridge underpasses, which include Continental Avenue, Woodall Rodgers Extension, UP Railroad Bridge, IH-30, IH-35E, Corinth Street, and DART Bridge.

2.3.11 Alternative 4B (Split Parkway Riverside - Modified)

Alternative 4B is a variant of Alternative 4A (Split Parkway Riverside-Original), and is distinguished by relocation of the main lanes of the roadway approximately 60 to 100 feet towards the river in the general area of downtown Dallas and the proposed City of Dallas Floodway lakes. The alternative has been produced in response to USACE consultation in Fall 2006 (see **Section 2.3.9**.)

From the IH-35E/SH-183 interchange, Alternative 4B would travel southwest, passing over Commonwealth Boulevard and Irving Boulevard, and reaching the Dallas Floodway in the area west of Hampton/Inwood Road. The main lanes would be elevated at the crossing point of the Dallas Floodway levees to allow 15 feet vertical clearance between the low chord of the bridge structure and the top of future improved levee. This would result in the northbound main lanes being elevated over the Hampton Road bridge rather than under the bridge as in Alternative 4A. Around the east levee crossing, Alternative 4B would split, with the southbound lanes bridging across the Trinity River to the riverside face of the west levee and the northbound lanes remaining on the riverside face of the east levee. The alignment would remain in a split configuration along the Dallas Floodway to a point just east of IH-35E for a total split distance of approximately 5.4 miles. **Figure 2-23** shows a computer-generated rendering of the northbound lanes of Alternative 4B.

FIGURE 2-23. COMPUTER RENDERING, TRINITY PARKWAY ALTERNATIVE 4B SPLIT PARKWAY - RIVERSIDE (ONLY NORTHBOUND LANES ARE SHOWN)



Note: The row of trees shown on the roadway embankment within the floodway is conceptual only. Landscaping and vegetation within the floodway would be subject to City and USACE review and approval.

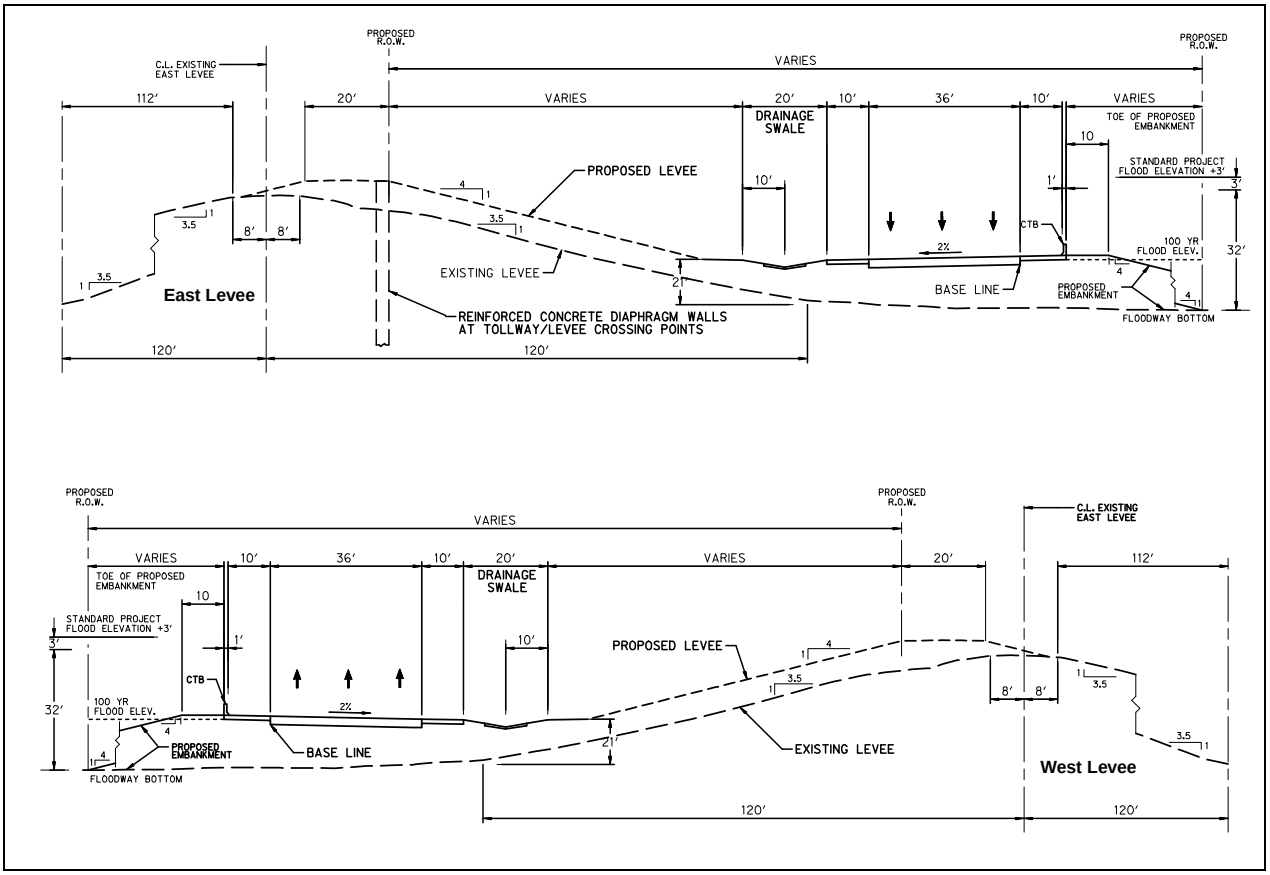
In the Dallas Floodway segment, the tollway would be placed on earthen embankments, typically set above the 100-year flood level to provide appropriate protection of the road against inundation. However, at points where the alignment would meet existing bridge crossings of the Dallas Floodway, the tollway would be depressed to underpass the existing structures. At these locations, a floodwall along the riverside of the tollway would be provided to protect the roadway from inundation during a 100-year flood event. Additionally, pump stations would be provided to drain the low points of the road at times that the Trinity River is in flood stage.

In the northern segment of the Dallas Floodway, the Alternative 4B main lanes would follow the same alignment as Alternative 4A. At a point roughly midway between Sylvan Avenue and Continental Avenue, the alignments of both the northbound and southbound lanes would turn slightly towards the river so that at Continental Avenue, the main lanes would be about 100 feet further away from the levee than the Alternative 4A main lanes. The increased offset from the levee would be maintained for approximately three miles down to the DART rail crossing, with the offset varying from 60 to 100 feet based on the actual locations of columns under the existing cross street bridges. Due to the increased offset, the proposed main lanes would be moved sufficiently away from the face of the existing levee so that a proposed raising of the levee tops (under consideration by the City of Dallas and USACE) could be constructed without the need for retaining walls.

As stated above, the split configuration would end at a point east of IH-35E. The roadway would then transition back to a combined configuration with the southbound lanes crossing from the west levee to the east on a bridge structure. The joining of the southbound and northbound lanes would occur on the east

levee near Corinth Street. East of Corinth Street, Alternative 4B would follow the identical route to the US-175/SH-310 interchange as described for Alternative 3C.

FIGURE 2-24. ALTERNATIVE 4B - SPLIT PARKWAY RIVERSIDE - MODIFIED TYPICAL SECTION

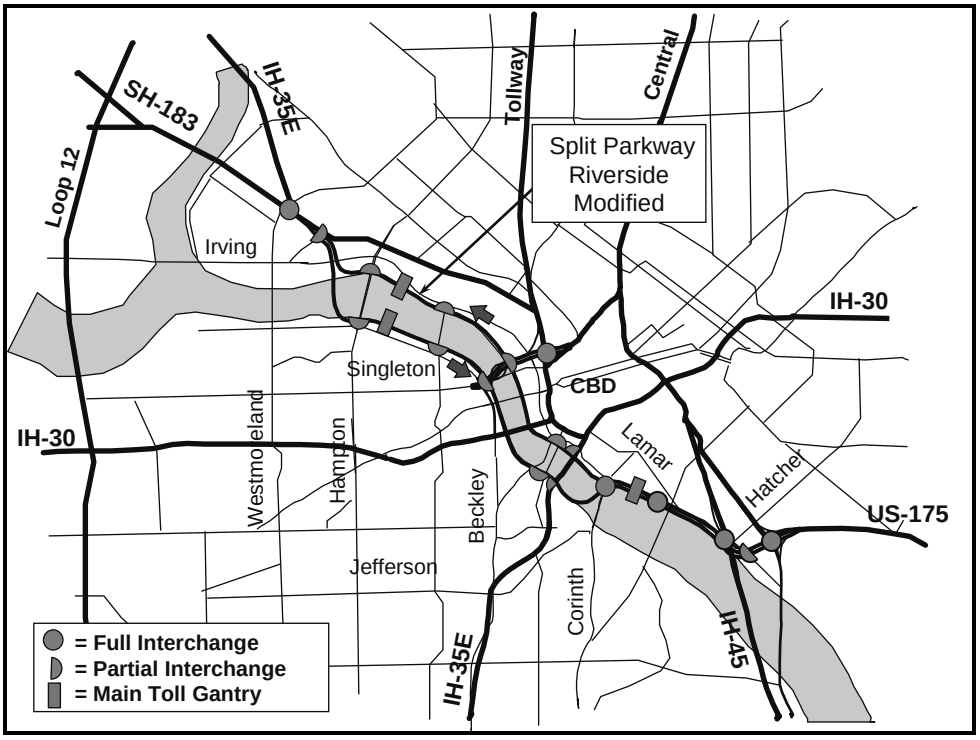


Notes:

1. There would typically be three lanes of travel in each direction (six lanes total) with the northbound lanes adjacent to the east levee and the southbound lanes adjacent to the west levee. Auxiliary lanes may be added in some segments, where required to properly accommodate merging areas between ramps. The west levee section would be similar to the east levee section.
2. Flood elevations, levee heights, and slopes would vary. Those used in the section would be typical.
3. Modifications and improvements to existing levees would be performed by others.

Figure 2-24 shows the typical design cross-section, and **Figure 2-25** shows a route map of the alignment. **Plate 2-8** at the end of this chapter provides the schematic plan.

FIGURE 2-25. LAYOUT MAP, TRINITY PARKWAY ALTERNATIVE 4B



The proposed tollway main lanes would each be 12 feet in width. There would typically be three lanes in each direction of travel (six lanes total). The proposed right-of-way would vary depending on the need for ramps, the locations of ancillary buildings, and other geometric considerations. In the Dallas Floodway segment, the width would typically be 246 feet for each direction of travel (492 feet total), measured from the crest of each levee to the toe of the tollway embankment (note that the width includes some levee slopes, which may ultimately be the responsibility of the City of Dallas or USACE, rather than NTTA). In the downtown segment, the width would expand to approximately 300 feet per side, 600 feet total. In long segments on structure, the right-of-way width would typically be 180 feet for a dual-direction roadway and 100 feet (per direction) for a single-direction roadway. A standard concrete traffic barrier would separate northbound and southbound traffic in areas of opposing traffic. Paved shoulders would be provided adjacent to the inside and outside lanes. In split segments, the center median area would be protected by a standard concrete traffic barrier. Additionally, in split segments, a 20-foot drainage swale would be located on the levee side of the roadway.

Alternative 4B would be approximately 8.84 miles in length, would require approximately 490 acres of right-of-way, and would cost approximately $1.38 billion to construct. Other major features associated with Alternative 4B include:

- Direct connections at IH-35E/SH-183 (north terminus), US-175/SH-310 (south terminus), Woodall Rodgers Extension, and IH-45;
- Full diamond interchanges at Hampton/Inwood Road, Sylvan/Wycliff Street, Houston/Jefferson Streets, Corinth Street, MLK, and Lamar/SH-310;
- Half diamond interchanges at Commonwealth, Continental and Commerce Streets;
- Floodwall protection at major bridge underpasses, which include Hampton/Inwood Road, Wycliff/Sylvan, Woodall Rodgers Extension, UP Railroad Bridge, IH-30, IH-35E, Corinth Street, and the DART Bridge.
- Deletion of ramp connections to Westmoreland/Mockingbird due to USACE concerns about access and circulation for levee O&M, flood fighting and surveillance.

2.3.12 Access to IH-35E (South R.L. Thornton Freeway), US-175 (CF Hawn Freeway), and Corinth Street

<u>IH-35E (South R.L. Thornton Freeway)</u>

As previously described in **Section 2.3 Description of the SDEIS Alternatives**, a design option involving access to IH-35E (South R.L. Thornton Freeway) was considered for each of the Trinity Parkway Build Alternatives. As part of their 1997 resolution of endorsement for the Trinity Parkway Corridor MTIS, the Dallas City Council requested that access to IH-35E be considered during the DEIS (Dallas City Council Resolution No. 972918, dated September 10, 1997)(City of Dallas, 1997a). This request was also made during the scoping phase for the DEIS, notably by representatives of the Oak Cliff (West Dallas) community and towns/cities in the south-west portion of Dallas County, such as Duncanville and Cedar Hill. This issue had been partially addressed during the MTIS, in which design options were developed to fully connect IH-30 and IH-35E via the Trinity Parkway. The consensus at the time was that direct connections should be provided in the Mixmaster area and via the Trinity Parkway. Full multi-directional connections could not practically be provided at both locations because of geometric and cost considerations as well as potential adverse visual, socioeconomic, and environmental impacts.

The IH-35E interchange poses design and operational challenges for all of the Build Alternatives. As part of the IH-35E access studies for the DEIS, it was determined that connecting ramps were not feasible for Alternatives 2A and 2B because of geometric constraints. For Alternatives 3A, 3B, 3C, 4A, 4B and 5, eastbound-to-southbound and northbound-to-westbound connections to IH-35E from the Trinity Parkway are shown in the schematic plans. Several different ramp options were considered for these connections. Due to geometric constraints and concerns about visual impacts in the Dallas Floodway area, the ramp layouts at IH-35E are of lower capacity than directional flyovers, which might otherwise be expected for freeway-to-freeway movements. The northbound-to-westbound connection comprises a loop ramp or U-turn located at the north end of the IH-35E bridge across the Dallas Floodway. This ramp crosses the

East Dallas Floodway levee at grade in the area of Houston Street and would require gates and an elevated bridge section to assure access for City of Dallas operations staff and vehicles. The eastbound-to-southbound movement is provided at the Houston/Jefferson Street viaducts, with a southbound ramp connecting to the IH-35E frontage road at Colorado Boulevard.

The various ramp options and their application are summarized in **Table 2-5** and are shown on **Plates 2-10A, 2-10B,** and **2-10C** at the end of this chapter.

TABLE 2-5. RAMP OPTIONS AT IH-35E (SOUTH R.L. THORNTON FREEWAY)

Ramp Option	Traffic Movement	Applies to Alternatives:	Comments
Option 1	EB-SB	3A, 3B, 3C	Would utilize the Houston Street Viaduct to cross the Dallas Floodway. The Option 1 ramp at the south levee would underpass Jefferson Street and overpass Colorado Boulevard providing free-flow movement to IH-35E.
Option 2	EB-SB	3A, 3B, 3C	Would utilize the Houston Street Viaduct to cross the Dallas Floodway. Would provide signalized intersections at south levee ramp, crossing Houston Street and Jefferson Street at-grade. Would be compatible with City of Dallas proposed "Terrace Road" (levee top) to west. Would overpass Colorado Boulevard.
Option 3	EB-SB	4A, 4B, 5	Would provide signalized intersections at south levee, crossing Houston Street and Jefferson Street at-grade. Would overpass Colorado Boulevard.
Option 4	EB-SB	4A, 4B, 5	Would be similar to Option 3, but with an additional bypass ramp under Houston Street and Jefferson Street to provide free-flow movement to IH-35E. This bypass ramp could be added to Option 3 as a future stage.
Option 5	EB-SB	3A, 4B, 3C	Would utilize the Houston Street Viaduct to cross the Dallas Floodway. Would connect to Colorado Blvd, and turns south onto IH-35E at the southbound service road.
Option 6	NB-WB	3A, 3B, 3C, 4A, 4B, 5	Would provides NB-WB movement at an exit to Industrial Boulevard located on the north side of the Dallas Floodway. NB-WB traffic would be routed through a U-turn lane under the IH-35 bridges. Traffic would then continue westward on a ramp under the Houston Street and Jefferson Street Viaducts.
Option 7	NB-WB	3A, 3B, 3C, 4A, 4B, 5	Similar to Option 6, but NB-WB traffic would exit to the right of the Industrial Boulevard exit ramp and would use a higher-capacity loop ramp in lieu of the U-turn lane.
Note: NB = northbound; **SB** = southbound; **EB** = eastbound; **WB** = westbound			

US-175 (CF Hawn Freeway)

All of the Trinity Parkway Build Alternatives would directly connect to US-175 (CF Hawn Freeway) at the southern terminus (US-175/SH-310). **Plate 2-11A** shows two optional ramp configurations at this terminus. Option 1 shows diamond ramps in the vicinity of Bexar Street providing access to and from Lamar Street. Option 2 shows a reversal of these ramps, focusing access to and from Bexar Street. All of the schematic plans for the Build Alternatives show a ramping scheme similar to Option 1(see **Plates 2-1** through **2-8**). Option 2 is a result of citizen input in the southern terminus area and can be applied to all Build Alternatives. The Option 2 layout also adds a set of "Texas U-Turn" lanes at the SM Wright Freeway overpass, as requested by citizens to enhance local access and circulation.

In addition to the proposed interchange connection at IH-35E, each of the Trinity Parkway Build Alternatives includes proposed interchange connections with other major freeways and arterials in the study area. Interchanges were provided at strategic locations along the main lanes of each Build

Alternative. Criteria for location selection of interchanges includes characteristics such as functional classification of the intersecting roadway; traffic volumes along the intersecting roadway; and linkage with communities, recreational areas, employment areas, and potential economic development areas. **Table 2-6** provides a comparison of interchange access points proposed for each of the alternatives considered.

TABLE 2-6. INTERCHANGE ACCESS COMPARISON

Interchange Location	Trinity Parkway Alternatives								
	1 (No-Build)	2A	2B	3A	3B	3C	4A	4B	5
At IH-35E/SH-183	---	Direct Connection via Ramps	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A
At Commonwealth	---	None	None	Half Diamond Interchange	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A
At Hampton/Inwood	---	Full Diamond Interchange	Same as Alt. 2A	Same as Alt. 2A	Same as Alt 2A	Same as Alt 2A	Same as Alt. 2A	Same as Alt 2A	Same as Alt. 2A
At Wycliff/Sylvan	---	Full Diamond Interchange	Same as Alt. 2A	Same as Alt. 2A	Same as Alt 2A	Same as Alt 2A	Same as Alt. 2A	Same as Alt 2A	Same as Alt. 2A
At Continental	---	None	None	Half Diamond Interchange	Half Diamond Interchange	Half Diamond Interchange	Half Diamond Interchange	None	None
At Woodall Rodgers	---	Direct Conn's SB-EB,WB-NB, NB-EB, and WB-SB	Same as Alt. 2A	Same as Alt. 2A	Direct Connections SB-EB and WB-EB	Direct Connections SB-EB and WB-EB	Same as Alt. 2A	Direct Connections SB-EB and WB-EB	Same as Alt. 2A
At Commerce	---	None	None	Half Diamond Interchange	None	None	Same as Alt. 3A	None	Same as Alt. 3A
At Houston/Jefferson	---	Half Diamond Interchange	Same as Alt. 2A	Full Diamond Interchange	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A
At IH-35E	---	None	None	NB-WB, EB-SB Connection via Ramps	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A
At Corinth	---	Full Diamond Interchange	Same as Alt. 2A	Same as Alt. 2A	Half Diamond Interchange	Half Diamond Interchange	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A
At MLK	---	Full Diamond Interchange	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A
At IH-45	---	Direct Connection via ramps	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A
At Lamar	---	None	None	Half Diamond Interchange	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A	Same as Alt. 3A
At SH-310	---	Half Diamond Interchange	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A
At US-175	---	Direct Main-Lane Connection	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A	Same as Alt. 2A

Note: 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**.

Access to Corinth Street and Industrial Boulevard

As shown in **Table 2-6**, there is some variation in the interchange access to Corinth Street among the Build Alternatives. Alternatives 2A, 2B, 3A, 4A, 4B and 5 would have a full-diamond ramp interchange at Corinth Street, and, for the river corridor alternatives (3A, 4A, 4B and 5), these ramps would involve connections to the NRHP-eligible Corinth Street Viaduct (see **Plate 2-3B** for a typical ramp layout and **Section 3.3.1.4 Historic Architectural Resources** for additional information on the Viaduct). Alternatives 3B and 3C would have half-diamond ramps on the north side of the Corinth Street Viaduct and braided ramps connecting to the southern end of Industrial Boulevard - see **Plates 2-4B** and **2-7B**). One of the challenges in connecting to the Corinth Street Viaduct is the restricted width of the existing bridge, which would make it difficult to produce suitable turning lanes to support traffic movements to and from the proposed Trinity Parkway ramps.

A design variant on the above-described ramp layouts is shown on **Plate 2-11B**. This variant would involve extending Industrial Boulevard to the southeast about 1,000 feet from the Industrial/Corinth intersection and terminating at a T-Intersection with diamond ramps at the Trinity River east levee. This variant would have an advantage of avoiding any ramp connections to the Corinth Street Viaduct, and therefore, potentially allowing better traffic channelization on a new structure. Conversely, the variant has increased right of way requirements and would provide somewhat less traffic capacity to the south compared to the braided ramp connections shown for Alternatives 3B and 3C. The design variant could be applied to Alternatives 3A, 3B, 3C 4A, 4B and 5. This variant will be further considered based on traffic modeling and public response to the SDEIS, including response from the City of Dallas. Subject to favorable response, the ramp variant may be incorporated in a future preferred alternative schematic in lieu of the Corinth Street ramps shown on the SDEIS diagrammatic plans.

2.3.13 Comparison of Alternatives

Table 2-7 provides a comparison of the total length, right-of-way requirements, and cost estimates for each of the alternatives considered. The construction and right-of-way cost estimates for each Build Alternative are shown in more detail in **Chapter 6 Financial Analysis and Evaluation**. **Chapter 6** provides a useful reference for readers needing additional information on the cost estimates and cost participation by involved agencies. Estimates are based on full build-out of each alternative. The proposed tollway costs include right-of-way acquisition, environmental mitigation, construction, 20 percent contingencies, toll facilities, park access improvements, IH-35E access, design, testing, inspection, and agency-related costs. The costs include approximately $50 million in anticipated cost shares from other agencies to reconstruct the Sylvan Street Bridge, Commerce/Beckley Bridges, IH-35E Bridges, and to raise the Dallas Floodway levees (applies to Dallas Floodway alternatives.)

TABLE 2-7. TOTAL LENGTH, RIGHT-OF-WAY, AND ESTIMATED COSTS

Trinity Parkway Alternative	Length (Miles)	Estimated Right-of-Way* (Acres)	Estimated Right-of-Way Cost ($)	Estimated Construction Cost ($)	Estimated Agency Cost ($)	Estimated Total Cost ($)
1 (No-Build)	---	---	---	---	---	---
2A	8.83	264	392 M	1,321 M	364 M	2,079 M
2B	8.83	350	353 M	976 M	276 M	1,606 M
3A	8.67	371	94 M	773 M	211 M	1,079 M
3B	8.67	372	111 M	809 M	221 M	1,142 M
3C	8.67	379	111 M	925 M	252 M	1,290 M
4A	8.84	462	101 M	872 M	241 M	1,216 M
4B	8.84	490	102 M	1,005 M	275 M	1,384 M
5	8.90	372	114 M	1,068 M	296 M	1,479 M

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 costs shown in 2007 dollars, rounded to millions (M). Project costs are expected to increase in future years due to inflation.
* - See discussion in **Section 2.3.15** regarding right-of-way considerations.

In addition to the right-of-way and construction cost estimates presented in **Table 2-7**, exploratory level cost estimates for annual O&M expenditures have been prepared for the Trinity Parkway Build Alternatives. For budgeting purposes, the annual O&M expenditures are projected to range from a low of approximately $1.5 million per year for Alternative 2A to a high of approximately $4.6 million per year for Alternative 5 (2008 dollars). As previously described, the 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 (1 percent chance of being equaled or exceeded in any one year time period). However, cost estimates for flood damage recovery in the event of a flood exceeding the 100-year event in the Dallas Floodway were developed. Taking a 1 percent annual chance of occurrence, the annualized cost of the event is $40,000 for Alternatives 3A, 3B, and 3C, and $64,000 for Alternatives 4A and 4B. Additional details are presented in **Sections 6.5** and **6.6**.

2.3.14 Identification of Preferred Alternative

As previously mentioned in **Section 2.0 Introduction**, all alternatives presented and evaluated in this SDEIS will remain under consideration through the project's public hearing and SDEIS review/comment period. NTTA will identify a preferred alternative after evaluating all comments received from the public hearing and availability of the SDEIS for public and agency review. The preferred alternative will be identified in the FEIS (see **Chapter 1 Need and Purpose for Proposed Action**).

2.3.15 Right-of-Way Considerations

As indicated in **Table 2-7**, the estimated right-of-way requirements for the Trinity Parkway Build Alternatives range from 264 acres for Alternative 2A to 490 acres for Alternative 4B. The majority of new right-of-way required for Alternatives 2A and 2B would be acquired from commercial/light-industrial properties and residential properties. Similarly, segments of Alternatives 3A, 3B, 3C, 4A, 4B and 5

outside of the Dallas Floodway would be on acquired right of way. However, segments of Alternatives 3A, 3B, 3C, 4A, 4B and 5 within the Dallas Floodway would be on land owned and maintained by the City of Dallas. In these segments, the roadway is expected to be covered by an operating agreement with the city rather than fee-simple acquisition. In concept, the agreement would provide NTTA suitable access rights to construct and maintain the toll road, while at the same time maintaining the primacy of the City's flood control function (see also **Section 2.4.8.)** In accordance with 23 CFR 710.201 (e), the agreement regarding access rights (in whatever form it takes) would establish a real property interest for the roadway Project adequate for the construction, operation, and maintenance of the resulting facility and for the protection of both the facility and the traveling public.

Depending on the preferred alternative identified, the City of Dallas may allow use of Dallas Floodway land necessary for Trinity Parkway at no cost. However, as previously mentioned, the NTTA would not make a decision on the identification of a preferred alternative until after the engineering and environmental studies have been finalized and all public/agency comments have been evaluated.

2.3.16 Traffic Modeling - Toll Based

Figure 2-26 shows the estimated 2030 average weekday volumes for Alternatives 2A and 2B (Irving/Industrial Boulevard routes). **Figure 2-26A** shows the estimated 2030 average weekday volumes for Alternative 3A. **Figure 2-27** shows the estimated 2030 average weekday volumes for Alternatives 4A, 4B, and 5 (split river routes). **Figure 2-28** shows the estimated 2030 average weekday volumes for Alternative 3B (Combined Parkway - Modified) and Alternative 3C (Combined Parkway - Further Modified). The traffic modeling is provided by the NCTCOG and assumes a rate commensurate with other toll roads in the NTTA system (see **Section 1.7.8** for other modeling assumptions). The traffic volumes are subject to change pending the 2009 update to the MTP. Each of these four figures contains small rectangles across each Build Alternative's main lanes and ramps indicating the tentative locations of toll gantries as of the time traffic modeling was performed (2007), and is subject to change; toll gantry locations are also depicted in **Plates 2-1** through **2-8**.

FIGURE 2-26. ESTIMATED 2030 AVERAGE WEEKDAY VOLUMES - ALTERNATIVES 2A, 2B

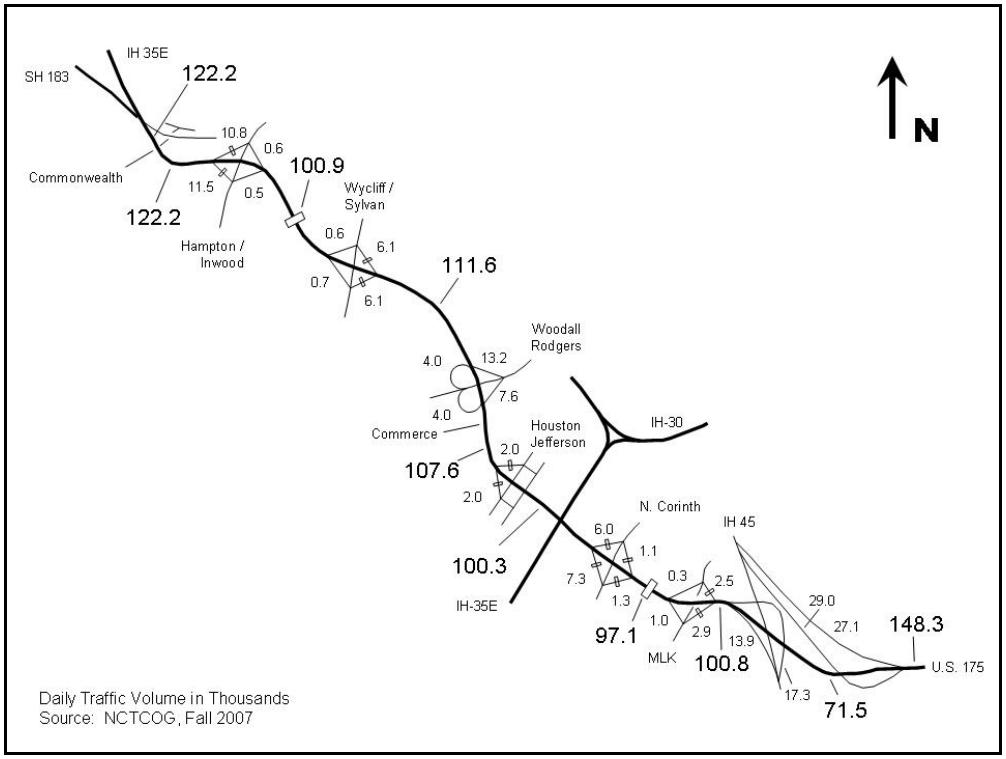


FIGURE 2-26A. ESTIMATED 2030 AVERAGE WEEKDAY VOLUMES - ALTERNATIVE 3A

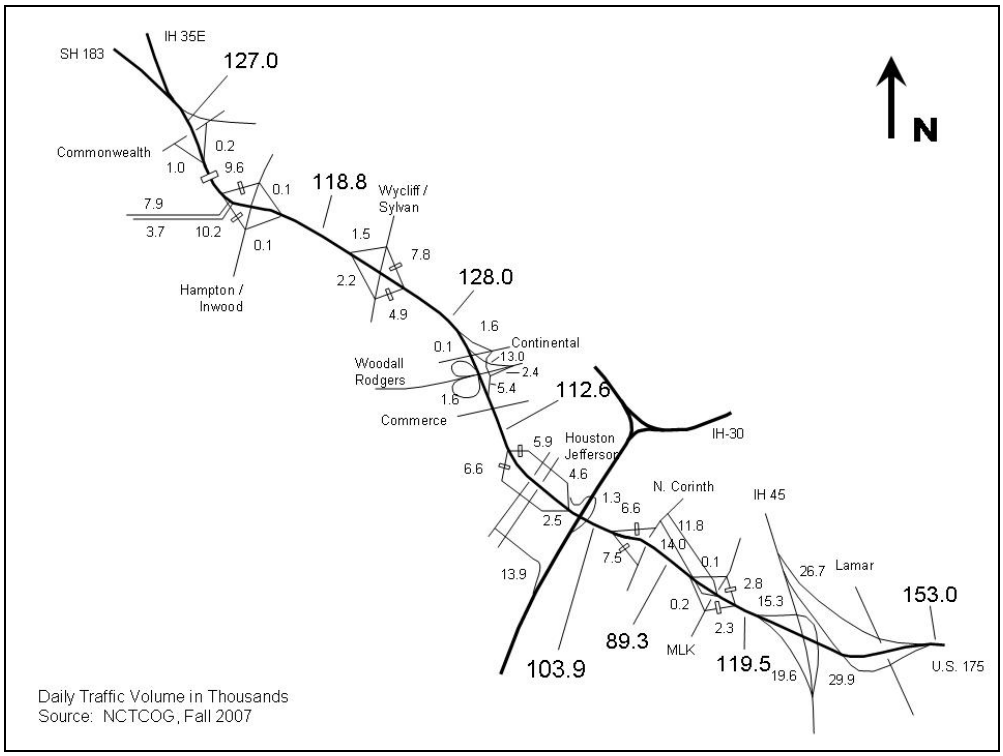


FIGURE 2-27. ESTIMATED 2030 AVERAGE WEEKDAY VOLUMES - ALTERNATIVES 4A, 4B, AND 5

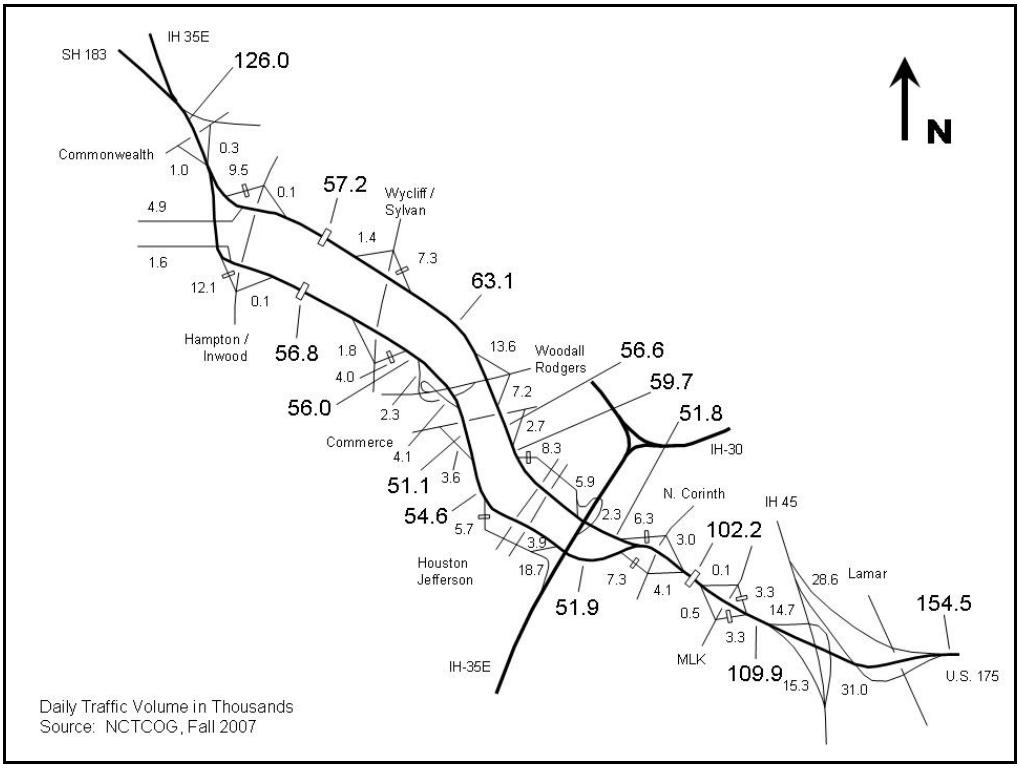
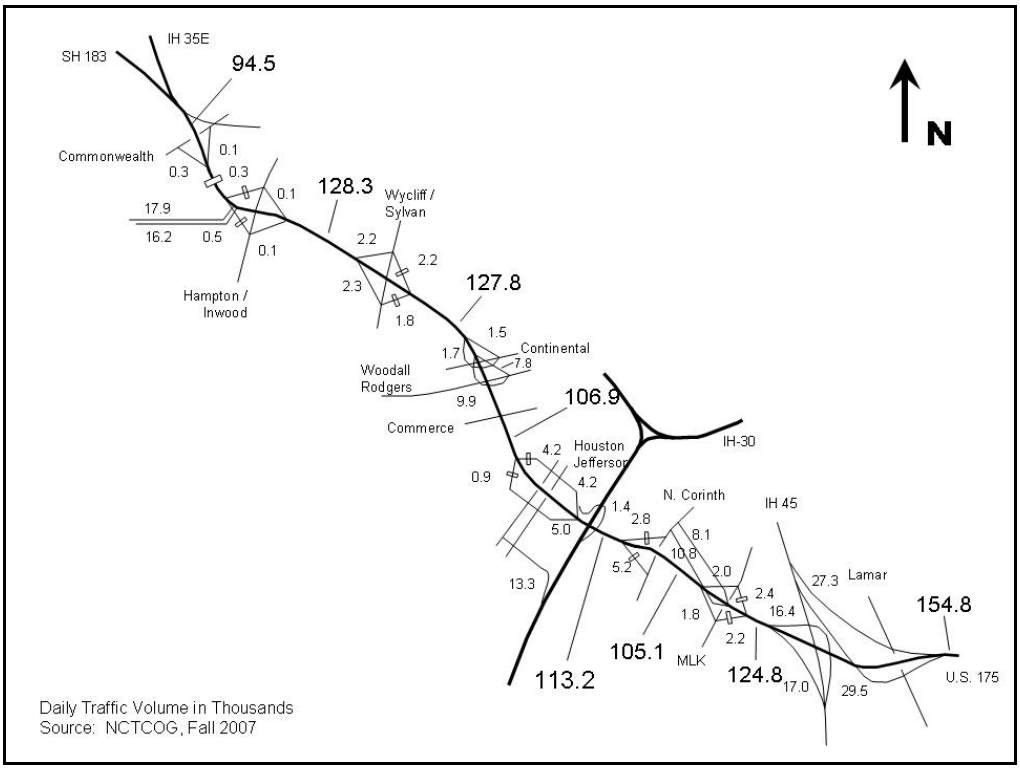


FIGURE 2-28. ESTIMATED 2030 AVERAGE WEEKDAY VOLUMES - ALTERNATIVES 3B AND 3C



Figures 2-26 through **2-28** show some differences in traffic volumes between the roadway alternatives, but these differences do not appear substantial enough to draw trends. There appear to be some localized effects due to access points and tolls, but, overall, the traffic numbers are fairly consistent between alternatives. Additional details are provided in **Section 4.4** of this SDEIS.

2.4 OTHER DESIGN CONSIDERATIONS

The following sections provide a summary of other design considerations that apply to some or all of the Trinity Parkway Build Alternatives. These considerations generally apply to the project purpose, "Provide Compatibility with Local Development Plans," stated in **Section 1.8**.

2.4.1 Access to Dallas Floodway Parks

As stated in **Section 1.11.4**, the City of Dallas has proposed an extensive development of recreational facilities and lakes in the Dallas Floodway. This proposal would be variously affected by the Build Alternatives under consideration. A detailed description of the existing and planned parks and recreational areas potentially affected by the Trinity Parkway Build Alternatives is provided in **Chapter 3 Affected Environment**. The potential impacts to parks and recreational areas resulting from the Trinity Parkway Build Alternatives are described in **Chapter 4 Environmental Consequences**. The Trinity Parkway Alternatives in the Dallas Floodway would include vehicular access ramps to the Dallas Floodway floor from cross street bridges, as well as underpasses of main lane bridges to allow pedestrian trail connections to adjacent neighborhoods. Park access points are shown for Alternatives 3A, 3B, 3C, 4A, 4B, and 5 on **Plates 2-3, 2-4, 2-5, 2-7,** and **2-8** at the end of this chapter; see also **Table 4-34** for a summary of programmed neighborhood park access points.

2.4.2 Design Speed and Park Access

The design concept adopted in the Trinity Parkway Corridor MTIS (based on a tax-supported road) was a low-speed parkway, with a design speed of 50 mph and a posted speed limit of 45 mph. The toll-supported version of the road considered in the previous DEIS and this SDEIS is proposed to have a design speed of 60 mph and a posted speed limit of 55 mph. The speeds are proposed to be raised to generate more attractive timesavings on the tollway versus the other available thoroughfares and freeways in the corridor. Timesaving is a value-added benefit of a toll facility and is a major consideration in a driver's decision to pay for a trip on a toll road. The change in speed is considered a prerequisite to consideration of this facility as a toll road.

An impact of the increase in speed on the tollway would be the removal of left exits, which were previously discussed in the MTIS as possible access routes to the Trinity Park (the MTIS discussed these exits only in relation to alternative TL-7a, which was the original version of the Split Parkway Riverside). Permanent left exits are not appropriate on a high-speed facility, and therefore they have been replaced with access points from adjacent arterial streets at several cross-street bridges in the Dallas Floodway. Typical access point locations are shown on **Plate 2-9**.

2.4.3 Federal Approval for Access to Interstate System

FHWA approval is required for any new access points to the interstate system (23 USC § 111). The NTTA will submit appropriate documentation to FHWA to request access points for interchange locations. This action is taken during the subsequent schematic design development phase after the preferred alternative has been identified.

2.4.4 Access Roads

In most areas, the Trinity Parkway would be constructed as main lanes only without access roads. Access to the main lanes would be controlled, meaning that vehicles may enter and exit the roadway only at designated on- and off-ramps. However, in certain areas the location of the roadway right-of-way may sever access to particular parcels of land, leaving no other means of property access. In these instances, access roads may be constructed to restore property access, or, otherwise, the affected property may be acquired or the affected property owner compensated. The locations of access roads for the Build Alternatives are included on the schematic plans at the end of this chapter. Access (frontage) roads would be used extensively in Alternative 2B to restore access from Irving and Industrial Boulevards. Use of access roads on the other alternatives would be limited.

2.4.5 Accommodation of Bicycle Facilities

Section 3.3.2.3 provides a listing of bicycle trails proposed in the corridor, including trails identified by the City of Dallas and/or listed in the current *2008-2011 TIP* (NCTCOG, 2007g). The corridor contains a number of proposed major trails, most of which are located off-road, on locations such as the Dallas Floodway levees, drainage sumps, and existing rail rights of way. The proposed tollroad would make allowance for suitable crossings for these bicycle facilities, under or over the roadway at appropriate crossing points. In the event that a bicycle facility is in place prior to the construction of the tollroad, the bicycle facility would be suitably reconstructed in the area of the tollroad to maintain its continuity and function.

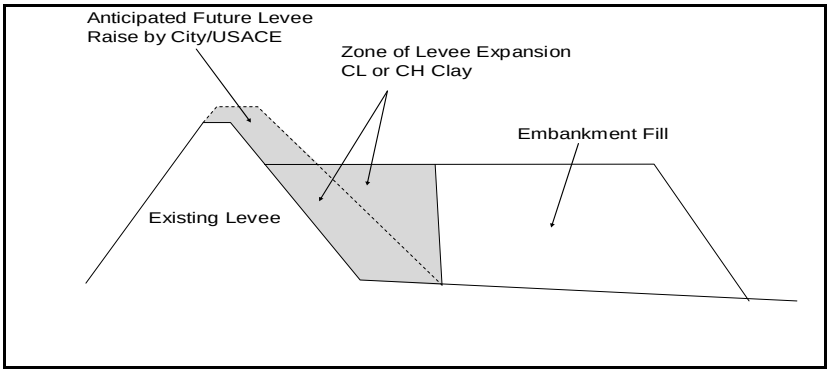
2.4.6 Trinity Parkway Construction in the Dallas Floodway

Trinity Parkway Build Alternatives 3A, 3B, 3C, 4A, 4B and 5 would be located adjacent to existing Dallas Floodway levees, and would require special treatment of embankments to maintain the integrity of the levee systems. All of the construction immediately adjacent to the levee could have an effect on the stability and function of the levees, both during construction and long term. Additionally, the Dallas Floodway alternatives would need to be carefully designed so that they do not present a hindrance to City of Dallas activities related to levee O&M, flood fighting and surveillance.

The USACE Fort Worth District, in accordance with Title 33 CFR Section 208.10, retains the right to review and approve all proposed improvements and/or modifications that are passed over, under, or through the walls, levees, improved channels, interior drainage areas, or floodways of an existing federal flood protection project constructed by the USACE, and for which local project sponsors and/or local governmental agencies have the responsibilities for operation and maintenance. The Dallas Floodway is a federal flood protection project, and is therefore subject to these provisions. USACE Pamphlet No. 1150-2-1 "Criteria for Construction within the Limits of Existing Federal Flood Protection Projects" (2003) provides guidance to individuals, developers, architect-engineering firms, local project sponsors, and local governmental agencies for the construction of new facilities or the modification of existing facilities within the limits of such projects. This pamphlet is included in full in **Appendix E**.

USACE has provided its available boring logs from its investigations of the Dallas Floodway levees, but nevertheless additional geotechnical investigations would be required if a Dallas Floodway alternative is identified as the preferred alternative. Based on available information from the USACE, it is understood the existing Dallas Floodway levees are comprised largely of impervious clay materials. USACE, within the scope of its Dallas Floodway EIS and Plan Formulation, may be considering increasing the height and expanding the width of the Dallas Floodway levees. In the segments where the Trinity Parkway is proposed to adjoin the riverside of an existing levee, the zone affected by the levee expansion (see **Figure 2-29**, below) would be constructed of select impermeable material. This material would consist of inorganic clays ranging from expanding clays (i.e., "CH" clays with high plasticity that are common to the area) to non-expanding clays (i.e., "CL" clays with low plasticity that are less common in the area). Analyses using USACE design standards and recommendations would be performed to determine the required configuration of this section. Other more permeable material could be used to build the roadway embankments outside of this zone.

FIGURE 2-29. CONCEPTUAL TYPICAL SECTION - TRINITY PARKWAY EMBANKMENTS RIVERSIDE OF EXISTING DALLAS FLOODWAY LEVEES



As stated in **Section 1.11.4**, lakes proposed by the City of Dallas in the Dallas Floodway could provide a source of roadway embankment material for Trinity Parkway Alternatives 3A, 3B, 3C, 4A, 4B and 5, all of which are located in the Dallas Floodway. Alternatives 2A and 2B, along Industrial Boulevard, could also utilize lake excavation as a fill source, but the estimated embankment volumes would be substantially less on these alternatives compared to the Dallas Floodway alternatives. Nevertheless, in the event a Build Alternative is selected and embankments are proposed to be constructed using borrow material from the lakes, there may also be negative impacts on the performance of the levees. These negative impacts may occur as a result of changes in the existing hydrogeologic regime associated with excavation and impoundment of lakes.

To avoid negative effects, subsurface investigations would be required during the design of the Project to adequately characterize existing site conditions. Further, in-depth analyses would be required to ensure that any negative impacts associated with the adopted alternatives are addressed appropriately. For instance, areas of sandy material in the Dallas Floodway floor may be exposed by the borrow operation for the Trinity Parkway embankments. Where such conditions exist, appropriate methods of cutting off under-seepage would be required to protect the integrity of the levee. Depending on the nature of the encountered conditions, appropriate methods may include cutoff walls and impervious membranes or liners in the potential borrow areas.

All investigations and design studies would be coordinated with and reviewed by USACE; and performed in accordance with the USACE design procedures, standards and recommendations. In addition to design oversight, USACE would also review and approve construction methods to ensure that the levees are not compromised either during or after construction. As a final note, the lakes proposed by the City of Dallas have not been approved by USACE. Approval of the lakes is subject to the same guidance as the proposed Trinity Parkway, namely 33 CFR 208.10 or 33 USC 408, as applicable, USACE Pamphlet No. 1150-2-1, and USACE design standards.

During 2nd Quarter 2007, NTTA consulted with USACE and FHWA in an exploratory study of the availability of suitable fill material in the Dallas Floodway. In order to characterize available material in the Dallas Floodway, NTTA collected and geospatially located a total of 407 soil borings and trenches from available geotechnical reports. The information was presented in a letter report to USACE dated May 4, 2007. The report characterized the available materials as “levee-usable”, “embankment-usable”, “unusable” and “unknown”, and developed estimated borrow volumes from proposed lakes and river meanders identified from the City of Dallas *Balanced Vision Plan*. Based on this analysis, there appears to be sufficient suitable material in the designated borrow sites to build the Trinity Parkway embankments and the proposed levee expansions.

Regarding O&M, flood fighting and surveillance, NTTA has consulted with City of Dallas, Street Services, Flood Control Division (Dallas Floodway Manager) in developing an agreed overall concept for the Trinity Parkway operations and maintenance within the Dallas Floodway. In the Dallas Floodway, the Flood Control District uses various access points from bridge crossings and other local streets to access the levee top gravel roads for O&M, flood fighting and surveillance. Access to the levee tops is currently somewhat restricted because of the 12 existing bridges, which cross the levee tops, mostly at grade. These bridges break up the levee top roads into segments, most of which are connected by gravel roads down the landside faces of the levees. A segment of the East Levee between Continental and UP Railroad is believed to be inaccessible during high floods because the connecting roads are located only on the riverside of the levee.

In the design of the Dallas Floodway alternatives (Alternatives 3A, 3B, 3C, 4A, 4B and 5), NTTA would provide undiminished access to all levee segments and floodway areas currently maintained by the Dallas Flood Control Division. The same considerations for undiminished Dallas Flood Control Division access would also apply to the construction phase of any Dallas Floodway Alternatives. The roadway construction documents would acknowledge the primacy of the flood control function, and provide the City of Dallas Flood Control District unhindered access at all times to the NTTA construction areas for operations and maintenance of the flood control function, including the right to shut down construction, in part or whole, for such period of time that the Division reasonably declares necessary to allow unhindered access for performing required operations, maintenance and repairs, as well as flood fighting activities. The sequence of the construction would also need to demonstrate no short-term or long-term negative impacts to the Flood Control Division activities, including provision of temporary roadways and similar features as needed to provide continuity of Flood Control Division access through the construction areas.

To provide mowing and maintenance of the Dallas Floodway floor, the Flood Control District currently uses gravel access roads over the levees, connecting to longitudinal maintenance roads along the

riverside toes of the levees. NTTA plans for the Dallas Floodway Alternatives 3A, 3B, 3C, 4A, 4B and 5 to include programmed ramps into the Dallas Floodway floor from several cross-street bridges. These ramps would be used to provide access to the Dallas Floodway floor for the Flood Control District in areas that would otherwise be cut off by the Trinity Parkway. Additionally, NTTA would replace and reconnect the longitudinal maintenance roads in segments affected by the Trinity Parkway embankments.

2.4.7 Pump Stations in the Dallas Floodway

Alternatives 3A, 3B, 3C, 4A, and 4B are proposed to be located within the Dallas Floodway on a raised embankment, riverside of the existing levees. As described in **Sections 2.3.5, 2.3.6,** and **2.3.7**, these roads would be depressed under existing bridges. In several of the depressed segments, the road surface must be lowered below the Trinity River 100-year flood level. To prevent inundation of the road, floodwalls and pump stations are proposed to be added to maintain 100-year flood protection.

The locations of the proposed floodwalls are shown in **Plates 2-3(A-D), 2-4(A-D), 2-5(A-C), 2-7(A-C),** and **2-8(A-C)**. The floodwalls appear as brown shading on the profiles of Alternatives 3A, 3B, 3C, 4A, and 4B. The walls would be set with their top elevations two feet above the computed 100-year water surface, providing a level of flood protection commensurate with NTTA and TxDOT standards for highway/tollway main lanes. The walls would be structurally designed to resist water pressure from the riverside or landside without toppling, and water stops in the wall joints would minimize leakage during flood events. In the event of overtopping by a flood in excess of a 100-year event, the walls would be designed to allow a managed inflow of water, suitably protected from erosion and other hazards of the inflow. Appropriate design measures to mitigate the effects of overtopping of the wall sections would be coordinated with USACE Fort Worth District and designed using USACE design standards in order to minimize impacts on the flood control project.

The design of the floodwalls would be guided by USACE publications EM 1110-2-2502, “Engineering and Design - *Retaining and Flood Walls*,” (1989) and EM 1110-2-2102, “Engineering and Design - *Waterstops and Other Preformed Joint Materials for Civil Works Structures*” (1995a). See also, **Section 2.4.9** regarding the emergency response plan in the event of overtopping of floodwalls within the Dallas Floodway.

In the general area of the sag points of the depressed segments, pump stations would be provided to drain out the sags. These pump stations would be sized to discharge stormwater under all normal operating conditions on the roadway. Additionally, the pumps would be submersible and their motor control centers suitably protected so that the pumps would remain operable, even in the event the 100-year flood was exceeded and the depressed segments flooded. After such an event, once the river has

suitably receded, the pumps could be restarted to completely drain the depressed segments. **Plate 2-12** at the end of this chapter provides a conceptual layout of a pump station. It is expected that pump stations would be installed in recesses along the shoulder of the roadway, so maintenance vehicles could park over the tops of pump stations without interfering with traffic on the main lanes.

2.4.8 Facility Operations and Maintenance in the Dallas Floodway

Alternatives 3A, 3B, 3C, 4A, 4B, and 5 each would have approximately 6.2 miles or approximately 70 percent of their total lengths located within the Dallas Floodway or on land owned by the City of Dallas. On a typical tollroad, NTTA acquires or otherwise takes control of the right-of-way needed for the facility, and thereafter takes sole responsibility for operations and maintenance. Within the Dallas Floodway, NTTA would not acquire ownership but would require access rights. Additionally, there would need to be a division of responsibilities for operations and maintenance between the NTTA and the City of Dallas, meeting the needs of the roadway and the ongoing need for flood protection.

In the event of selection of one of the Trinity Parkway alternatives within the Dallas Floodway, a Memorandum of Understanding (MOU) between NTTA and the City of Dallas is proposed to be drafted to establish the rights and responsibilities of NTTA in its use of City of Dallas Floodway land. It is proposed that the NTTA would be given day-to-day responsibility for a strip of land along the roadway corridor, encompassing the pavement, the shoulders, traffic barriers, drainage facilities, and other facilities needed to support the operation of the road. In general, this would cover the area from approximately 30 feet off the edge of the outer lanes on the levee side of Alternatives 3A, 3B, 3C, 4A, 4B and 5, to the fence lines along the traffic barriers on the river side of Alternatives 3A, 3B, 3C, 4A and 4B and sump-sides of Alternative 5 (see **Plate 2-13**). Conceptually, NTTA would take day-to-day responsibility for operations and maintenance within this area, and the City of Dallas would take responsibility outside of this area. The agreed area of NTTA responsibility would be added to the schematic design for the ultimately-preferred alternative for the roadway. Notwithstanding this arrangement, the MOU would acknowledge the primacy of the flood control function, and, therefore, it would provide the City of Dallas Flood Control District unhindered access at all times to the NTTA-maintained land for operations and maintenance of the flood control function. Further, the MOU would include a provision that the Flood Control District has the right to shut the road down, in part or whole, for such period of time that the District reasonably declares necessary to allow unhindered access for performing required operations, maintenance and repairs, as well as flood fighting activities.

The City of Dallas currently mows the Dallas Floodway several times per year to maintain flood conveyance. The MOU would establish NTTA responsibility for at least equal mowing along the roadway corridor.

As discussed 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. The volume of excavation would vary between alternatives, with the Industrial Boulevard Alternatives (2A and 2B) requiring relatively little borrow compared to the Floodway alternatives (3A, 3B, 3C, 4A, 4B and 5). To the extent proposed BVP sites are used to produce borrow material for the Parkway, these are assumed to be left as "dry" excavations at the conclusion of the Parkway construction. The excavated features would be graded to drain towards the Trinity River pilot channel, which is approximately ten (10) feet lower than the excavated bottoms. Thus, the features would appear as benches in the riverbanks. River floods would inundate the excavated areas from time to time, but the water would rise and recede and the areas would dry out. The excavated features included in the Parkway Project would include suitable grading, grassing and other features designed to allow them to function indefinitely in the event the independent BVP project is postponed or cancelled by the City.

In the time period between the end of Parkway construction and start-up of BVP lake construction, there would be a maintenance responsibility for the excavated areas in the Floodway. Since these areas are already under city maintenance responsibility, the city would continue to maintain and mow the excavated features upon completion of Trinity Parkway construction. In the event intermittent flooding causes substantial sedimentation of these features, it is anticipated that the City Flood Control District (FCD) would remove such sediment and reestablish grass cover as necessary. Additional discussion is presented in **Section 6.5**.

2.4.9 Emergency Action Plan in the Dallas Floodway

Alternatives 3A, 3B, 3C, 4A, and 4B would each have approximately 6.2 miles or approximately 70 percent of their total lengths located on a raised embankment riverside of the levees within the Dallas Floodway. Within the Dallas Floodway, the road surface would typically be set above the 100-year water surface elevation. As described in **Section 2.4.7**, in segments where the road would be depressed below the 100-year level, floodwalls, and pump stations would be added to maintain 100-year flood protection. The 100-year flood protection standard is commensurate with the designs of other roadways on the NTTA system and meets or exceeds FHWA design standards. Nevertheless, because of the sensitive Dallas Floodway location, a specific Emergency Action Plan, for the period during construction as well as during normal operations of the constructed parkway, is proposed for Trinity Parkway if Alternative 3A, 3B, 3C, 4A, or 4B is selected. This emergency Action Plan must be reviewed and approved by the City of Dallas, North Texas Tollway Authority, Texas Department of Transportation, Federal Highway Administration,

and U.S. Army Corps of Engineers prior to final approval of construction by the US Army Corps of Engineers.

The Emergency Action Plan would establish procedures to evaluate and react to hazardous flooding events, both as the event is being forecast and as the event occurs. The Plan would be implemented based on river flood stage data. The NTTA Director of Maintenance would be responsible for management and implementation of the Plan with respect to the roadway. Nevertheless, the Division Manager of the City of Dallas Street Services, Flood Control Division would be consulted before and during any implementation, and would be given primary authority with respect to actions during flood events. Further, as stated in **Section 2.4.8**, the MOU would include a provision that the Flood Control Division has the right to shut the road down, in part or whole, for such period of time that the District reasonably declares necessary to allow unhindered access for flood fighting activities.

The Trinity Parkway Emergency Action Plan would identify a sequence of actions to be taken prior to, during, and after a major flood event. The role of the NTTA would be defined, along with the roles of Federal, state and local agencies. It would be anticipated that NTTA staff and on-site Texas Department of Public Safety staff would take roles in implementing the Plan. Public safety and protection of property would be the primary goal of the Emergency Action Plan, and accordingly, the Plan would include steps for closure and evacuation of the roadway in the event of expected inundation. The Plan would include a detailed schedule for implementation, annual reviews, and updates. The Plan would include maintenance and repair actions in the event of overtopping of the depressed segments of the roadway or other damage to the roads.

2.5 TOLLROAD IMPLEMENTATION ISSUES

The following sections describe issues associated with the proposal to fund the proposed Trinity Parkway as a toll road. It should be noted that the financial plan for the facility has not been developed in final detail at this time. The exact contribution of revenue bonds to the total cost of the project would be developed at a future date, after, among other things, the preferred alternative is identified, and an anticipated ROD is issued by the FHWA. The bond contribution would also be based on an Investment Grade Traffic Study, as well as the advice of bond counsel and other professionals retained by the NTTA in regard to raising funds by a public offering.

2.5.1 Toll Road Justification

Because of TxDOT funding constraints, the proposed action is being considered for implementation as a limited-access toll facility with NTTA as the local sponsor. Implementing this operational concept would

provide a needed funding mechanism and would accelerate the project schedule. This would allow the project to satisfy the need and purpose (see **Chapter 1 Need and Purpose for Proposed Action**) much sooner than if implemented as a TxDOT project. Further, a portion of the revenues from tolls would be used to provide full maintenance and operation of the roadway, freeing TxDOT from this on-going funding obligation. However, to construct the proposed action as a toll facility, the original design concept adopted from the Trinity Parkway Corridor MTIS would require modification. The MTIS recognized and provided for the toll option as an unresolved issue that might require changes to the Trinity Parkway.

Pursuant to 23 CFR Section 450.318(g), an MIS "may lead to decisions that modify the project design concept and scope assumed in the plan development process. In this case, the study shall lead to the specification of a project's design concept and scope in sufficient detail to meet the requirements of the U.S. EPA conformity regulations" (40 CFR § 51).

The toll road designation for the Trinity Parkway is made for funding purposes. Developing a highway as a toll road can save both time and money. The use of toll-financed revenue bonds - which are sold to private investors at competitive interest rates - would allow a project to be funded much more quickly than one that has to compete for limited tax dollars. Substantial cost savings can also be achieved by avoiding the inflationary effect resulting from years of deferred completion.

Recent experience in the DFW region demonstrates the advantages of a toll road financing approach versus conventional funding. An example is the conversion of SH-190 in suburban north Dallas to the President George Bush Turnpike. By 1995, TxDOT had estimated that 31 years and a total of $317 million had been invested in the development of SH-190. TxDOT estimated it would still need an additional $397 million to complete the project and that it would likely be the year 2015 before SH-190 could be completed using conventional funding methods. By turning the project over to the TTA (predecessor to NTTA), TxDOT estimated that the full highway would be built by 2003 at a cost savings to the state of $292 million. This decision was taken in the context of funding shortfalls, which are still affecting the ability of TxDOT statewide to proceed with needed projects and to operate and maintain existing facilities. For instance, at the time of the SH-190 decision, the TxDOT Dallas District Office was facing a $9.4 billion revenue deficiency for transportation projects included in their *Mobility 2010* program (NCTCOG, 1990).

The Regional Transportation Council (RTC), City of Dallas, Dallas County, and Dallas Regional Mobility Coalition (DRMC) have endorsed the development of the Trinity Parkway as a toll road. This decision is intended to fulfill the project's need and purpose within the shortest possible time, and to provide an income stream to help fund initial construction and long-term operation and maintenance costs. The imposition of tolls may result in less daily traffic on the Trinity Parkway compared to a "toll-free" (tax-

supported) highway. As a result, other corridor roadways may experience slightly higher daily traffic volumes than if the project were to be non-tolled. However, toll roads in urban areas are expected to perform well in peak traffic periods, when they can provide a faster and more cost-effective route for congested commuter traffic. This would tend to make the peak period traffic volumes on Trinity Parkway more comparable to a non-toll alternative. Since the peak periods are the most critical times for performance of the regional transportation system and since congestion in these periods is a major factor in air quality issues, the overall performance of the toll road option is judged to be comparable to a non-toll option, and the toll option therefore meets the stated need and purpose of the project. More information concerning potential traffic impacts of the Trinity Parkway alternatives are presented in **Section 4.4 Transportation Impacts** of this SDEIS. More information regarding the Preliminary Financial Feasibility (toll) Analysis done for this project can be found in **Section 6.2 Cost Sharing** of this SDEIS. Information about future financial analysis to be done for this project can be found in **Section 6.7 Future Traffic and Revenue Analysis**.

2.5.2 Toll Collection Facilities

Another aspect of the toll road designation is the requirement to incorporate toll collection facilities into the right-of-way. The purpose of these facilities is to provide a means of collecting tolls to support financially the construction, operation, and maintenance of the toll road. Various methods of toll collection have been considered for the Trinity Parkway. The NTTA Board has recently directed (August 2007) that future facilities, including the proposed Trinity Parkway, implement electronic toll collection (ETC) to promote operational safety and efficiency. This means cash would not be accepted while driving on the Trinity Parkway. ETC gantries are designed to be safe and convenient for the motorist and consist of little more than a structural frame over the roadway lanes.

The ETC system relies primarily on AVI technology. In Texas, most of the AVI applications to date are based on installation of Radio Frequency Identification (RFID) tags inside vehicles, such as the TollTag® used by NTTA, TxTag® used by TxDOT and EZ TAG® used by the Harris County Toll Road Authority (HCTRA). All of the Texas tags are interoperable, meaning a Texas driver need only maintain one tag to use all of the Texas agency toll roads. With an ETC system, motorists pass through electronic readers, without stopping, and are automatically assessed a toll charge. Recent advances have allowed AVI systems to accommodate non-tagged vehicles, through use of Automatic License Plate Recognition (ALPR). For ALPR applications, license plates are photographed and scanned by computers. The registered vehicle owners are then sent a monthly billing statement based on activity, with an additional fee included for billing and handling. This “video billing” program allows motorists to travel the tolled lanes without needing a transponder and without needing to stop and pay. NTTA recently installed this system (branded as “Zip Cash”) during the Main Lane Plaza reconstruction at the southern end of Dallas

North Tollway. TxDOT and HCTRA have used RFID tags supplemented with ALPR to create ETC tollroads, where there are no change booths. Westpark Tollway in Houston, SH 130 in Austin and SH 121 in Denton County are examples of ETC tollroads.

Figure 2-30 is a drawing of an ETC multiple-lane main toll gantry. This is typically unattended. The small building at the bottom of the drawing would house electronic equipment. The drawings and typical layouts are shown for conceptual purposes only. The actual design of the toll collection facilities may differ from that depicted and would be subject to engineering and other considerations at the actual site.

FIGURE 2-30. TYPICAL LAYOUT - ETC MULTIPLE-LANE MAIN TOLL GANTRY

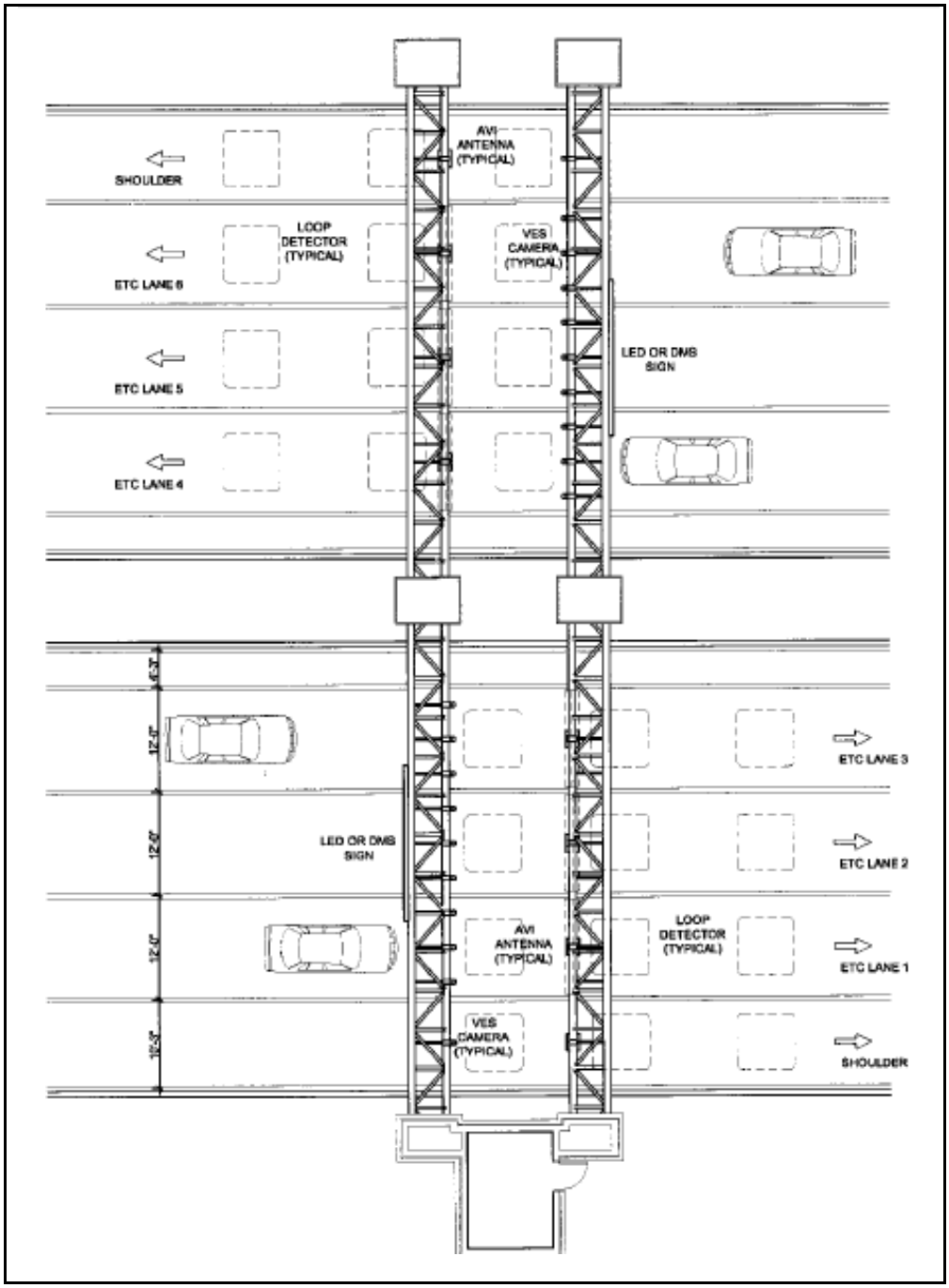
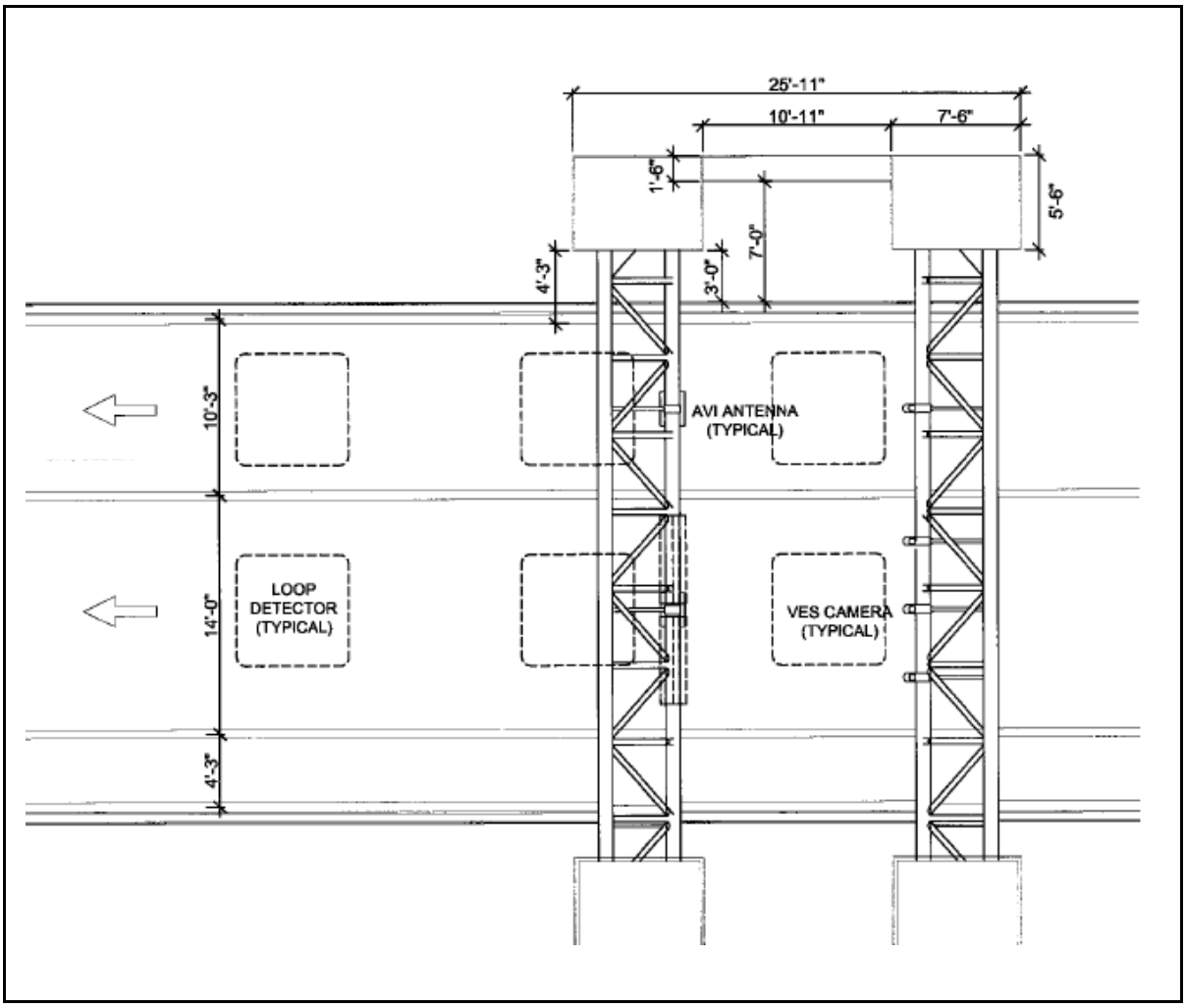


Figure 2-31 is a drawing of an ETC ramp toll gantry. This is typically unattended.

FIGURE 2-31. TYPICAL LAYOUT - ETC RAMP TOLL GANTRY



The NTTA has identified tentative locations of proposed toll gantries for the Trinity Parkway Build Alternatives. These locations - shown on **Plates 2-1A, B** through **2-8A, B** at the end of this chapter - are preliminary and subject to change. It is notable that the most southern mainlane toll gantry 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. Vehicles on the mainlanes would be assessed a toll at the gantry located north of IH-45. The FEIS will provide more detailed information about the type and location of toll gantries for the preferred alternative.

In addition, it should be noted that NTTA strives to incorporate the principles of context-sensitive solutions (CSS) in their toll facilities (see **Chapter 7 Mitigation Measures and Commitments** for additional details concerning CSS). Using this approach, architectural treatments for toll facilities are varied (within

budgetary constraints) to provide designs appropriate to the physical setting and neighboring features. NTTA also published in fall 2003, its *System-wide Design Guidelines* manual, showing enhanced architectural, signage, and landscaping standards which would apply to the proposed Trinity Parkway.

Methods of Toll Collection and Payment

NTTA would offer two methods to obtain an active toll tag account (NTTA TollTag® "credit user" and "cash user" accounts) and a method that would allow motorists without an active toll account to accrue electronic toll charges in the form of mailed monthly statements (NTTAs ZipCash®). For those who maintain an active toll account, the Dallas area TollTag®, TxTag® stickers, and the Houston area EZ TAG® would be accepted on the proposed Trinity Parkway facility. As further described below, cash payment options would be available for each payment method; however, users who maintain prepaid accounts would benefit from reduced toll rates. Toll rates would be approximately one-third higher for drivers who do not have an electronic toll transponder to offset administrative costs related to processing the license plate information associated with ZipCash®.

With a TollTag® prepaid "credit user" account, the driver would pay an installment fee through a credit or debit card. The account would then be established with a credit, which would be reduced each time the transponder passes through an operating toll gantry. When the driver's account reaches a minimum required balance, the "credit user's" credit or debit card would again be charged a standard fee to automatically increase the available balance. Should the "credit user" lose or fail to surrender the TollTag® when the account is closed, the credit or debit card would be charged $25 to cover the cost of the transponder. For those who choose to maintain a prepaid "cash user" account, an initial deposit of $25 would be required for the toll transponder as well as a minimum payment to establish the account. The deposit would be refunded without interest if the user returns the transponder in good condition or if the "cash user" account is converted into a "credit user" account. The prepaid "cash user" account would require the driver to maintain sufficient funds in the account to cover incurred toll charges. Toll rates would be the same as "credit user" account toll rates.

The TollTag® may only be displayed in the vehicle specifically assigned to that TollTag®. Regardless of the user type, TollTag® accounts may be monitored free of charge via the internet. Should the user request a monthly invoice, a $1.50 charge would be incurred each month. TollTag® account payments may be made by cash, check, money order, or credit card. TollTag® "cash user" accounts may be established and payments may be submitted in person at the NTTA Customer Service Center (5900 West Plano Parkway, Suite 200, Plano, TX 75093) or at the NTTA TollTag® Store (12300 Inwood Road, Suite 110, Dallas, TX 75244). Both locations provide a night drop for after-hours convenience. In addition, the NTTA would also offer the convenience of making a payment by phone with a credit card.

ZipCash® is a “drive through now, pay later” initiative provided by the NTTA for those without a TollTag® account. Customers without a toll transponder account who travel through the gantry would have a photograph taken of their license plate. When the toll fee associated with the license plate has reached a designated level, NTTA would send a bill to the address associated with that license plate. The customer would have 30 days to pay the “first notice.” The rate on the “first notice” would be the normal cash rate, which is approximately 30 percent more than the rate for TollTag® users. If there is no response from the customer, the customer would be offered an opportunity to pay the cash rate and an invoice fee to offset the cost of the processing. The customer would then be allowed 15 days to provide payment. If the balance is not resolved, then a violation notice would be issued. An administrative fee plus the original toll fee would be included as a deterrent and to cover the expenses incurred in the process. In this scenario, where no payment is made within the first 45 days after use of the facility, a toll rate of 21 cents per mile plus $25 per gantry utilized would be charged to ZipCash® customers. The customer would have 30 days to pay the violation notice. If the violation notice is not resolved, the NTTA may forward the unpaid transaction for the issuance of a citation for failure to pay the toll. Additional discussion of methods of toll collection and payment under the ETC system, including information regarding toll rate differences, deposits for toll transponders, account installment fees, and availability of cash payment options, is presented in Subsection 7 of **Section 4.3.3.2**.

2.5.3 Toll Agreement Requirement

Pursuant to 23 USC Section 129(a)(3), if federal-aid highway funds are used for construction of, or improvements to, a toll facility or the approach to a toll facility, or if a state plans to reconstruct and convert a free highway, bridge, or tunnel previously constructed with federal-aid highway funds to a toll facility, a toll agreement would be required. The toll agreement would be executed between the FHWA, State Department of Transportation, and the toll authority.

The toll agreement must require that all toll revenues are first used for any of the following: debt service, reasonable return on private investment, and operation and maintenance, including reconstructing, resurfacing, restoring, and rehabilitating work. The toll agreement may also contain a provision regarding the use of any toll revenues not needed for the uses mentioned above.

Decisions regarding the amount of tolls charged are made by the toll authority under state law.

2.5.4 Staged Construction

As stated in **Section 1.1 Project Description (Chapter 1)**, the Trinity Parkway is currently proposed to be constructed in stages, with fewer main lanes initially than the ultimate six lane facility. The staging

strategy anticipates initial construction of six main lanes from the northern terminus at IH-35E/SH-183 southeast to Continental Avenue/Woodall Rodgers, four main lanes from Woodall Rodgers to IH-45, and six lanes from IH-45 to the southern terminus at US-175/SH-310 to be open in 2014. Staging the construction is expected to allow NTTA to reduce the initial cost of the roadway below the total costs shown in **Table 2-7**. The staging would allow NTTA to better match the initial cost and scope of the facility to the traffic demand expected in the early years of operation. **Plates 2-14** and **2-15** at the end of this chapter show examples of the proposed staged construction applied to two Build Alternatives (Alternatives 2B and 3B). The staging strategy shown would be expected to apply in a similar manner to all the other Build Alternatives.

The ultimate configuration of the Trinity Parkway is six main lanes throughout (plus auxiliary lanes between major cross streets and interchanges) as shown on **Plates 2-1** through **2-8**. The proposed facility would be constructed with sufficient space available within the center median to add two lanes in the southern segment without additional right-of-way requirements. As traffic demand and conditions warrant, and subject to funding availability and other agency considerations, the additional two lanes in the southern segment would be constructed as allowed by the MTP and federally approved TIP and required NEPA documentation and approval. The ultimate six lane facility is proposed to be completed by 2025.

Actual construction of the project may also be accomplished in sections, meaning that specific roadway segments may be completed and opened to traffic prior to the completion and opening of the entire length of the facility.

[END OF CHAPTER 2 EXCEPT FOR PLATES]

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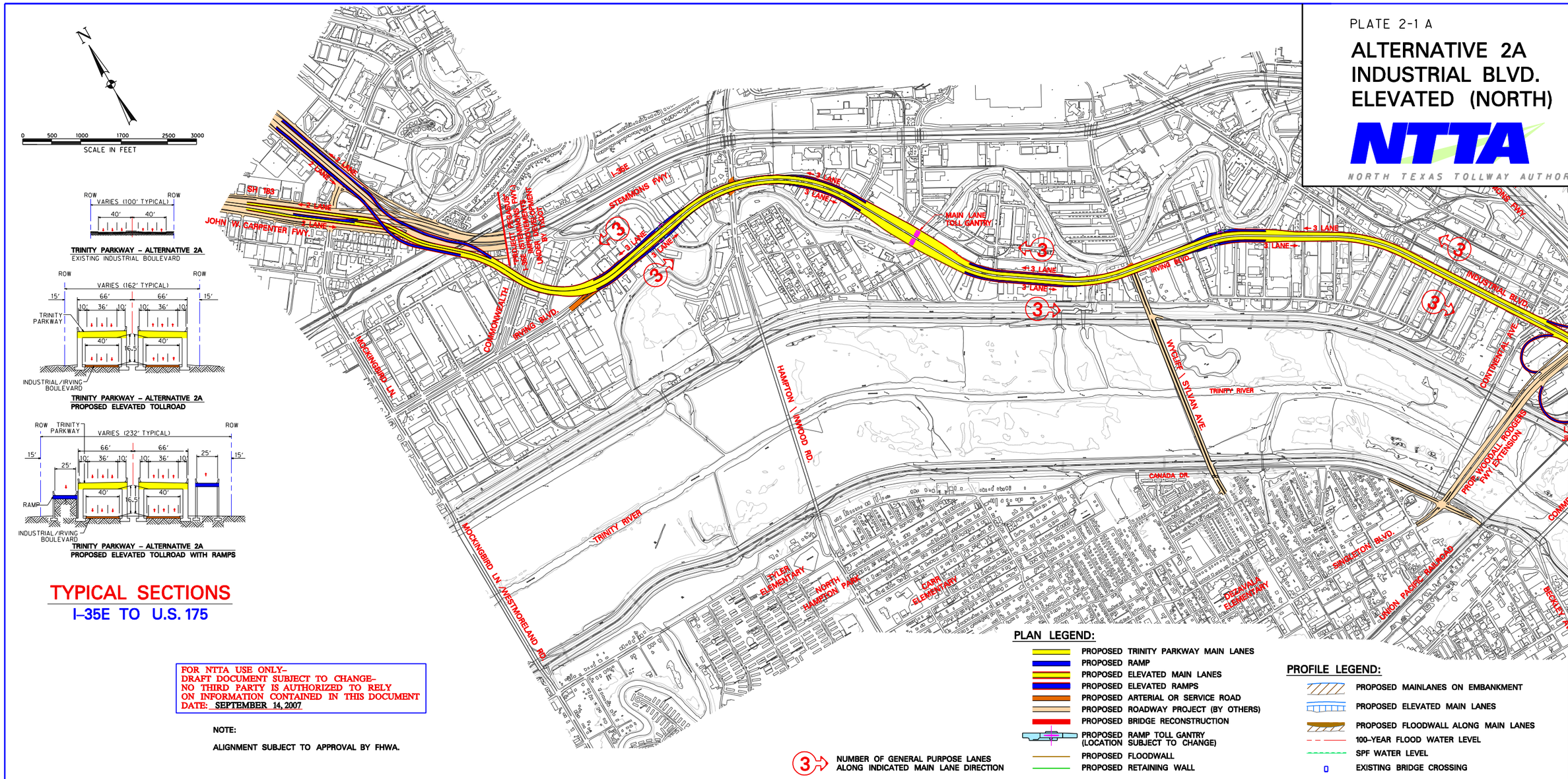
826-PP2A-N.DGN

PLATE 2-1 A

ALTERNATIVE 2A INDUSTRIAL BLVD. ELEVATED (NORTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



TYPICAL SECTIONS

I–35E TO U.S. 175

FOR NTTA USE ONLY–
DRAFT DOCUMENT SUBJECT TO CHANGE–
NO THIRD PARTY IS AUTHORIZED TO RELY
ON INFORMATION CONTAINED IN THIS DOCUMENT
DATE: SEPTEMBER 14, 2007

NOTE:

ALIGNMENT SUBJECT TO APPROVAL BY FHWA.

PLAN LEGEND:

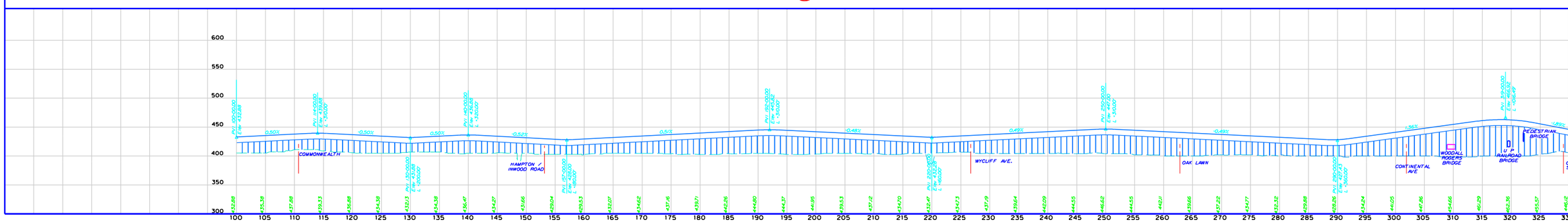
- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL

3 NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100–YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

MATCH LINE



V7 826-PP2A-5.DGN

PLATE 2-1 B

ALTERNATIVE 2A INDUSTRIAL BLVD. ELEVATED (SOUTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

PLAN LEGEND:

- (3) NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION
- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL

PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

FOR NTTA USE ONLY–
DRAFT DOCUMENT SUBJECT TO CHANGE–
NO THIRD PARTY IS AUTHORIZED TO RELY
ON INFORMATION CONTAINED IN THIS DOCUMENT
DATE: March 3, 2008

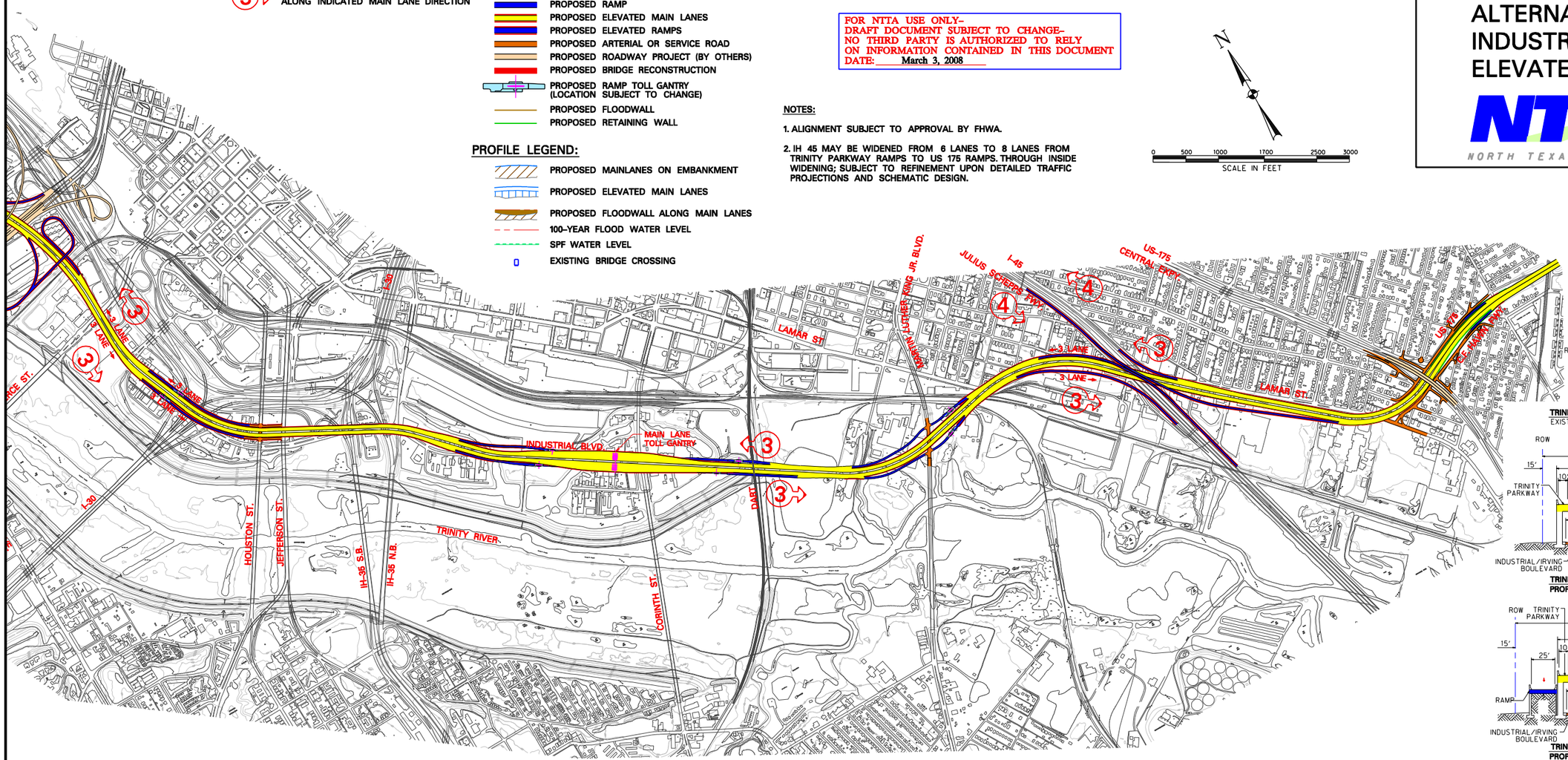
NOTES:

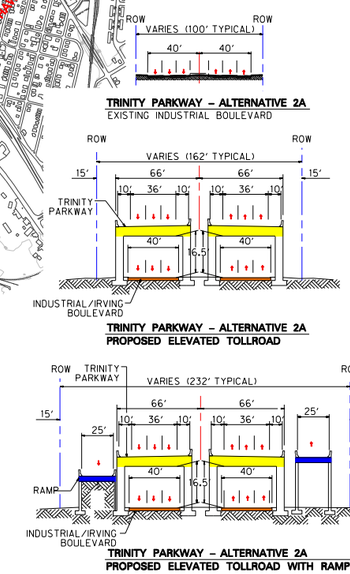
1. ALIGNMENT SUBJECT TO APPROVAL BY FHWA.
2. IH 45 MAY BE WIDENED FROM 6 LANES TO 8 LANES FROM TRINITY PARKWAY RAMPS TO US 175 RAMPS. THROUGH INSIDE WIDENING; SUBJECT TO REFINEMENT UPON DETAILED TRAFFIC PROJECTIONS AND SCHEMATIC DESIGN.

N

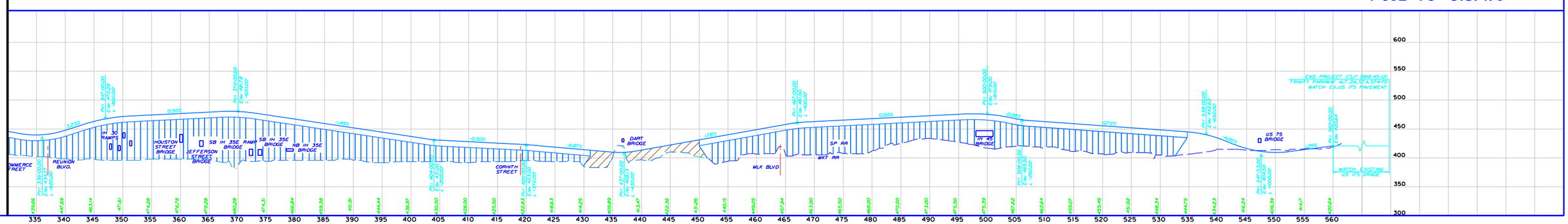
0 500 1000 1700 2500 3000
SCALE IN FEET

MATCH LINE





TYPICAL SECTIONS
I–35E TO U.S. 175

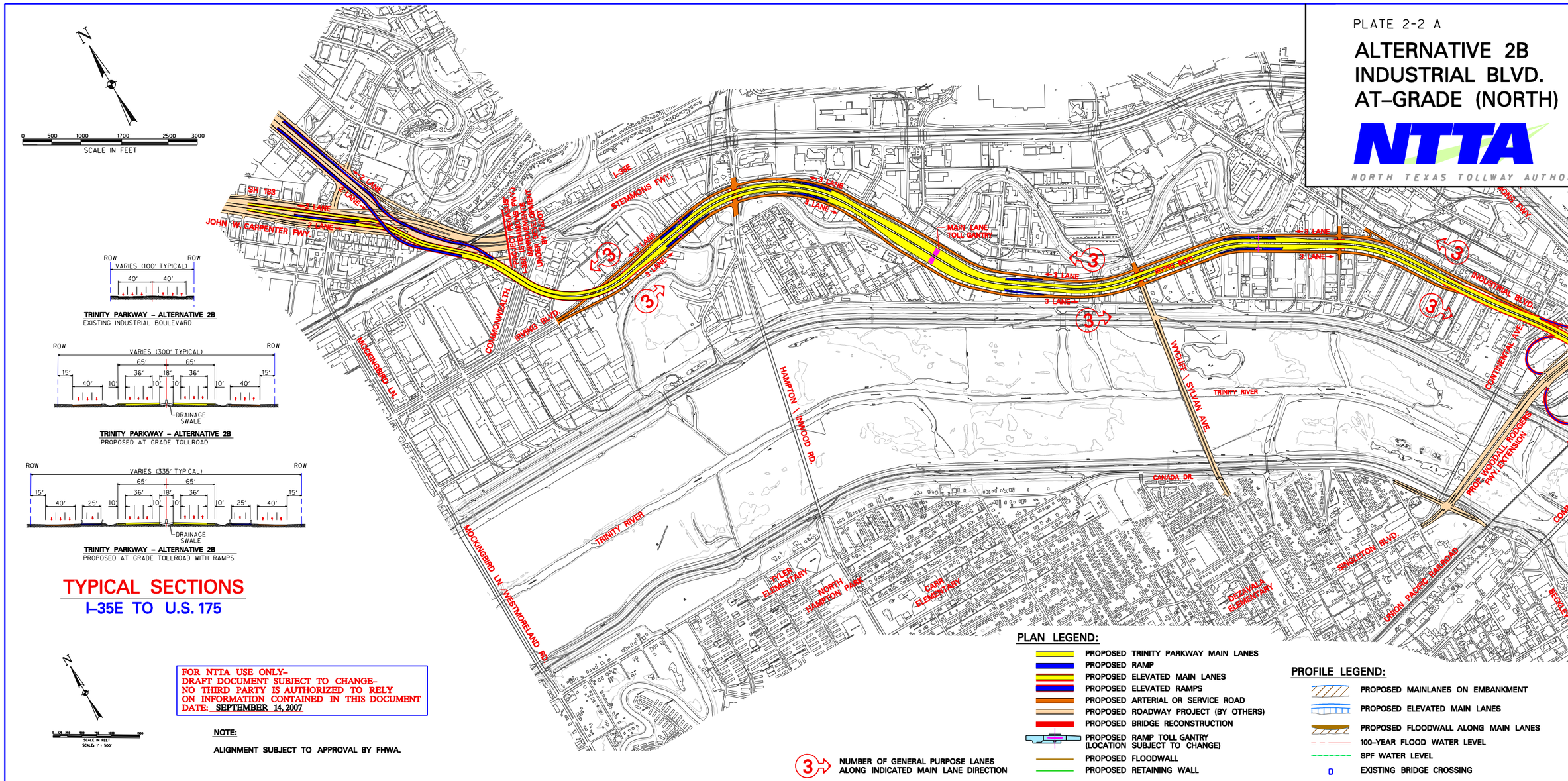


826-PP2B-NLDGN

PLATE 2-2 A

ALTERNATIVE 2B INDUSTRIAL BLVD. AT–GRADE (NORTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



TRINITY PARKWAY – ALTERNATIVE 2B
EXISTING INDUSTRIAL BOULEVARD

TRINITY PARKWAY – ALTERNATIVE 2B
PROPOSED AT GRADE TOLLROAD

TRINITY PARKWAY – ALTERNATIVE 2B
PROPOSED AT GRADE TOLLROAD WITH RAMPS

TYPICAL SECTIONS

I–35E TO U.S. 175

N

SCALE IN FEET
SCALE: 1" = 500'

FOR NTTA USE ONLY–
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NO THIRD PARTY IS AUTHORIZED TO RELY
ON INFORMATION CONTAINED IN THIS DOCUMENT
DATE: SEPTEMBER 14, 2007

NOTE:

ALIGNMENT SUBJECT TO APPROVAL BY FHWA.

PLAN LEGEND:

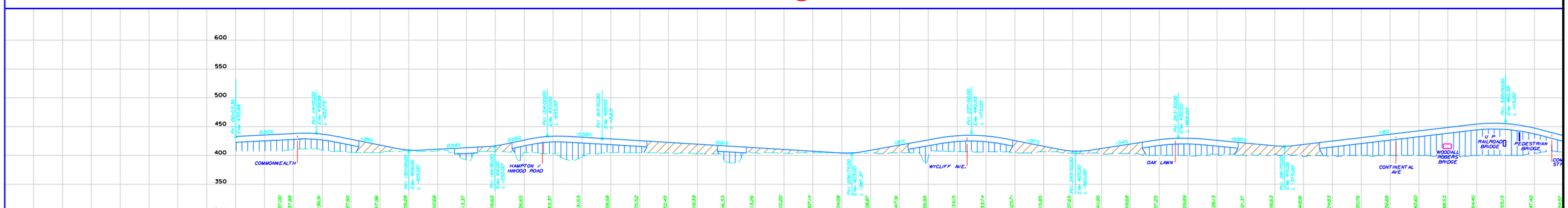
- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL

3 NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100–YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

MATCH LINE



V7 826-PP2B-5.DGN

PLATE 2-2 B

ALTERNATIVE 2B INDUSTRIAL BLVD. AT-GRADE (SOUTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

MATCH LINE

PLAN LEGEND:

- NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION
- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL

PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

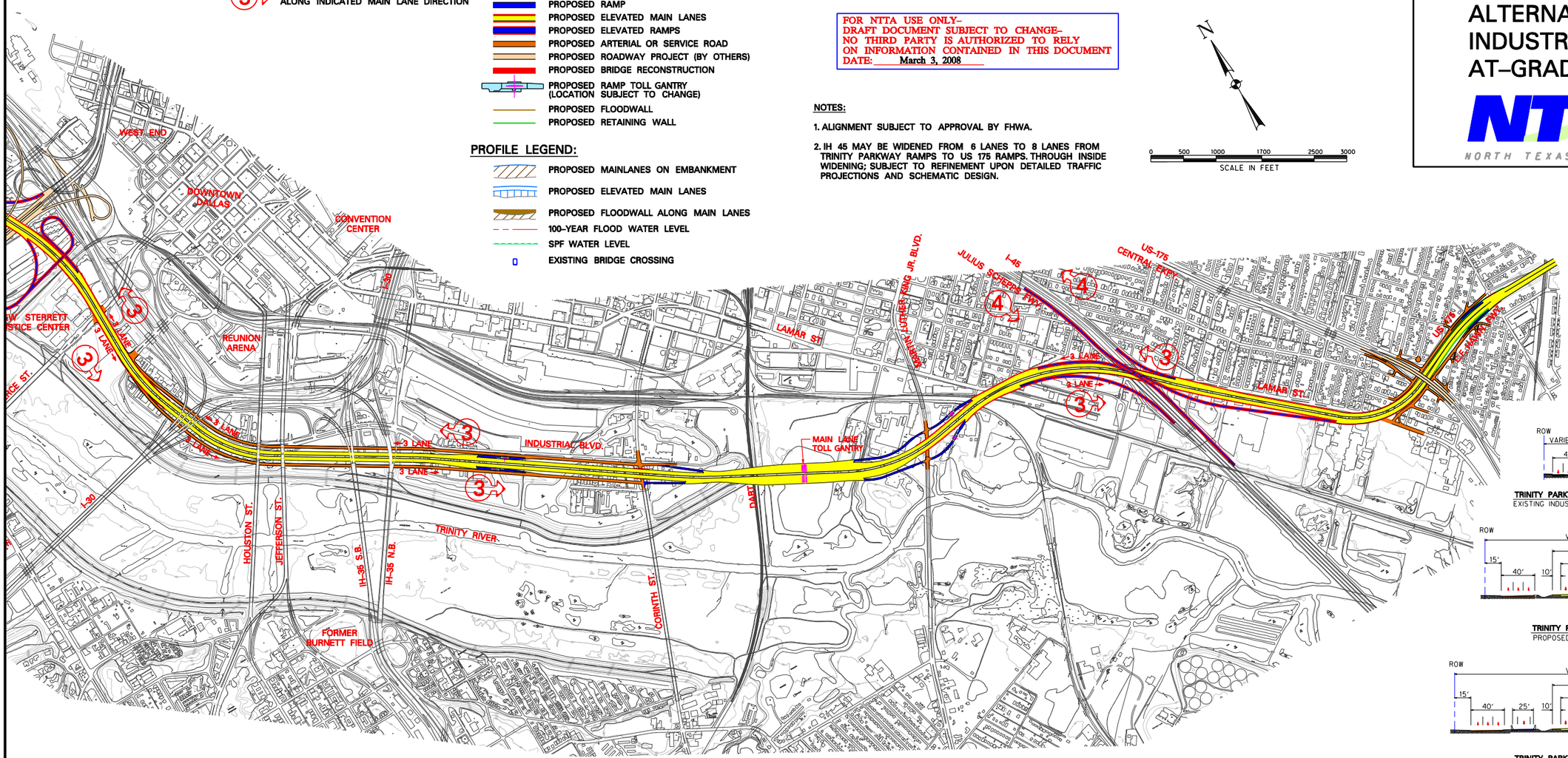
FOR NTTA USE ONLY–
DRAFT DOCUMENT SUBJECT TO CHANGE–
NO THIRD PARTY IS AUTHORIZED TO RELY
ON INFORMATION CONTAINED IN THIS DOCUMENT
DATE: March 3, 2008

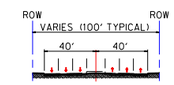
NOTES:

1. ALIGNMENT SUBJECT TO APPROVAL BY FHWA.
2. IH 45 MAY BE WIDENED FROM 6 LANES TO 8 LANES FROM TRINITY PARKWAY RAMPS TO US 175 RAMPS. THROUGH INSIDE WIDENING; SUBJECT TO REFINEMENT UPON DETAILED TRAFFIC PROJECTIONS AND SCHEMATIC DESIGN.

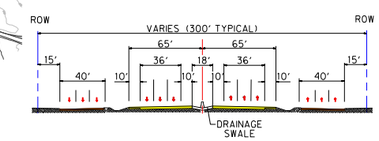
N

0 500 1000 1700 2500 3000
SCALE IN FEET

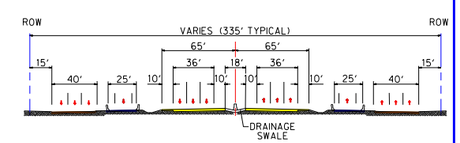




TRINITY PARKWAY – ALTERNATIVE 2B
EXISTING INDUSTRIAL BOULEVARD



TRINITY PARKWAY – ALTERNATIVE 2B
PROPOSED AT GRADE TOLLROAD



TRINITY PARKWAY – ALTERNATIVE 2B
PROPOSED AT GRADE TOLLROAD WITH RAMPS

TYPICAL SECTIONS

I–35E TO U.S. 175

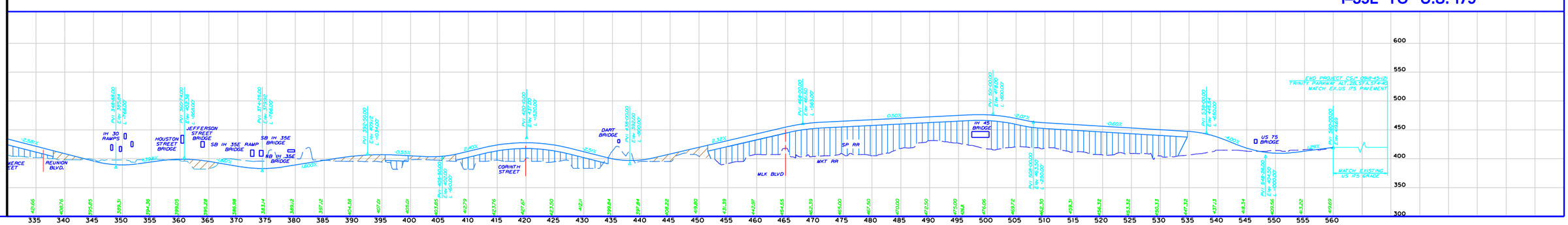
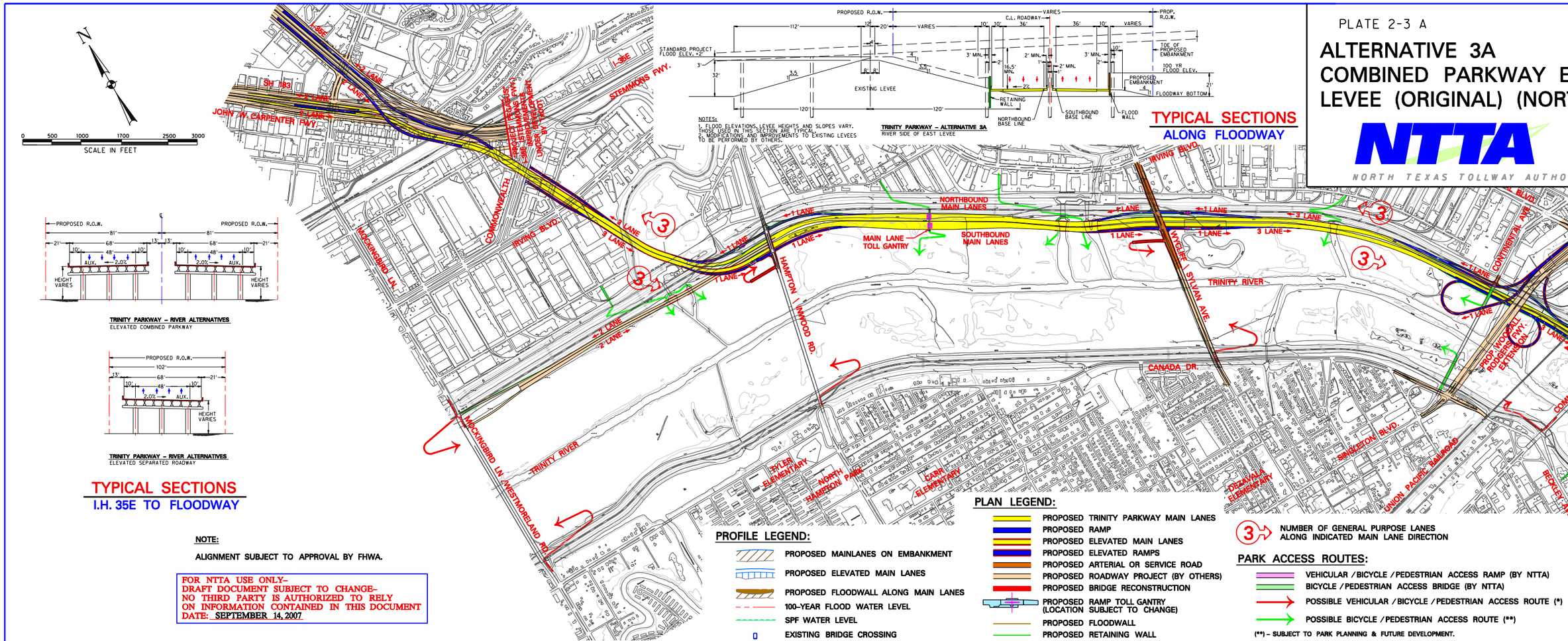


PLATE 2-3 A

ALTERNATIVE 3A COMBINED PARKWAY EAST LEVEE (ORIGINAL) (NORTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



NOTES:
1. FLOOD ELEVATIONS, LEVEE HEIGHTS AND SLOPES VARY. THOSE USED IN THIS SECTION ARE TYPICAL.
2. MODIFICATIONS AND IMPROVEMENTS TO EXISTING LEVEES TO BE PERFORMED BY OTHERS.

TRINITY PARKWAY – ALTERNATIVE 3A
RIVER SIDE OF EAST LEVEE

TYPICAL SECTIONS
ALONG FLOODWAY

TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED COMBINED PARKWAY

TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED SEPARATED ROADWAY

TYPICAL SECTIONS
I.H. 35E TO FLOODWAY

NOTE:

ALIGNMENT SUBJECT TO APPROVAL BY FHWA.

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NO THIRD PARTY IS AUTHORIZED TO RELY
ON INFORMATION CONTAINED IN THIS DOCUMENT
DATE: SEPTEMBER 14, 2007

PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL

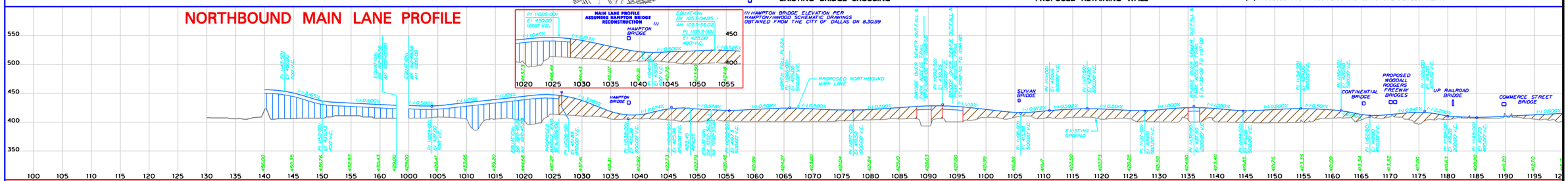
3 NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

PARK ACCESS ROUTES:

- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)

(**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.

NORTHBOUND MAIN LANE PROFILE



SOUTHBOUND MAIN LANE PROFILE

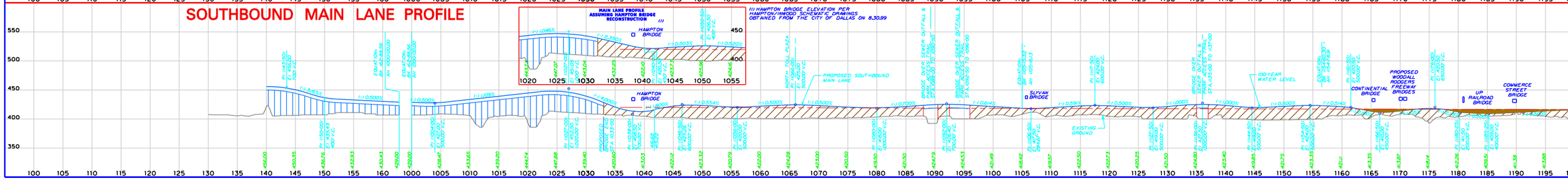


PLATE 2-3 B

ALTERNATIVE 3A COMBINED PARKWAY EAST LEVEE (ORIGINAL) (SOUTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

FOR NTTA USE ONLY–
DRAFT DOCUMENT SUBJECT TO CHANGE–
NO THIRD PARTY IS AUTHORIZED TO RELY
ON INFORMATION CONTAINED IN THIS DOCUMENT
DATE: March 3, 2008

PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL
- (3) NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

PARK ACCESS ROUTES:

- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)

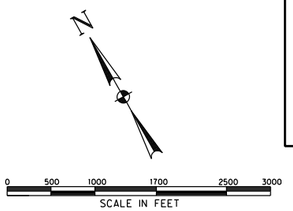
(**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.

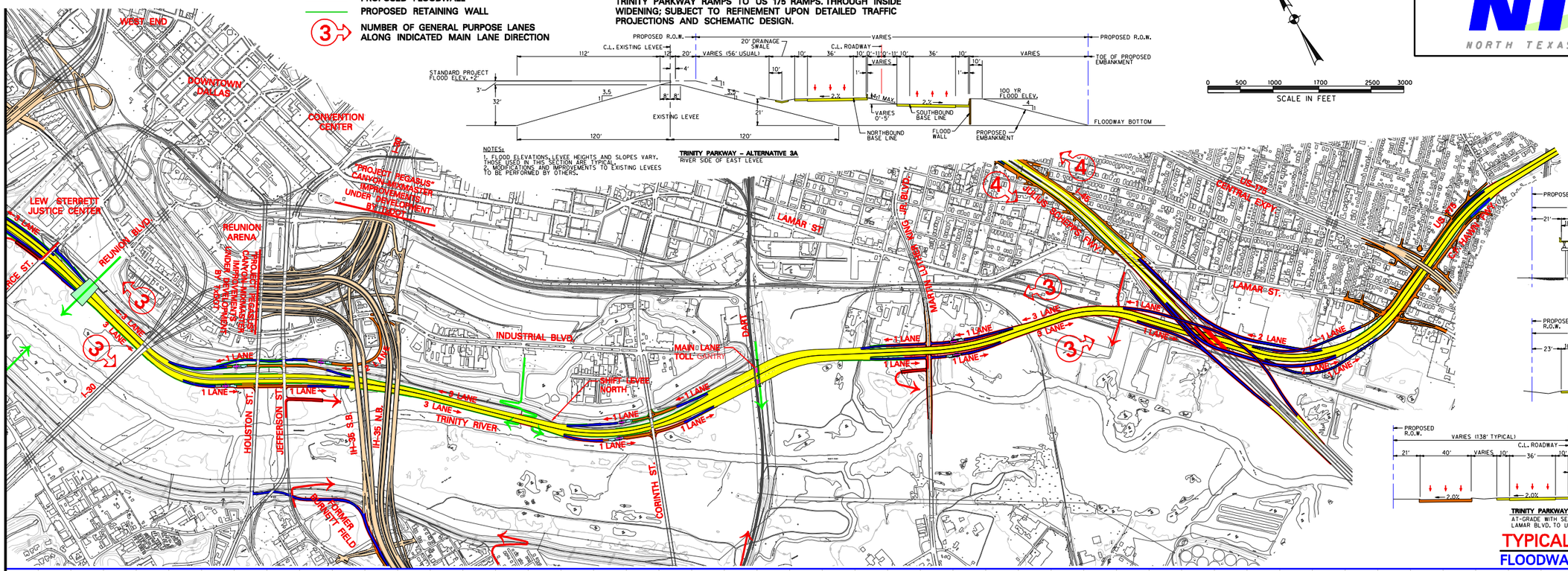
NOTES:

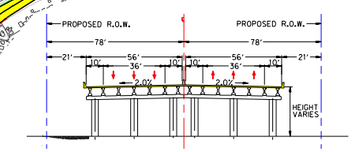
1. ALIGNMENT SUBJECT TO APPROVAL BY FHWA.
2. IH 45 MAY BE WIDENED FROM 6 LANES TO 8 LANES FROM TRINITY PARKWAY RAMPS TO US 175 RAMPS. THROUGH INSIDE WIDENING; SUBJECT TO REFINEMENT UPON DETAILED TRAFFIC PROJECTIONS AND SCHEMATIC DESIGN.

NOTES:
1. FLOOD ELEVATIONS, LEVEE HEIGHTS AND SLOPES VARY. THOSE USED IN THIS SECTION ARE TYPICAL.
2. MODIFICATIONS AND IMPROVEMENTS TO EXISTING LEVEES TO BE PERFORMED BY OTHERS.

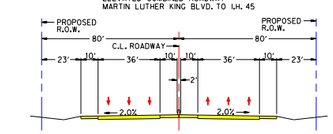
TRINITY PARKWAY – ALTERNATIVE 3A
RIVER SIDE OF EAST LEVEE



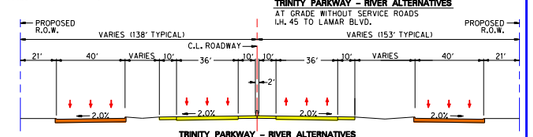




TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED COMBINED ROADWAY
MARTIN LUTHER KING BLVD. TO I.H. 45



TRINITY PARKWAY – RIVER ALTERNATIVES
AT GRADE WITHOUT SERVICE ROADS
I.H. 45 TO LAMAR BLVD.



TRINITY PARKWAY – RIVER ALTERNATIVES
AT-GRADE WITH SERVICE ROADS
LAMAR BLVD. TO U.S. 175

TYPICAL SECTIONS
FLOODWAY TO U.S. 175

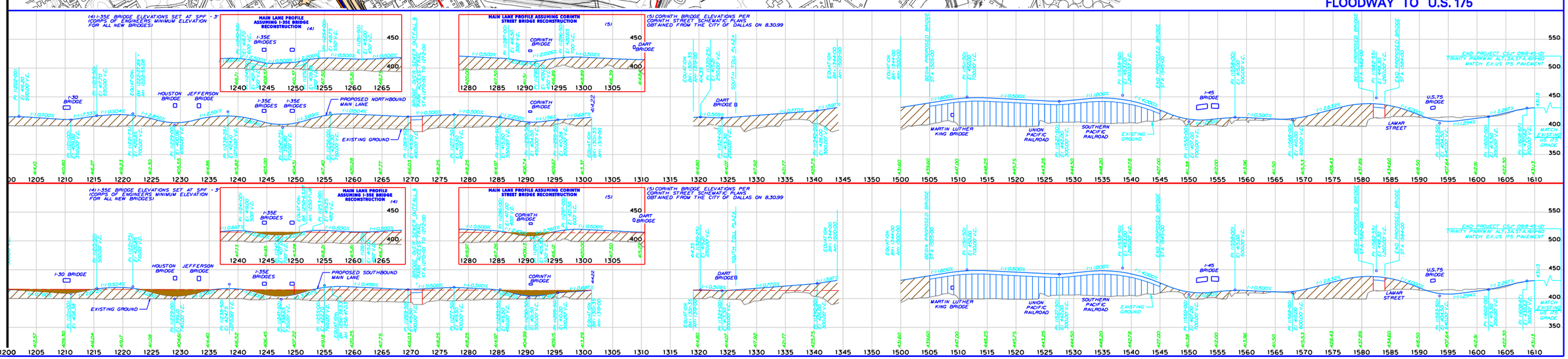
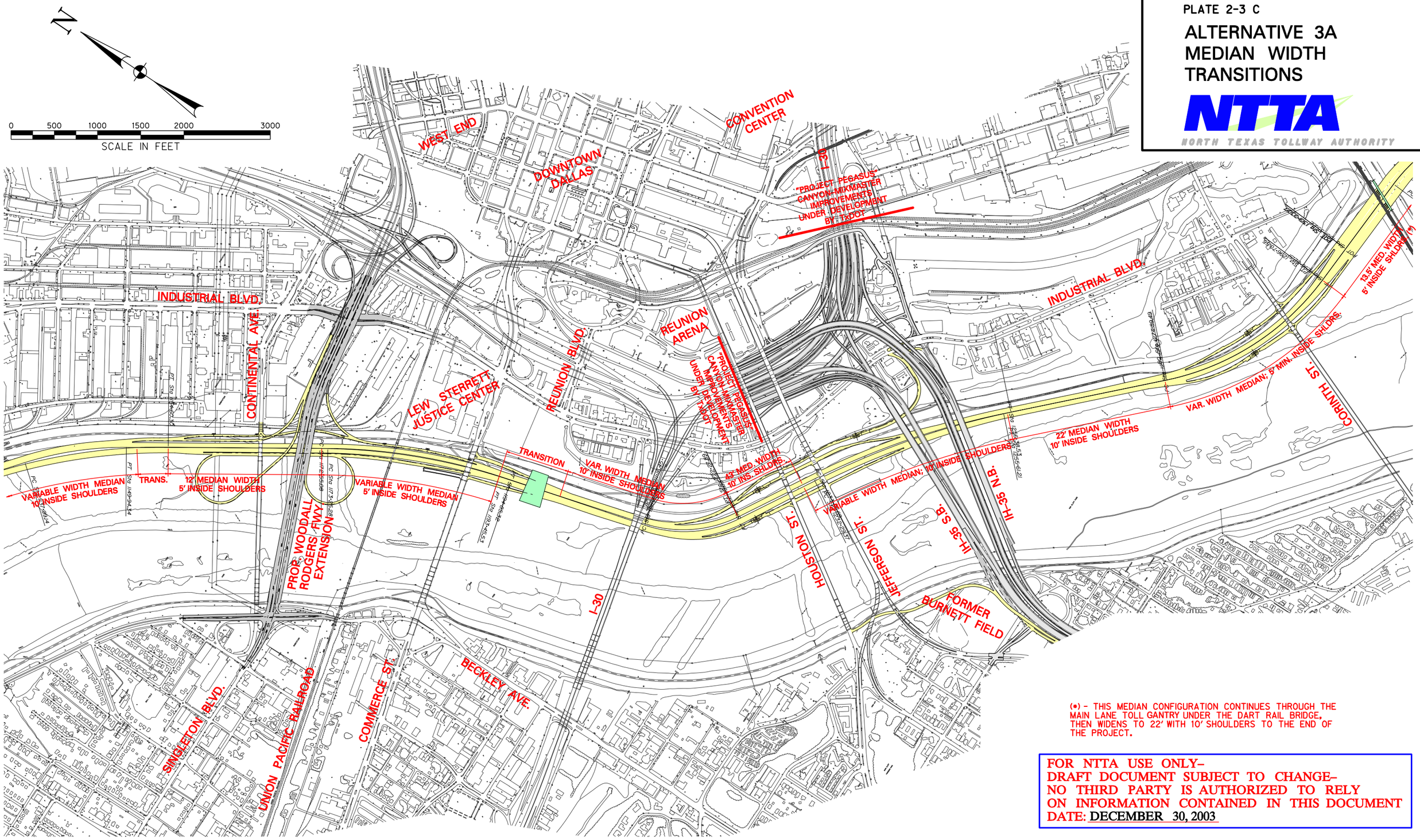


PLATE 2-3 C

ALTERNATIVE 3A MEDIAN WIDTH TRANSITIONS

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



(•) - THIS MEDIAN CONFIGURATION CONTINUES THROUGH THE MAIN LANE TOLL GANTRY UNDER THE DART RAIL BRIDGE, THEN WIDENS TO 22' WITH 10' SHOULDERS TO THE END OF THE PROJECT.

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DATE: JULY 6, 2007

NOTE:

THE FLOODWAY CROSS SECTION IS TYPICAL OF THE AREA BETWEEN THE HAMPTON ROAD AND CONTINENTAL AVENUE TRINITY RIVER CROSSINGS, LOOKING DOWNSTREAM. IT DOES NOT REPRESENT RAMPS, AUXILIARY LANES, OR MAIN LANE SUPER ELEVATION.

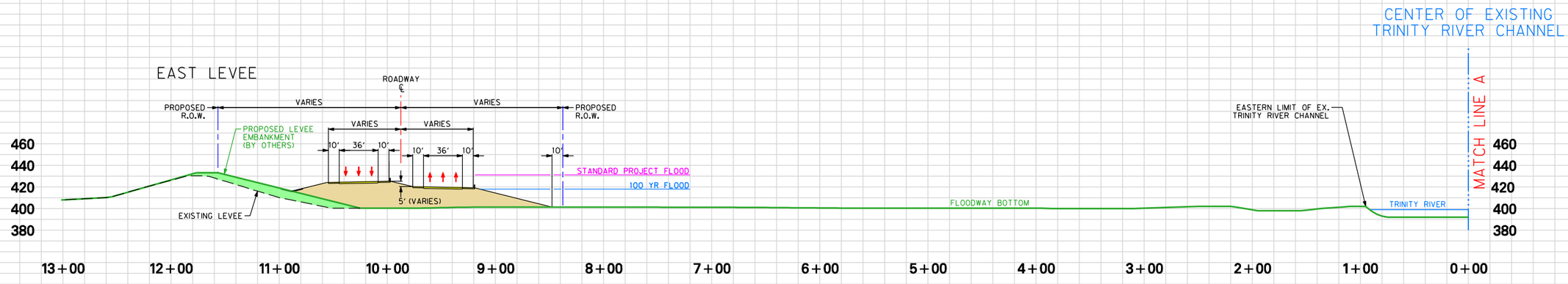
0 25 50 75 100 150 200 300
SCALE IN FEET

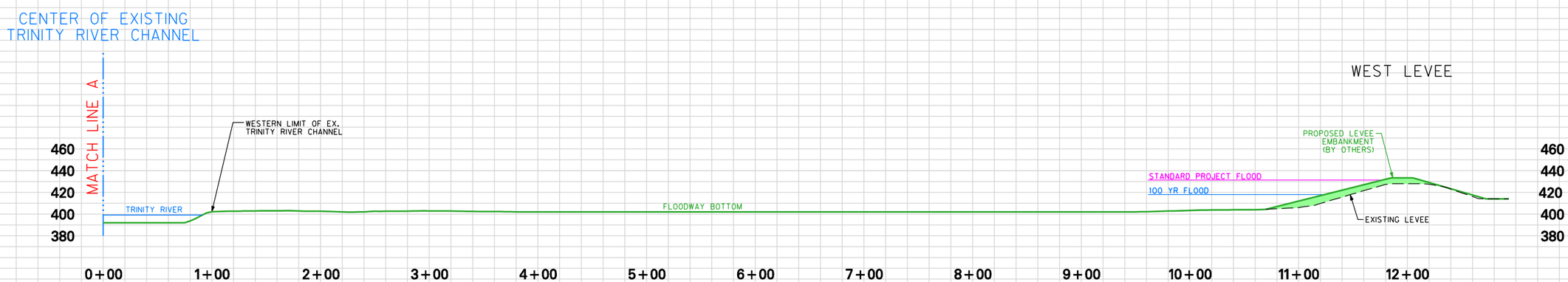
PLATE 2-3 D

FLOODWAY SECTION FOR ALTERNATIVE 3A COMBINED PARKWAY – ORIGINAL

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

COMBINED PARKWAY – ORIGINAL
SECTION LOOKING DOWNSTREAM (SOUTH)



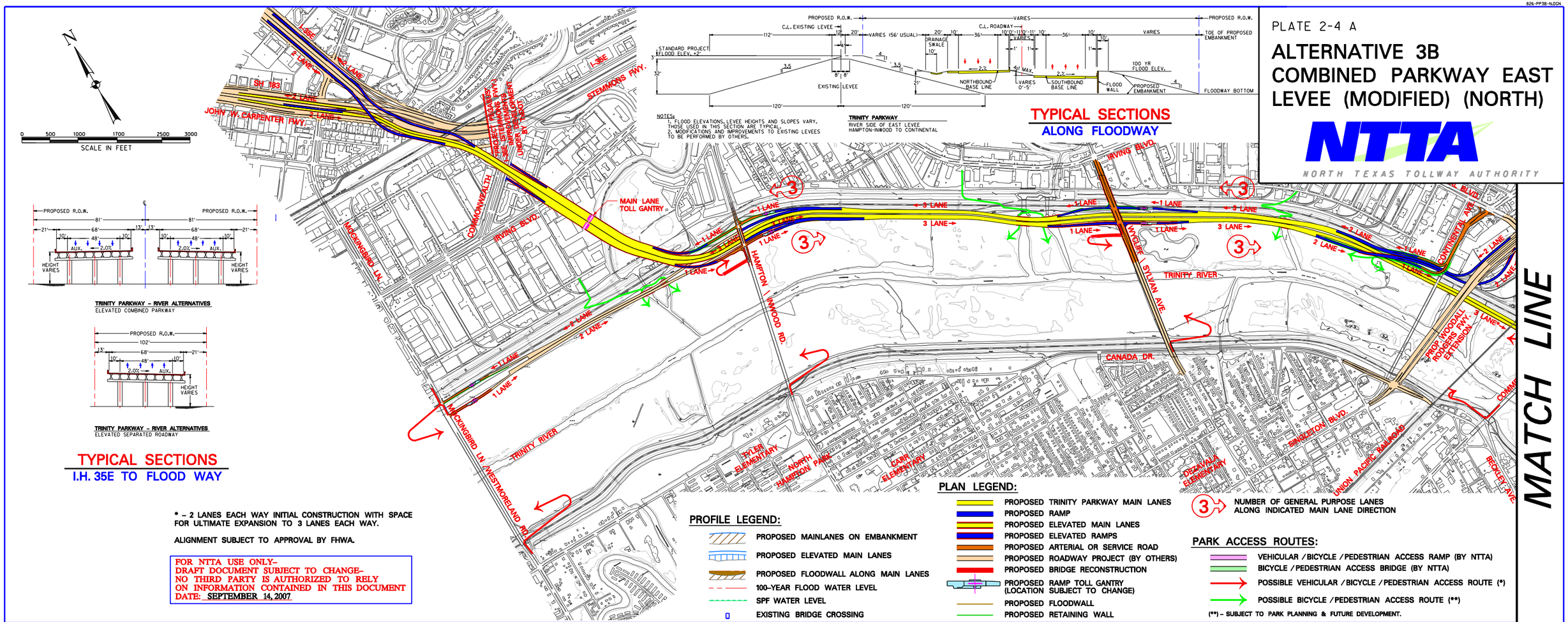


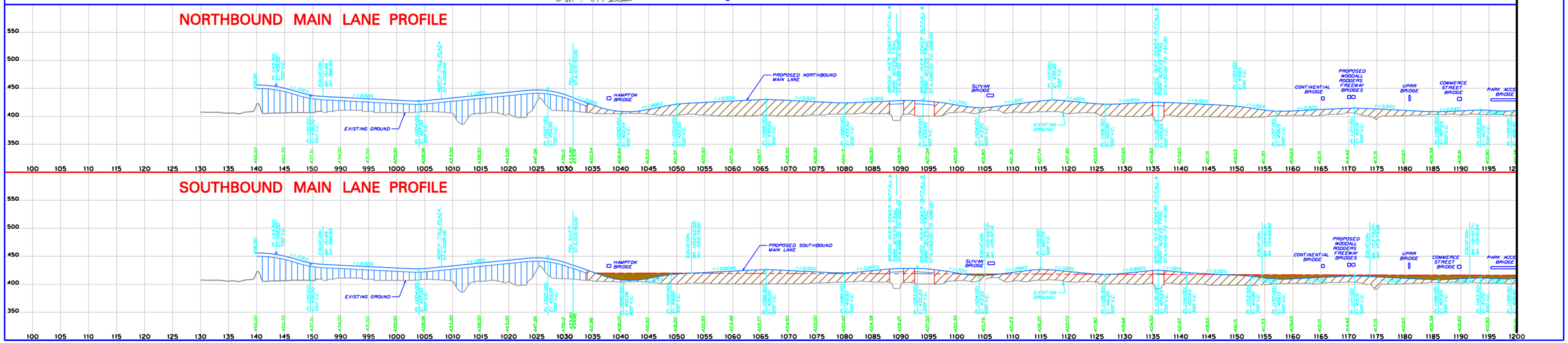
826-PP3B-N.DGN

PLATE 2-4 A

ALTERNATIVE 3B COMBINED PARKWAY EAST LEVEE (MODIFIED) (NORTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY





V7 826-PP3B-S.DGN

PLATE 2-4 B

ALTERNATIVE 3B COMBINED PARKWAY EAST LEVEE (MODIFIED) (SOUTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

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PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL

PARK ACCESS ROUTES:

- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)

(**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.
* – 2 LANES EACH WAY INITIAL CONSTRUCTION WITH SPACE FOR ULTIMATE EXPANSION TO 3 LANES EACH WAY.

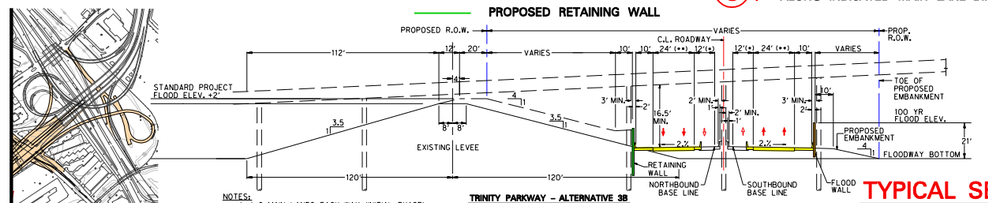
(3) NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

NOTES:

1. ALIGNMENT SUBJECT TO APPROVAL BY FHWA.
2. IH 45 MAY BE WIDENED FROM 6 LANES TO 8 LANES FROM TRINITY PARKWAY RAMPS TO US 175 RAMPS. THROUGH INSIDE WIDENING; SUBJECT TO REFINEMENT UPON DETAILED TRAFFIC PROJECTIONS AND SCHEMATIC DESIGN.

N

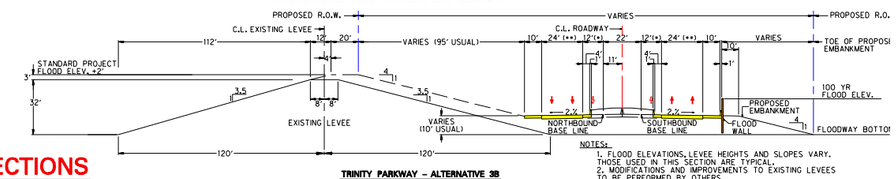
0 500 1000 1700 2500 3000
SCALE IN FEET



NOTES:
(**) 2 MAIN LANES EACH WAY (INITIAL PHASE)
(*) 3 MAIN LANES EACH WAY (FINAL PHASE)

TRINITY PARKWAY – ALTERNATIVE 3B
RIVER SIDE OF EAST LEVEE
CONTINENTAL TO DART RAIL
@ EXISTING BRIDGE

TYPICAL SECTIONS
ALONG FLOODWAY

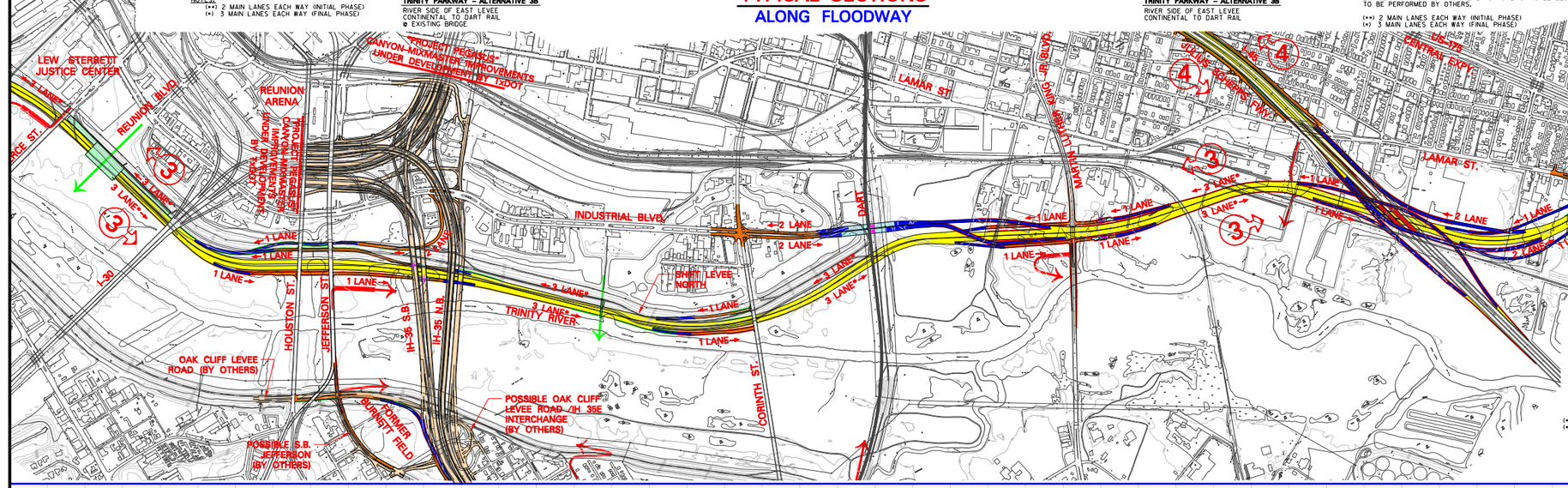


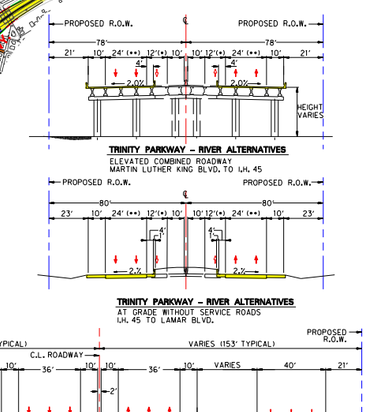
TRINITY PARKWAY – ALTERNATIVE 3B
RIVER SIDE OF EAST LEVEE
CONTINENTAL TO DART RAIL

NOTES:
1. FLOOD ELEVATIONS, LEVEE HEIGHTS AND SLOPES VARY. THOSE USED IN THIS SECTION ARE TYPICAL.
2. MODIFICATIONS AND IMPROVEMENTS TO EXISTING LEVEES TO BE PERFORMED BY OTHERS.

(**) 2 MAIN LANES EACH WAY (INITIAL PHASE)
(*) 3 MAIN LANES EACH WAY (FINAL PHASE)

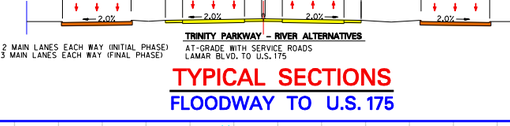
MATCH LINE





TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED COMBINED ROADWAY
MARTIN LUTHER KING BLVD. TO I.H. 45

TRINITY PARKWAY – RIVER ALTERNATIVES
AT GRADE WITHOUT SERVICE ROADS
I.H. 45 TO LAMAR BLVD.



TRINITY PARKWAY – RIVER ALTERNATIVES
AT-GRADE WITH SERVICE ROADS
LAMAR BLVD. TO U.S. 175

(**) 2 MAIN LANES EACH WAY (INITIAL PHASE)
(*) 3 MAIN LANES EACH WAY (FINAL PHASE)

TYPICAL SECTIONS
FLOODWAY TO U.S. 175

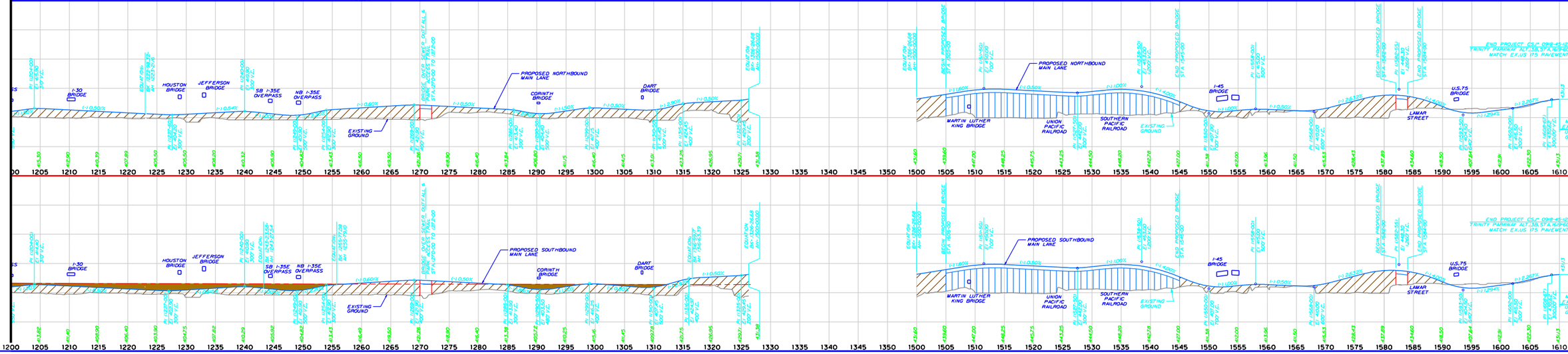
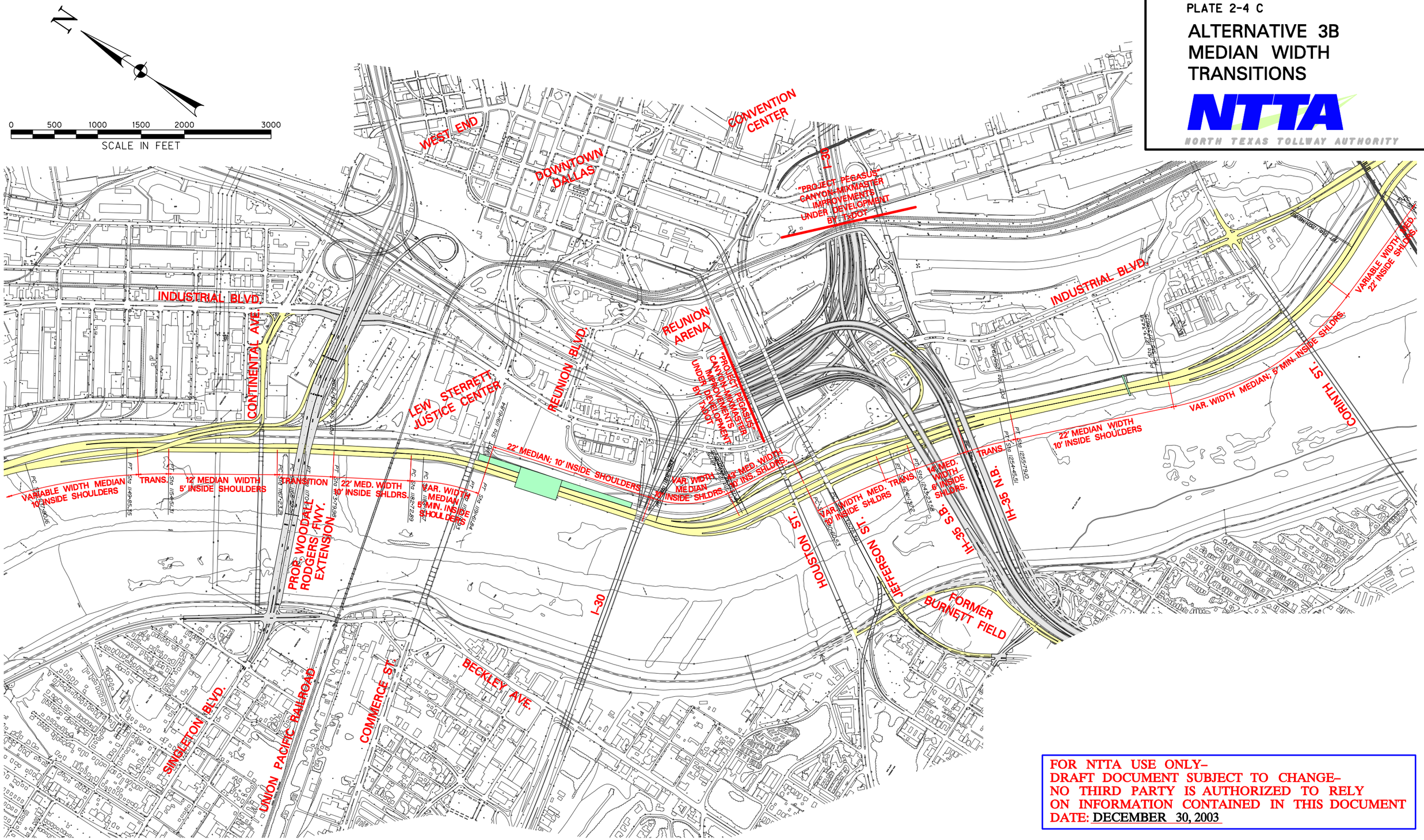


PLATE 2-4 C

ALTERNATIVE 3B MEDIAN WIDTH TRANSITIONS

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



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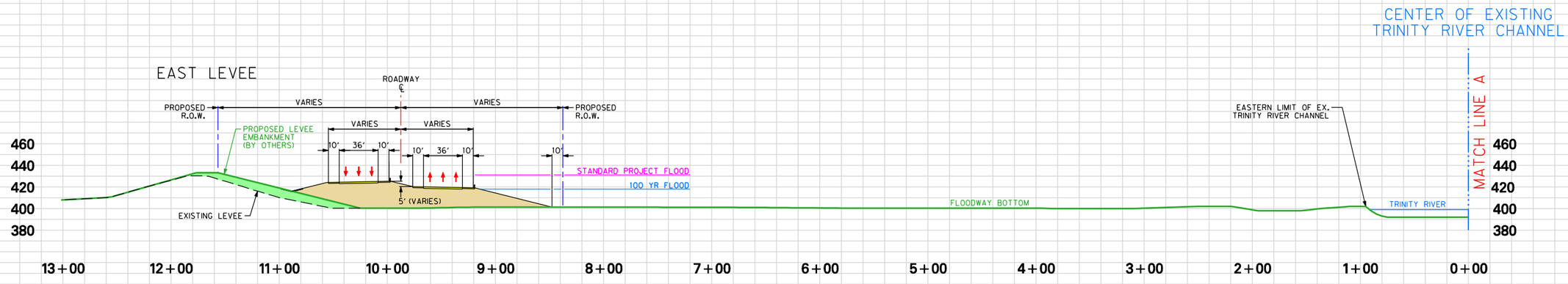
0 25 50 75 100 150 200 300
SCALE IN FEET

PLATE 2-4 D

FLOODWAY SECTION FOR ALTERNATIVE 3B COMBINED PARKWAY – MODIFIED

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

COMBINED PARKWAY – MODIFIED
SECTION LOOKING DOWNSTREAM (SOUTH)



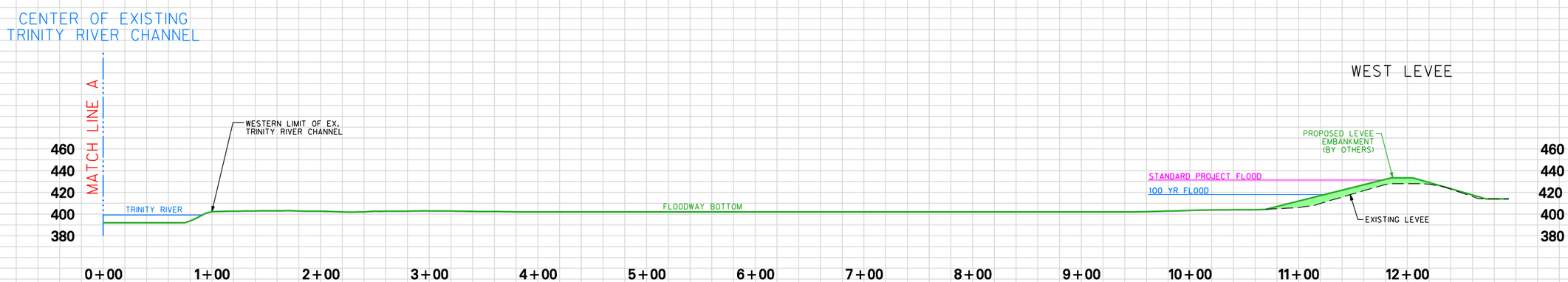
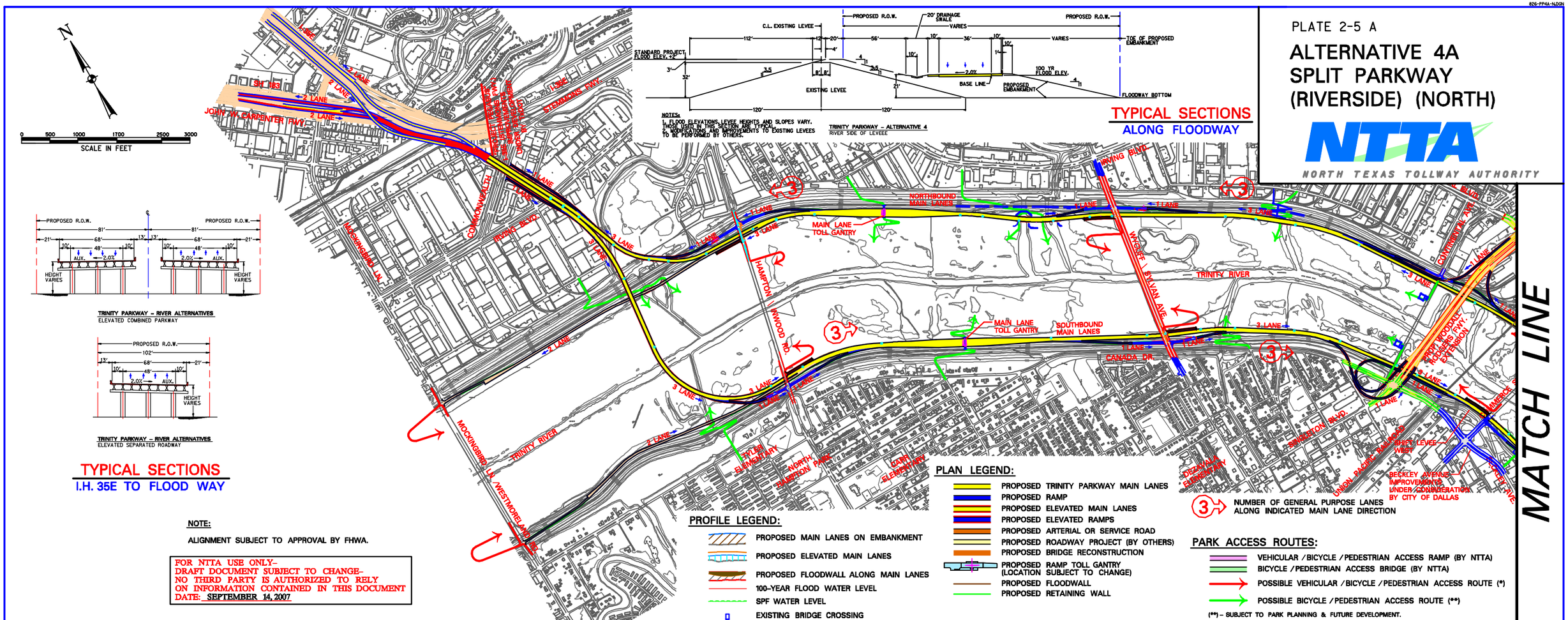


PLATE 2-5 A

ALTERNATIVE 4A SPLIT PARKWAY (RIVERSIDE) (NORTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED COMBINED PARKWAY

TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED SEPARATED ROADWAY

TYPICAL SECTIONS
I.H. 35E TO FLOOD WAY

NOTE:

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NOTES:
1. FLOOD ELEVATIONS,LEVEE HEIGHTS AND SLOPES VARY. THOSE USED IN THIS SECTION ARE TYPICAL.
2. MODIFICATIONS AND IMPROVEMENTS TO EXISTING LEVEES TO BE PERFORMED BY OTHERS.

TRINITY PARKWAY – ALTERNATIVE 4
RIVER SIDE OF LEVEEE

TYPICAL SECTIONS
ALONG FLOODWAY

PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL
- (3) NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

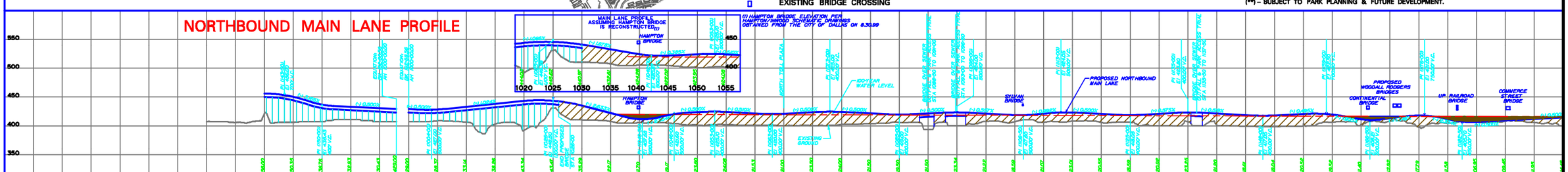
PROFILE LEGEND:

- PROPOSED MAIN LANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

PARK ACCESS ROUTES:

- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)

(**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.



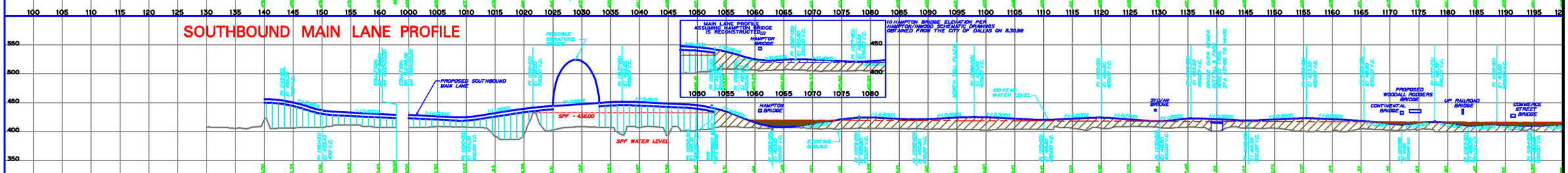


PLATE 2-5 B

ALTERNATIVE 4A SPLIT PARKWAY (RIVERSIDE) (SOUTH)

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PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL

PARK ACCESS ROUTES:

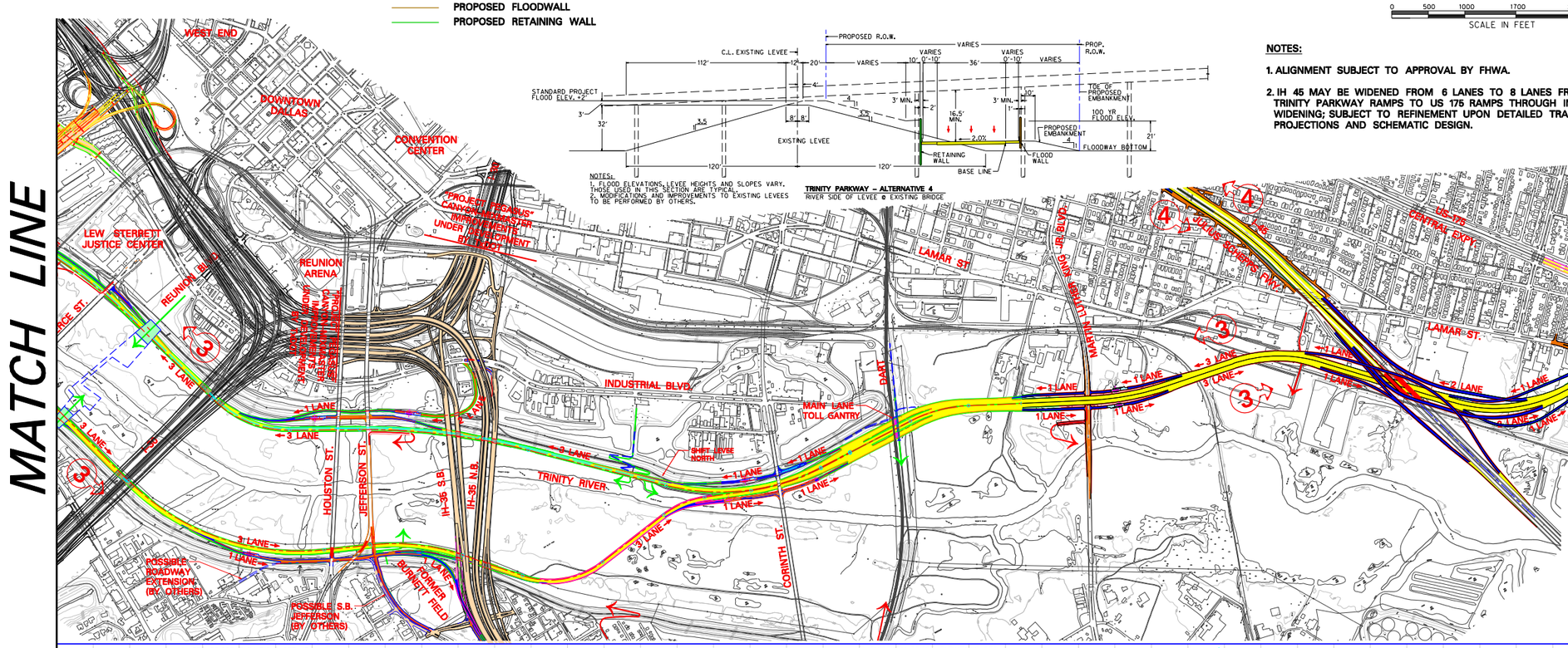
- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)
- (**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.
- (3) NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

N

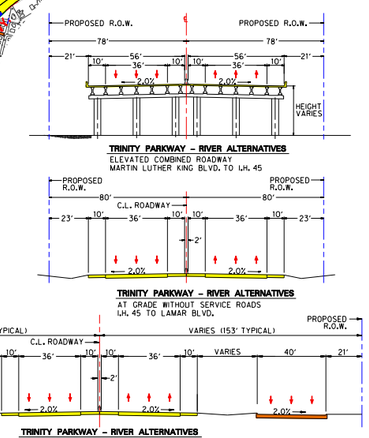
0 500 1000 1700 2500 3000
SCALE IN FEET

NOTES:

1. ALIGNMENT SUBJECT TO APPROVAL BY FHWA.
2. IH 45 MAY BE WIDENED FROM 6 LANES TO 8 LANES FROM TRINITY PARKWAY RAMPS TO US 175 RAMPS THROUGH INSIDE WIDENING; SUBJECT TO REFINEMENT UPON DETAILED TRAFFIC PROJECTIONS AND SCHEMATIC DESIGN.



TRINITY PARKWAY – ALTERNATIVE 4
RIVER SIDE OF LEVEE ℄ EXISTING BRIDGE

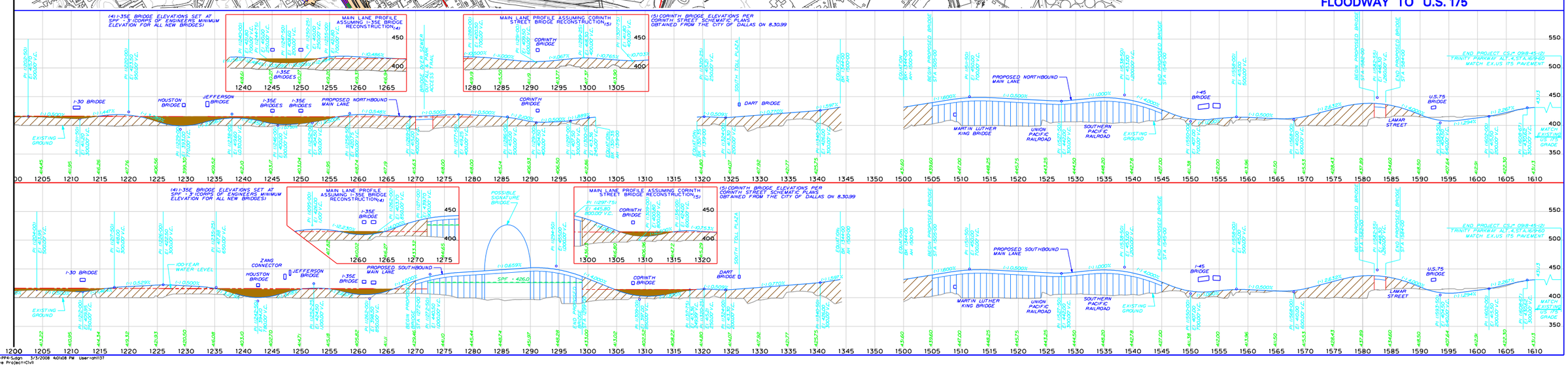


TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED COMBINED ROADWAY
MARTIN LUTHER KING BLVD. TO I.H. 45

TRINITY PARKWAY – RIVER ALTERNATIVES
AT GRADE WITHOUT SERVICE ROADS
I.H. 45 TO LAMAR BLVD.

TRINITY PARKWAY – RIVER ALTERNATIVES
AT-GRADE WITH SERVICE ROADS
LAMAR BLVD. TO U.S. 175

TYPICAL SECTIONS
FLOODWAY TO U.S. 175



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NOTE:

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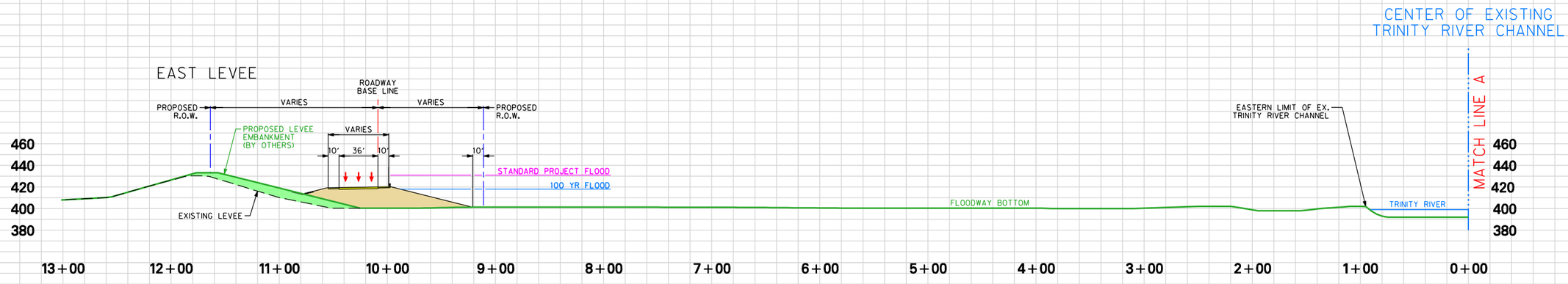
0 25 50 75 100 150 200 300
SCALE IN FEET

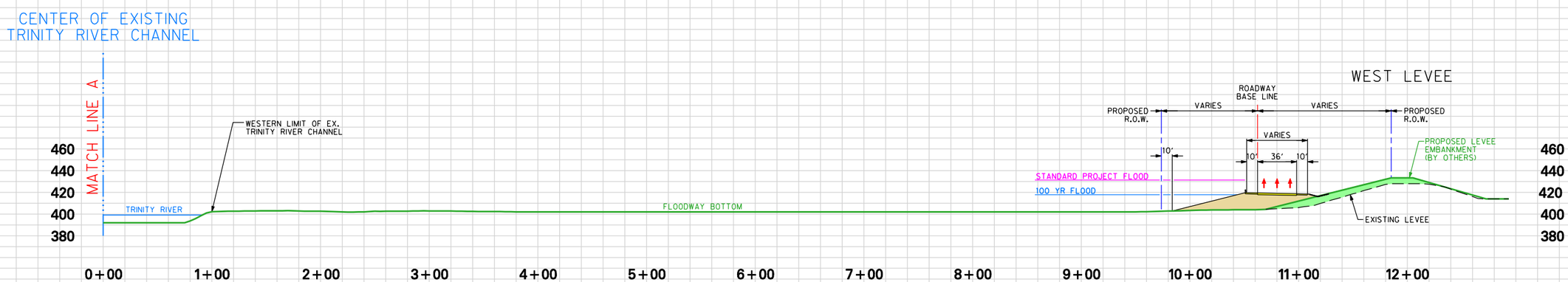
PLATE 2-5 C

FLOODWAY SECTION FOR ALTERNATIVE 4A SPLIT PARKWAY – RIVERSIDE

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

SPLIT PARKWAY – RIVERSIDE
SECTION LOOKING DOWNSTREAM (SOUTH)





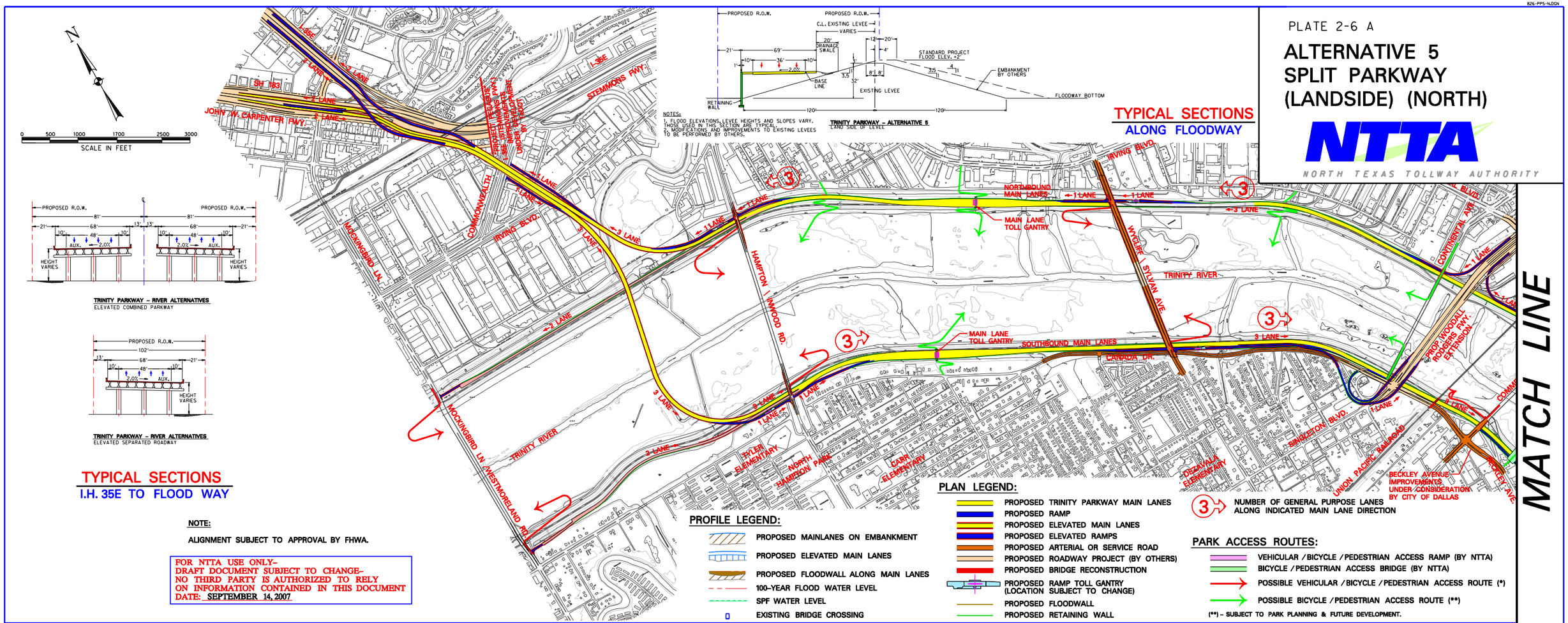
c:\ovo\17826\826-LTSEC-4.dgn 10/8/2007 5:07:40 PM User=ah137
Project: Active Project-Transportation

826-PP5-NLOGN

PLATE 2-6 A

ALTERNATIVE 5 SPLIT PARKWAY (LANDSIDE) (NORTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED COMBINED PARKWAY

TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED SEPARATED ROADWAY

TYPICAL SECTIONS
I.H. 35E TO FLOOD WAY

NOTE:

ALIGNMENT SUBJECT TO APPROVAL BY FHWA.

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DATE: SEPTEMBER 14, 2007

NOTES:
1. FLOOD ELEVATIONS, LEVEE HEIGHTS AND SLOPES VARY. THOSE USED IN THIS SECTION ARE TYPICAL.
2. MODIFICATIONS AND IMPROVEMENTS TO EXISTING LEVEES TO BE PERFORMED BY OTHERS.

TRINITY PARKWAY – ALTERNATIVE 5
LAND SIDE OF LEVEE

TYPICAL SECTIONS
ALONG FLOODWAY

PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

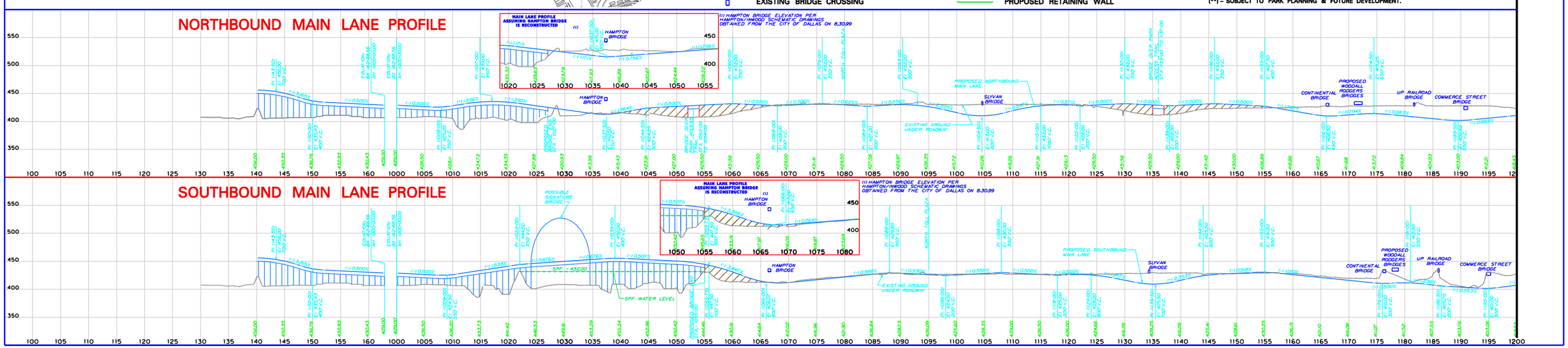
PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL
- (3) NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

PARK ACCESS ROUTES:

- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)

(**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.



V7 826-PP5-5.DGN

PLATE 2-6 B

ALTERNATIVE 5 SPLIT PARKWAY (LANDSIDE) (SOUTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL

PARK ACCESS ROUTES:

- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)

(**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.

(3) NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

FOR NTTA USE ONLY–
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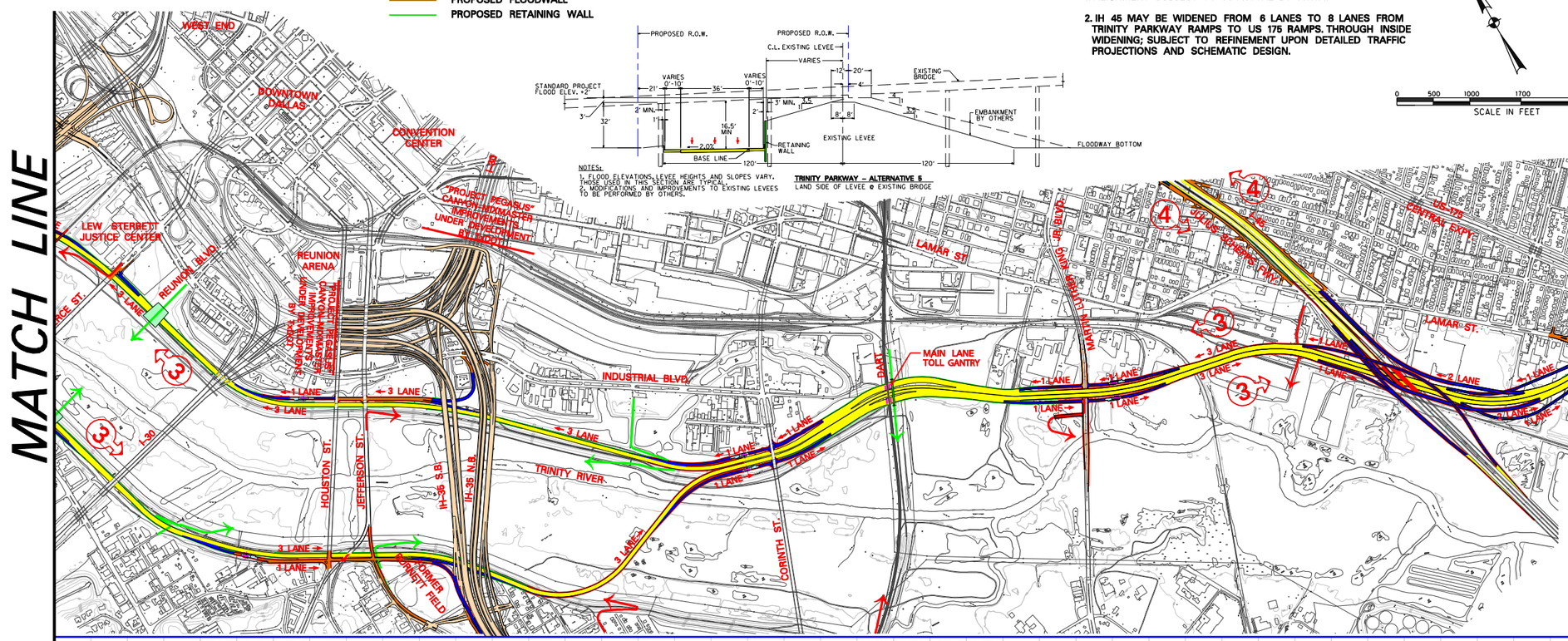
NOTES:

1. ALIGNMENT SUBJECT TO APPROVAL BY FHWA.
2. IH 45 MAY BE WIDENED FROM 6 LANES TO 8 LANES FROM TRINITY PARKWAY RAMPS TO US 175 RAMPS. THROUGH INSIDE WIDENING; SUBJECT TO REFINEMENT UPON DETAILED TRAFFIC PROJECTIONS AND SCHEMATIC DESIGN.

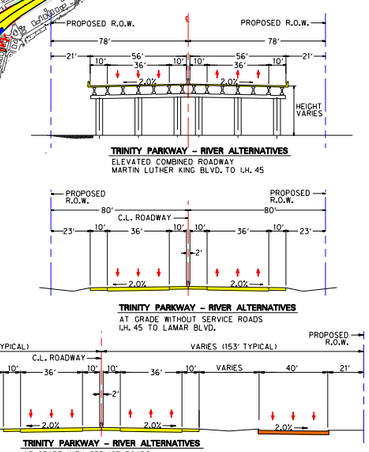
N

0 500 1000 1700 2500 3000
SCALE IN FEET



NOTES:
1. FLOOD ELEVATIONS, LEVEE HEIGHTS AND SLOPES VARY. THOSE USED IN THIS SECTION ARE TYPICAL.
2. MODIFICATIONS AND IMPROVEMENTS TO EXISTING LEVEES TO BE PERFORMED BY OTHERS.

TRINITY PARKWAY – ALTERNATIVE 5
LAND SIDE OF LEVEE @ EXISTING BRIDGE

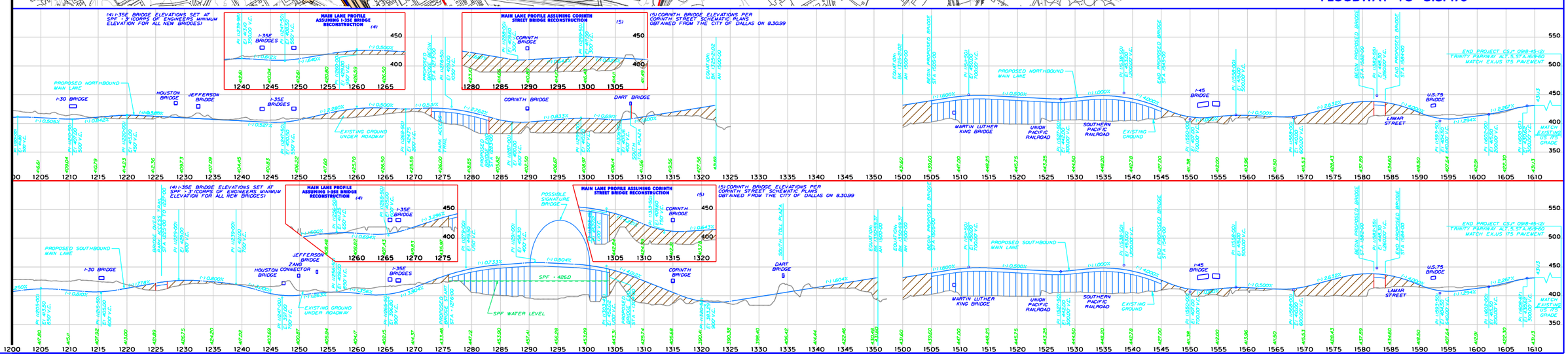


TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED COMBINED ROADWAY
MARTIN LUTHER KING BLVD. TO I.H. 45

TRINITY PARKWAY – RIVER ALTERNATIVES
AT GRADE WITHOUT SERVICE ROADS
I.H. 45 TO LAMAR BLVD.

TRINITY PARKWAY – RIVER ALTERNATIVES
AT-GRADE WITH SERVICE ROADS
LAMAR BLVD. TO U.S. 175

TYPICAL SECTIONS
FLOODWAY TO U.S. 175



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NOTE:

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0 25 50 75 100 150 200 300
SCALE IN FEET

PLATE 2-6 C

FLOODWAY SECTION FOR ALTERNATIVE 5 SPLIT PARKWAY – LANDSIDE

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

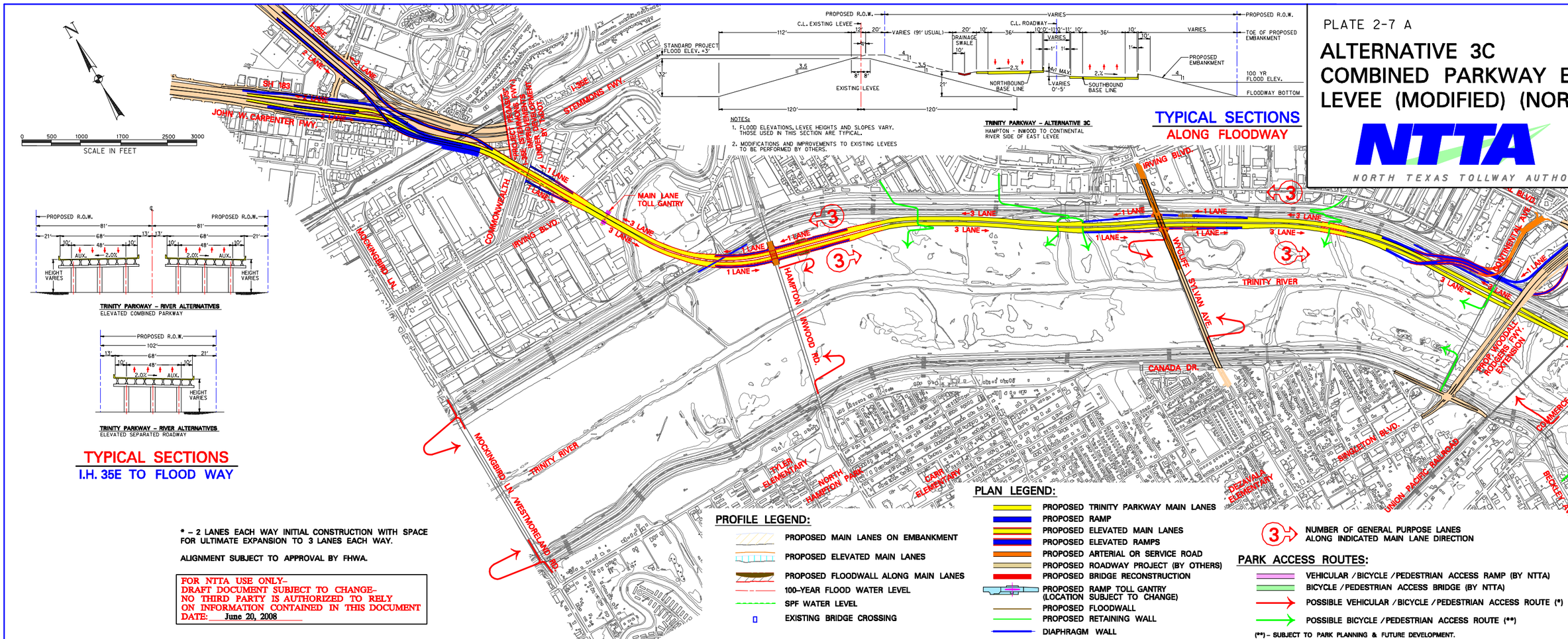
SPLIT PARKWAY – LANDSIDE
SECTION LOOKING DOWNSTREAM (SOUTH)

V8 826-PP3C-NLDGN

PLATE 2-7 A

ALTERNATIVE 3C COMBINED PARKWAY EAST LEVEE (MODIFIED) (NORTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



NOTES:
1. FLOOD ELEVATIONS, LEVEE HEIGHTS AND SLOPES VARY. THOSE USED IN THIS SECTION ARE TYPICAL.
2. MODIFICATIONS AND IMPROVEMENTS TO EXISTING LEVEES TO BE PERFORMED BY OTHERS.

TRINITY PARKWAY – ALTERNATIVE 3C
HAMPTON - INWOOD TO CONTINENTAL RIVER SIDE OF EAST LEVEE

TYPICAL SECTIONS ALONG FLOODWAY

TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED COMBINED PARKWAY

TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED SEPARATED ROADWAY

TYPICAL SECTIONS I.H. 35E TO FLOOD WAY

* – 2 LANES EACH WAY INITIAL CONSTRUCTION WITH SPACE FOR ULTIMATE EXPANSION TO 3 LANES EACH WAY.

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PROFILE LEGEND:

- PROPOSED MAIN LANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL
- DIAPHRAGM WALL

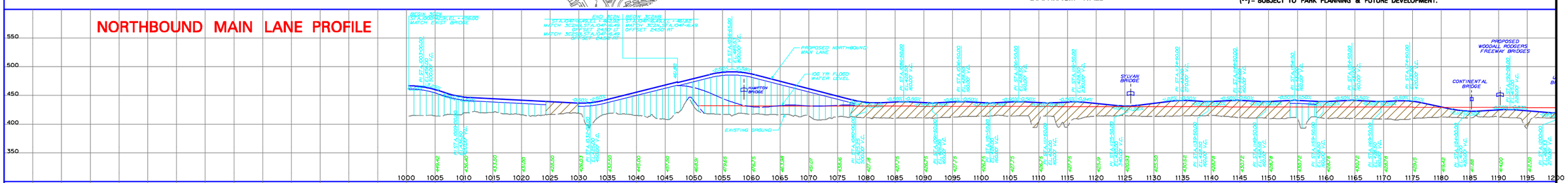
3 NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

PARK ACCESS ROUTES:

- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)

(**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.

NORTHBOUND MAIN LANE PROFILE



SOUTHBOUND MAIN LANE PROFILE

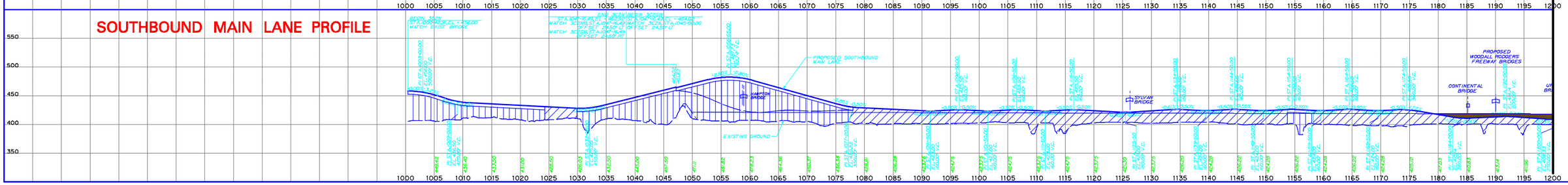


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PLATE 2-7 B

ALTERNATIVE 3C COMBINED PARKWAY EAST LEVEE (MODIFIED) (SOUTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

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DATE: June 20, 2008

PROFILE LEGEND:

- PROPOSED MAIN LANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL
- DIAPHRAGM WALL

PARK ACCESS ROUTES:

- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)

(**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.

* – 2 LANES EACH WAY INITIAL CONSTRUCTION WITH SPACE FOR ULTIMATE EXPANSION TO 3 LANES EACH WAY.

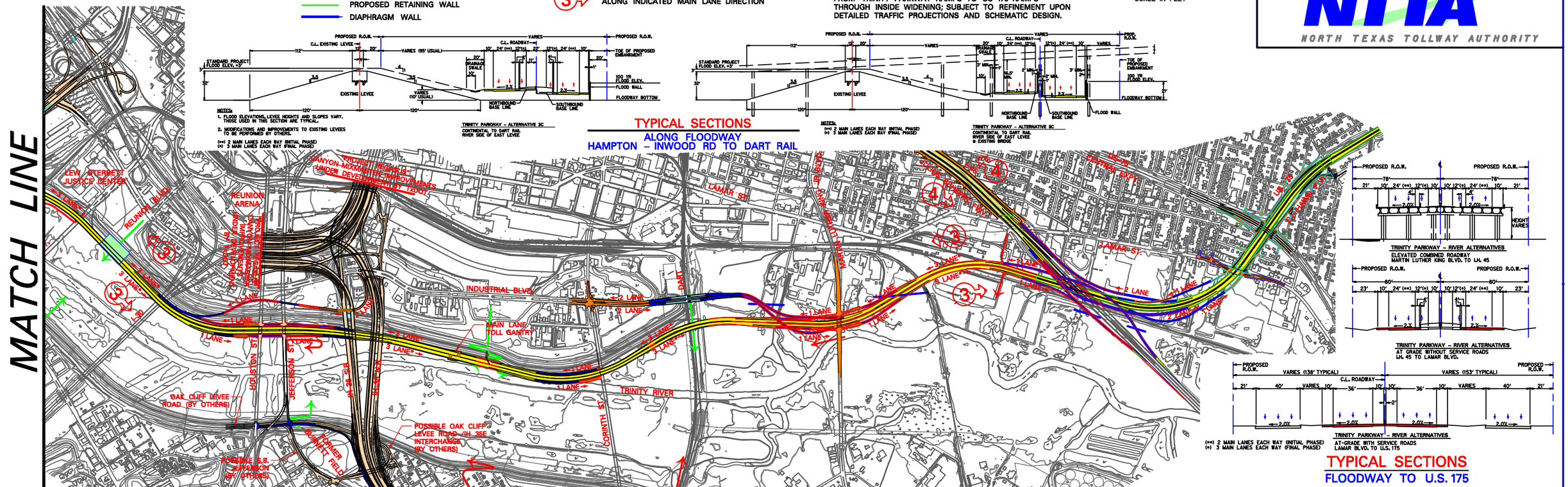
(3) NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

NOTES:

1. ALIGNMENT SUBJECT TO APPROVAL BY FHWA.
2. IH 45 MAY BE WIDENED FROM 6 LANES TO 8 LANES FROM TRINITY PARKWAY RAMPS TO US 175 RAMPS THROUGH INSIDE WIDENING; SUBJECT TO REFINEMENT UPON DETAILED TRAFFIC PROJECTIONS AND SCHEMATIC DESIGN.

N

0 500 1000 1700 2500 3000
SCALE IN FEET



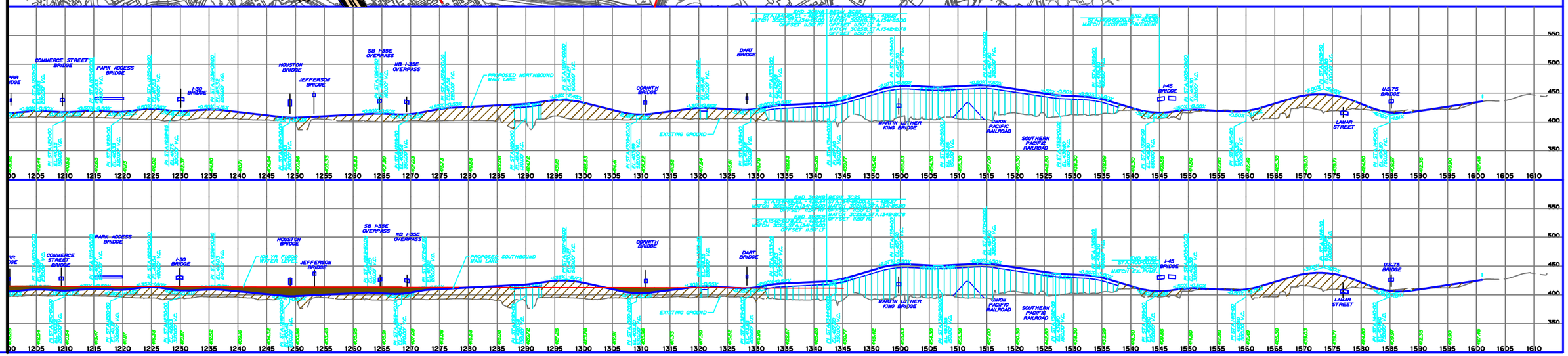


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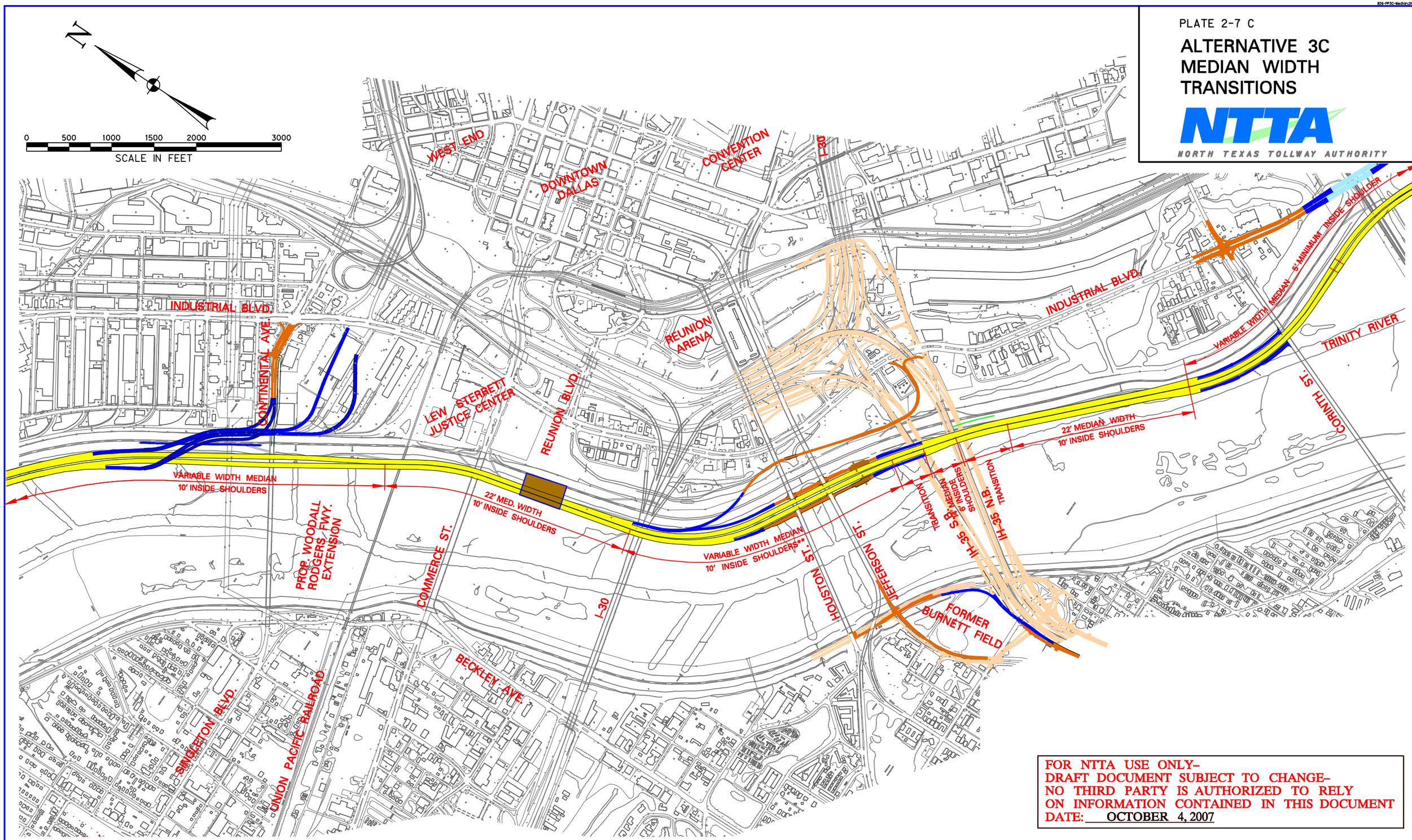
PLATE 2-7 C

ALTERNATIVE 3C MEDIAN WIDTH TRANSITIONS

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



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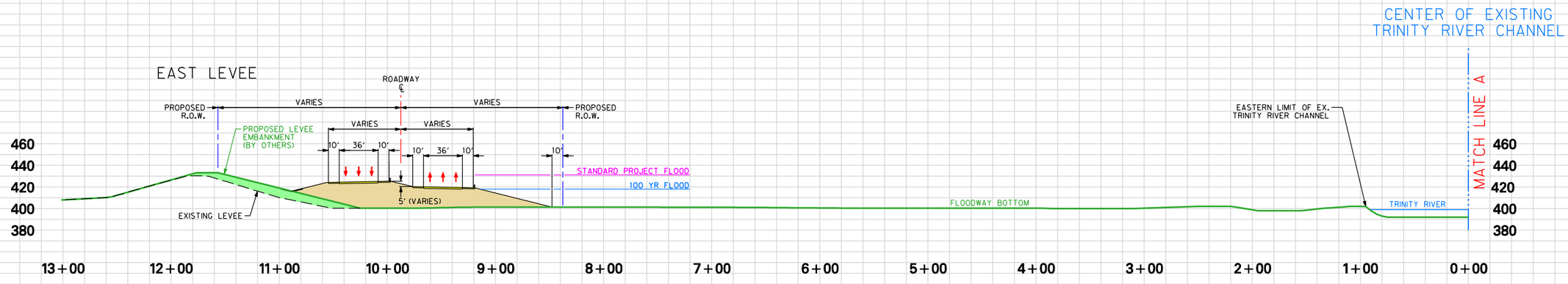
0 25 50 75 100 150 200 300
SCALE IN FEET

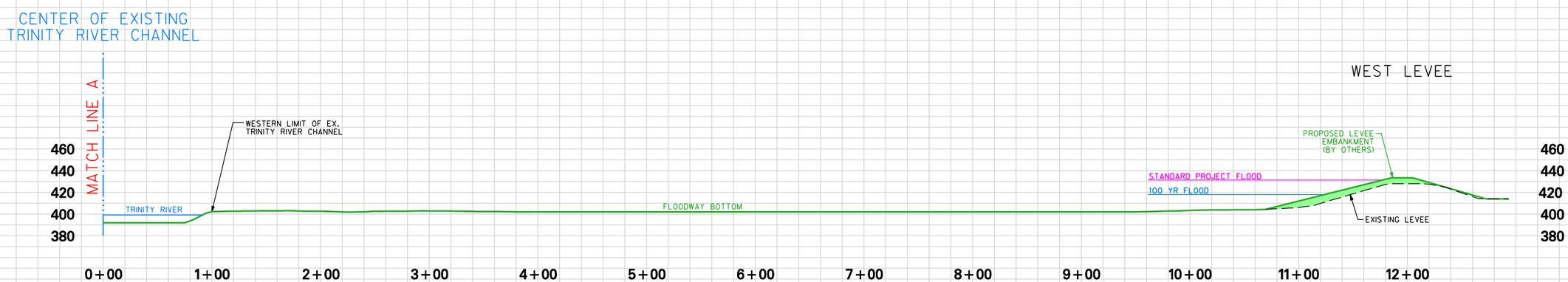
PLATE 2-7 D

FLOODWAY SECTION FOR ALTERNATIVE 3C COMBINED PARKWAY – MODIFIED

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

COMBINED PARKWAY – MODIFIED
SECTION LOOKING DOWNSTREAM (SOUTH)



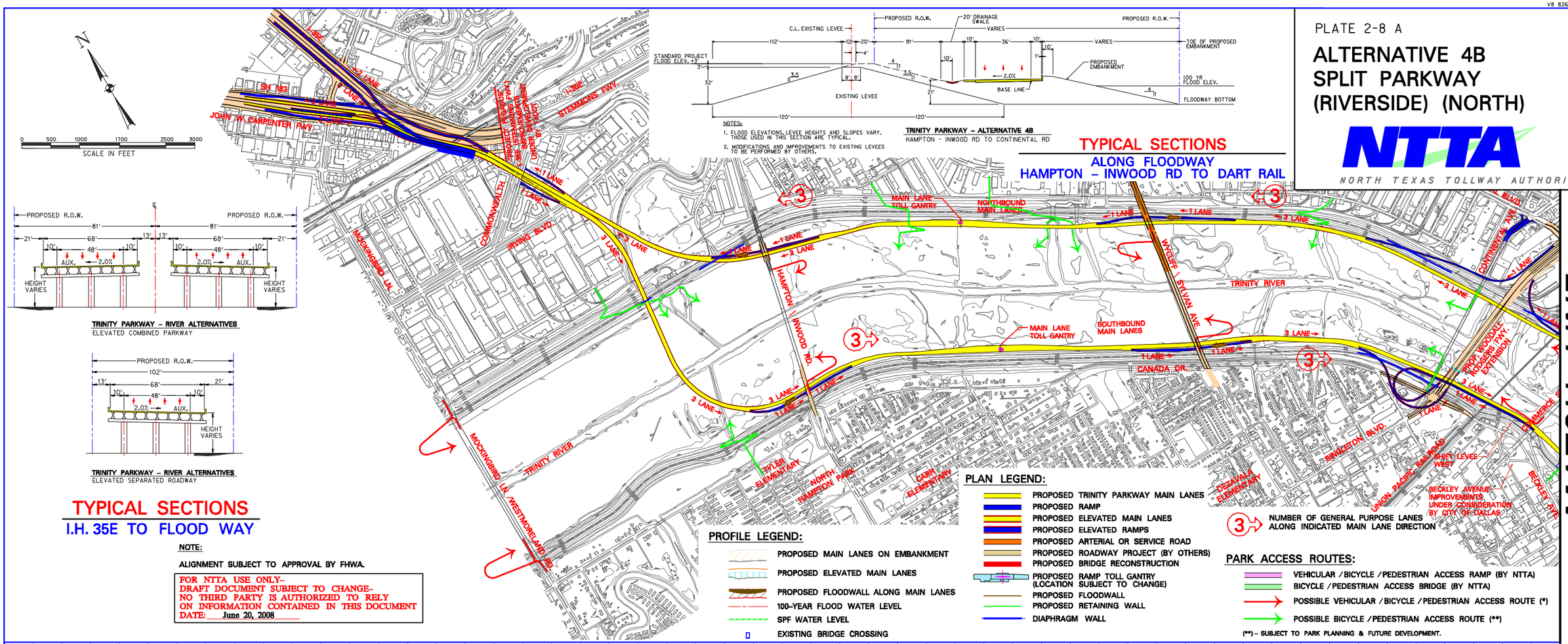


V8 826-PP4B-N.DGN

PLATE 2-8 A

ALTERNATIVE 4B SPLIT PARKWAY (RIVERSIDE) (NORTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED COMBINED PARKWAY

TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED SEPARATED ROADWAY

TYPICAL SECTIONS
I.H. 35E TO FLOOD WAY

NOTE:

ALIGNMENT SUBJECT TO APPROVAL BY FHWA.

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NOTES:
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2. MODIFICATIONS AND IMPROVEMENTS TO EXISTING LEVEES TO BE PERFORMED BY OTHERS.

TRINITY PARKWAY – ALTERNATIVE 4B
HAMPTON - INWOOD RD TO CONTINENTAL RD

TYPICAL SECTIONS
ALONG FLOODWAY
HAMPTON – INWOOD RD TO DART RAIL

PROFILE LEGEND:

- PROPOSED MAIN LANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL
- DIAPHRAGM WALL

3 NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

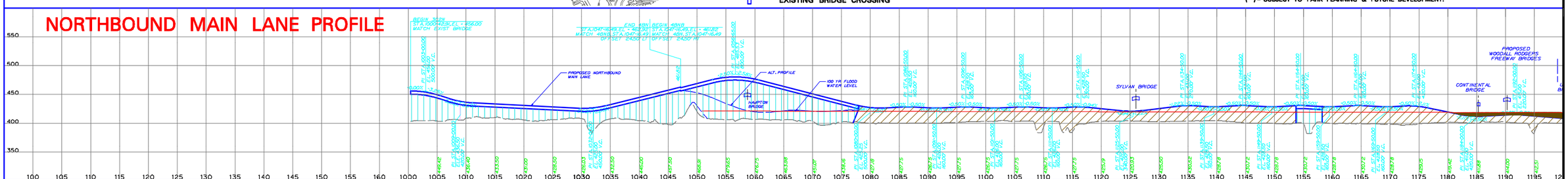
PARK ACCESS ROUTES:

- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)

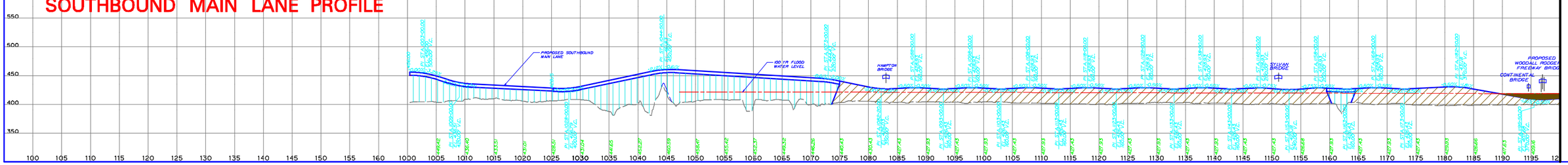
(**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.

MATCH LINE

NORTHBOUND MAIN LANE PROFILE



SOUTHBOUND MAIN LANE PROFILE



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PROFILE LEGEND:

- PROPOSED MAIN LANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL
- DIAPHRAGM WALL

PARK ACCESS ROUTES:

- VEHICULAR / BICYCLE / PEDESTRIAN ACCESS RAMP (BY NTTA)
- BICYCLE / PEDESTRIAN ACCESS BRIDGE (BY NTTA)
- POSSIBLE VEHICULAR / BICYCLE / PEDESTRIAN ACCESS ROUTE (*)
- POSSIBLE BICYCLE / PEDESTRIAN ACCESS ROUTE (**)

(**) – SUBJECT TO PARK PLANNING & FUTURE DEVELOPMENT.

(3) NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

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NOTES:

1. ALIGNMENT SUBJECT TO APPROVAL BY FHWA.
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N

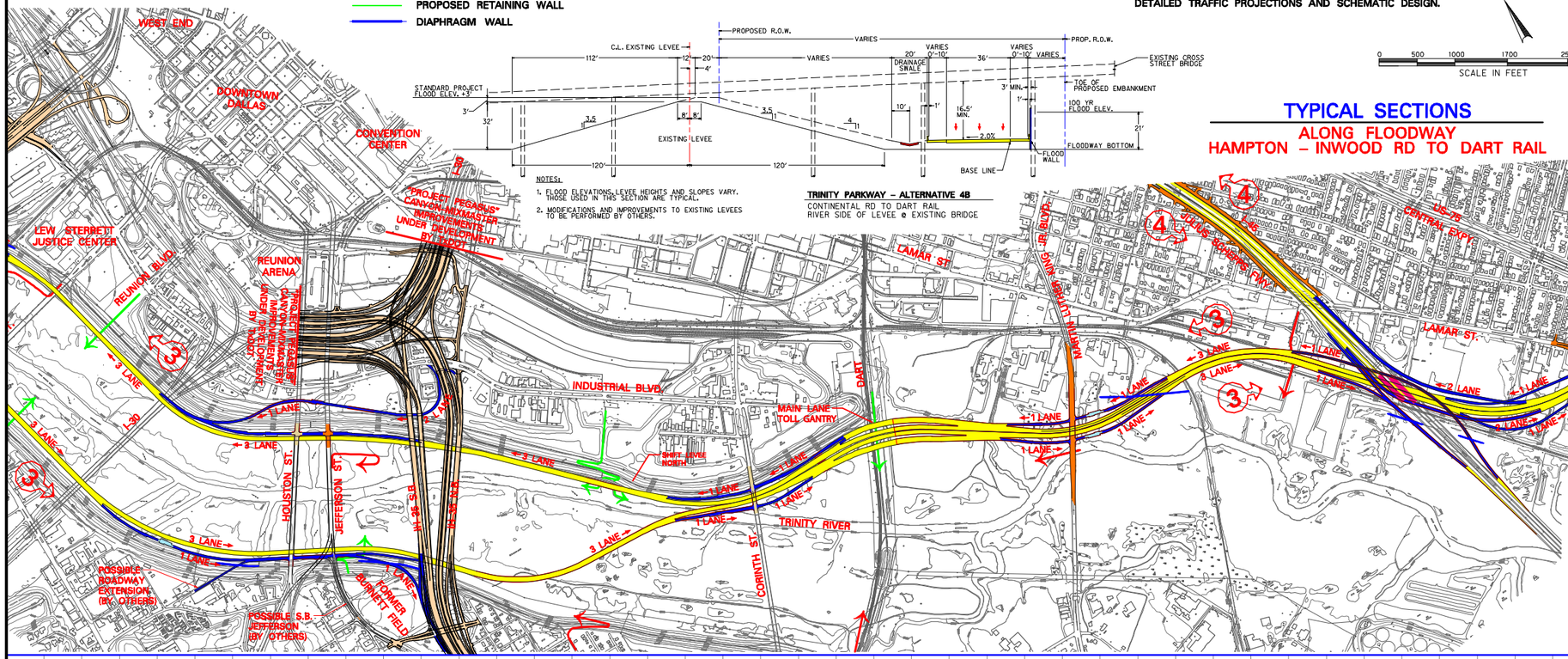
0 500 1000 1700 2500 3000
SCALE IN FEET

PLATE 2-8 B

ALTERNATIVE 4B SPLIT PARKWAY (RIVERSIDE) (SOUTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

MATCH LINE



NOTES:

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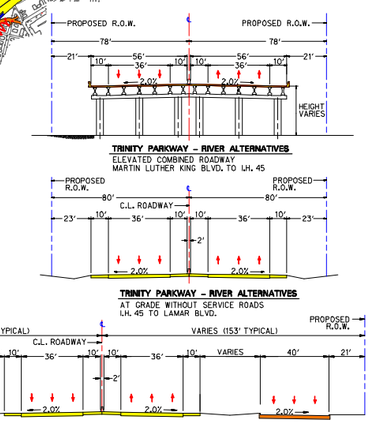
2. MODIFICATIONS AND IMPROVEMENTS TO EXISTING LEVEES TO BE PERFORMED BY OTHERS.

TRINITY PARKWAY – ALTERNATIVE 4B
CONTINENTAL RD TO DART RAIL
RIVER SIDE OF LEVEE @ EXISTING BRIDGE

TYPICAL SECTIONS
ALONG FLOODWAY
HAMPTON – INWOOD RD TO DART RAIL

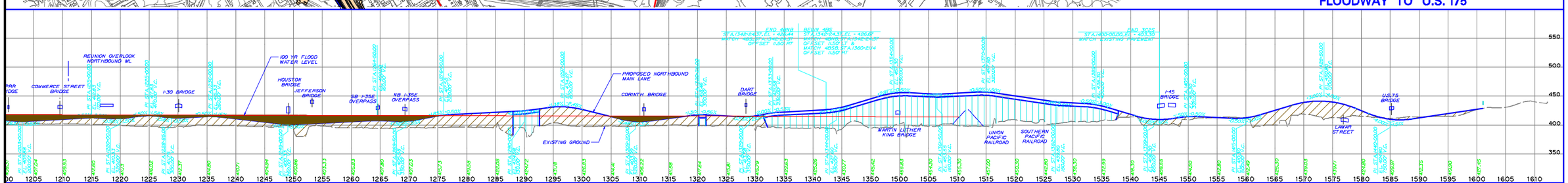


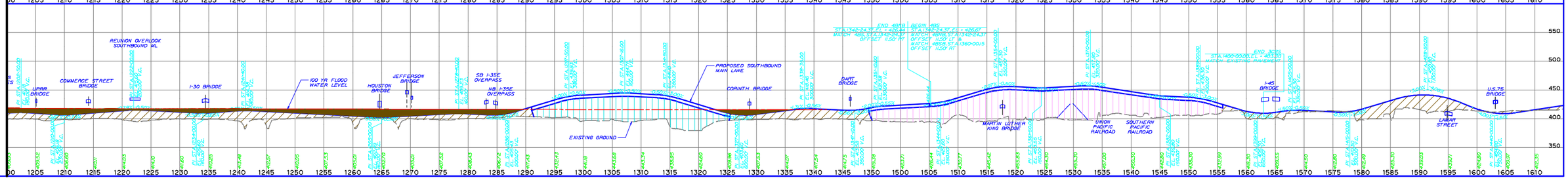
TRINITY PARKWAY – RIVER ALTERNATIVES
ELEVATED COMBINED ROADWAY
MARTIN LUTHER KING BLVD. TO I.H. 45

TRINITY PARKWAY – RIVER ALTERNATIVES
AT GRADE WITHOUT SERVICE ROADS
I.H. 45 TO LAMAR BLVD.

TRINITY PARKWAY – RIVER ALTERNATIVES
AT-GRADE WITH SERVICE ROADS
LAMAR BLVD. TO U.S. 175

TYPICAL SECTIONS
FLOODWAY TO U.S. 175





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NOTE:

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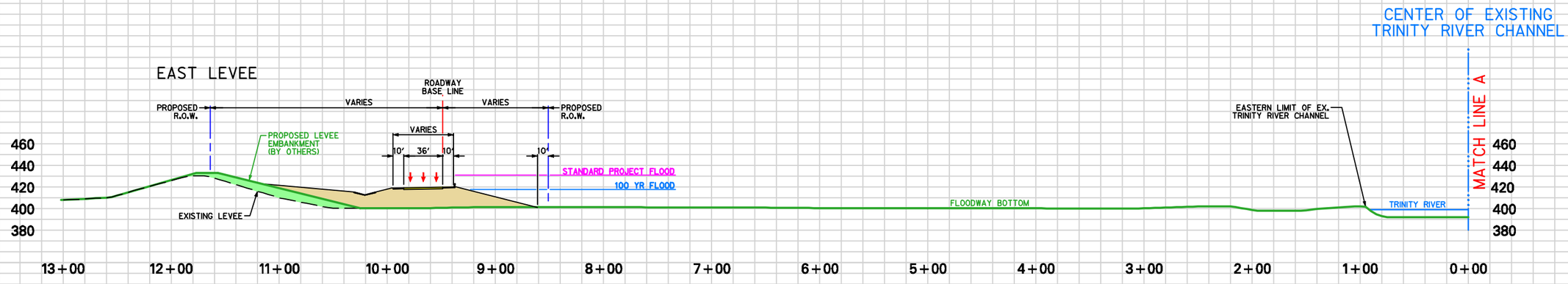
0 25 50 75 100 150 200 300
SCALE IN FEET

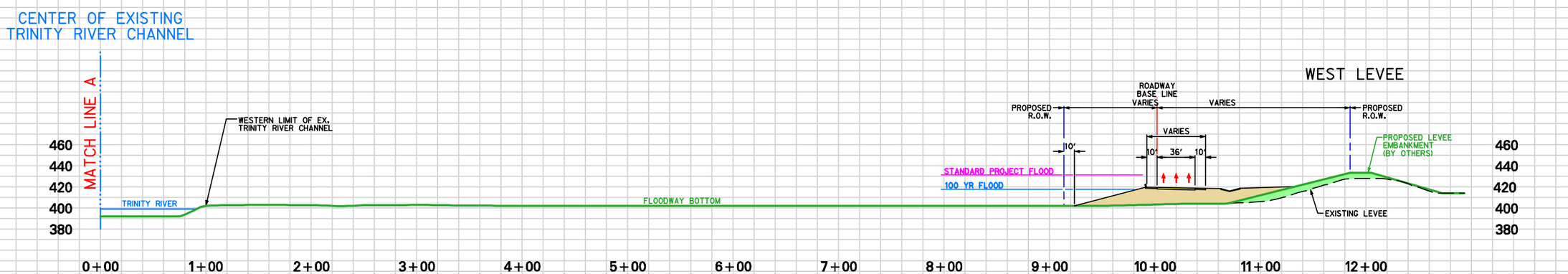
PLATE 2-8 C

FLOODWAY SECTION FOR ALTERNATIVE 4B SPLIT PARKWAY – RIVERSIDE

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

SPLIT PARKWAY – RIVERSIDE
SECTION LOOKING DOWNSTREAM (SOUTH)





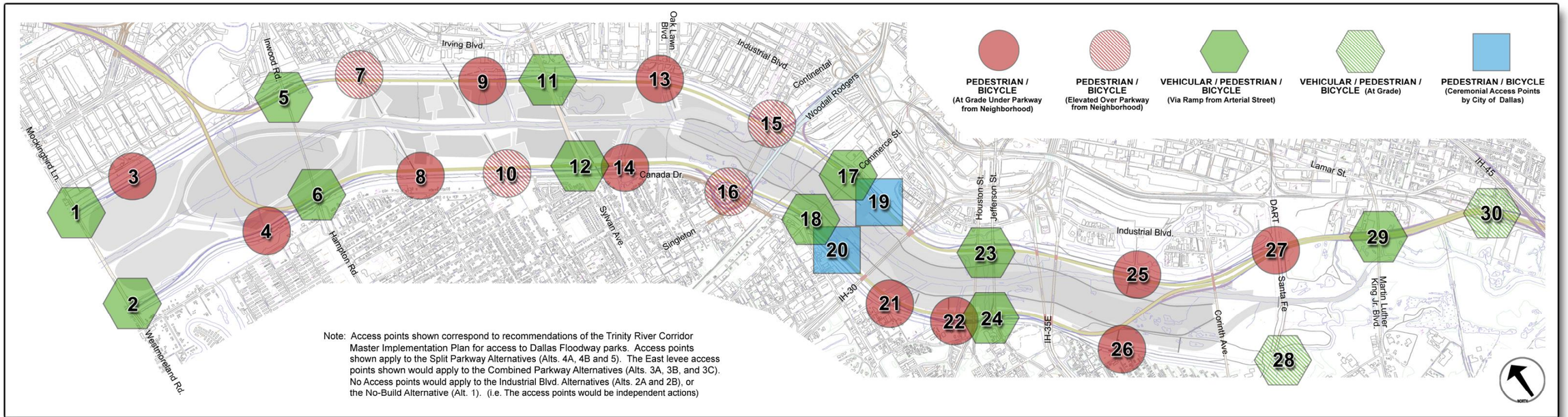
Project: ##PROJECT## ##FILE## ##DATE## ##TIME## ##NAME##

Park Access For Trinity River Corridor Master Implementation Plan

Plate 2-9

Park Access Locations

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



Note: Access points shown correspond to recommendations of the Trinity River Corridor Master Implementation Plan for access to Dallas Floodway parks. Access points shown apply to the Split Parkway Alternatives (Alts. 4A, 4B and 5). The East levee access points shown would apply to the Combined Parkway Alternatives (Alts. 3A, 3B, and 3C). No Access points would apply to the Industrial Blvd. Alternatives (Alts. 2A and 2B), or the No-Build Alternative (Alt. 1). (i.e. The access points would be independent actions)

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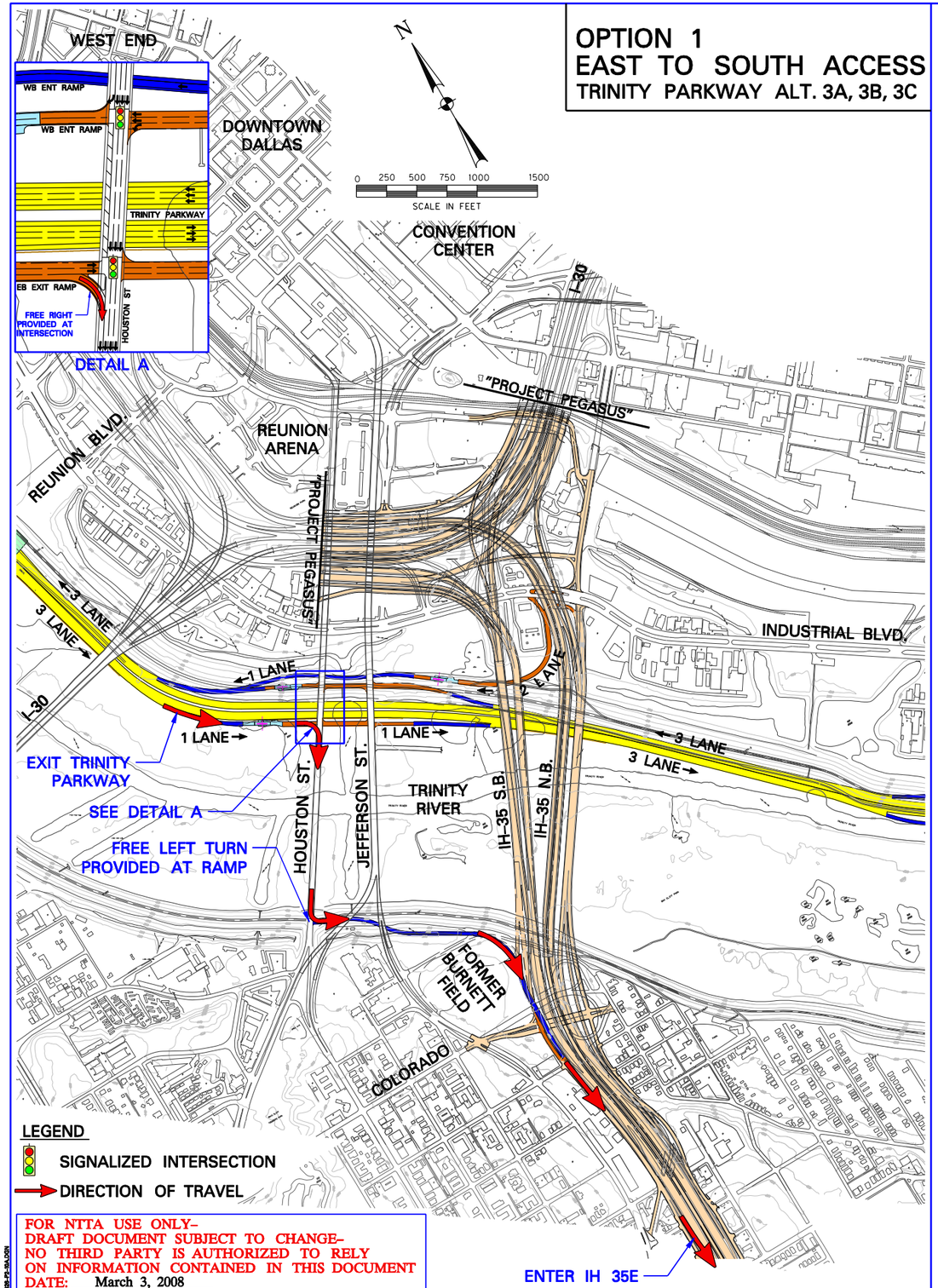
OPTION 1
EAST TO SOUTH ACCESS
TRINITY PARKWAY ALT. 3A, 3B, 3C
WEST END
WB ENT RAMP
WB ENT RAMP
TRINITY PARKWAY
EB EXIT RAMP
FREE RIGHT PROVIDED AT INTERSECTION
HOUSTON ST
DETAIL A
DOWNTOWN DALLAS
N
0 250 500 750 1000 1500
SCALE IN FEET
CONVENTION CENTER
I-30
"PROJECT PEGASUS"
REUNION ARENA
REUNION BLVD.
"PROJECT PEGASUS"
3 LANE
3 LANE
INDUSTRIAL BLVD.
1 LANE
2 LANE
1 LANE
1 LANE
3 LANE
3 LANE
I-30
EXIT TRINITY PARKWAY
SEE DETAIL A
FREE LEFT TURN PROVIDED AT RAMP
HOUSTON ST.
JEFFERSON ST.
TRINITY RIVER
IH-35 S.B.
IH-35 N.B.
FORMER BURNETT FIELD
COLORADO
LEGEND
SIGNALIZED INTERSECTION
DIRECTION OF TRAVEL
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DATE: March 3, 2008
ENTER IH 35E

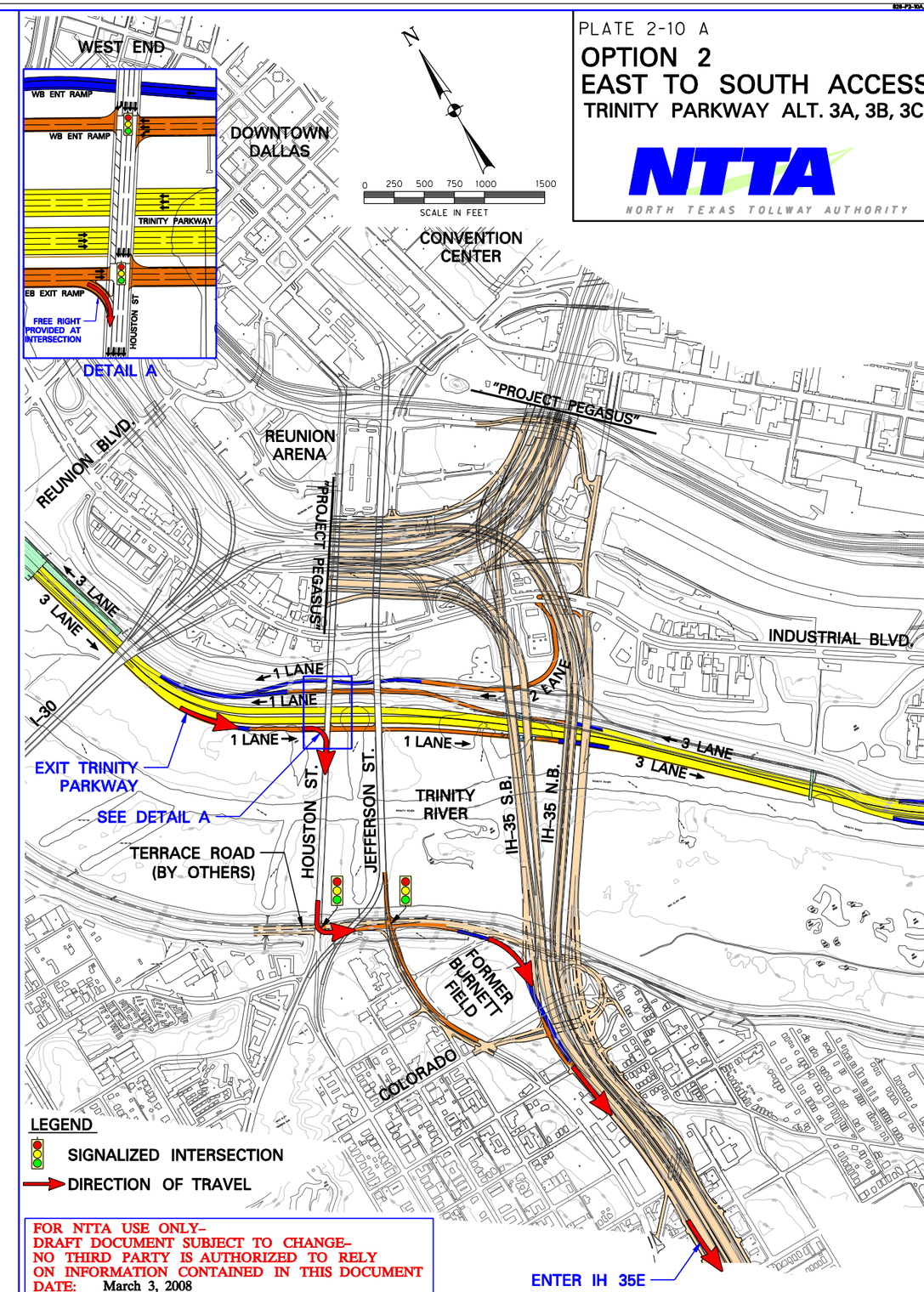
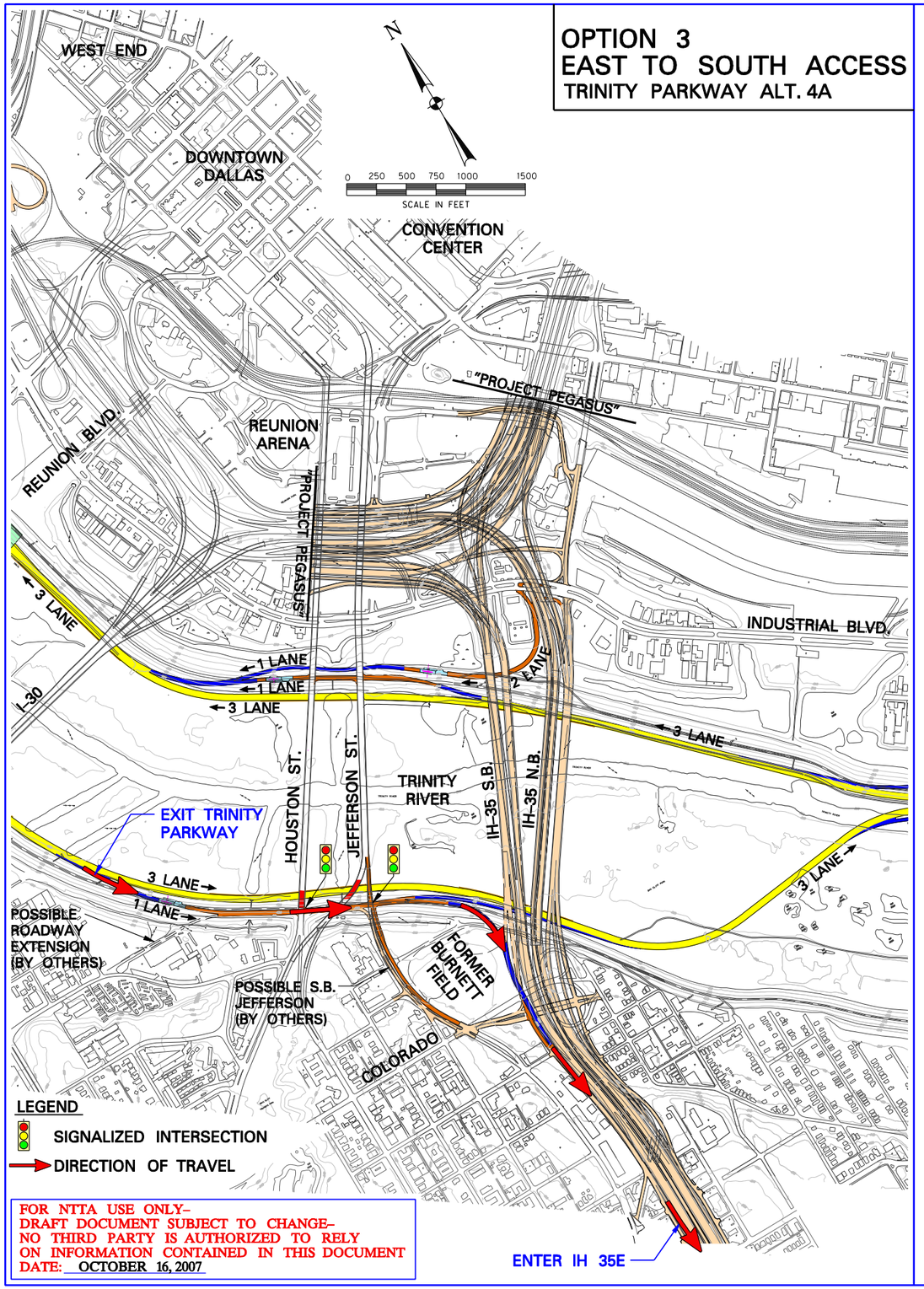


PLATE 2-10 A
OPTION 2
EAST TO SOUTH ACCESS
TRINITY PARKWAY ALT. 3A, 3B, 3C
NTTA
NORTH TEXAS TOLLWAY AUTHORITY
WEST END
WB ENT RAMP
WB ENT RAMP
TRINITY PARKWAY
EB EXIT RAMP
FREE RIGHT PROVIDED AT INTERSECTION
HOUSTON ST
DETAIL A
DOWNTOWN DALLAS
N
0 250 500 750 1000 1500
SCALE IN FEET
CONVENTION CENTER
I-30
"PROJECT PEGASUS"
REUNION ARENA
REUNION BLVD.
"PROJECT PEGASUS"
3 LANE
3 LANE
INDUSTRIAL BLVD.
1 LANE
2 LANE
1 LANE
1 LANE
3 LANE
3 LANE
I-30
EXIT TRINITY PARKWAY
SEE DETAIL A
TERRACE ROAD (BY OTHERS)
HOUSTON ST.
JEFFERSON ST.
TRINITY RIVER
IH-35 S.B.
IH-35 N.B.
FORMER BURNETT FIELD
COLORADO
LEGEND
SIGNALIZED INTERSECTION
DIRECTION OF TRAVEL
FOR NTTA USE ONLY-
DRAFT DOCUMENT SUBJECT TO CHANGE-
NO THIRD PARTY IS AUTHORIZED TO RELY
ON INFORMATION CONTAINED IN THIS DOCUMENT
DATE: March 3, 2008
ENTER IH 35E



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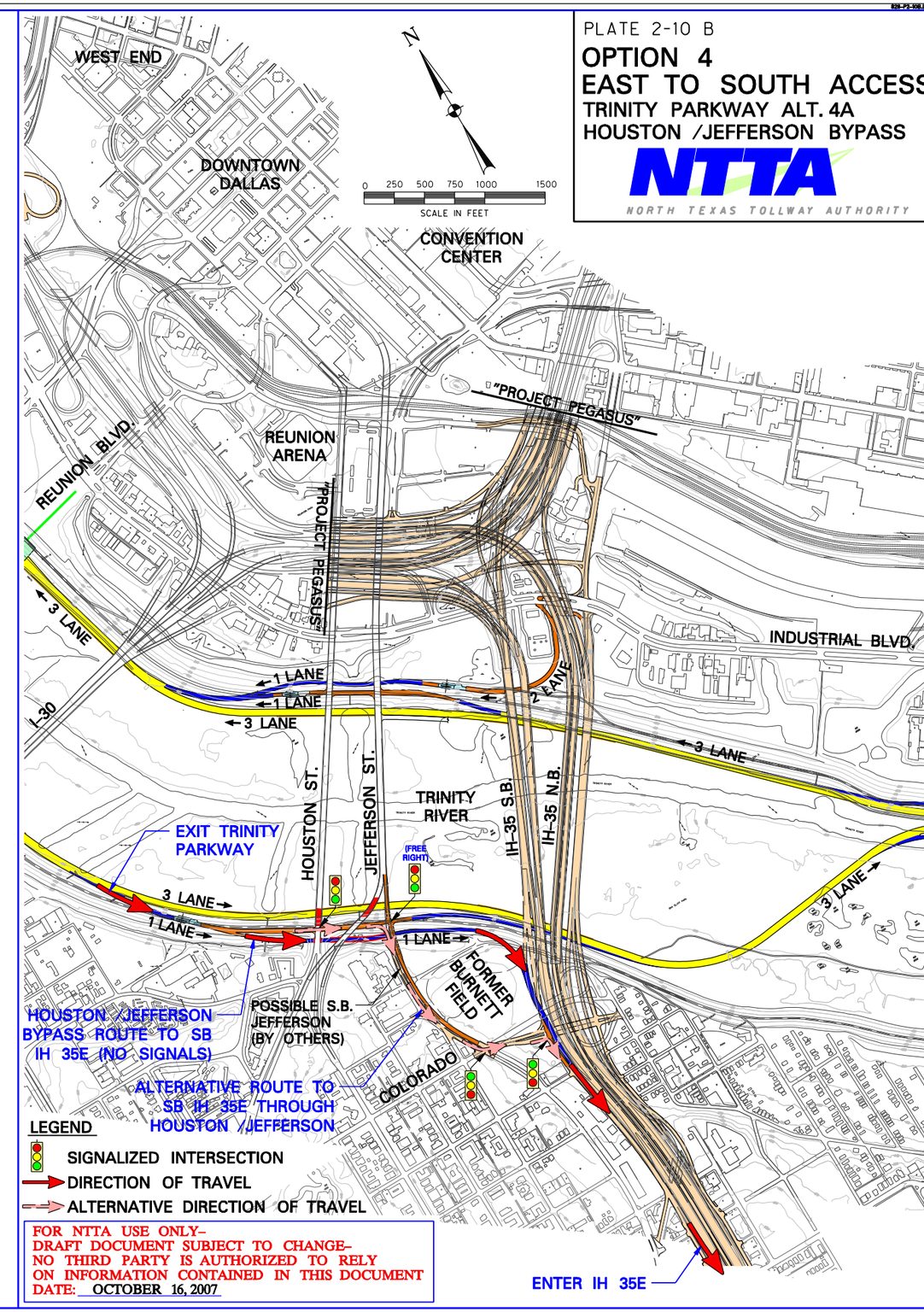
DATE: OCTOBER 16, 2007



FOR NTTA USE ONLY–
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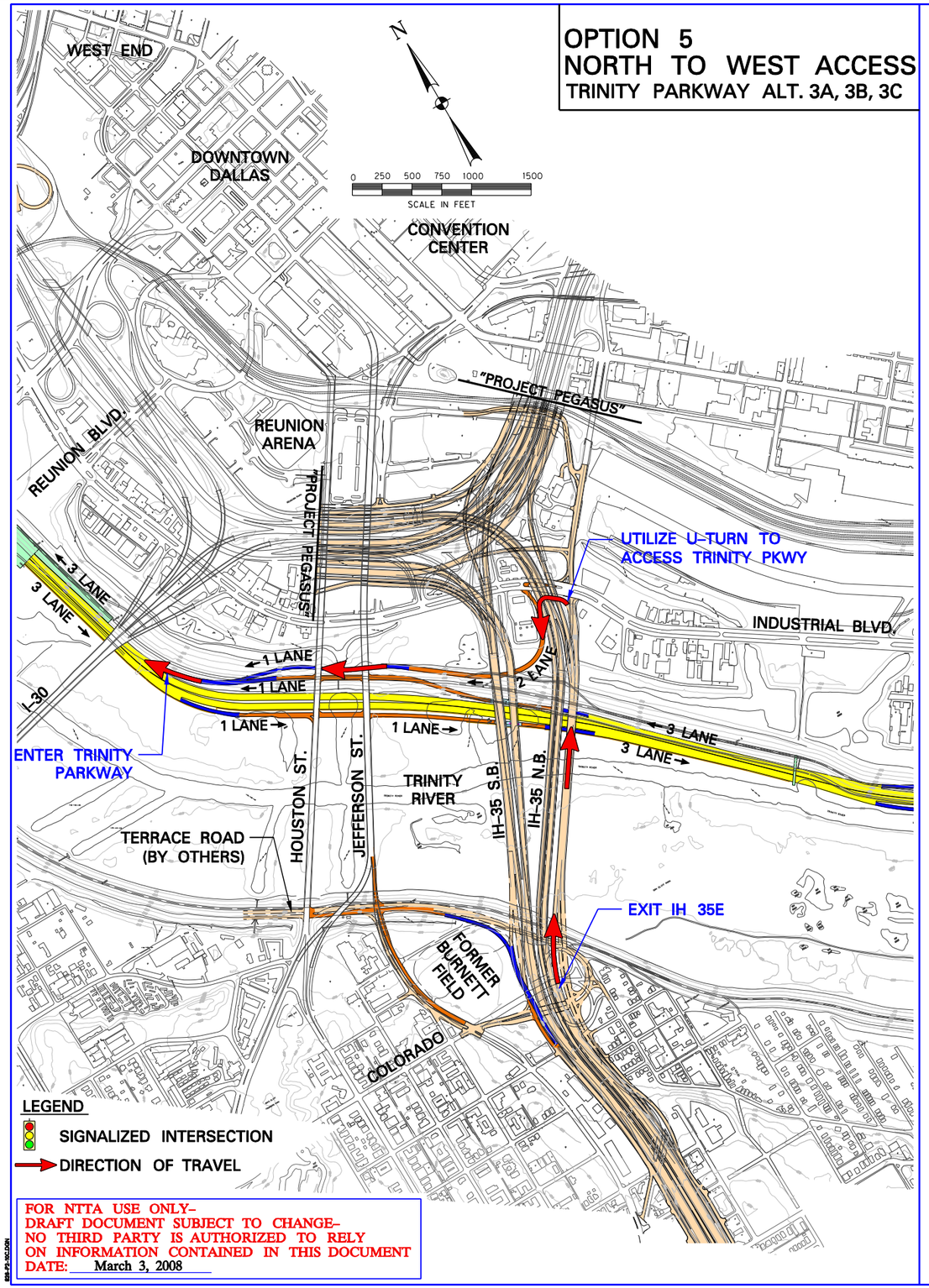
OPTION 5
NORTH TO WEST ACCESS
TRINITY PARKWAY ALT. 3A, 3B, 3C
N
0 250 500 750 1000 1500
SCALE IN FEET
WEST END
DOWNTOWN DALLAS
CONVENTION CENTER
"PROJECT PEGASUS"
REUNION ARENA
REUNION BLVD.
"PROJECT PEGASUS"
UTILIZE U-TURN TO ACCESS TRINITY PKWY
INDUSTRIAL BLVD.
3 LANE
3 LANE
1 LANE
1 LANE
2 LANE
1 LANE
1 LANE
1 LANE
3 LANE
3 LANE
I-30
ENTER TRINITY PARKWAY
HOUSTON ST.
JEFFERSON ST.
TRINITY RIVER
IH-35 S.B.
IH-35 N.B.
TERRACE ROAD (BY OTHERS)
EXIT IH 35E
FORMER BURNETT FIELD
COLORADO
LEGEND
SIGNALIZED INTERSECTION
DIRECTION OF TRAVEL
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ON INFORMATION CONTAINED IN THIS DOCUMENT
DATE: March 3, 2008

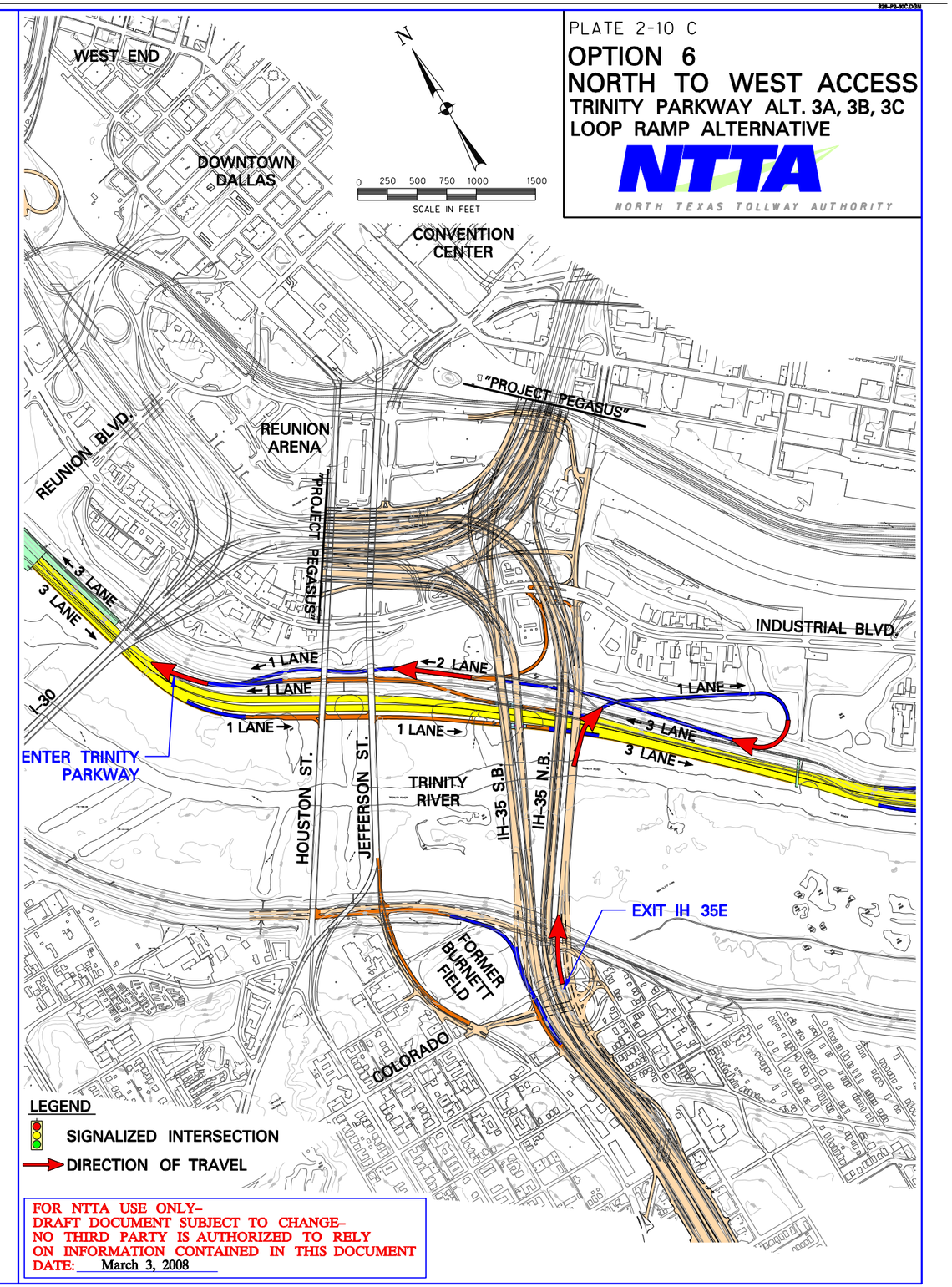
PLATE 2-10 C
OPTION 6
NORTH TO WEST ACCESS
TRINITY PARKWAY ALT. 3A, 3B, 3C
LOOP RAMP ALTERNATIVE
NTTA
NORTH TEXAS TOLLWAY AUTHORITY
N
0 250 500 750 1000 1500
SCALE IN FEET
WEST END
DOWNTOWN DALLAS
CONVENTION CENTER
"PROJECT PEGASUS"
REUNION ARENA
REUNION BLVD.
"PROJECT PEGASUS"
INDUSTRIAL BLVD.
3 LANE
3 LANE
1 LANE
1 LANE
2 LANE
1 LANE
1 LANE
1 LANE
3 LANE
3 LANE
I-30
ENTER TRINITY PARKWAY
HOUSTON ST.
JEFFERSON ST.
TRINITY RIVER
IH-35 S.B.
IH-35 N.B.
EXIT IH 35E
FORMER BURNETT FIELD
COLORADO
LEGEND
SIGNALIZED INTERSECTION
DIRECTION OF TRAVEL
FOR NTTA USE ONLY–
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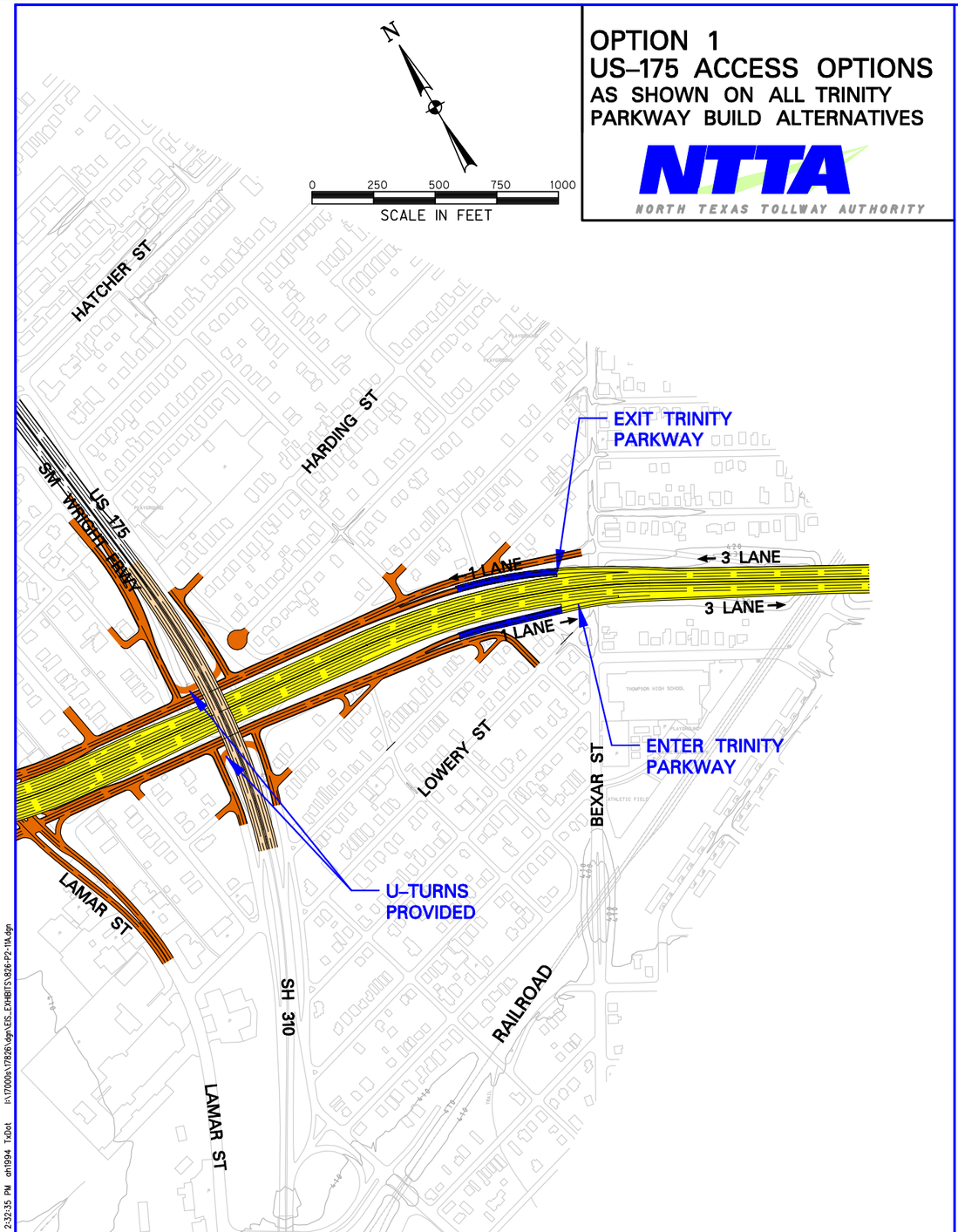
DATE: March 3, 2008

OPTION 1
US–175 ACCESS OPTIONS
AS SHOWN ON ALL TRINITY PARKWAY BUILD ALTERNATIVES

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



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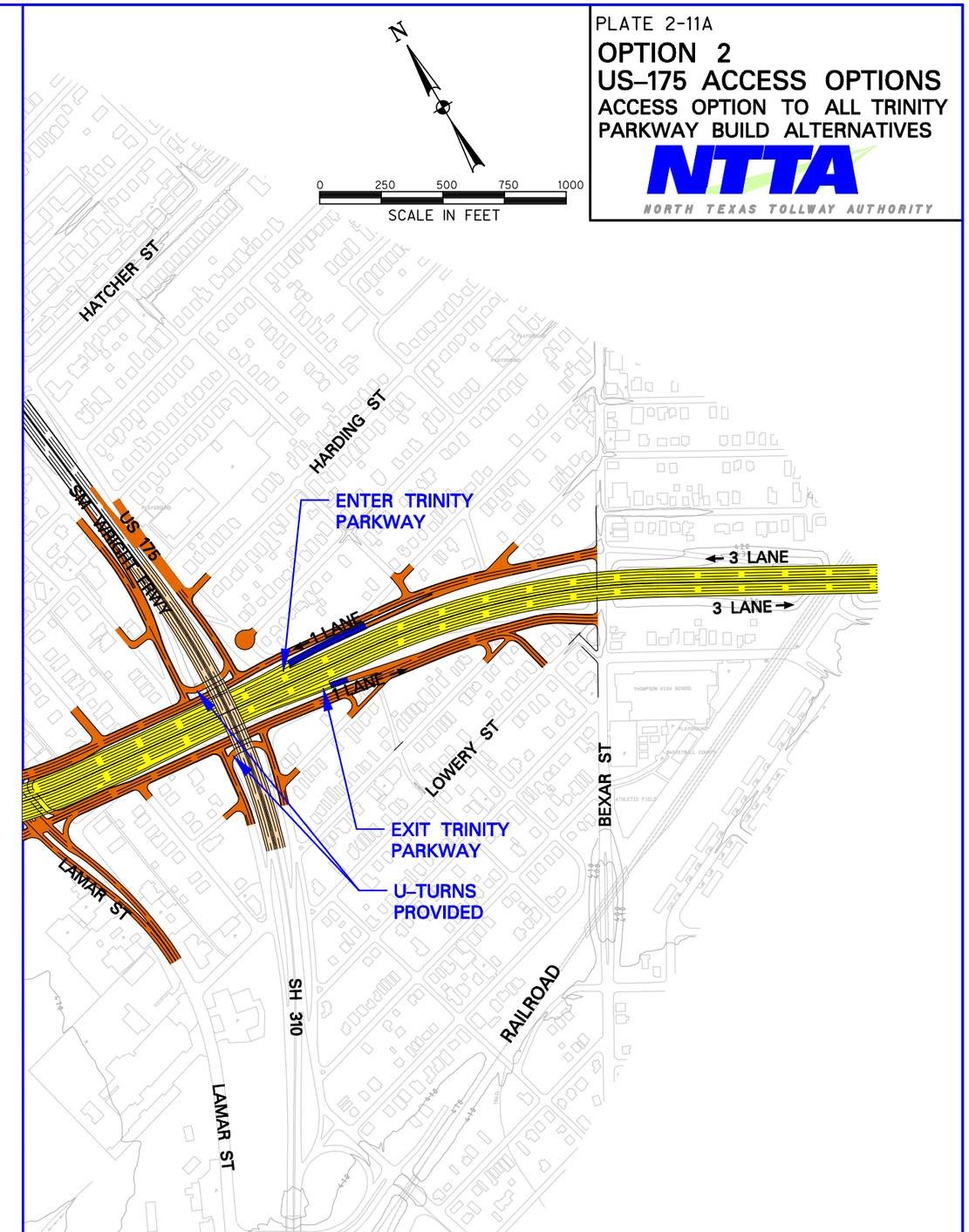
DATE: May 8, 2008

PLATE 2-11A

OPTION 2
US–175 ACCESS OPTIONS
ACCESS OPTION TO ALL TRINITY PARKWAY BUILD ALTERNATIVES

NTTA
NORTH TEXAS TOLLWAY AUTHORITY



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DATE: May 8, 2008

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826-P2-11A.DGN

PLATE 2-11B

OPTION 1
CORINTH STREET /INDUSTRIAL BLVD ACCESS OPTION

CONCEPTUAL ONLY – COULD BE INCORPORATED IN TRINITY PARKWAY BUILD ALTERNATIVES 3A, 3B, 3C, 4A, 4B & 5

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

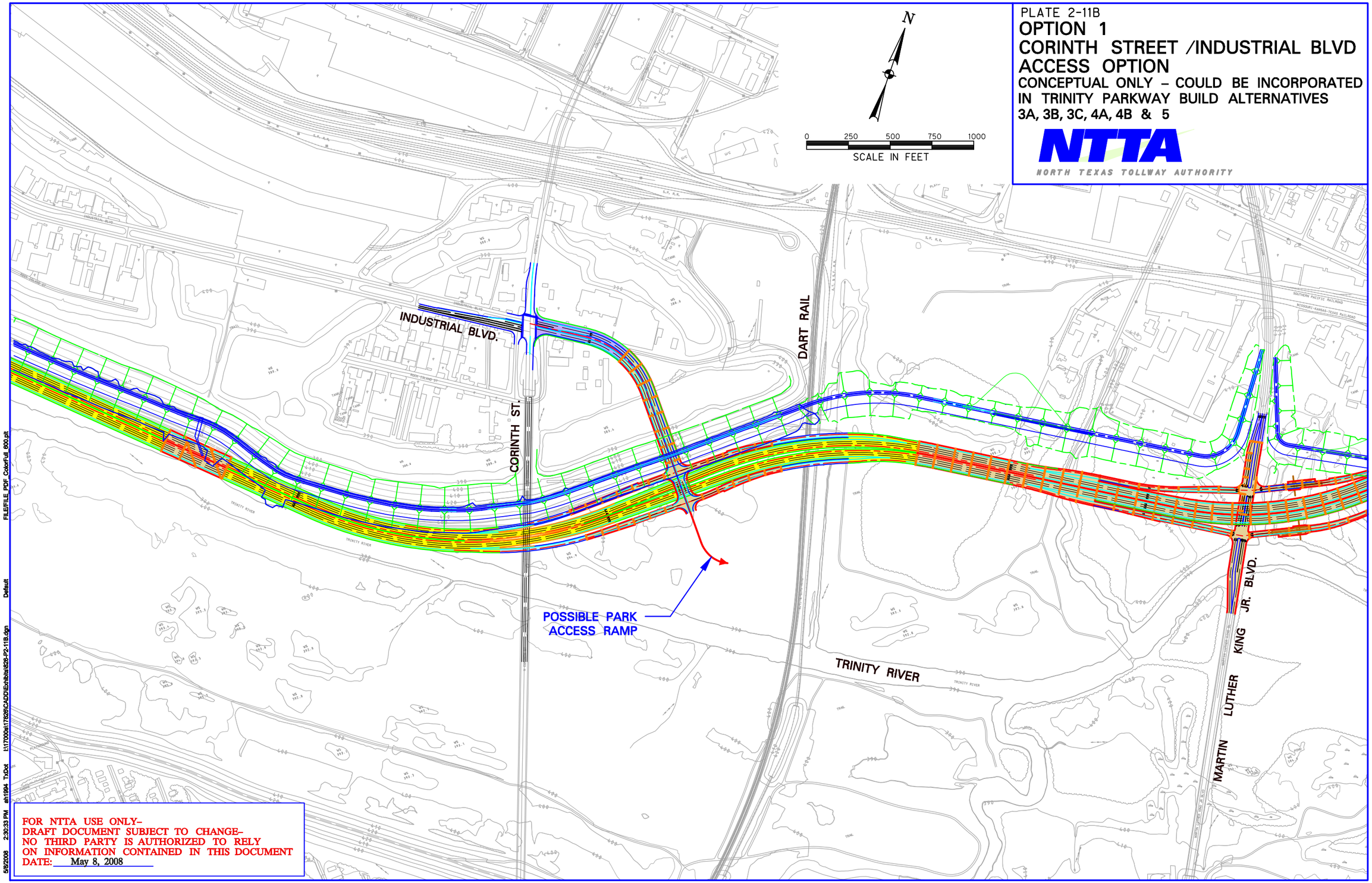

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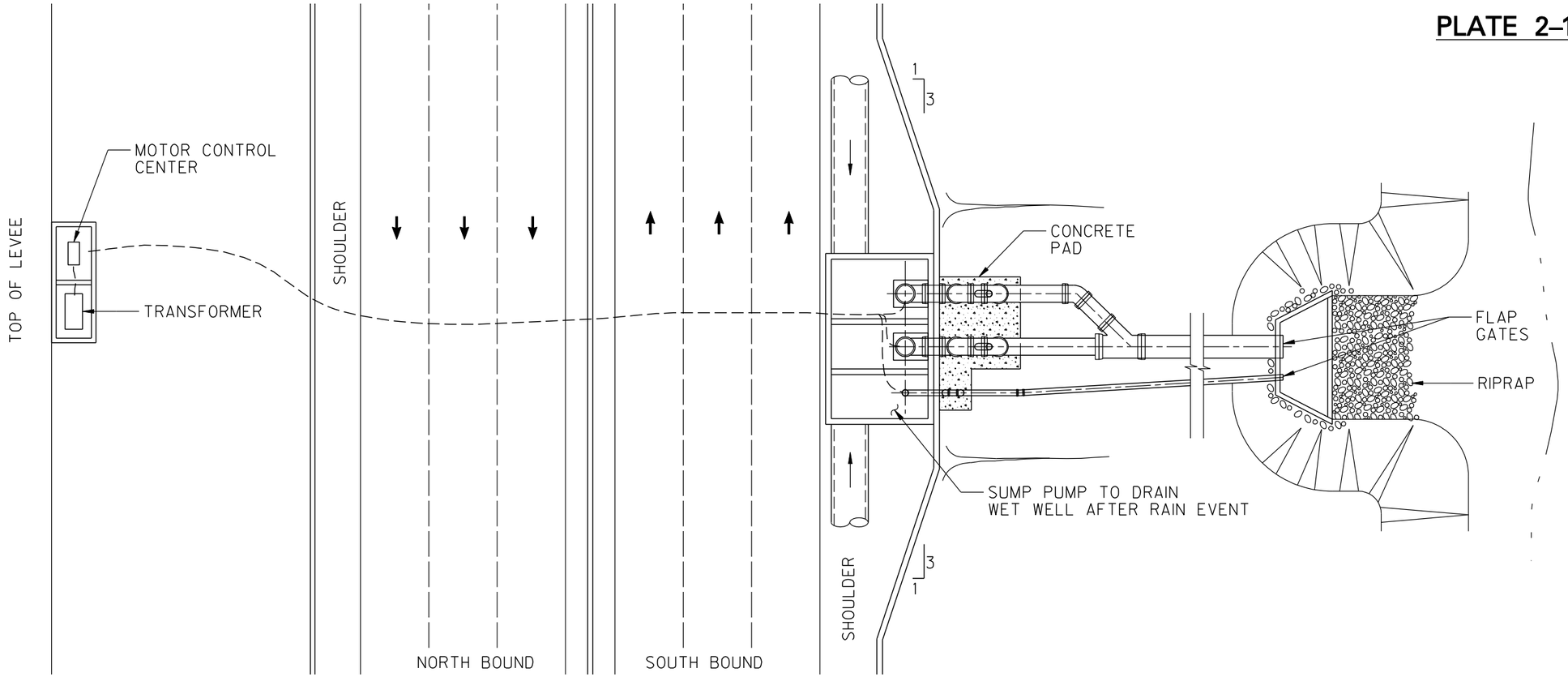
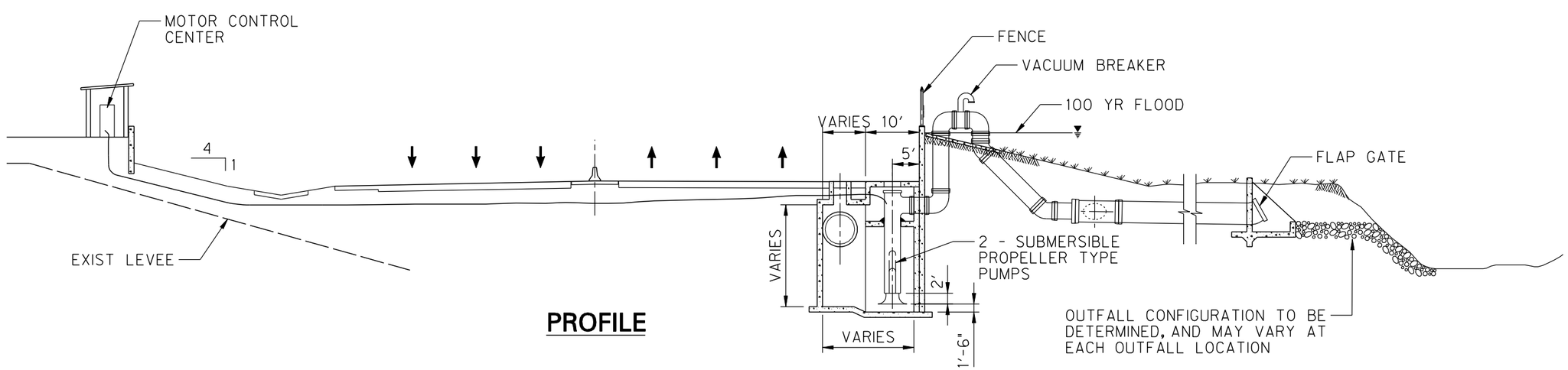
PLATE 2–12



PLAN



PROFILE

OCTOBER 16, 2007

CONCEPTUAL PUMP STATION

TRINITY PARKWAY EIS

NORTH TEXAS TOLLWAY AUTHORITY

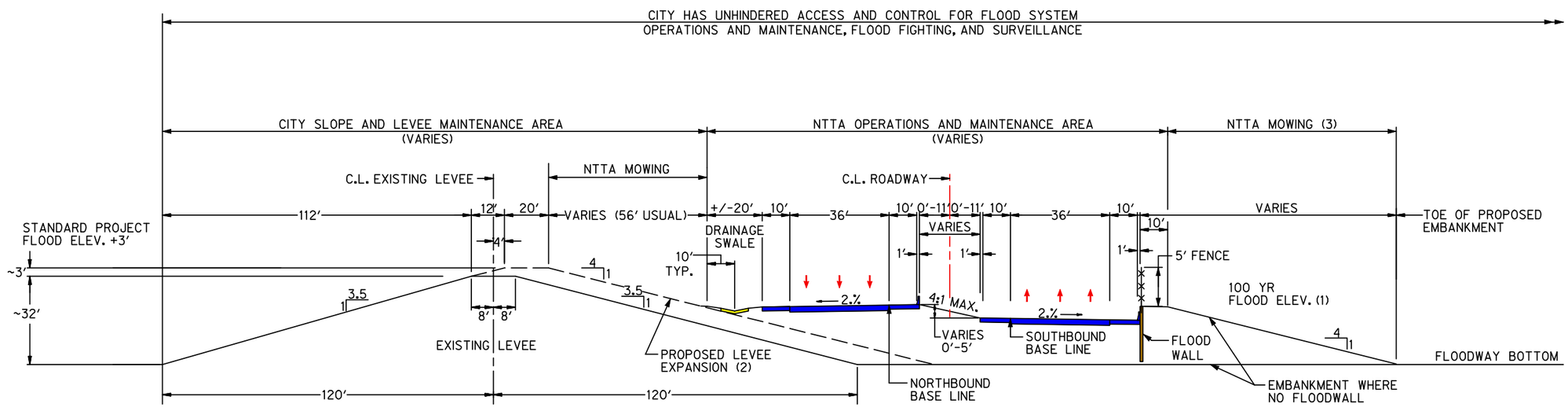
DALLAS, TEXAS

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HALFF	TNL	OCT. 2007	1"=20'	17826	826-PUMP	

NTTA NORTH TEXAS TOLLWAY AUTHORITY

EXAMPLE ONLY OF PROPOSED RIGHT-OF-WAY AND OPERATION AND MAINTENANCE LIMITS. SIMILAR LIMITS WOULD APPLY TO ALL FLOODWAY ALTERNATIVES. THE FULL RIGHT-OF-WAY OF THE INDUSTRIAL BLVD. ALTERNATIVES (ALTERNATIVES 2A AND 2B) WOULD BE ENTIRELY OPERATED AND MAINTAINED BY NTTA.

PLATE 2-13



NOTES:

1. FLOOD ELEVATIONS, LEVEE HEIGHTS AND SLOPES VARY. THOSE USED IN THIS SECTION ARE TYPICAL.
2. MODIFICATIONS AND IMPROVEMENTS TO EXISTING LEVEES TO BE PERFORMED BY OTHERS.
3. IN THIS AREA, NTTA WILL BE RESPONSIBLE FOR RESTORATION OF SLOPE FAILURES OR OTHER PROBLEMS THREATENING THE ROAD STRUCTURE.
4. A FUTURE INTERLOCAL AGREEMENT BETWEEN THE CITY AND NTTA WILL FURTHER DETAIL AND DEFINE THE MAINTENANCE RESPONSIBILITIES, TIMING AND OVERSIGHT.

TRINITY PKWY ALT. 3B + 3C
COMBINED PKWY – EAST LEVEE (MODIFIED)
TYPICAL SECTION ALONG FLOODWAY

DRAFT
SUBJECT TO CHANGE
9-15-2008

TRINITY PARKWAY TYPICAL SECTION OF OPERATIONS AND MAINTENANCE AREA
TRINITY PARKWAY EIS
NORTH TEXAS TOLLWAY AUTHORITY
DALLAS, TEXAS

NTTA NORTH TEXAS TOLLWAY AUTHORITY

DESIGN	DRAWN	DATE	SCALE	NOTES	FILE	NO.
HALFF	TNL	SEPT. 2008		17826	826-NTTA SECT-080915	

826-PP2BInitial-N.DGN

PLATE 2-14 A

ALTERNATIVE 2B – STAGED CONSTRUCTION (NORTH)

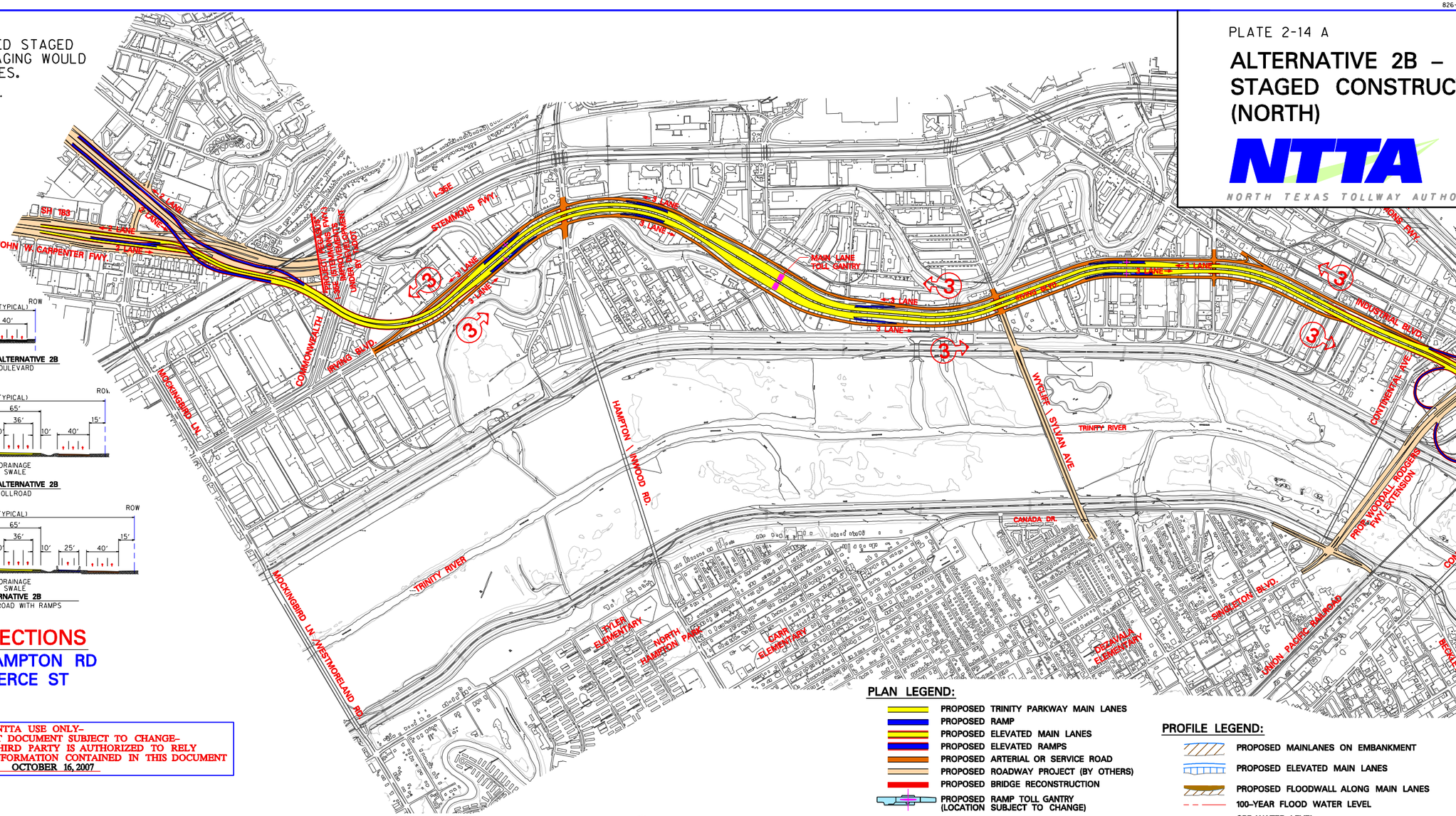
NTTA
NORTH TEXAS TOLLWAY AUTHORITY

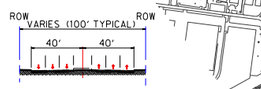
EXAMPLE ONLY OF PROPOSED STAGED CONSTRUCTION. SIMILAR STAGING WOULD APPLY TO ALL ALTERNATIVES.

ALIGNMENT SUBJECT TO APPROVAL BY FHWA.

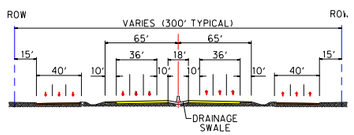
N

0 500 1000 1700 2500 3000
SCALE IN FEET

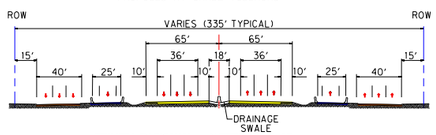




TRINITY PARKWAY – ALTERNATIVE 2B
EXISTING INDUSTRIAL BOULEVARD



TRINITY PARKWAY – ALTERNATIVE 2B
PROPOSED AT GRADE TOLLROAD



TRINITY PARKWAY – ALTERNATIVE 2B
PROPOSED AT GRADE TOLLROAD WITH RAMPS

TYPICAL SECTIONS
NORTH OF HAMPTON RD TO COMMERCE ST

FOR NTTA USE ONLY–
DRAFT DOCUMENT SUBJECT TO CHANGE–
NO THIRD PARTY IS AUTHORIZED TO RELY ON INFORMATION CONTAINED IN THIS DOCUMENT
DATE: OCTOBER 16, 2007

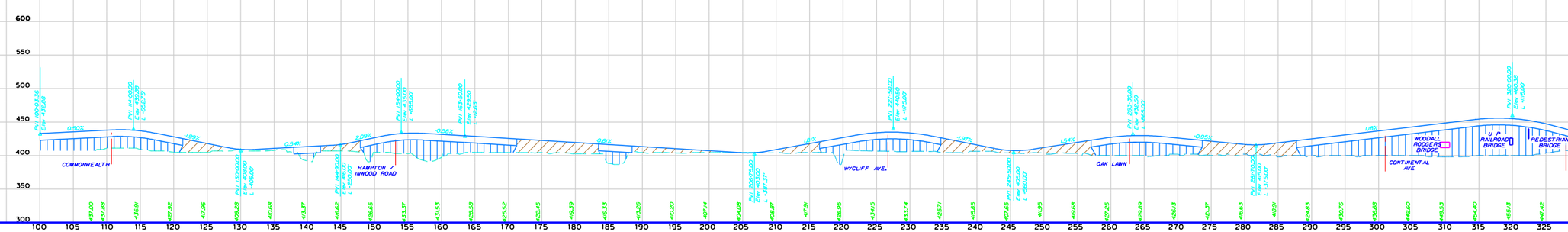
PLAN LEGEND:

- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL

3 NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION

PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING



c:\ovo\17826\826-PP2BInitial-N.dgn 10/16/2007 10:22:45 AM User:anil37
Project: Active Project-Transportation

826-PP2Binitial-S.DGN

PLATE 2-14 B

ALTERNATIVE 2B STAGED CONSTRUCTION (SOUTH)

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

EXAMPLE ONLY OF PROPOSED STAGED CONSTRUCTION. SIMILAR STAGING WOULD APPLY TO ALL ALTERNATIVES.

PLAN LEGEND:

- NUMBER OF GENERAL PURPOSE LANES ALONG INDICATED MAIN LANE DIRECTION
- PROPOSED TRINITY PARKWAY MAIN LANES
- PROPOSED RAMP
- PROPOSED ELEVATED MAIN LANES
- PROPOSED ELEVATED RAMPS
- PROPOSED ARTERIAL OR SERVICE ROAD
- PROPOSED ROADWAY PROJECT (BY OTHERS)
- PROPOSED BRIDGE RECONSTRUCTION
- PROPOSED RAMP TOLL GANTRY (LOCATION SUBJECT TO CHANGE)
- PROPOSED FLOODWALL
- PROPOSED RETAINING WALL

PROFILE LEGEND:

- PROPOSED MAINLANES ON EMBANKMENT
- PROPOSED ELEVATED MAIN LANES
- PROPOSED FLOODWALL ALONG MAIN LANES
- 100-YEAR FLOOD WATER LEVEL
- SPF WATER LEVEL
- EXISTING BRIDGE CROSSING

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DATE: OCTOBER 16, 2007

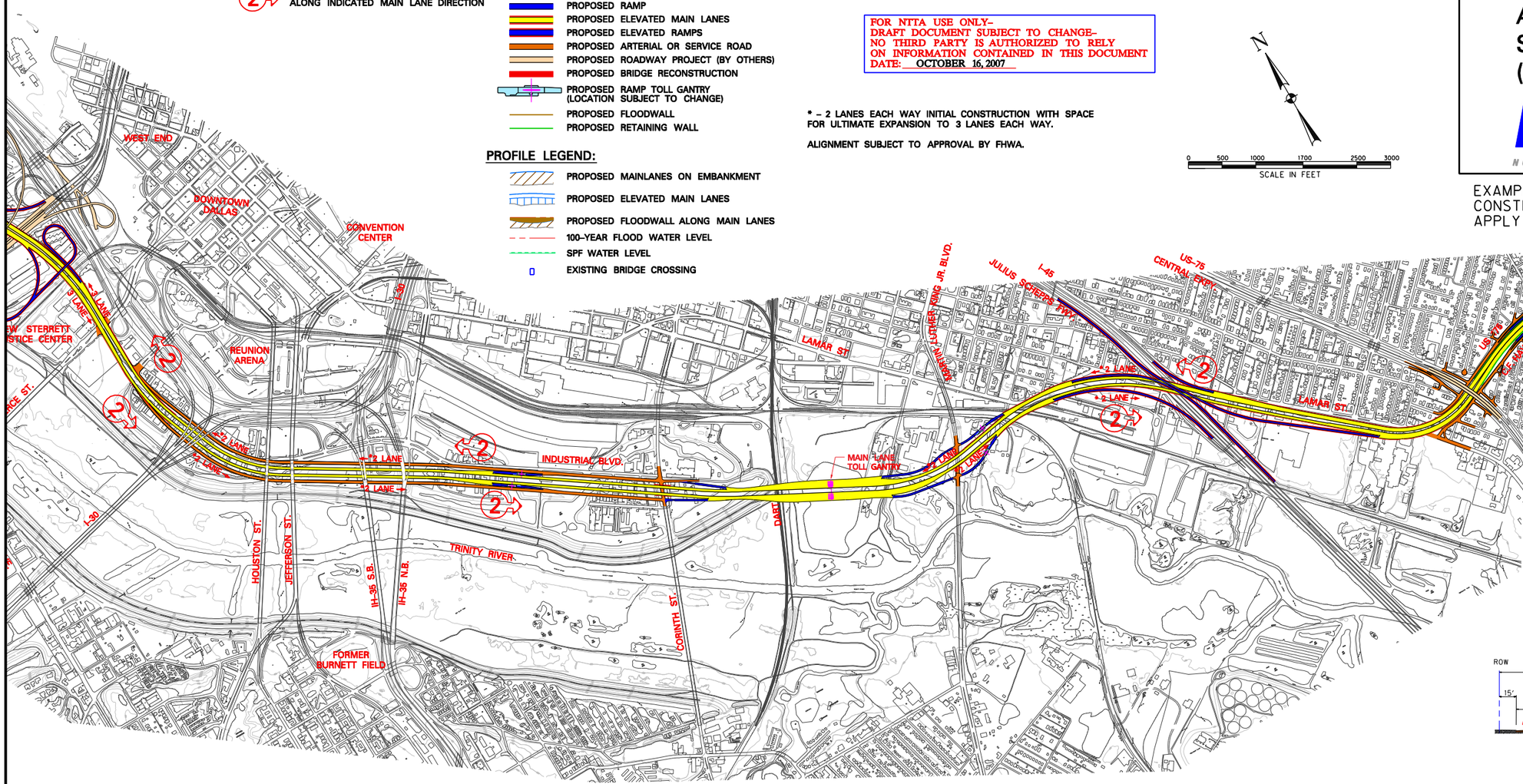
* – 2 LANES EACH WAY INITIAL CONSTRUCTION WITH SPACE FOR ULTIMATE EXPANSION TO 3 LANES EACH WAY.

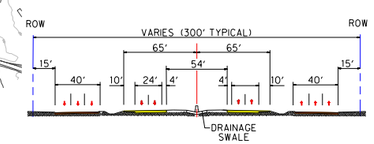
ALIGNMENT SUBJECT TO APPROVAL BY FHWA.

N

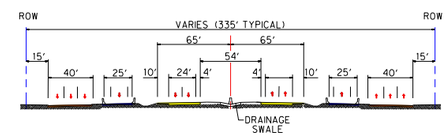
0 500 1000 1700 2500 3000
SCALE IN FEET

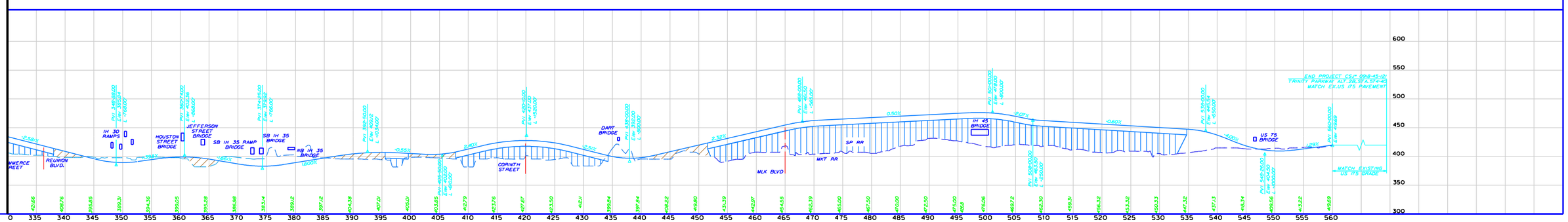
MATCH LINE





TRINITY PARKWAY – ALTERNATIVE 2B
PROPOSED AT GRADE TOLLROAD



TRINITY PARKWAY – ALTERNATIVE 2B
PROPOSED AT GRADE TOLLROAD WITH RAMPS

TYPICAL SECTIONS
COMMERCE ST TO I.H. 45