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NOTE:

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[END OF CHAPTER 7]

APPENDIX A

Project Development Process

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PROJECT DEVELOPMENT PROCESS

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DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

31 March 2009

Engineering and Construction Division

David F. Garcia, P.E., R.S.
Division Manager
Street Service Department
Flood Control District
2255 Irving Blvd.
Dallas, Texas 75207

Dear Mr. Garcia:

The Fort Worth District of the US Army Corps of Engineers (USACE) has completed a Periodic Inspection for the Dallas Floodway Project. Attached is the final inspection report. The overall purpose of a Periodic Inspection is to verify proper operation and maintenance; evaluate operational adequacy and structural stability at the authorized SPF+4 flood event; and, identify components and features to monitor over time. As a result of this inspection, the Fort Worth District has given each of the four levee systems which comprise the Dallas Floodway Project Unacceptable ratings, which means one or more items within each system are rated as Unacceptable and would prevent the system from performing as intended. The systems inspected are the East Levee and Channel, the West Levee, Rochester Levee, and the Central Wastewater Treatment Plant Levee. Some of the deficiencies identified include 1) underseepage concerns at the Dart Bridge, Woodall Rogers Bridge, and new jail construction, 2) underseepage, through seepage, slope stability, and accessibility concerns at various bridges, penetrations, and encroachments along the levees, 3) vegetation effects on stability, surveillance, and flood fighting, 4) mechanically-stabilized wall (MSE) and I-wall stability and seepage concerns at Rochester Levee, 5) the effects of severe desiccation and cracking of East and West levee soils in promoting deep slides and seepage concerns and, 6) the ability of levees to meet current USACE design criteria with respect to stability and seepage.

In 2006, the Fort Worth District submitted a letter, see attached, to Halff Associates in support of the levee certification efforts for the City of Dallas. Essentially this letter stated that the Dallas Floodway Project East and West levees met certification requirements. Based on the results of the Periodic Inspection and the deficiencies identified, the Fort Worth District can no longer support the 2006 letter as being the documentation on record for the certification of the Dallas Floodway Project for the purposes of the National Flood Insurance Program for the base flood event. We respectfully request that our 2006 letter no longer be used as part of the certification documentation.

Please contact Kevin Craig at 817-886-1473 or Les Perrin at 817-886-1694 with any questions or if you would like to schedule a meeting to discuss the finding in more detail.

Sincerely,

Brian Giacomozzi

BRIAN T. GIACOMOZZI, P.E.
Chief, Engineering and Construction Division
Dam Safety/Levee Safety Officer
Fort Worth District, USACE

Enclosure

Copy Furnished:
Mr. Frank Pagano
Mitigation Division Director
FEMA Region 6
800 N. Loop 288
Denton, TX 76209

Trinity Parkway--FHWA criteria for project approval

For this project, the FHWA will need the project's environmental documents to address and consider all applicable Executive Orders and FHWA regulations, orders and guidance specifically including those dealing with wetlands and flood plains. Additionally, they must also address and consider the requirements of Section 4(f). All three of these program elements must be considered in a coordinated fashion before FHWA can issue any decision on the Trinity Parkway. This memo reviews each program's requirements and then sets out how these elements must be considered in a coordinated manner.

A. Executive Order 11990 – Protection of Wetlands, DOT Order 5660.1A – Preservation of Nation's Wetlands, and 23 CFR Part 777 - Mitigation of Impacts to Wetlands and Natural Habitat

Executive Order 11990 requires a "no practicable alternative" finding before a Federal agency can provide any project approval. Once this finding is made the proposed action must include "all practicable measures to minimize harm to wetlands which may result from such use." 42 Fed.Reg. 26961 (1977). An agency may consider economic, environmental and "other pertinent factors" in making these findings of practicability. In 23 CFR § 777.2, FHWA specifically defines "practicable" as being "available and capable of being done after taking into consideration cost, existing technology, and logistics, in light of overall project purposes."

In accordance with FHWA's Technical Advisory T6640.8A October 30, 1987, if the preferred alternative is located in wetlands, to the fullest extent possible, the final EIS needs to contain the finding required by Executive Order 11990 that there are no practicable alternatives to construction in wetlands. Where the finding is included, approval of the final EIS will document compliance with the Executive Order 11990 requirements (23 CFR § 771.125(a)(1)). The finding should be included in a separate subsection entitled "Only Practicable Alternative Finding" and should be supported by the following information:

(a) A reference to Executive Order 11990;
(b) An explanation why there are no practicable alternatives to the proposed action;
(c) An explanation why the proposed action includes all practicable measures to minimize harm to wetlands; and;
(d) A concluding statement that: "Based upon the above considerations, it is determined that there is no practicable alternative to the proposed construction in wetlands and that the proposed action includes all practicable measures to minimize harm to wetlands which may result from such use.

Similar requirements are imposed by other federal requirements where flood plains are an issue.

B. Executive Order 11988 – Flood Plain Management and 23 CFR § 650 Subpart A-Location and Hydraulic Design of Encroachments on Flood Plains

It is FHWA's policy to avoid both significant and longitudinal encroachments in flood plains, where *practicable*.

Executive Order 11988, entitled "Floodplain Management," requires federal agencies taking action "in or affecting a floodplain" to consider the project's effects on the flood plains and possible alternatives, and may proceed only if it finds that the "only practicable alternative" requires "sitting in" the floodplain. In designing any plan the responsible agency must take steps to minimize potential damage to the floodplain. 42 Fed.Reg. 26951 (1977).

In implementing this Executive Order, 23 CFR § 650.113 states that "a proposed action which includes a significant encroachment shall not be approved unless the FHWA finds that it is the "only practicable alternative." This finding must be included in the FEIS and is supported by the following information:

1) The reasons why the proposed action must be located in the flood plain
2) The alternatives considered and why they were not practicable
3) A statement indicating whether the action conforms to applicable State or local flood plain protection standards.

In its regulations on flood plains, FHWA defines "practicable" as "capable of being done within reasonable natural, social, or economic constraints." *See* 23 C.F.R. § 650.105(k) (implementing Executive Order 11988). "Significant encroachment" is defined as a highway encroachment and any direct support of likely base flood-plain development that involves one or more of the following;(1) a significant potential for interruption or termination of a transportation facility needed for emergency vehicles or the only evacuation route, (2) a significant risk and, (3) a significant adverse impact on natural and beneficial flood-plain values. *See* 23 CFR § 650.105(q).

C. 23 CFR § 774 - Parks, Recreation areas, Wildlife and Waterfowl Refuges, and Historic Sites (Section 4(f))

FHWA cannot approve the use (when land is permanently incorporated into a transportation facility) of a Section 4(f) property unless a determination is made, by FHWA, that there is "no feasible and prudent avoidance alternative" to the use of land from the property and that action includes all possible planning to minimize harm to the property resulting from such use. *See* 23 CFR § 774.3

23 CFR § 774.17 defines the terms "feasible and prudent" in the following manner:

(1) A feasible and prudent avoidance alternative avoids using Section 4(f) property and does not cause other severe problems of a magnitude that substantially outweighs the importance of protecting the Section 4(f) property. In assessing the importance of protecting the Section 4(f) property, it is appropriate to consider the relative value of the resource to the preservation purpose of the statute.

(2) An alternative is not feasible if it cannot be built as a matter of sound engineering judgment.

(3) An alternative is not prudent if:

(i) It compromises the project to a degree that it is unreasonable to proceed with the project in light of its stated purpose and need;
(ii) It results in unacceptable safety or operational problems;
(iii) After reasonable mitigation, it still causes:
(A) Severe social, economic, or environmental impacts;
(B) Severe disruption to established communities;
(C) Severe disproportionate impacts to minority or low income populations; or
(D) Severe impacts to environmental resources protected under other Federal statutes;
(iv) It results in additional construction, maintenance, or operational costs of an extraordinary magnitude;
(v) It causes other unique problems or unusual factors; or
(vi) It involves multiple factors in paragraphs (3)(i) through (3)(v) of this definition, that while individually minor, cumulatively cause unique problems or impacts of extraordinary magnitude.

If the analysis concludes that there is no feasible and prudent avoidance alternative, then FHWA may approve only the alternative that causes the least overall harm that is determined by balancing:

a) the ability to mitigate adverse effects;
b) the relative severity of the remaining harm;
c) after mitigation to the protected property and the relative significance of each Section 4(f) property;
d) the views of the officials with jurisdiction over each Section 4(f) property;
e) the degree to which each alternative meets the purpose and need;
f) after reasonable mitigation, the magnitude of any adverse impacts to resources not protected by Section 4(f) and;
g) substantial difference in costs among the alternatives.

The alternative selected must include all possible planning to minimize harm to the Section 4(f) property. *See* 23 CFR § 774.3(c).

D. Coordination between Wetlands, Flood Plains and Section 4(f) Program Requirements

To comply with NEPA requirements and allow FHWA to issue a ROD, each alternative advanced in the SDEIS must address whether it can practicably be achieved. For an alternative to be considered "practicable" it must be capable of being done within reasonable natural, social, or economic constraints, after taking into consideration cost, existing technology, and logistics, in light of overall project purposes.[1] This determination must also be coordinated with the required 4(f) "feasible and prudent" analysis. As a number of alternatives potentially impact Section 4(f) properties, the document must discuss whether there are any feasible and prudent avoidance alternatives.

Feasibility can be defined as imposing essentially the same requirements as practicability.[2] However, for an alternative to be judged "prudent" it must be considered in light of the requirements identified above in paragraph 3(i) through 3(vi) in the definition of "feasible and prudent avoidance alternative." *See* 23 CFR § 774.17.

In summary, the NEPA process for the Trinity Parkway must follow the steps outlined below:

1. Each build alternative identified in the SDEIS must be separately discussed and examined, without reference to the other possible alternatives, to determine whether it is practicable, as that term is defined in the applicable orders and regulations.

2. This discussion of an alternative's practicability cannot wait until the production of the FEIS. It must be shown to the public and other resource agencies prior to selection of a preferred alternative in the FEIS.

3. Further, as a number of the project's build alternatives potentially impact 4(f) resources, then the alternatives in the SDEIS must be examined to determine whether there is any "feasible and prudent avoidance alternatives." This will require that the environmental documentation to determine whether this is any alternative which is a feasible and prudent alternative to those potentially impacting 4(f) resources. Again, this discussion and determination must occur prior to the selection of the preferred alternative in the FEIS.

4. The FEIS can then make the selection of a preferred alternative based upon the comparative analysis required under the orders and regulations noted herein. If the

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[1] For the purposes of this memo the varying definitions of "practicability" are combined and will be treated as imposing the same requirement for consideration in FHWA's NEPA documents.

[2] This statement is based upon a comparison of the definitions under the applicable Executive Orders, FHWA regulations regarding wetlands and flood plains. It also takes into account the definition of feasible under case law and the FHWA 4(f) regulations.

alternative selected is located within an existing flood plain or wetlands it must be found to the only "practicable" alternative. If the preferred alternative is one that impacts Section 4(f) resources, then a determination must be that none of the other identified alternatives were found to be as feasible and prudent.

E. Conclusion

A FEIS document must be reviewed by FHWA's counsel for legal sufficiency prior to its approval by the agency. This review requires that FHWA counsel determine that all applicable laws, regulations, orders have been met. Without this finding, of legal sufficiency, FHWA cannot approve the project.

It is unknown at this at this time what the final USACE report on the condition of the Dallas Floodway levees will show and further what any potential mitigation plan could then be required. These findings may be necessary to fully develop and met the requirements described above for FHWA's NEPA process. Additionally, this critical information should be made available to the public and other resource agencies prior to the issuance of any FEIS.

The existing SDEIS does not make a finding of practicability, feasibility or prudence on any of the identified alternatives or examine the alternatives in a coordinated manner. Further, since the issuance of the SDEIS, critical new information has been released on the condition of the levees. Without this information the public and other responsible governmental agencies may not be able to provide meaningful comment.

Based upon all these issues, it may be necessary to enhance the information contained in the current SDEIS before proceeding to the FEIS.

U.S. Department of Transportation
Federal Highway Administration

Texas Division

300 E. 8th Street, Room 826
Austin, TX 78701-3255
Tel (512) 536-5950
Fax (512) 536-5990
texas.fhwa@dot.gov

June 24, 2009

In Reply Refer To:
HA-TX

Ms. Dianna F. Noble, P.E.
Director, Environmental Affairs Division
Texas Department of Transportation
125 E.11th Street
Austin, TX 78701

Subject: Trinity Parkway Project, Dallas, Texas

Dear Ms. Noble:

FHWA approved the Supplemental Draft Environmental Impact Statement (SDEIS) and Draft Section 4(f) Evaluation for the proposed Trinity Parkway (Parkway SDEIS) for further processing on February 19, 2009. A Notice of Availability of the SDEIS for public review and comment was published in the Federal Register on March 20, 2009, and a Public Hearing was held on Tuesday, May 5, 2009. Based on public requests, we have extended the end of the public comment period from May 15, 2009 to June 30, 2009.

The Parkway SDEIS was published before the U.S. Army Corps of Engineers (USACE) Fort Worth District and the City of Dallas released the Periodic Inspection Report, Dallas Floodway, Trinity River, Dallas, Dallas County, Texas (Report No. 9, 3-5 Dec, 2007). The April 1, 2009 Inspection Report cites deficiencies in four levee systems in Dallas, including segments of the Dallas Floodway East Levee adjacent to Trinity Parkway Alternatives 3A, 3B, 3C, 4A, 4B and 5, and segments of the Dallas Floodway West Levee adjacent to Alternatives 4A, 4B and 5.

Because the Parkway SDEIS was released prior to the USACE Periodic Inspection Report it did not include a discussion of the reported deficiencies and any impacts these might have on the Parkway alternatives. Nevertheless, the Inspection Report was acknowledged in the technical presentation at the May 5 Public Hearing. FHWA, Texas Department of Transportation (TxDOT) and North Texas Tollway Authority (NTTA) stated their intent to further study the reported levee deficiencies as they may relate to the Parkway alternatives, coordinate any effects to the proposed levee remediation plan, and present further information to the public regarding the Parkway and the levees prior to the Final EIS.

On May 18 and 19, 2009, representatives of the FHWA, USACE, the Federal Emergency Management Agency (FEMA), TxDOT, the City of Dallas, and NTTA participated in a workshop to discuss local and federal projects proposed along the Trinity River Corridor and how they relate to the Trinity River floodway, proposed parkway alternatives and the Trinity River levee system. This meeting allowed for the Federal Agencies to explain and discuss with the City of Dallas, NTTA and TxDOT, the federal processes for the proposed improvements including the required processes, activities and standards to be met for these projects.

As a result of discussions at these meetings as well as subsequent discussions with the federal agencies, the enclosed exhibit was developed. It memorializes the mutually agreed key tasks, assumptions, relationships and preliminary ("best case scenario") timelines of the action plan proposed for the Trinity River Corridor. Please note the enclosed exhibit is a working document and is subject to change. With respect to the Parkway Environmental process, in order to fully comply with NEPA, additional analyses, documentation and public involvement is required prior to recommendation of a preferred alternative and preparation of the Final Environmental Impact Statement (FEIS) and ultimately the selection of an alternative in the Record of Decision. It is important to note that the timeline shown on the enclosed exhibit makes assumptions based on the development of all Alternatives (No-Build, 2A, 2B, 3C, 4B and possibly 5) from the SDEIS so they are consistent with the Levee Remediation Plan being developed by the City of Dallas and the USACE.

As discussed at the aforementioned Dallas meetings, and as shown on the enclosed diagram, FHWA hereby requests TxDOT initiate a Limited Scope Supplemental (LSS) for an impact analyses to be performed on the alternatives for the proposed Trinity Parkway to supplement the current SDEIS.

The LSS is expected to include the following topics:

- The results of further studies related to the USACE Periodic Inspection Report for the Dallas Floodway, including any impacts of Parkway alternatives on levee remediation. The LSS will assess levee deficiencies and incorporate remedial actions based on the USACE Levee Remediation Plan (LRP). In the event the LRP substantially changes one or more of the alternatives in terms of scope, timing or cost, the scope of the LSS may need to be expanded to incorporate this new information.

- Information for each reasonable parkway alternative under consideration related to the "practicable"criteria which would be applied under Executive Order (EO) 11990 (wetlands) and EO 11988 & 23 CFR 650 Subpart A (floodplains).
- Information for each reasonable parkway alternative under consideration related to the "feasible and prudent" criteria which would be applied under 23 CFR 774 (Section 4(f) - parks, recreation areas, wildlife and waterfowl refuges and historic sites).

In regard to the second and third LSS bulleted items above, the LSS will not only include a Practicable (floodway) and Feasible and Prudent (4f) analysis, but also a Least Harm Analysis which FHWA will consider in making a decision regarding a recommended preferred alternative.

FHWA will not identify a preferred alternative in the LSS. Such recommendation will be made in the FEIS after public involvement has occurred so that this public input could be evaluated as part of the official FHWA recommendation.

The analysis presented in the LSS of each alternative's practicability as applied under EO 11990 and EO 11988 will be coordinated with the analysis of feasibility and prudence required under Section 4(f) for the least harm analysis. A "decision tree" will be collaboratively finalized between FHWA, TxDOT, USACE and the NTTA to facilitate these analyses.

Development of the LSS is intended to be compatible with the timelines for the various agency studies and actions shown on the enclosed diagram. The LSS release is anticipated to include a Public Hearing and comment period to allow public input regarding the topics listed above prior to any identification of a preferred alternative in a future FEIS by FHWA.

As noted in the SDEIS and expressed during the May 5 Public Hearing, the USACE has informed the project partners that Alternatives 3A, 3B, and 4A are not approvable. We understand that there is also some concern with the viability of Alternative 5 as well. FHWA is seeking (copy attached) written confirmation from the USACE regarding the viability of each of these alternatives, including the rationale for their determination on whether they are or are not approvable. This information must be included in the LSS. Once we have a response from the USACE we will finalize the alternatives that must be fully developed in the LSS.

Because the time lines established for agency tasks are optimal, and several of these tasks are interdependent, it is critical that there be continual communication between all parties. Assumptions that each party is using must be documented and verified so that individual agency documents are consistent and compatible. Any changes in the assumptions may require additional analysis and may impact assumed timelines for this effort. To that end, Janice Brown committed herself, the Director of Planning and Program Development, Mike Leary and me to attend the monthly Trinity Parkway meeting in Dallas. In addition FHWA along with USACE, TxDOT and NTTA are initiating Trinity Technical Working Group meetings to develop the LSS.

The FHWA remains committed to assisting NTTA and TxDOT in the further development of this important mobility project in North Central Texas.

If you have questions, require additional information, or if we can be of assistance in moving this process forward, please call.

Sincerely,

Salvador Deocampo
District Engineer

cc: Mr. Bill Hale, P.E., District Engineer, TxDOT Dallas District
Mr. Allen Clemson, Executive Director, NTTA
Mr. Kevin Craig, P.E., Acting Director TRCP, USACE Dallas
Ms. Cathy Gilmore, Chief Office of Planning and Coordination, EPA

U.S. Department of Transportation
Federal Highway Administration

Texas Division

300 E. 8th Street, Room 826
Austin, TX 78701-3255
Tel (512) 536-5950
Fax (512) 536-5990
texas.fhwa@dot.gov

June 24, 2009

In Reply Refer To:
HA-TX

Mr. William Fickel, Jr.
Chief, Environmental Division
CESWF-EV
Department of the Army
Fort Worth District Corps of Engineers
819 Taylor Street, Room 3A14
Fort Worth, TX 76102

Dear Mr. Fickel:

Reference is made to our meeting on May 18, 2009 between that Federal Highway Administration (FHWA), the U.S. Army Corps of Engineers (USACE), the North Texas Tollway Authority, the Texas Department of Transportation, and the city of Dallas. During this meeting we had discussions regarding which alternatives for the Trinity Parkway project are not considered viable by USACE. As you know alternatives 3C and 4B were developed to address USACE's concerns. However during the meeting it was mentioned that USACE had also objected to alternative 5.

We have since reviewed the information provided in your letter dated October 6, 2006 which included a September 27, 2006 enclosure with USACE's comments. In that enclosure there were several comments on the preliminary July 2006 Supplemental Draft Environmental Impact Statement (SDEIS) regarding the acceptability of alternatives 3A, 3B, 4 and 5.

Based on the responses to comments notebook accompanying the revised SDEIS titled "Response to Comments" dated October 2008, FHWA interpreted that the development of the two additional within floodway alternatives and refinements to alternative 5 had satisfied the outstanding issues outlined in your October 6, 2006 letter. These were responses to USACE comments for the July 2006 draft SDEIS (tab 1 IDs #384, 386-391, 398 and 400), and to the July 2008 revised draft SDEIS (tab 3 ID#s 2625 and 2649). We have enclosed a copy of your letter and the pertinent comments and responses for your reference.

In order to provide guidance in the development of the analysis for our supplemental study to the SDEIS and in the development by the city of the Levee Remediation Plan, we would like to

confirm that alternatives 3A, 3B, 4A (originally alternative 4), and 5 are not approvable by USACE and the rationale for that determination on each of the alternatives. However, if any of these alternatives, most notably alternative 5 could be viable with some adjustments we would like to know that as well. This information will be included in our Limited Scope Supplemental (LSS) document that will be developed to provide information on the Levee Remediation Plan and the Least Harm Analysis needed to comply with EO 11988 (Flood Plain Management), EO 11990 (Protection of Wetlands), and 23 CFR 774 Section 4(f).

We look forward to our continued team effort to work on the Trinity Parkway, levee studies and your upcoming environmental impact study for the levee improvements. Should you have any questions please feel free to contact me at 512-536-5950 or Ms. Wilson at 512-536-5951.

Sincerely,

Salvador Deocampo
District Engineer

Enclosures

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

SEP 15 2009

Programs and Project
Management Division

Mr. Salvador Deocampo
District Engineer, Texas Division
Federal Highways Administration
300 E. 8th Street, Room 826
Austin, Texas 78701-3255

Dear Mr. Deocampo:

This letter is in response to your letter to Mr. William Fickel, Jr., dated June 24, 2009, requesting confirmation and rationale for determination that the proposed Trinity Parkway alternatives 3A, 3B, 4A (originally alternative 4), and 5, as shown in the Supplemental Draft Environmental Impact Statement (SDEIS), are not approvable by the United States Army Corps of Engineers (USACE).

As noted in our letter dated October 6, 2006, our review of the information that was submitted noted significant issues with the alternatives as proposed. These issues were outlined in the letter and in the comments enclosed in that letter.

As acknowledged in the revised response to USACE Comment ID Numbers 2146, 2147, 2148 and 2149 (ID # 2625 in tab 3 of the enclosure to your June 24, 2009 letter), the revised SDEIS addressed some of the issues identified, but did not address all significant issues related to the referenced alternatives. Specifically, the revised responses addressed access for O&M, flood fighting and surveillance, and fences. However, the responses did not address the USACE issue that cuts, floodwalls and retaining walls will not be allowed that impact the existing or planned expansion of the Dallas Floodway or Dallas Floodway Extension levees. Instead, Parkway alternatives 3C and 4B were developed in an effort to avoid adverse impacts to the levees "...in order to carry forward at least two floodway alternatives the USACE would consider viable options." It is noted that no comparable revisions to alternative 5 were submitted that address the adverse impacts to the levees from this alternative.

Therefore, Trinity Parkway alternatives 3A, 3B, 4A and 5, as presented in the SDEIS, cannot be supported and approved by the USACE. If the Federal Highways Administration chooses to pursue resolution of these issues through further revision of the alternatives, we welcome the opportunity to continue our coordination efforts.

Thank you again for the opportunity to cooperate in the interagency coordination on the Trinity Parkway Environmental Impact Statement. If you have any questions concerning the comments, please contact me at 817-897-1339.

Sincerely,

Kevin L. Craig

Kevin L. Craig, P.E.
Director
Trinity River Corridor Project

U.S. Department of Transportation
Federal Highway Administration

Texas Division

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In Reply Refer To:
HA-TX

Trinity Parkway Alternatives
Response to Federal Highway Administration

Ms. Dianna Noble, P.E.
Dir, Environmental Affairs Division
Texas Department of Transportation
125 E. 11th Street
Austin, TX 78701

Dear Ms. Noble:

Reference is made to a letter dated September 15, 2009 (enclosed) from Kevin Craig from the U. S. Army Corps of Engineers (USACE) as a response to our letter dated June 24, 2009 requesting confirmation from USACE that Alternatives 3A, 3B, 4A, and 5 were not approvable by USACE. Mr. Craig's letter indicates that 3A, 3B and 4A are not approvable by USACE and that 3C and 4B were refinements made to address USACE's comments. However, USACE points out that Alternative 5 still had potential outstanding issues from USACE's perspective, but a refinement of the alignment was never presented nor discussed.

In order to confirm that Alternative 5 is no longer approvable, we are requesting that Alternative 5 be further reviewed to see if Alternative 5 can be refined to address USACE's comments. In order to attempt to maintain the schedule of deliverable deadlines, FHWA would appreciate this requested information as soon as possible. Should you have any questions, please contact Anita Wilson of my staff at 512-536-5951.

Sincerely,

Salvador Deocampo
District Engineer

Enclosure

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

December 10, 2009

RECEIVED
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By

NH ( )
Response to FHWA Letter
Dallas County
CSJ 0918-45-121

Trinity Parkway: From IH 35E/SH 183 to US 175/SH 310

Janice W. Brown
District Administrator
Federal Highway Administration
Austin, Texas 78701

Attention: Sal Deocampo

Dear Ms. Brown:

This letter is in response to a letter from Kevin Craig of U.S. Army Corps of Engineers (USACE) dated September 15, 2009 and subsequent letter from Mr. Sal Deocampo of your staff received September 18, 2009 (attached) regarding the compatibility of Trinity Parkway SDEIS Alternative 5 to USACE comments. Of particular concern expressed in your letter were issues "...that cuts, floodwalls and retaining walls will not be allowed that impact the existing or planned expansion of the Dallas Floodway." This letter documents the efforts to avoid these impacts by modifying Alternative 5 location and/or geometry.

This investigation identified two major areas of concern that could not be modified to meet USACE comments without causing major impacts to other properties. The first issue is the limited spacing between the east levee and the Lew Sterrett Justice Center between Commerce Street and the Union Pacific Railroad. The second major issue is the impact to adjacent sumps at underpasses of major cross streets, including Hampton Rd and Sylvan Ave. These issues are discussed in more detail in the following paragraphs, and shown in attached plan/profile Figures 1 through 3.

Trinity Parkway Alternative 5 (Figures 1 & 2) – At the Hampton Rd. and Sylvan Ave. crossings, the roadway, in its current location, is constrained by the Hampton Rd. bridge and the Sylvan Ave bridge, and cuts into the existing levee. If the proposed Alternative 5 main lanes were kept in the current horizontal location and the profile were raised to avoid cuts into the levee, there would be inadequate clearance between Alternative 5 and the Hampton Rd./Sylvan Ave. bridges. If the proposed roadway were realigned away from the levee so that there was no cut into the levee, there would be a major impact to the drainage sumps running along the backside of the levees.

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Trinity Parkway Alternative 5 (Figure 3) - At the Commerce St crossing, the proposed vertical alignment shows the roadway going under Commerce St. with retaining walls being on either side of the proposed roadway. The walls were necessary to retain the area filled between the Lew Sterrett Justice Center and the existing levee. This fill extends up to the top of the existing levee. Our assumption was that the levee template included a theoretical slope on the landside of the levee. In the SDEIS location, the proposed Alternative 5 alignment cuts into the east levee template. To modify the alignment where the east levee template is unaffected would mean shifting the alignment to the northeast towards the Lew Sterrett Justice Center. There is only approximately 45' between the roadway in its current location and the closest wall of the Justice Center. Shifting the roadway would impact the two high-rise towers of the Justice Center. Modification of the Alternative 5 profile to overpass Commerce St. would be constrained by the close proximity of the UPRR bridge to the north, and the proposed Reunion Gateway and IH 30 to the south. Due to the close proximity of the other bridges upstream and downstream, the Alternative 5 profile would need to stay elevated from just north of the Continental Blvd. bridge to just south of the IH 35 Bridges (nearly two miles). No practicable alternative was found to avoid the impacts to the levee in this area and not impact either the Lew Sterrett Justice Center or the adjoining bridges.

If you have any questions or require additional information, please contact Elvia Gonzalez at 416-2610.

Sincerely,

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

Attachments

cc: Mr. Bill Hale, P.E., District Engineer, TxDOT Dallas District
Mr. Allen Clemson, Executive Director, NTTA
Mr. Kevin Craig, P.E., Director TRCP, USACE
Ms. Cathy Gilmore, Chief Office of Planning and Coordination, EPA

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF

DEC 18 2009

CESWF-PM

Ms. Janice Brown
Division Administrator, Texas Division
Federal Highways Administration
300 E. 8th Street, Room 826
Austin, Texas 78701-3255

Dear Ms. Brown:

The U.S. Army Corps of Engineers' (USACE) "Position Paper on Implementation of Executive Order 11988 Floodplain Management and 'Practicable Alternatives' Analysis for the Trinity Parkway Project" is enclosed.

This document was developed based on review of the Supplemental Draft Environmental Impact Statement (SDEIS) for the Trinity Parkway Project, and presents the criteria which the USACE feels is critical in an analysis under the subject Executive Order (EO). The document is intended to promote and ensure consistency in our two agencies' approaches to complying with the EO. We request incorporation of these criteria into the analyses being conducted for the Limited Scope Supplement (LSS) to the SDEIS.

We appreciate the opportunity to collaborate on a common framework for this analysis, and look forward to continued coordination on this important project. If you have any questions, please feel free to contact Mr. Kevin Craig, at (214) 671-9830 or at (817) 897-1339.

Sincerely,

Encl

RICHARD J. MURASKI, JR.
Colonel, EN
Commanding

Copy Furnished:
Michael Fallon, Southwestern Division
Jill Jordan, Assistant City Manager, City of Dallas

Printed on Recycled Paper

U.S. ARMY CORPS OF ENGINEERS, FORT WORTH DISTRICT

Position Paper on Implementation of Executive Order 11988 Floodplain Management and "Practicable Alternatives" Analysis for the Trinity Parkway Project
December 10, 2009

Purpose

The goal of this paper is to more fully explore the District's obligations under Executive Order (E.O.) 11988 and the Engineer regulations implementing the Order. The paper will explain the practical alternatives analysis required by both the Order and Regulations. It will also address the Federal Agencies' (the Corps and Federal Highways Administration) regulations, a comparison of the requisite analyses, issues that must be examined for the Corps practicability determination, and specific items recommended for inclusion in FHWA's Limited Scope Supplement (LSS) in order to facilitate consistent analyses between the agencies.

I. BACKGROUND

Two Federal Agencies, the Corps and the Federal Highways Administration (FHWA) are attempting to complete separate but cooperative Environmental Impact Statements (EIS) and Records of Decisions (ROD) that include consideration of the proposed Trinity Parkway to relieve traffic congestion in the city of Dallas. The scope of FHWA's EIS/ROD is limited to consideration of alternative alignments to the Trinity Parkway. Of these alignments five are located primarily within the Trinity River floodway which is a federally authorized flood protection project. Two of the proposed alternatives are located along Industrial Boulevard outside the limits of the floodway. Though no preferred alternative has been officially endorsed by either federal agency, the proposed tollway itself is commonly known as the "Trinity Tollway" or "Trinity Parkway." The City of Dallas and the North Texas Tollway Association favors one of the floodway alternatives (3C) and it is further along in design detail than the other alternatives.

The scope of the Corps EIS/ROD for the Dallas Floodway Project includes five elements: Levee Remediation Plan (LRP); Flood Risk Management (FRM); Balanced Vision Plan (BVP); Interior Drainage Plan (IDP); and Locally Preferred Project features (LPPF) which include the Trinity Parkway and other proposed floodway modifications (i.e. bridge replacements, etc). The LPPF's are included because the Corps must approve them in accordance with 33 USC 408. The other elements are authorized by Section 5141 of the Water Resource Development Act of 2007. The Corps intends to cooperate with FHWA in identifying a Trinity Parkway alignment that will be considered in the Corps EIS.

The Trinity Parkway has garnered constant publicity and extreme political scrutiny. Additionally, the studies necessary to even consider the project require a great deal of time and money. All of these pressures have led to challenges for the Agencies' cooperative analyses. One of the most fundamental complications, however, has been the differences between the agencies' jurisdiction, priorities, and requirements for analysis. Both agencies are required to consider the project's affect on the floodway and other environmental resources. However, the agencies' authorizing statutes, rules and policies appear to place different emphasis on the relative priority of these resources.

II. EXECUTIVE ORDER 11988

Both the Corps and FHWA are required to consider E.O. 11988 on Floodplain Management. That Order was issued "in order to avoid to the extent possible the long and short term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of

floodplain development wherever there is a practicable alternative." E.O. 11988 Floodplain Management, 42 F.R. 26951, May 24, 1977.[1] E.O. 11988 is applicable to the National Environmental Policy Act (NEPA) of 1969, as amended (42 U.S.C. 4321 *et seq.*), the National Flood Insurance Act of 1968, as amended (42 U.S.C. 4001 *et seq.*), the Flood Disaster Protection Act of 1973 (Public Law 93-234, 87 Stat. 975), the Coastal Barrier Resources Act of 1982 (Public Law 97-348), and the Coastal Barrier Improvement Act of 1990 (Public Law 101-591; 104 Stat. 2931). The Order requires agencies to consider alternatives to actions within a floodplain. If an action is to be placed in a floodway, the head of the agency must determine placement within the floodway is the only practicable alternative. The agency must then design its action to minimize harm to and within the floodway and circulate a notice explaining why the action is proposed to be located within the floodway.

Engineer Regulation (E.R. 1165-2-26) contains the Corps's policy and guidance for implementing E.O. 11988. Federal Highway Administration (FHWA) rules on floodplain encroachment are contained in 23 C.F.R. Part 650, Subpart A, Location and Hydraulic Design of Encroachments on Flood Plains.

According to E.R. 1165-2-26, the Corps must first determine whether there are practicable alternatives to placing a proposed project in a floodplain. E.R. 1165-2-26 defines "practicable" as "capable of being done within existing constraints. The test of what is practicable depends upon the situation and includes consideration of the pertinent factors, such as environment, cost or technology." E.R. 1165-2-26(4)(i).

> The decision on whether a practicable alternative exists will be based on weighing the advantages and disadvantages of flood plain sites and non-flood plain sites. Factors to be taken into consideration include, but are not limited to, conservation, economics, aesthetics, natural and beneficial values served by flood plains, impact of floods on human safety, locational advantage, the functional need for locating the development in the flood plain, historic values, fish and wildlife habitat values, endangered and threatened species, Federal and State designations of while and scenic rivers, refuges, etc. and, in general, the needs and welfare of the people.

E.R. 1165-2-26(7). This analysis must be conducted both for the project proposed in the floodplain and any development expected to result from the project being placed in the floodplain. The analysis must include alternatives such as placing the proposed project outside the floodplain, using other means to achieve the purpose of the proposed project, and taking no action. If a determination that no alternative to the flood plain exists, "it will be appropriately documented and the features or qualities of the flood plain that make it advantageous over alternative non-flood plain sites shall be described and adequately supported."

III. SECTION 4(F) - Parks, Recreation areas, Wildlife and Waterfowl Refuges, and Historic Sites

FHWA is subject to Section 4(f) of the Department of Transportation Act of 1966 and its various amendments, codified at 49 U.S.C. § 303. This statute, however, does not apply to Corps's analyses or determinations. Although Section 4(f) is not applicable to the Corps and its decision making, the Corps is required to comply with Section 106 of the National Historic Preservation Act (33 C.F.R. 320.4) and this will be incorporated into the Dallas Floodway EIS. If adverse effects to eligible historic properties are identified, the Corps must consult with other parties to develop and evaluate alternatives or modifications to the action that could avoid, minimize, or mitigate the adverse effects. Therefore, it

[1] A draft Executive Order designed to strengthen E.O. 11988 has been circulated by the White House. Taryn Luntz, "Draft Executive Order Aims to Curb Floodplain Development." *The New York Times*, (July 21, 2009), http://www.nytimes.com/gwire/2009/07/21/21greenwire-draft-executive-order-aims-to-curb-floodplain-64438.html. If implemented, agencies will be required to amend their existing regulations and procedures within one year of the date of the new E.O. Current regulations will remain in place until amended or replaced.

would be prudent for the Corps and FHWA to agree on the eligibility of historic properties and the affect of the Trinity Parkway alignments on these properties so the Corps determinations under Section 106 compliance are consistent with FHWA determinations under Section 4(f). This is critical in order to support the consideration of a specific floodway alignment in the Corps EIS.

The unaltered statute is included in Appendix A for the reader's convenience immediately below. Two FHWA regulations the Corps believes are relevant to this paper are also included, in Appendix B and Appendix C.

IV. COMPARATIVE ANALYSIS

The Trinity Tollway presents a unique situation for the cooperating agencies. Several alignment alternatives are located within the floodway. If a floodway alternative is proposed, the Corps must determine there is no other practicable alternative to the floodway. Comparatively, FHWA is subject to 33 U.S.C. 303 (section 4(f)) and its associated regulation. This regulation appears to be more stringent than Section 106 of the NHPA or the Corps's EO 11988 regulations concerning protection of historic sites. Therefore, if the 4(f) analysis leads to a floodway alternative, based on avoidance of adverse affects to historic properties, it may conflict with the Corps E.O. 11988 practicability determination, which places emphasis on protection of floodplain values.

The Corps regulation is specific regarding what environmental factors must be analyzed in "weighing the advantages and disadvantages of flood plain sites and non-flood plain sites." Therefore, we have reviewed the analyses included in FHWA Trinity Parkway SDEIS and made recommendations for additional information and analyses to be completed for FHWA's Trinity Parkway Final EIS. This will support the consideration of a specific floodway alignment in the Corps EIS and avoid a conflict between the agencies' determinations.

V. RECOMMENDED ADDITIONAL ANALYSIS FOR FHWA LSS NECESSARY TO SATISFY CORPS PRACTICABILITY ANALYSIS

USACE guidance ER 1165-2-26 specifies that all reasonable factors should be taken into consideration when determining practicability. These factors are: conservation; economics; aesthetics; natural and beneficial values served by flood plains; impact of floods on human safety; locational advantage; the functional need for locating the development in the flood plain; historic values; fish and wildlife habitat values; endangered and threatened species; Federal and State designations of wild and scenic rivers, refuges, etc.; and in general the needs and welfare of the people. The resources considered in the SDEIS have been sorted into these factors and recommendations for additional information and analyses to be included in the Trinity Parkway LSS are provided to enable the Corps to determine if there is a practicable alternative to placing the tollway in the floodway.

1) Conservation: includes Section 4.19 "Energy Requirements" and Section 4.22 "Irreversible and Irretrievable Commitments of Resources" from the SDEIS. In addition, information contained in Section 4.4 "Transportation" should be used as an indication of fuel consumption based on various measures of alternative effectiveness (i.e. vehicle miles traveled, vehicle hours traveled, average speed, congestion delay).

2) Economics: includes Section 4.6 "Economic Impacts" from the SDEIS. The SDEIS identified estimated construction costs for each alignment and assessed affects to state, regional, and local economies based on these construction expenses. The USACE recommends that an up-dated analysis of the availability of suitable fill material from proposed excavation in the

floodway be conducted based on recent soil boring data. The amount of suitable fill material required for levee remediation and flood risk management measures should be estimated and a determination made if additional suitable fill material is required for the Parkway alternatives. If so, the estimated costs of providing this additional material should be included in the alternatives' construction costs.

The annualized cost of actions associated with the effects of a flood event greater than the 100-year on the floodway alternatives (see item 5) should be included in operation and maintenance costs.

The SDEIS also estimated the amount of tax value/revenue that would be lost with implementation of each alternative. However, the SDEIS did not differentiate among alternatives, the affect of induced development on the local, regional, or state economies and rated all alignments as having "moderate" affects. This is probably adequate for USACE assessment of practicability under ER 1165-2-26.

3) Aesthetics: includes Section 4.16 "Visual Impact Analysis" from the SDEIS. This is a qualitative and quantitative assessment for the proposed alignments that classify the number of visual intrusions/impacts as "none", "strong", "moderate", or "weak". This assessment methodology appears adequate, but USACE recommends the LSS clarify how the final overall visual impact from each alternative was determined (i.e., averaging all impacts, weighting for some impacts, numerical tally of impact type?).

4) Natural and Beneficial Values Served by Floodplains: includes Section 4.1 "Land Use Impacts", Section 4.8 "Impacts To Waters of the U.S. Including Wetlands", Section 4.11 "Topography Geology and Soils", Section 4.12 "Water Quality Impacts", and Section 4.13 "Floodplain Impacts" from the SDEIS. Section 4.13 addressed potential floodplain impacts from FEMA flood mapping zones for each alternative and also provided a summary of impacts to the 100-year and SPF hydraulic criteria contained in the 1988 Regional EIS, Trinity River and Tributaries (TREIS). The USACE recommends that hydraulic modeling (in accordance with the Corps Trinity Parkway Hydraulic Modeling Position Paper) of all proposed actions (i.e. Levee Remediation, Balance Vision Plan (BVP), Interior Drainage, and Locally Preferred Project Features) within the floodway would ideally be included in the LSS to assess affects on the TREIS ROD criteria. However, in deference to FHWA's scope of the LSS, USACE understands this will be included in the FEIS. FHWA understands this will be completed in the USACE's comprehensive analysis and the results may require changes in FHWA's practicability and Section 4(f) analyses.

Section 4.12 indicates that runoff abatement measures will be included in all alternatives to avoid adverse effects to aquatic life resulting from highway pollutants and the estimated cost of these measures appear to be the same for all alternatives. Recommend the LSS analyze whether there would be greater need for these measures for the floodway alternatives since there are no existing sumps that would capture pollutants. If so, the estimated cost of providing runoff abatement measures for the floodway alternatives should be included.

5) Impact of Floods on Human Safety: The SDEIS did not specifically analyze the affects of a flood event greater than the 100-year on the alternatives in the floodway. Recommend this be completed for the LSS to include emergency closure operations, affects to alternate transportation routes, and cleanup and repair actions. The estimated cost of this should be included in the operation and maintenance costs for the alternatives in the floodway. Additional items that need to be addressed include: (1) the potential for increased risk to both the flood risk management and transportation missions if the Trinity Tollway serves as a functional component of flood

protection; 2) the effect of linking the two missions on the Corps's ability to perform emergency operations and maintenance actions on flood risk management features; and 3)the effect of the flood risk management mission on the transportation mission, considering the flood risk management mission has precedence and priority over all other actions within the floodway.

6) Locational Advantage: includes Section 4.2 "Coordinated Planning and Design" from the SDEIS. This section describes the cost savings and synergy that would occur primarily between the within floodway alternatives and other proposed projects such as the BVP, AT&SF Railroad Bridge, Floodway Levee Raise, and DFE. Recommend discussion of advantages to levee remediation be also included.

7) Historic Values: includes Section 4.7 "Cultural Resources and Parklands" from the SDEIS which includes identification and impact assessment for the proposed alternatives. The USACE recommends development of more detailed historic contexts with specific local themes in order to more effectively evaluate properties. For example, USACE recommends consideration of the entire Trinity floodway (e.g., bridges, levees, sumps/pumps) as a historic district due to the significant continuity of these structures united by physical development over time.

8) Fish and Wildlife Habitat Values / Threatened and Endangered Species: includes Section 4.9 "Water Body Modification; Vegetation and Wildlife Impacts" from the SDEIS. Quantitative assessments of impacts to woodlands, aquatics, and grasslands are provided. Discussion on potential impacts to Threatened and Endangered Species is also provided. No additional data is recommended for inclusion in the LSS to meet USACE requirements.

9) Federal and State Designations of Wild and Scenic Rivers / Refuges: Since the Trinity River is not designated as a Wild and Scenic River, the SDEIS did not assess potential alignment impacts for this resource category and no additional data is recommended for inclusion in the LSS to meet USACE requirements.

10) Needs and Welfare of the People: includes Section 4.3 "Social Impacts", Section 4.4 "Transportation", Section 4.5 "Relocations and Displacement Impacts", Section 4.14 "Air Quality Impacts", Section 4.15 "Noise Impacts", Section 4.17 "Hazardous Regulated Materials", Section 4.18 "Utilities" and Section 4.20 "Temporary Impacts During Construction" from the SDEIS.
To meet USACE guidelines, recommend a reasonable attempt is made to avoid, minimize, and mitigate for social impacts for all of the proposed alignments (i.e. realignment below DART Bridge of 2A and 2B to avoid social affects.)
The USACE recommends that a Phase 1 ESA (ASTM 1527-00) be completed in order to better judge the potential effects of each alternative on Hazardous Regulated Materials. Depending on the outcome of the Phase 1 ESA follow up Phase 2 investigations are also recommended.

11) Functional Need for Locating Development in the Floodplain: There does not appear to be a functional need for locating the tollway in the floodway.

The decision on whether a practicable alternative exists will be based on weighing the advantages and disadvantages of flood plain sites and non-flood plain sites using factors 1-10 above. If a determination is made that no practicable alternative to undertaking an action in the flood plain exists, the decision must be appropriately documented and the features or qualities of the flood plain that make it advantageous over alternative non-flood plain sites shall be described and adequately supported. The public notice and statement of findings should include all of the items identified above.

U.S. Department of Transportation
Federal Highway Administration

Texas Division

300 E. 8th Street, Room 826
Austin, TX 78701-3255
Tel (512) 536-5900
Fax (512) 536-5990
texas@fhwa.dot.gov

April 15, 2010

In Reply Refer To:
HB-TX

Trinity Parkway: From IH 35E/SH 183 to US 175/SH 310
Dallas County
CSJ 0918-45-121

Ms. Dianna F. Noble, P.E.
Director of Environmental Affairs
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701

Dear Ms. Noble:

Reference is made to your letter dated December 10, 2009 documenting efforts to refine the Trinity Parkway Supplemental Draft Environmental Impact Statement (TP SDEIS) Alternative 5. As previously noted by the United States Army Corps of Engineers (USACE), Alternative 5, as presented in the SDEIS could not be supported by the USACE. Your letter summarizes efforts to avoid the impacts and concerns that USACE previously pointed out. You letter concludes that attempts to realign and/or modify Alternative 5 (to a similar/equal level that Alternatives 2, 3 and 4 were modified) would eliminate the alternative's ability to address project need and purpose or would result in subsequent extraordinary impacts to existing bridges and buildings along the corridor.

As a result of our review of the information provided we had additional questions that were forwarded via email to Elvia Gonzalez of your staff on January 20, 2010. In response to our questions the attached responses were provided from the consultant via email on March 11, 2010. At this time we cannot conclude that Alternative 5 is dismissible based on those responses. Specifically we have follow up questions regarding the responses provided:

Response to Question #1: *Moving the alignment to go over the cross streets would require substantial displacements.* What is "substantial?" What is this compared to? What is the relative increase versus the amount of relocations (and what types) associated with other alternatives still under consideration?

What is the magnitude as compared to other alternatives? The response you provide should include some quantifiable data.

Response to Question #2: *Completion of Alternative 5 on the landside of the west levee would impact environmental justice neighborhoods.* What does this mean? More detail and clarification is needed. Does it mean additional relocations (and if so what types), taking of employment or institutional/community centers, noise or visual intrusions? When it states it would require two full crossings of the floodway, does that mean that a completely landside alternative would need to cross the levees twice? Does that mean crossing both the east and west levees once or crossing the west levee twice?

Response to Question #3: *Sumps could be moved within limits but would require acquiring other adjacent lands which have been developed.* No cost estimate is provided. What is the approximate number of relocations (and what types)? By how much does this increase the total relocations and how do the relocations compare to other alternatives still under consideration?

Response to Question #4: *Modifying the relocation of Alternative 5 would require the relocation of the Lew Sterrett Justice Center.* What is the basis for the $68 million cost? Is it fair to assume that the issues involved in the relocation would be comparable here? If so, we may be able to accept the $68 million as a low estimate for the Lew Sterret Center relocation. These costs should be referenced to the overall magnitude of the impact as compared to other alternatives.

Response to Question #5: *The realignment of Alternative 5 would have impacts to vacant land anticipated for redevelopment.* This does not appear to be an issue and therefore is not a valid reason to dismiss the alternative. The location of a proposed overlook can be changed or modified.

In summary, the responses to questions 1 thru 4 were too limited for FHWA to make an informed decision regarding Alternative 5. The responses did not provide the needed data in any order of magnitude to assist us in consideration of these changes. We require this information as detailed above to put Alternative 5 in perspective with respect to the remaining alternatives. Additional information is required in order to adequately evaluate whether Alternative 5 can be modified to address the USACE's concerns or if it should be dismissed with justification.

Should you have any questions, please contact Anita Wilson at 536-5951.

Sincerely yours,

Salvador Deocampo
District Engineer

Enclosure
Cc: Kevin Craig, USCOE w/enclosure

MEMORANDUM

TO: Lindsey Kimmitt
Environmental Affairs Division

Date: May 11, 2010

FROM: H. Stan Hall, P.E.

Originating Office:
Advance Project Development

SUBJECT: Section 4(f) Evaluation
CSJ: 0918-45-121
Trinity Parkway: From SH 183 / I-35E to US 175 / SH 310
Dallas County

In a letter dated February 2, 2009, the Federal Highway Administration (FHWA) issued a determination that Section 4(f) requirements (49 U.S.C. 303) do not apply to the use of land for the proposed Trinity Parkway within the Trinity River Greenbelt Park between Westmoreland Road and the Atchison Topeka & Santa Fe (AT&SF) Railroad Bridge. However, the letter indicated clarification was needed on the involvement of the Trinity Parkway Build Alternatives within the area known as the "Great Trinity Forest" to the south of the AT&SF Railroad Bridge, and specific information was needed concerning the intended use and function for these lands in order to determine if the area may be subject to Section 4(f). The February 2009 Supplemental Draft Environmental Impact Statement (SDEIS) and Draft Section 4(f) Evaluation provided a history of park and recreational planning in the study area and considered whether Section 4(f) applied to the Great Trinity Forest lands potentially affected by the Trinity Parkway Build Alternatives. The following paragraphs and enclosed documentation provide additional information necessary to support a Section 4(f) applicability determination by the FHWA regarding the Great Trinity Forest.

The Great Trinity Forest is a generic name that refers to approximately 6,000 to 7,000 acres of land deemed the largest urban bottomland hardwood forest in North America that is planned for multiple uses including flood control, ecosystem restoration and mitigation, recreation, and parkland. The Great Trinity Forest roughly includes the Trinity River main stem floodplain lying between the AT&SF Railroad Bridge downstream to Interstate Highway (IH) 20 and the White Rock Creek floodplain upstream from the Trinity River to IH 30. Within this area, approximately 4,600 acres are forested and the remaining acreage is primarily grassland and urban areas. There are eight existing parks totaling approximately 1,980 acres located within the Great Trinity Forest. These include Moore Park, Rochester Park, Devon-Anderson Park, Genaro Park, Joppa Preserve, McCommas Bluff Park, Whiterock Creek Greenbelt, and a greenbelt park at IH 20 between the Trinity River and Dowdy Ferry Road. An overview map is enclosed showing the suggested boundaries of the Great Trinity Forest and the existing parks within this area, based on information available from the City of Dallas (see enclosed "Great Trinity Forest – Overview" map). The map also shows the Great Trinity Forest in relation to the proposed ROW for the Trinity Parkway Build Alternatives. The proposed alternatives do not encroach upon any existing publicly owned parks, recreation areas, or wildlife/waterfowl refuges

within the area considered to be the Great Trinity Forest. However, because the City's plans for the area include these types of uses and because the FHWA has requested additional information, potential Section 4(f) applicability has been examined further.

As discussed in the SDEIS, *The Great Trinity Forest Master Plan* approved by the Dallas City Council in March 1997 proposes recreational development and outlines the acquisition and preservation of bottomland hardwood forest within the area, much of which is privately owned. The City's goal for land acquisitions is over 2,500 acres, which would knit together the existing public parks and open space into a vast, contiguous corridor of public lands. This master planning effort was built upon many previous studies and plans for the Trinity River Corridor and is designed to work within the context of these plans, including flood control improvements proposed by the U.S. Army Corps of Engineers (USACE) and transportation projects such as the Trinity Parkway (proposed action). Real estate acquisition in the Great Trinity Forest is ongoing.

One of the key elements to Section 4(f) applicability is public ownership. In fact, for parks, recreation areas, and wildlife and waterfowl refuges, Section 4(f) property by definition means "publicly owned land" that must also be formally designated as one of the enumerated types and determined to be significant for such purposes [23 Code of Federal Regulations (CFR) §774.17]. Simply meeting the criteria of formal designation and significance does not pass the test. According to the FHWA *Section 4(f) Policy Paper*, Section 4(f) is not applicable to privately held properties planned for park or recreation purposes, even though they may be formally incorporated into a public agency Master Plan. An analysis of case law is also instructive on the issue of whether private property "planned" for park or recreational uses is subject to Section 4(f). In Nat'l Wildlife Fed'n v. Coleman, 529 F.2d 359 (5th Cir. 1976), the court determined that for Section 4(f) to apply to certain lands at issue in the case they had to be publicly owned. In Davis vs. Mineta, 302 F.2d 1104 (10th Cir. 2002), two separate parks were planned within areas potentially affected by a highway project. One of the planned park areas was partially owned by private landowners and partially by the state. The second area was planned in a municipal master plan to be parkland, but the lands were privately owned. The courts found that the privately owned land did not qualify for Section 4(f) protection. Only the portions of planned park that were publicly held by the state were subject to Section 4(f).

According to 2009 Dallas Central Appraisal District records and information provided by the City of Dallas on recent acquisitions, 439 parcels (out of 830 parcels) totaling approximately 4,581 acres are publicly owned (i.e., city, county, and state ownership) in the area considered to be the Great Trinity Forest (roughly 76 percent of the total area). The majority of these public holdings are located south and east of the proposed project. It is important to reiterate that approximately 1,980 acres, or roughly 43 percent, of the 4,581 acres that are publicly owned within the Great Trinity Forest are currently dedicated as parkland, none of which would be affected by Trinity Parkway. The Great Trinity Forest land within the proposed ROW footprint of the Trinity Parkway Build Alternatives is comprised of 10 parcels owned by private landowners and six publicly owned parcels (see enclosed "Property Ownership – Proposed Trinity Parkway & Great Trinity Forest" map, corresponding parcel information table, and Dallas

County deed records). As demonstrated above, Section 4(f) does not apply to the privately owned lands. Two of the six publicly owned parcels are currently designated and used as ROW for city streets (Forest Avenue and Martin Luther King (MLK) Jr. Boulevard) that enter or cross the area considered to be the Great Trinity Forest. By definition, a "use" under Section 4(f) occurs when land (of a public park, recreation area, wildlife and waterfowl refuge of national, State, or local significance) is permanently incorporated into a transportation facility (23 CFR §774.17). The crossing of these two ROW parcels by the proposed project should not be considered a "use" because there is already a transportation use. The following table provides data on the remaining four publicly owned parcels from which land would be required for Trinity Parkway.

Address	Size (Acres)	Owner	Deed Transfer Date	Zoned	Notes/Use
1301 McDonald St.	36.25	City of Dallas	June 2008	Industrial manufacturing	Vacant storage warehouse and paved parking
4601 S. Lamar St.	30.84	City of Dallas	June 2009	Industrial manufacturing	Vacant land
4601 S. Lamar St.	3.37	City of Dallas	June 2009	Industrial manufacturing	Vacant land
1000 MLK Jr. Blvd.	5.806	City of Dallas	1912	Industrial manufacturing	Vacant, identified as an inactive municipal solid waste landfill known as the Forest Avenue landfill (see SDEIS Table 3-37, ID No. 42)

Source: Dallas Central Appraisal District (2009) and information provided by the City of Dallas

The four parcels in the above table total approximately 76.27 acres, of which 0.02 to 5.35 acres (0.03 to 7.01 percent) would be needed for Trinity Parkway, depending upon the alternative. The proposed Trinity Parkway ROW would only represent roughly 0.1 percent of the publicly owned land within the entire Great Trinity Forest area. Although none of the four publicly owned parcels needed for Trinity Parkway are presently functioning as parkland and there are no existing recreational amenities, the inclusion of these parcels in the City's park and recreational master plans for the area serves as evidence of future designation for such purposes. Because these plans also include references to Trinity Parkway, the issue of joint planning was carefully examined since this is a critical element in determining Section 4(f) applicability in the case of the Great Trinity Forest.

The FHWA's *Section 4(f) Policy Paper* suggests that the requirements of Section 4(f) do not apply in scenarios where a park, recreation area, or wildlife and waterfowl refuge is jointly planned with a highway project. The Section 4(f) regulations state the following:

> "When a property is formally reserved for a future transportation facility before or at the same time a park, recreation area, or wildlife and waterfowl refuge is established and concurrent or joint planning or development of the transportation facility and the Section 4(f) resource occurs, then any resulting impacts of the transportation facility will not be considered a use." (23 CFR § 774.11(i)).

An analysis of case law also indicates that joint planning precludes a property from being subject to Section 4(f). In Sierra Club v. Dole, 948 F.2d 568 (9th Cir. 1991), the court stated that,

> "[w]here a park and a road are jointly planned on land which previously had neither park or road…no consensus is being upset. The community is not changing its mind about the type of park and road it would have, but is making the determination in the first instance. It is difficult to see how the road would significantly and adversely affect the park." (948 F.2d 575)

As stated in *The Great Trinity Forest Master Plan*, part of the purpose of the plan is to illustrate how other transportation, flood prevention and recreational improvements along the Trinity River will be incorporated. The master plan includes a section dedicated to "Coordination with other Trinity Planning Efforts" which points out that,

> "[t]he Trinity River has been the focus of an extensive amount of planning, ranging from the Trinity River Corridor Major Investment Study by the Texas Department of Transportation (TxDOT), the U.S. Army Corps of Engineers' study of the extension of the Dallas Floodway, and the development of recreational trails in the Trinity River Corridor."

The development of the master plan involved review and input from TxDOT. This provided for coordination with Trinity Parkway as well as other planned transportation projects in the area. The master plan includes a section titled "Transportation Influences" that references Trinity Parkway and states that the proposed tollway would benefit the Great Trinity Forest by improving access along the upper end of the Trinity River Corridor. The plan indicates this could be accomplished due to the proposed Trinity Parkway connections at Corinth Street and MLK Jr. Boulevard, which could be direct access points into the Great Trinity Forest. Figure 2.6 (Transportation Influences) and Figure 5.2 (Potential Access Improvements) in the master plan show an approximate route for the proposed Trinity Parkway that generally matches the alternatives under consideration in the area of the Great Trinity Forest (see enclosed Figure 5.2). The master plan states that it is intended to ensure flexibility and is designed to work within the context of other planning along the Trinity River, specifically citing the USACE proposed flood control improvements and the Trinity Parkway. In addition to documenting joint planning efforts, the inclusion of a Trinity Parkway alignment along with a commitment to providing compatibility with an overlapping tollway location in *The Great Trinity Forest Master Plan* should be viewed as reservation for a future transportation facility, much the same way as the master plan serves as designation of the publicly owned lands within the area for future park and recreational purposes. Additional examples of joint planning efforts involving both the Trinity Parkway and the Great Trinity Forest are provided below.

Since the adoption of *The Great Trinity Forest Master Plan* in 1997, the City of Dallas has developed a master plan for extensive development of recreational, transportation, and environmental restoration elements for the Dallas Floodway known as *A Balanced Vision Plan (BVP) for the Trinity River Corridor* (see enclosed BVP map). The improvements planned as part of the BVP would serve as a centerpiece anchoring the public parks and open space along the Elm Fork and within the Great Trinity Forest located upstream and downstream of the Dallas

Floodway. The BVP includes provisions for implementing various components of *The Great Trinity Forest Master Plan* and the Trinity Parkway project that were funded as part of the City's 1998 bond program. On May 2, 1998, the City of Dallas held a Capital Bond Program election to fund 11 propositions. The bond election passed in its entirety, including Proposition 11 that authorized the issuance of $246 million general obligation "Trinity River Corridor Project" bonds, specified to include "floodways, levees, waterways, open space, recreational facilities, the Trinity Parkway and related street improvements, and other related, necessary, and incidental improvements to the Trinity River Corridor." Proposition 11 was subdivided into the following program categories:

- Dallas Floodway Extension - $24,700,000
- Elm Fork Levee - $30,000,000
- Transportation Improvements - $118,000,000 ($84 million has been allocated for the Trinity Parkway)
- Great Trinity Forest - $41,800,000
- Chain of Lakes - $31,500,000

The funding outlined above is available for use in preparing environmental studies, schematic plans, detailed design, ROW acquisition and relocation assistance, utility relocations, and construction. The City is currently utilizing these funds for acquisition of lands associated with the overall "Trinity River Corridor Project." According to records provided by the City of Dallas, the three properties at 1301 McDonald and 4601 S. Lamar were each acquired through eminent domain proceedings for public use in conjunction with the Trinity River Corridor Project using the 1998 bond funds.

The City of Dallas *Trinity River Corridor Comprehensive Land Use Plan*, adopted in March 2005 and amended in December 2009, also includes provisions for both the Trinity Parkway and Great Trinity Forest. The comprehensive land use plan establishes general principles that will direct preparation of detailed plans for the area, and provides guidance about appropriate land uses and development patterns for the corridor. This 'blueprint' for the future shows a general Trinity Parkway alignment slightly overlapping the extreme northern edge of the Great Trinity Forest (see enclosed "Trinity River Corridor Future Land Use Plan" map). The implementation strategy in the comprehensive land use plan also specifically identifies the North Texas Tollway Authority (NTTA) as a partner agency due to its role in the development of the proposed Trinity Parkway project in the Trinity River Corridor.

The Great Trinity Forest Master Plan, the City's BVP, and the *Trinity River Corridor Comprehensive Land Use Plan* all acknowledge that several local, state, and federal government agencies are in the process of planning, implementing, or constructing various projects within the Trinity River Corridor. These projects include flood control, transportation, recreation, utilities, land use planning, and environmental restoration. Many of the proposed projects located within the Trinity River Corridor have parallel planning processes, overlapping objectives, and require a coordinated design and project approval process. The previously mentioned City of Dallas Trinity River Corridor Project is the overall name for a series of proposed projects along the Elm Fork and main stem of the Trinity River, supported by the City as part of an initiative to improve

flood control, downtown access, aesthetic value, recreational opportunities, and the economic potential of the Trinity River Corridor and surrounding communities. The Trinity River Corridor Project incorporates the proposals from these agencies into one cohesive plan. The Trinity River Corridor Project is widely publicized and is being managed by a consolidated interagency office at Dallas City Hall. The NTTA participates in this cooperative multi-project planning effort with the City of Dallas, Dallas County, TxDOT, the FHWA, the North Central Texas Council of Governments, and the USACE. Throughout the planning and project development process, the partner agencies have participated in numerous meetings and workshops to maintain consistency and compatibility of the various undertakings within the corridor. The project elements, which include the Trinity Parkway and Great Trinity Forest, are described in detail on the City of Dallas website: www.trinityrivercorridor.org. A "Trinity River Corridor Project" map is enclosed showing the various elements of the overall project. As demonstrated by this cooperative strategy, which has been agreed upon by the partner agencies, the City's efforts associated with the Great Trinity Forest are being performed concurrently with the Trinity Parkway project. This recognition and commitment does not alter the independent utility of these projects. It is simply a strategy intended to allow the partner agencies to make informed decisions regarding their projects within the context of other agency actions.

In terms of impacts, regardless of Section 4(f) applicability, the proposed Trinity Parkway Build Alternatives would only encroach upon the outer limits of the suggested boundaries of the Great Trinity Forest. The area is already inundated with industrial development, major arterial streets, IH 45, and several rail lines (Dallas Area Rapid Transit, Burlington Northern Santa Fe, Union Pacific, and the abandoned AT&SF Railroad Bridge). The proposed Trinity Parkway Build Alternatives would not be visible from the vast majority of the Great Trinity Forest. As a result, it is not expected that the proposed alternatives would adversely affect the Great Trinity Forest. Notably, the City of Dallas Park and Recreation Department (PARD), has indicated that none of the Trinity Parkway Build Alternatives would have a negative impact to any existing or planned parks and recreational areas in the project study area (see SDEIS Appendix A-1).

In summary, the Trinity Parkway Build Alternatives would not require the "use" of any publicly owned land from an existing public park, recreation area, or wildlife/waterfowl refuge within the Great Trinity Forest. None of the publicly owned land needed for Trinity Parkway within the area considered as the Great Trinity Forest is currently functioning as parkland and there are no existing recreational amenities. While the area is included in long-range park and recreational master plans, there is a well-documented history of joint development of the Trinity Parkway with the Great Trinity Forest. These master planning documents show a Trinity Parkway alignment overlapping the Great Trinity Forest that is consistent with the Trinity Parkway Build Alternatives currently under consideration. The proposed project would involve a very small portion of the outer periphery of the Great Trinity Forest that is a transitional zone between the surrounding urban environment and the floodplain woodlands. The influences of the local transportation system are already part of the physical characteristics in this area. The City of Dallas PARD does not consider the extent of the Trinity Parkway involvement with the Great Trinity Forest to be detrimental to the area.

In conclusion, the North Texas Tollway Authority, managing agency for the Trinity Parkway, requests concurrence that Section 4(f) should not apply to the Great Trinity Forest for the reasons discussed above. We thus are requesting confirmation of this finding in writing.

If any additional information is needed, please contact Tim M. Nesbitt, P.E. at (214) 320-6245.

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

Attachments
TMN:tmn
Copy to: C-5E (0918-45-121)

EG

Texas Department of Transportation

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

June 21, 2010

NH
Response to FHWA Letter
Regarding Alternative 5 – Split Parkway (Landside)
Dallas County
CSJ 0918-45-121

Trinity Parkway: From IH 35E/SH 183 to US 175/SH 310

Ms. Janice W. Brown
Division Administrator
Federal Highway Administration
Austin, Texas 78701

Dear Ms. Brown:

This is in response to follow up questions received from the Federal Highway Administration (FHWA) by letter dated April 15, 2010 addressed to Ms. Dianna Noble, P.E., TxDOT Director of Environmental Affairs, regarding information provided in previous correspondence about the feasibility of realigning and/or modifying the Trinity Parkway Alternative 5 – Split Parkway (Landside). As mentioned in previous correspondence, the U.S. Army Corps of Engineers has stated the original Alternative 5 as presented in the Trinity Parkway Supplemental Draft Environmental Impact Statement is unapprovable due to impacts to the Dallas Floodway levees. The possibility of shifting the Alternative 5 main lanes away from the levees to avoid these impacts has been evaluated. Our understanding is that an exhibit showing a preliminary diagram of the modified version of Alternative 5 along with hard copies of layouts were delivered to FHWA by the North Texas Tollway Authority (NTTA) on June 18, 2010.

This letter is intended to provide the data requested by the FHWA to support a decision regarding the viability of a modified version of Alternative 5. The following responses to FHWA's questions were provided by the NTTA and their consultant via the TxDOT Dallas District Office. The original comments from NTTA/consultant and FHWA questions are repeated below for reference:

Response to Question #1: *Moving the alignment to go over the cross streets would require substantial displacements.* What is "substantial"? What is this compared to? What is the relative increase versus the amount of relocations (and what types) associated with other alternatives still under consideration? What is the magnitude as compared to other alternatives?

The displacements would be substantial in comparison to the original alignment of Alternative 5. Approximate displacements and displacement types for the original Alternative 5, the modified Alternative 5, and the other alternatives still under consideration are listed below:

Table 1. Displacements

Alt	Residential Building	Commercial / Industrial Building	County / State Facilities	Pump Station / Levee Operation Building	Police / Fire Station Building	School	DISD Facility Building	Place of Worship	Cemetery	Total
2A	8	272	0	1	2	0	2	0	0	285
2B	6	228	0	5	2	0	4	0	0	245
3C	6	29	0	0	0	0	0	0	0	35
4B	11	24	0	0	0	0	0	0	0	35
5 – Orig	20	39	0	3	0	0	0	0	0	62
5 – Mod	131	162	3	1	0	0	0	6	0	303

Note: The estimated number of displaced buildings/structures is shown in this table; however, the number of individual businesses displaced may be higher due to multiple tenants in some buildings.

As shown in the above table, the overall number of displacements caused by the modified Alternative 5 would exceed Alternatives 2A and 2B, and it is important to note that the modified Alternative 5 would result in a substantially greater number of residential displacements compared to all the other alternatives. In addition, two electric substations, six churches, the Lew Sterrett Justice Center (county jail facility), the Dawson State Jail (located to the south across Commerce Street from Lew Sterrett), and one building associated with the Dallas Floodway levee operations office would be displaced. It is our understanding that an exhibit showing the displacements for the modified Alternative 5 was delivered to FHWA on June 18, 2010 by NTTA.

Based on adjusted Dallas Central Appraisal District land and improvement values (2009), the estimated costs associated with right-of-way (ROW) acquisition and relocation assistance for the modified Alternative 5 are over $475 million. This

amount would not include the approximate $273 million cost associated with reconstructing the Lew Sterrett Justice Center and Dawson State Jail at new locations, which is discussed further under the Response to Question #4.

Response to Question #2: *Completion of Alternative 5 on the landside of the west levee would impact environmental justice neighborhoods.* What does this mean? More detail and clarification needed. Does it mean additional relocations (and if so what types), taking of employment or institutional / community centers, noise or visual intrusions? When it states it would require two full crossings of the floodway, does this mean that a completely landside alternative would need to cross the levees twice? Does that mean crossing both the east and west levees once or crossing the west levee twice?

Moving the Alternative 5 alignment completely landside of the west levee would cause a substantial number of additional displacements/relocations within environmental justice neighborhoods (i.e., minority and low-income residential areas) primarily in West Dallas (see attached three rolls titled "Alternative 5C" showing approximate plan view and profile of such a West levee Combined Parkway Landside). Altering the alignment in this manner would substantially increase the overall number of displacements, and in particular would increase the number of residential displacements by 171. The relocations and displacements directly caused by this alignment shift can be seen in the table below in comparison to the number and type of displacements caused by the original Alternative 5.

Table 2. Displacements for a West Levee Combined Parkway - Landside

Alt	Resi-dential Building	Com mer-cial / Industrial Building	County / State Facility	Pump Station / Levee Opera-tion Building	Police / Fire Station Building	School	DISD Facility Building	Place of Worship	Ce m-etery	Total
5 – Orig	20	39	0	3	0	0	0	0	0	62
5C - West Levee Combined Parkway – Landside	191	98	1	2	0	0	0	6	0	298

Note: The estimated number of displaced buildings/structures is shown in this table; however, the number of individual businesses displaced may be higher due to multiple tenants in some buildings.

All of the residential displacements would occur in neighborhoods where the affected 2000 Census block groups meet one of the following criteria: 1) the racial and/or ethnic minority population percentage is higher than 50 percent; 2) the percentage of the population below the U.S. Census poverty threshold exceeds 50 percent; and/or 3) the median household income is at or below the U.S. Department of Health and Human Services poverty guidelines. Minority and low-income populations within these neighborhoods would also experience visual impacts and would be noise impacted. If this alternative is advanced for further evaluation, an analysis would be necessary to determine if noise walls are reasonable and feasible. If these impacts could not be sufficiently mitigated, and given the availability of less intrusive routes, they could be viewed as disproportionately high and adverse and/or discriminatory for minority and low-income groups, thereby violating Executive Order 12898, FHWA Order 6640.23, and Title VI of the Civil Rights Act.

In addition to the environmental justice concerns discussed above, the high number of residential displacements could affect community cohesion in West Dallas. It has not been determined whether available housing exists for residents to relocate within the same community, which could prohibit displaced members of the community from continuing present relationships.

When stated that the modified alignment would cause two full crossings of the floodway, it was meant that combining the north and southbound lanes would cause all six mainlanes to cross both the east and west levees twice, rather than just the three southbound lanes as in the original Alternative 5. The levee crossings with the additional lanes would involve additional pier penetrations of the levees compared to the original Alternative 5, which would need to be mitigated with longer diaphragm walls or another solution subject to approval by the U.S. Army Corps of Engineers and the City of Dallas.

It should be noted that in the course of conducting the 1998 Trinity Parkway Corridor Major Transportation Investment Study (MTIS), some alternatives were considered but screened out from further evaluation. One of the goals throughout the MTIS/EIS process has been to minimize impacts on local residents, while accomplishing the purpose of the tollway. The MTIS looked at broad categories of transportation improvements and a range of alternative configurations within these categories. The MTIS involved a lengthy process of public input, technical study, and evaluation with a stated mission of developing a locally-preferred plan of action to solve transportation problems along the Trinity River Corridor and to integrate with community plans and goals. Some alternative configurations within each category for solving the transportation problems in the corridor were eliminated from further

consideration because they did not meet minimum goals established by consensus of the stakeholders as well as criteria set by federal and state regulations. Potential impacts to natural, social, and cultural resources were part of the MTIS evaluation. Alternatives considered in the MTIS and screened out for the "reliever route" category included a six-lane conventional thoroughfare along the landside of the west levee and a six-lane freeway with two high-occupancy vehicle (HOV) lanes on the landside of the west levee (see Alignment Options TL-2c and TL-8c, respectively, in Table 6-1 of Appendix C in the MTIS). The major concerns for this type of alignment included social and environmental impacts such as significant visual and noise impacts. Based on stakeholder input early in the process for the proposed project, a combined parkway landside of the west levee would not be supported by the City of Dallas or the general public.

Response to Question #3: ***Sumps could be moved within limits but would require acquiring other adjacent lands which have been developed.*** **No cost estimate is provided. What is the approximate number of relocations and how do the relocations compare to other alternatives still under consideration?**

Due to the importance of the sumps and associated pump stations for flood damage reduction related to the Dallas Floodway system, the additional displacements and costs that would be caused by the need to replace these features, and protections that would apply to some of the sump areas under Section 404 of the Clean Water Act, further evaluation of modifying Alternative 5 led to the conclusion that the best possible option would be to shift the alignment of the main lanes far enough away from the east and west levees to avoid longitudinal encroachment within sump areas adjacent to the levees. Lateral crossings of a few sumps would be on structure, resulting in only minor sump storage loss due to fill from bridge columns that could be readily mitigated. Five roll plots titled "Alternative 5 Modified" which were delivered to FHWA by NTTA on June 18, 2010, show the plan view and main lane profiles of this modified version of Alternative 5.

Response to Question #4: ***Modifying the relocation of Alternative 5 would require the relocation of the Lew Sterrett Justice Center.*** **What is the basis for the $68 million cost? Is it fair to assume that the issues involved in the relocation would be comparable here? If so, we may be able to accept the $68 million as a low estimate for the Lew Sterrett Center relocation. These costs should be referenced to the overall magnitude of the impact as compared to other alternatives.**

According to available information from Dallas County, the relocation of the Suzanne Kays Detention Center to the recently completed expansion (South Tower) of the Lew Sterrett prison cost approximately $68 million. The cost of relocating the Suzanne Kays Detention Center, which was a 1,008-bed medium security jail, was

merely provided in previous correspondence as a base line for costs that could be expected in order to relocate the much larger Lew Sterrett Justice Center. The total capacity of the jail towers at Lew Sterrett is 7,074 inmates (North Tower – 3,292, West Tower – 1,478, South Tower – 2,304), and the facility employs approximately 970 people making it one of the largest employers in the project study area.

Although it was not mentioned in previous correspondence regarding the viability of modifying Alternative 5, relocation of the Dawson State Jail (located across Commerce St. south of Lew Sterrett) would involve similar issues to relocating the Lew Sterrett facility and would also require approval from the state legislature. According to information obtained from the Texas Department of Criminal Justice, the state jail employs 437 people and has a total capacity of over 2,200 inmates. Finding a suitable relocation site and an interim facility to accept inmates currently held at the facility would be problematic. Relocation and reconstruction costs would be extremely high and the jail's relocation would be further complicated by contractual issues. Although the jail is owned by the state, it is operated and maintained by a private company (Corrections Corporation of America) under contract to the state.

Based on the recent $68 million cost for the 2304 inmate South Tower of Lew Sterrett (~$29,500 per inmate), relocating the Lew Sterrett facility and the Dawson State Jail would necessitate relocating a total capacity of 9,274 inmates. Assuming a new location for the jails could be found, new facility construction costs alone may be in the vicinity of $273 million.

The other alternatives under consideration (Alternatives 2A, 2B, 3C, and 4B) would avoid the Lew Sterrett Justice Center and the Dawson State Jail. The geometric constraints that prohibit avoidance of the county and state jail facilities are considered a key fatal flaw to modifying Alternative 5 to meet USACE criteria.

Response to Question #5: ***The realignment of Alternative 5 would have impacts to vacant land anticipated for redevelopment.*** **This does not appear to be an issue and therefore is not a valid reason to dismiss the alternative. The location of a proposed overlook can be changed or modified.**

Agreed.

Based on the additional information and responses to FHWA's questions provided in this letter as well as in the exhibits and roll plots delivered to FHWA by NTTA on June 18,

2010, the FHWA's determination regarding the viability of a modified version of Trinity Parkway Alternative 5 - Split Parkway (Landside) is requested. If you have any questions, please contact Elvia Gonzalez of my staff at 416-2610.

Sincerely,

Lisa J. Hart
Director, Programs Management Section
Environmental Affairs Division

EG:e
cc: Dallas District
EG

Reference: ENV 850

U.S. Department of Transportation
Federal Highway Administration

Texas Division

300 E. 8th Street, Room 826
Austin, TX 78701-3255
Tel (512) 536-5951
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texas.fhwa@dot.gov

July 16, 2010

In Reply Refer To:

Ms. Lisa J. Hart
Director, Program Management Section
TxDOT - Environmental Affairs Division
125 E. 11th Street
Austin, Texas 78701

Dear Ms. Hart:

Reference is made to your letter dated June 4, 2010 requesting Section a 4(f) determination for the Great Trinity Forest Park (GTFP) and its relationship with the various alternatives being considered in the Trinity Parkway (TP) Environmental Impact Statement (EIS). We have reviewed the documentation along with the subsequent transmittal of *The Great Trinity Forest Master Plan (The Plan)* approved by the Dallas City Council in 1997. We have completed our technical review of your letter, attachments and *The Plan* and are providing the following comments:

The request identifies that the Section 4(f) property, GTFP, is planned for multiple uses including flood control, ecosystem restoration and mitigation, recreation, and parkland. Within the approximately 6,000 acres identified for eventual inclusion within the GTFP, approximately 4,600 acres are forested and the remaining acreage is primarily grassland and urban areas. The request asserts that the proposed right-of-way for the TP build alternatives does not encroach upon any existing publicly owned parks, recreation areas, or wildlife/waterfowl refuges within the GTFP, focusing on two central arguments to support that the requirements of Section 4(f) do not apply:

1) Applicability of the Joint Planning Provision of Section 4(f) (23 CFR 774.11(i)) to exclude the TP EIS from the requirement to conduct a Section 4(f) analysis for the GTFP.

   For the purposes of assessing applicability of the joint planning provision, we primarily considered information included within *The Plan*. We did not consider it necessary to review in depth the information included in later planning efforts, such as the *Balanced Vision Plan* and the *Trinity River Corridor Comprehensive Land Use Plan* since applicability of the joint planning provision is intended for coordination efforts to reserve land for transportation uses made prior to or at the same time as a designation of a park, recreation area, or wildlife and waterfowl refuge, which we understand to have been accomplished for the GTFP with *The Plan*. The *Balanced Vision Plan* and the *Trinity River Corridor Comprehensive Land Use*

waterfowl refuge, which we understand to have been accomplished for the GTFP with *The Plan*. The *Balanced Vision Plan* and the *Trinity River Corridor Comprehensive Land Use Plan* also are more general in describing the intended uses and functions of the GTFP than *The Plan*, as they are focused more on broader land use in Dallas.

This plan identifies areas for future acquisition to create an intact forest preserve, with acknowledgement of flood control and transportation projects already identified within the proposed GTFP boundaries. Page 5-1 echoes this intended multiple use by declaring that the GTFP is ..."designed to work within the context of other planning along the Trinity River, which includes... the Texas Department of Transportation's (TxDOT) "Trinity Parkway" which will improve access along the upper end of the corridor." Figure 2.6 of the Plan shows the approximate location of the TP project as a "proposed road on the thoroughfare plan". The identification of the TP within the text and the figures in *The Plan* support that the area illustrated for the proposed transportation facility would meet the conditions of the joint planning provision under Section 4(f), which would exclude the TP project from the need to conduct a Section 4(f) analysis for potential impacts to the GTFP. However, *The Plan* also identifies the major environmental and recreational resource within the GTFP as hardwood forests (pg. 2-2). *The Plan* further states that "improved access will follow the philosophies espoused above, in that greater access will not infringe on prime forested areas" (pg. 5-2). As such, we interpret the Plan to acknowledge the right of future transportation facilities to occupy land within the identified areas of the GTFP, but not if such use will impact adversely prime forested areas. Prior to FHWA making a final conclusion on the applicability of the joint planning provision of Section 4(f) to the GTFP for the TP project, we will need to assess the impact of any proposed TP alternatives still under consideration to areas of hardwood forest within the Park, particularly areas of mature vegetation which are identified in *The Plan* as a priority for preservation. We understand that much of the area under consideration for the proposed TP project is currently in use for urban development, but we request that TxDOT provide to us data documenting whether or not the proposed build alternatives currently under consideration would have the potential to adversely affect any areas of hardwood forest with areas of mature vegetation specifically identified in the GTFP.

Additionally, one component within the "Concept Plan for the Great Trinity Forest Park", the Northern Gateway, falls within the proposed TP project's Area of Potential Effect (APE). It would appear that the three alternate locations under consideration for the Northern Gateway would not be within the impact area for alternatives 2A, 2B, and 3C (pg. 5-11). It is not clear whether or not alternatives 4B and 5 would have the potential to impact these areas. We request that TxDOT verify for each build alternative still under consideration whether or not there is a potential to impact this planned park feature if the identified lands *The Plan* are publicly owned. Figures 5-1, 5-3, and 5-5 also show proposed Priority 1 trails along the west levees within the proposed TP APE. Alternatives 4B and 5 may have the potential to impact these planned trails. If the areas planned to carry these trails are publicly owned at this time, these planned features may also need to be further analyzed for potential effect prior to a determination of applicability for the joint planning provision.

TxDOT also needs to be aware that potential application of the joint planning provision for the proposed TP project does not apply to the GTFP as a whole for all future transportation projects with the potential to impact this property, as asserted by TxDOT in the conclusion of their request letter. Figure 2.6 of the Plan shows additional transportation facilities planned to the south of Loop 12. Page 2-8 summarizes planned projects within the GTFP to include the proposed TP (linking IH 35E with IH45 and US 175). No other planned facilities are specifically mentioned in *The Plan* (several existing roads that are abandoned are highlighted for improvement to enhance access to the park, including Forest Lane south of MLK, Elam Road, Simpson Stuart Road from IH 310 east, Linfield Road east of SH 310, Jim Miller Road, Fairport Road, Longbranch Lane from south of Loop 12, and Locust Street). *The Plan* specifically states that there are six broad categories of use for the parkland. Transportation is not one of the identified categories and does not appear as a component of an identified category (pg. 4-3 to 4-4). This further supports that the GTFP as a whole is not intended broadly to serve as a multiple use resource with transportation as an accepted activity outside of those areas identified on page 2-8, though any areas of the GTFP specifically identified for non-recreation or preservation uses (such as utility lands or lands for flood conveyance only) may meet the requirements for multiple uses. As such, we believe that there is no general transportation exception to Section 4(f) for the GTFP under the joint planning provision or as a multiple-use property with a transportation component and that future proposed projects involving facilities not specifically mentioned in *The Plan* that would impact the GTFP may have to meet the requirements of a Section 4(f) analysis. Such a determination will be made on a case-by-case basis during individual project development activities for future proposed transportation actions.

2) The requirements for a Section 4(f) analysis do not apply to privately owned land identified in *The Plan* for future use as a park, recreation facility or a wildlife and waterfowl refuge.

We agree with the assertion in the request that the requirements of Section 4(f) do not apply to land identified for future incorporation into a Section 4(f)-protected resource if those lands are not currently publicly owned. Those lands within the planned GTFP that are currently under private ownership are not subject to the requirements for Section 4(f) for the proposed TP project.

The request included as attachments copies of a number of legal documents reflecting the City's acquisition of land within the GTFP boundaries from 2000, 2004, 2008, and 2009. As none of the attachments provided documentation of the intended use of the land being acquired (no specification of use for park, recreation area, wildlife or waterfowl refuge or reservation for transportation uses), we will rely on *The Plan* to designate for any future application of the joint planning provision to these publicly owned lands for future transportation actions on a case-by-case basis. The letter also made reference to the source of funding for the purchase of land for the GTFP as primarily being a result of the 1998 bond program which included Proposition 11 authorizing the issuance of $246 million general obligation "Trinity River Corridor Project" bonds. We would like to take this opportunity to remind all partners that if, in the future, the City pursues other funding sources, such as Land

and Water Conservation Fund Act (Section 6(f)), and the proposed TP impacts those lands, further discussion in the TP EIS will be required in addition to coordination with the appropriate state and federal agencies.

Should you have any questions, please contact Anita N. Wilson at 512-536-5951.

Sincerely,

for Salvador Deocampo
District Engineer

Mailed and Distributed
10/4/10 SP

Texas Department of Transportation

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October 1, 2010

NH ( )
Trinity Parkway: From IH 35E/SH183 to US 175/SH310
Dallas County
CSJ: 0918-45-121

Re: Section 4(f) Applicability to the "Great Trinity Forest" for the proposed Build Alternatives being evaluated for the Trinity Parkway in Dallas, Texas (CSJ: 0918-45-121)

Mr. Salvador Deocampo
District Engineer
Federal Highway Administration
Austin, Texas 78701

Dear Mr. Deocampo,

In a letter dated June 4, 2010, the Texas Department of Transportation requested a Section 4(f) determination for the "Great Trinity Forest" and its relationship with the proposed build alternatives under consideration in the Trinity Parkway Environmental Impact Statement. The Federal Highway Administration (FHWA) responded in a letter, dated July 16, 2010, with comments requesting additional documentation on potential impacts to prime forested areas and planned park features within the Great Trinity Forest prior to making a final conclusion on the applicability of the joint planning provision of Section 4(f) (23 CFR 774.11(i)) to exclude the Trinity Parkway from Section 4(f) requirements for the Great Trinity Forest. FHWA did agree that those lands within the Great Trinity Forest that are currently under private ownership are not subject to the requirements of Section 4(f) for the Trinity Parkway project.

Following receipt of the July 16, 2010 letter from FHWA, events occurred that have implications for the proposed Trinity Parkway project in regards to Section 4(f). On July 29, 2010, the President of the United States signed the Supplemental Appropriations Act, 2010 into law (Public Law No. 111-212). This federal legislation contains the following language, which is pertinent for Trinity Parkway:

SEC. 405. (b) The Federal Highway Administration is exempt from the requirements of 49 U.S.C. 303 and 23 U.S.C. 138 for any highway project to be constructed in the vicinity of the Dallas Floodway, Dallas, Texas.

Our position is the above exemption from Section 4(f) requirements should apply to the proposed Trinity Parkway project. We request concurrence from FHWA that Section 4(f) does not apply to the Great Trinity Forest, or any other public parks, recreation areas, wildlife or waterfowl refuges, and historic sites of national, state or local significance, where the Trinity Parkway project is concerned, and as such, no further action is

required on this matter. We are requesting confirmation of this finding in writing to be recorded in the project Administrative Record.

If you have any questions, please contact Lindsey Kimmitt at (512) 416-2547.

Sincerely,

Lisa J. Hart
Director, Programs Management Section
Texas Department of Transportation

Copy to:
Dallas District - Stan Hall
Reference: ENV 850

DEPARTMENT OF THE ARMY
U.S. ARMY CORPS OF ENGINEERS
441 G STREET, NW
WASHINGTON, DC 20314-1000

REPLY TO
ATTENTION OF

CEMP-SWD

OCT 19 2010

MEMORANDUM THRU Commander, Southwestern Division

FOR Commander, Fort Worth District

SUBJECT: Implementation Guidance for Section 405(a) of the FY2010 Supplemental Disaster Relief and Summer Jobs Act (Public Law 111-212)

1. Section 405(a) of the FY2010 Supplemental Disaster Relief and Summer Jobs Act (P. L. 111-212) provides that the Secretary is not required to make a determination under the National Historic Preservation Act of 1966 (16 U.S.C. 470, et seq.) for the project for flood control, Trinity River and tributaries, Texas, authorized by Section 2 of the Act entitled "An Act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes," approved March 2, 1945 [59 Stat. 18], and as modified by Section 5141 of the Water Resources Development Act (WRDA) of 2007 [121 Stat. 1253].

2. This guidance applies to all USACE actions that may impact pertinent features of the existing Dallas Floodway and any modifications to that project or features defined by Section 5141 of WRDA 2007. These features may be located at any point along the Trinity River upstream from the AT&SF Railroad Bridge at Trinity River Mile 497.37, to the confluence of the West and Elm Forks at River Mile 505.50, thence upstream along the West Fork for approximately 2.2 miles and upstream along the Elm Fork approximately 4 miles.

3. In accordance with Section 405(a) of P. L. 111-212, the built environment that comprises the Dallas Floodway Project, as modified by Section 5141 WRDA 2007, will be examined, described and considered only as a cultural resource within the context of the scope of impacts that must be analyzed under the National Environmental Policy Act (NEPA). For administrative and public information purposes, a clear and concise descriptive narrative on the development, function, composition and current operation of the Dallas Floodway will be prepared to satisfy the requirements of NEPA. This narrative will focus on the Dallas Floodway as an engineering system and may contain discussion of the significance of this cultural resource's inherent structural features or relationships between the Dallas Floodway and the historical development of the City of Dallas. Any discussion of the significance of cultural resources shall be devoid of explicit reference to the criteria used to determine eligibility for the National Register of Historic Places.

4. As part of the NEPA process for the Dallas Floodway Project, as modified by Section 5141 of WRDA 2007, Fort Worth District shall document and consider project alternatives and their potential to affect the quality of the built environment. In addition to describing effects of various project alternatives on the Dallas Floodway as an engineering system, the district shall

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also document and consider mitigation measures. These mitigation measures shall be developed to avoid, reduce, compensate or eliminate affects to those qualities of the built environment that contribute to the cultural resource's significant structural features or that affect those elements of the built environment that contribute to the relationship between the Dallas Floodway and the historical development of the City of Dallas.

5. It should be noted that the same limitations on the scope of impacts that must be analyzed as identified in paragraph 3, above, also apply to features included in the Balanced Vision Plan which require approval under 33 USC 408; and for analyses conducted pursuant to Section 404 of the Clean Water Act, 33 USC 1344 or Section 10 of the Rivers and Harbors Act of 1899. This guidance includes analyses for any permits required by the City of Dallas to complete repairs or other actions necessary to correct deficiencies noted in the Periodic Inspection Report issued in March 2009. This guidance also includes any actions necessary to enable the authorized project to provide at least a 100 year level of protection while a more comprehensive solution is pursued under Section 5141 of WRDA 2007.

6. In summary, the built environment and other evidence of human activities identified within the geographic areas and associated projects or programs covered by section 405(a) will be examined, described and considered only as cultural resources within the context of the scope of impacts that must be analyzed under NEPA. There will be no determinations made under the National Historic Preservation Act of 1966 in accordance with Section 405(a) of P. L. 111-212.

FOR THE COMMANDER:

STEVEN L. STOCKTON, P.E.
Director of Civil Works

SEC. 405. (a) The Secretary of the Army shall not be required to make a determination under the National Historic Preservation Act of 1966 (16 U.S.C. 470, et seq.) for the project for flood control, Trinity River and tributaries, Texas, authorized by section 2 of the Act entitled ''An Act authorizing the construction, repair, and preservation of certain public works on rivers and harbors, and for other purposes'', approved March 2, 1945 [59 Stat. 18], as modified by section 5141 of the Water Resources Development Act of 2007 [121 Stat. 1253].

(b) The Federal Highway Administration is exempt from the requirements of 49 U.S.C. 303 and 23 U.S.C. 138 for any highway project to be constructed in the vicinity of the Dallas Floodway, Dallas, Texas.

U.S. Department of Transportation
Federal Highway Administration

Texas Division

300 E. 8th Street, Room 826
Austin, TX 78701-3255
Tel (512) 536-5951
Fax (512) 536-5990
texas.fhwa@dot.gov

November 3, 2010

In Reply Refer To:
HA-TX

Trinity Parkway: From IH 35E/SH 183 to US 175/SH 310
Dallas County
CSJ 0918-45-121

Dianna F. Noble, P.E.
Director of Environmental Affairs Division
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701

Dear Ms. Noble

Reference is made to your initial letter dated December 10, 2009 documenting efforts to refine the Trinity Parkway Supplemental Draft Environmental Impact Statement (TP SDEIS) Alternative 5. As previously noted by the United States Army Corps of Engineers (USACE), Alternative 5, as presented in the SDEIS could not be supported by the USACE. Your referenced letter summarized efforts to avoid the impacts and concerns that USACE previously pointed out. Subsequent to your December letter, various emails between FHWA and TxDOT have been exchanged where FHWA requested and TxDOT provided additional information that FHWA considered necessary to assist in making a decision regarding Alternative 5. These discussions and requests included a January 20, 2010 email from FHWA with subsequent response email on March 11, 2010 from TxDOT, a letter from FHWA dated April 15. 2010 with a response from TxDOT on June 21, 2010 and finally an August 20, 2010 email from FHWA with a response from TxDOT on August 24, 2010.

Attempts to address USACE concerns included the development of two variations of Alternative 5: Alternative 5 Modified (Split Parkway – Landside) and Alternative 5C (West Levee Combined Parkway – Landside). The extent of impacts was quantified by each of these variations and was documented in your June 21, 2010 letter to FHWA. Based on the total sum of information provided in TxDOT's letters and emails, we have determined that Alternative 5 cannot be modified further to meet USACE requirements in order to be permitted if selected as the preferred or recommended alternative (as was done to Alternatives 3 and 4). Therefore it is no longer a reasonable or practicable alternative to be carried forward in the analysis for alternatives in the Trinity Parkway EIS. Attempts to realign Alternative 5 would eliminate the

alternative's ability to address project need and purpose and would result in subsequent impacts of extraordinary magnitude to the communities and to existing bridges and buildings along the corridor.

Since Alternative 5 is no longer a viable alternative, it should not be further analyzed in the Limited Scope SDEIS or the Final EIS. These documents should describe the basis for which Alternative 5 was dismissed. If you have any questions please contact Anita Wilson at 536-5951.

Sincerely yours,

Salvador Deocampo
District Engineer

cc: Mr. Kevin Craig, U. S. Army Corps of Engineers

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1/21/11 LP

Texas Department of Transportation

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January 20, 2011

NH ( )
Trinity Parkway: From IH 35E/SH183 to US 175/SH310
Dallas County
CSJ: 0918-45-121

Re: Section 4(f) Exemption for the proposed Trinity Parkway project from IH-35E/SH-183 to US-175/SH-310 in Dallas County, Texas

Ms. Janice Brown
Division Administrator
Federal Highway Administration
Austin, Texas 78701

Dear Ms. Brown:

As you are aware, events occurred since the February 2009 publication of the Trinity Parkway Supplemental Draft Environmental Impact Statement (SDEIS) that have implications for the proposed project in regards to Section 4(f) of the U.S. Department of Transportation (USDOT) Act of 1966 (49 U.S.C. 303). On July 29, 2010, the President of the United States signed the Supplemental Appropriations Act, 2010 into law (Public Law No. 111-212). This federal legislation contains the following language, which is pertinent for the proposed Trinity Parkway project:

> *SEC. 405. (b) The Federal Highway Administration is exempt from the requirements of 49 U.S.C. 303 and 23 U.S.C. 138 for any highway project to be constructed in the vicinity of the Dallas Floodway, Dallas, Texas.*

While there may be differing views on what constitutes the Dallas Floodway, a federal flood conveyance and levee system carrying the main stem drainage flows of the Trinity River, for the purposes of this letter, we are identifying the location of the proposed project in relation to the Dallas Floodway levees, as there can be no dispute that areas within the levees are part of the Dallas Floodway. As described in the aforementioned SDEIS, the project study area boundary extends from the Dallas Central Business District on 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 project area includes the Dallas Floodway area within the levees upstream from the Dallas Area Rapid Transit (DART) light rail bridge to approximately 2,500 feet downstream of the confluence of the Elm Fork and West Fork. **Figure 1** shows the project study area and the build alternatives being considered for further analysis. All of the build alternatives under consideration are located within this project area. The alternatives under consideration are either located primarily inside the Dallas Floodway levees or are very close, and in some areas directly adjacent, to the landside of the levees and include crossings of sumps associated with the floodway system.

As shown on **Figure 1**, the project study area is no more than 2,800 feet from the levees as measured between the east levee and the eastern limit of the study area and 2,500

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feet as measured between the west levee and the western limit. While the northern and southern limits of the study area extend to approximately 1.3 and 2.0 miles away from the levees, respectively, most if not all of the project study area and all alternatives are within the generally recognized historic (pre-levee) floodplain of the Trinity River. **Figure 2** shows the current Federal Emergency Management Agency (FEMA) floodway and areas protected from the 100-year flood by the levees. Under any definition, the project study area is immediately adjacent to the levees and thus in the vicinity of the Dallas Floodway.

As presented in the SDEIS, Alternatives 2A and 2B would travel southwest from the IH-35E/SH-183 interchange, passing over Commonwealth Boulevard, and turning to the southeast to follow Irving Boulevard. These alignments would follow Irving and Riverfront (Industrial) Boulevards for approximately 5.6 miles, passing south of downtown to Corinth Street. South of Corinth Street, the alignments would bend in an easterly direction to reach Lamar Street east of MLK. From this point, the alignments would travel southeast along Lamar Street past IH-45 and would then turn east at Starks Street to the US-175/SH-310 interchange.

Alternatives 3C and 4B would travel southwest from the IH-35E/SH-183 interchange, passing over Commonwealth Boulevard and Irving Boulevard, and crossing the Dallas Floodway east levee in the area west of Hampton/Inwood Road. These alignments would turn south along the riverside of the Dallas Floodway levees, with Alternative 3C following the east levee and Alternative 4B following the east and west levees in a split mainlane configuration. South of the DART light rail bridge, the alignments would follow the riverside edge of the future U.S. Army Corps of Engineers Dallas Floodway Extension (DFE) east levee extension (Lamar Levee) up to a location approximately 1,500 feet downstream of MLK Jr. Boulevard. At this point, the alignments would cross the future DFE levee and follow the landside of the levee to IH-45. The route would then turn east, passing Lamar Street, and following Starks Street to the US-175/SH-310 interchange.

We believe that the project area and alternatives are "in the vicinity of the Dallas Floodway, Dallas, Texas" and it is our position that the above exemption from Section 4(f) requirements should apply to the proposed Trinity Parkway project. We request concurrence from FHWA that Section 4(f) does not apply to Trinity Parkway; and therefore, a Section 4(f) evaluation is not required for potential impacts to any public parks, recreation areas, wildlife or waterfowl refuges, and historic sites of national, state or local significance where the Trinity Parkway project is concerned. We are requesting confirmation of this finding in writing to be recorded in the project Administrative Record. If you have any questions, please contact Lindsey Kimmitt at (512) 416-2547.

Sincerely,

Melissa A. Neeley
Director of Project Delivery Management
Environmental Affairs Division

Attachments
bcc: Dallas District - Stan Hall
Reference: ENV 850

U.S. Department of Transportation
Federal Highway Administration

Texas Division

300 E. 8th Street, Room 826
Austin, TX 78701-3255
Tel (512) 536-5950
Fax (512) 536-5990
texas.fhwa@dot.gov

February 23, 2011

In Reply Refer To:
HA-TX

Trinity Parkway: From IH 35E/SH 183 to US 175/SH 310
Section 4(f) Exemption
Dallas County
CSJ 0918-45-121

Melissa A. Neeley
Director of Project Delivery Management
Environmental Affairs Division
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701

Dear Ms. Neeley:

Reference is made to your letter dated January 20, 2011 for the proposed Trinity Parkway Project and the applicability of Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 U.S.C. 303) and the federal legislation signed on July 29, 2010 known as the Supplemental Appropriations Act, 2010 (Public Law No. 111-212). As presented in your letter we recommend that the request be modified to address the following comments and clarifications:

1. The letter as presented does not provide a proper definition of the Dallas floodway for the purposes of this project. To be effective and consistently interpreted it should be more specific than what is mentioned on page 1, second paragraph where it says "are very close, and in some area directly adjacent." The description should provide actual distances from the floodway.

2. On page 2, paragraph 1 talks about the "pre-levee" floodplain. What is the significance of this for our current determination? How does the pre-levee condition connect to the recommended area for Section 4(f) exemption?

3. On page 2, paragraphs 2 and 3 should more appropriately appear earlier in the letter, in the area of the introduction of the project area.

4. On page 2, last paragraph should emphasize that the Section 4(f) exemption would apply to all alternatives still under consideration for the proposed Trinity Parkway project.

Please provide us a revised letter that addresses our comments presented above. If you have any questions please contact Anita Wilson at 536-5951.

Sincerely yours,

Salvador Deocampo
District Engineer

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
P. O. BOX 17300
FORT WORTH, TEXAS 76102-0300

REPLY TO
ATTENTION OF:

March 24, 2011

Planning, Environmental, and Regulatory Division
Regulatory Branch

SUBJECT: Project Number SWF-2011-00049 Dallas Floodway Approved Jurisdictional Determination

Mr. Danny Griffith
Vice President
Halff Associates, Inc.
8616 Northwest Plaza Drive
Dallas, Texas 75225

Dear Mr. Griffith:

This is in reference to your correspondence dated March 11, 2011, requesting a reverification and time extension of the U.S. Army Corps of Engineers (USACE) approved jurisdictional determination for the Dallas Trinity River Floodway, for the City of Dallas, in Dallas County, Texas. The original jurisdictional determination was issued by USACE letter dated June 19, 2006 to Mr. David Morgan, Halff Associates Inc., under USACE Project Number 200000308. This reverification has been assigned Project Number SWF-2011-00049. Please include this number in all future correspondence concerning this project. Failure to reference the project number may result in a delay.

We have reviewed the site in question in accordance with Section 404 of the Clean Water Act (Section 404) and Section 10 of the Rivers and Harbors Act of 1899 (Section 10). Under Section 404, the USACE regulates the discharge of dredged and fill material into waters of the United States, including wetlands. Our responsibility under Section 10 is to regulate any work in, or affecting, navigable waters of the United States.

Based on a field visit by a member of my staff, the report that you submitted, and other information available to us, we concur with the information you provided concerning waters of the United States and navigable waters of the United States in the above referenced report. We have determined that there has not been a significant change in the location of waters of the United States from the date of the original jurisdictional determination and we have determined that an extension of the approved jurisdictional determination is in the public interest. Department of the Army authorization would be required for the discharge of dredged or fill

material into waters of the United States or work in, or affecting, navigable waters of the United States designated in the attached approved jurisdictional determination area.

This approved jurisdictional determination is valid until March 24, 2016 unless new information warrants revision of the delineation before the expiration date. It is incumbent upon the applicant to remain informed of changes in the Department of the Army regulations.

The applicant may accept or appeal this approved JD or provide new information in accordance with the enclosed Notification of Administration Appeal Options and Process and Request For Appeal (NAAOP-RFA). If the applicant elects to appeal this approved JD, the applicant must complete Section II (Request For Appeal or Objections to an Initial Proffered Permit) of the enclosure and return it to the Division Engineer, ATTN: CESWD-ETO-R, U. S. Army Corps of Engineers, 1100 Commerce Street, Dallas, Texas 75242-0216 within 60 days of the date of this notice. Failure to notify the USACE within 60 days of the date of this notice means that you accept the approved JD in its entirety and waive all rights to appeal the approved JD.

Thank you for your interest in our nation's water resources. If you have any questions concerning our regulatory program, please contact Mr. Barry Osborn at the address above or telephone (817) 886-1734.

Sincerely,

Jennifer R Walker
for
Stephen L Brooks
Chief, Regulatory Branch

Enclosure

NORTH TEXAS TOLLWAY AUTHORITY
5900 West Plano Parkway, Suite 100 • Plano, Texas 75026 • (214) 461-2000 • Fax (214) 528-4826 • www.ntta.org

September 14, 2011

Mr. Nasser Askari, P.E.
TxDOT Dallas District
4777 E. Highway 80
Mesquite, Texas 75150-6643

Re: Section 4(f) Exemption for the proposed Trinity Parkway Project from IH-35E/SH-183 to US-175/SH-310 in Dallas County, Texas (CSJ: 0918-45-121)

Dear Mr. Askari:

In response to the Federal Highway Administration (FHWA) letter dated February 23, 2011, we are providing an amended request for a determination that the proposed Trinity Parkway Project is exempt from the requirements of Section 4(f) of the Transportation Act of 1966, 49 U.S.C. § 303 (Section 4(f)), pursuant to recently enacted Federal legislation.

The Federal Legislation – Section 405

As you are aware, on July 29, 2010, the President of the United States signed the Supplemental Appropriations Act, 2010 into law (Public Law No. 111-212). Section 405 of this Federal legislation (Section 405) includes the following language:

> *SEC. 405. (b) The Federal Highway Administration is exempt from the requirements of 49 U.S.C. 303 and 23 U.S.C. 138 for any highway project to be constructed in the vicinity of the Dallas Floodway, Dallas, Texas.*

Interpretation of "in the Vicinity of the Dallas Floodway"

Section 405 does not provide a definition of the "Dallas Floodway." While the Dallas Floodway is commonly known as a Federal flood conveyance and levee system that carries the main stem drainage flows of the Trinity River, our research has not found one, uniform definition of the geographic extent of the Dallas Floodway. There may be differing views on the full scope of the area encompassed by the Dallas Floodway, but from a technical standpoint there can be no dispute that <u>at a minimum</u>, the Dallas Floodway includes the area located between the landside toes of the East and West Levees that comprise the Dallas Floodway and also the related landside sump areas. This is the "minimum" physical scope of the Dallas Floodway that can be used to then evaluate what is "in the vicinity of" this geographical footprint.

Section 405 also does not define "in the vicinity of." Because it is presumed that Congress expresses its intent through the ordinary meaning of its language, every exercise of statutory interpretation begins with an examination of the plain language of the statute. *United States v. Diallo*, 575 F.3d 252, 256 (3d Cir. 2009). Thus, "vicinity" should be given its plain, ordinary meaning. Black's Law Dictionary defines "vicinity" as "the quality or state of being near, or not remote; nearness; propinquity; proximity; a region about, near or adjacent; adjoining space or country." The *Oxford English Dictionary* similarly defines "vicinity" as the "state, character or quality of being near in space; propinquity, proximity," and "in the vicinity of" as "in the neighbourhood (of), near or close (to)."

Accordingly, "in the vicinity of" reflects a zone near, but beyond the Dallas Floodway itself. We suggest that "in the vicinity of" be applied here by looking to the zone of impact (i.e., flood risk) that the Dallas Floodway project (levees, etc.) was built to address. Such an area would be near, adjacent, adjoining and have a character of appropriate physical relationship to the Dallas Floodway itself.

Originally constructed in the late 1920s, and subsequently repaired in the late 1950s by the U.S. Army Corps of Engineers (Corps), the East Levee and West Levee were constructed to protect surrounding portions of the City of Dallas from flooding. The Dallas Floodway levees are part of the Federal Flood Protection System, which requires that they periodically must be accredited by the Federal Emergency Management Agency ("FEMA"). FEMA accreditation means that properties behind the levees are protected from a 100-year flood event.

FEMA most recently accredited the Dallas Floodway levee system in 2007, and the City of Dallas and Corps currently are undertaking a levee remediation project necessary in order to retain that certification. Remediation efforts encompass the East and West Levees, as well as the Rochester Park Levee and the Central Wastewater Treatment Plant Levee so that the land behind each of these levees is protected from a 100-year flood event.[1] In 1996, Congress included the Rochester Park and Central Wastewater Treatment Plant Levees in the Dallas Floodway Extension (DFE),[2] a project that originally was authorized by Section 301 of the Rivers and Harbors Act of 1965 (79 Stat. 1091). The Rochester Park Levee and Central Wastewater Treatment Plant Levee extend the protective reach of the Dallas Floodway below the end of the East and West Levees at the Dallas Area Rapid Transit (DART) light rail bridge (DART Bridge), to protect residential and commercial areas in East Dallas and critical infrastructure in South Dallas.[3] Given the flood protection purpose of the Dallas Floodway, surrounding areas behind the East Levee, West Levee, Rochester Park Levee and Central Wastewater Treatment Plant Levee that are protected from a 100-year flood event clearly are "in the vicinity of" the Dallas Floodway.

Accordingly, for the narrow purposes of this request, we are identifying the Dallas Floodway as the area located between the landside toes of the East and West Levees and related landside sump areas. We are identifying the area "in the vicinity of" the Dallas Floodway, as the surrounding areas behind the East, West, Rochester Park and Central Wastewater Treatment Plant Levees that are protected from a 100-year flood event. *See* **Figure 1**, which delineates the current FEMA floodway and surrounding area protected by the levees from a 100-year flood event, per the 2007 FEMA accreditation. All four build alternatives meeting the purpose and need for the Trinity Parkway Project, as described in the Trinity Parkway Supplemental Draft Environmental Impact Statement (SDEIS) published in February 2009, fall within this area.

The Project Study Area is Located within the Dallas Floodway and "in the Vicinity"

As set forth in the SDEIS, the project study area for the proposed Trinity Parkway Project falls within the Dallas Floodway or "in the vicinity of the Dallas Floodway," within the meaning of Section 405. The boundary of the project study area extends from the Dallas Central Business District on 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 project study area includes the Dallas Floodway area within the levees upstream from the DART Bridge to approximately 2,500 feet downstream of the confluence of the Elm Fork and West Fork. As shown on **Figure 2**, the project study area is no more than 2,800 feet from the levees as measured between the East Levee and the eastern limit of the project study

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[1] *See* City of Dallas Memorandum, dated February 3, 2011, to Trinity River Corridor Project Committee Members regarding update on progress of Dallas Floodway 100-year levee remediation; See *also* U.S. Army Corps of Engineers Fort Worth District, *Periodic Inspection of Dallas Floodway*, *Trinity River – Dallas, Dallas County, Texas, Report No. 9* (December 2007).

[2] Section 351 of Water Resources Development Act of 1996 (110 Stat. 3724).

[3] *See* U.S. Army Corps of Engineers, *Section 106 Compliance Efforts for the Dallas Floodway* (November 17, 2009) at 38.

area and 2,500 feet as measured between the West Levee and the western limit. Areas outside the limits of the Dallas Floodway itself are within the area protected by the levees from a 100-year flood event, and therefore, "in the vicinity of the Dallas Floodway."

The Section 106 Area of Potential Effects for the Project is Located within the Dallas Floodway and "in the Vicinity"

Pursuant to Section 106 of the National Historic Preservation Act, 16 U.S.C. § 470f (Section 106), an Area of Potential Effects (APE) has been designated for the Trinity Parkway Project in order to evaluate effects of the alternatives on historic resources. All but a small portion of the APE is located within the East and West Levees and the area protected from a 100-year flood event. *See* **Figure 1**. Accordingly, the APE is located almost completely within the Dallas Floodway itself or "in the vicinity of the Dallas Floodway" within the meaning of Section 405. If FHWA grants this request for a determination that the proposed Trinity Parkway Project is exempt from review under Section 4(f), the effect of the project on properties located within the APE that are listed or eligible for listing in the National Register of Historic Places nonetheless will be evaluated pursuant to Section 106.

All Build Alternatives are Located within the Dallas Floodway and "in the Vicinity"

All of the build alternatives under consideration are located within this project study area, and therefore, in the Dallas Floodway itself or "in the vicinity of the Dallas Floodway" for purposes of Section 405. Alternatives 2A and 2B would travel southwest from the IH-35E/SH-183 interchange, passing over Commonwealth Boulevard, and turning to the southeast to follow Irving Boulevard. These alignments would follow Irving and Riverfront (Industrial) Boulevards for approximately 5.6 miles, passing south of downtown to Corinth Street, and would then bend in an easterly direction to reach Lamar Street east of Martin Luther King (MLK) Jr. Boulevard. From this point, the alignments would travel southeast along Lamar Street past IH-45 and would turn east at Starks Street to the US-175/SH-310 interchange.

Alternatives 3C and 4B would travel southwest from the IH-35E/SH-183 interchange, passing over Commonwealth Boulevard and Irving Boulevard, and crossing the Dallas Floodway East Levee in the area west of Hampton/Inwood Road. These alignments would turn south along the riverside of the levees, with Alternative 3C following the East Levee and Alternative 4B following the East and West Levees in a split mainlane configuration. South of the DART Bridge, the alignments would follow the riverside edge of the future Corps DFE East Levee extension up to a location approximately 1,500 feet downstream of MLK Jr. Boulevard. At this point, the alignments would cross the future DFE levee and follow the landside of the levee to IH-45. The route would then turn east, passing Lamar Street, and following Starks Street to the US-175/SH-310 interchange. **Figure 2** shows the project study area and the build alternatives being considered for further analysis.

Alternatives 3C and 4B are located primarily inside the Dallas Floodway levees and Alternatives 2A and 2B are directly adjacent to the landside of the levees in some areas. All alternatives under consideration would involve crossings of sumps associated with the Floodway system. All of the alternatives under consideration are located within the East and West Levees and/or the surrounding area that is protected by the Floodway from a 100-year flood event. Accordingly, each build alternative is within the Dallas Floodway and "in the vicinity of the Dallas Floodway" for purposes of the Federal legislation, and an exemption from Section 4(f) requirements should apply to all alternatives under consideration for the proposed Trinity Parkway Project.

We request concurrence from the FHWA that Section 4(f) does not apply to the Trinity Parkway Project, and therefore, that a Section 4(f) evaluation is not required for potential impacts to any public parks, recreation areas, wildlife or waterfowl refuges, and historic sites of national, state or local significance where the Trinity Parkway Project is concerned. We are requesting confirmation of this finding in writing to be recorded in the Project Administrative Record. Of course, this request is limited to Section 4(f), and we acknowledge that the requirements of all other applicable statutes and regulations still apply to the Project.

Please let me know if you need any additional information or have any questions. Thank you for your assistance.

Sincerely,

Elizabeth Mow

Elizabeth Mow, P.E.
Director of Project Delivery

EM/jd

Enclosures:
Figure 1: Map of Area "in the Vicinity of" the Dallas Floodway
Figure 2: Proposed Trinity Parkway Build Alternatives (Aerial Photograph)

cc: Daniel Chapman, P.E. - Corridor Manager, HNTB Corporation
Jason Diamond - Environmental Scientist, Halff Associates, Inc.

DEPARTMENT OF THE ARMY
FORT WORTH DISTRICT, CORPS OF ENGINEERS
1500 MARILLA STREET, ROOM 6DS
DALLAS, TEXAS 75201

REPLY TO
ATTENTION OF

September 30, 2011

Programs and
Project Management Division

Ms. Janice Brown
Division Administrator
FHWA – Texas Division
300 East 8th Street
Suite 826
Austin, Texas 78701

Subject: Dallas Floodway Preliminary Slope Analysis

Dear Ms. Brown:

The U.S. Army Corps of Engineers (USACE) is committed to continued collaboration with the Federal Highway Administration (FHWA) and other State and local agencies working on projects within the Dallas Floodway area. This letter is intended to provide an update on the analyses done to date on the existing levee system, as requested, to facilitate the ongoing work on the Limited Scope Supplement (LSS) to the Supplemental Draft Environmental Impact Statement for the Trinity Parkway.

As you know, the Periodic Inspection Report #9 for the Dallas Floodway Levee System, submitted to the City of Dallas in March 2009, identified concerns regarding the integrity of the existing levees. In response to these concerns, the City of Dallas hired an engineering consultant to conduct extensive geotechnical investigations and analyses of the levees in order to make necessary repairs to obtain re-accreditation from the Federal Emergency Management Agency (FEMA) for the National Flood Insurance Program (NFIP). Concurrent with that effort, USACE recently conducted initial analyses of 'existing conditions' of the levees as part of the Dallas Floodway Feasibility Study, which is evaluating potential levee improvements for flood events up to the approximate 800-year level.

Based on the analyses done to date, no riverside slope stability problems have been identified for the existing Dallas Floodway levees. Given that the current riverside slopes are no flatter than 4:1 (horizontal:vertical), the levee improvement template currently being utilized in the Trinity Parkway alternative evaluation process, which assumes a future two-foot levee raise with 4:1 riverside slopes, appears to be a reasonable assumption for use in the Limited Scope Supplement document, based on the best available information.

We appreciate your continued efforts to ensure any Trinity Parkway alternatives proposed within the Dallas Floodway can be implemented without adversely impacting the function and performance of the flood risk management project, and assure you we will continue to coordinate and collaborate with you on this important project.

If you have any questions, please direct inquiries to Mr. Douglas Sims at (214) 671-9379 or douglas.c.sims@usace.army.mil.

Sincerely,

Kevin L. Craig, P.E.
Director, Trinity River Corridor Project

Copies Furnished:

Richard J. Muraski, Jr., Commander, Fort Worth District, USACE
Todd Smith, Deputy Chief, E&C Division, USACE
Barney Davis, Lead Engineer, USACE
Douglas Sims, Program Manager, USACE
Sal Deocampo, District Engineer, Texas Division, FHWA
Michael Leary, Director, PPD, Texas Division, FHWA

U.S. Department
of Transportation
**Federal Highway
Administration**

Texas Division

300 E. 8th Street, Rm 826
Austin, TX 78701
(Tel) 512-536-5900
(Fax) 512-536-5990
www.fhwa.dot.gov/txdiv

January 23, 2012

In Reply Refer To:
HA-TX

Trinity Parkway: From IH 35E/SH 183 to US 175/SH 310
Section 4(f) Exemption
Dallas County
CSJ 0918-45-121

Ms. Melissa A. Neeley
Director of Project Delivery Management
Environmental Affairs Division
Texas Department of Transportation
125 East 11th Street
Austin, Texas 78701

Dear Ms. Neeley:

Reference is made to your letter dated October 13, 2011, transmitting the amended request for the proposed Trinity Parkway Project and request for the determination of the applicability of Section 4(f) of the U.S. Department of Transportation Act of 1966 (49 U.S.C. 303) and the federal legislation known as the Supplemental Appropriations Act, 2010 (Public Law No. 111-212), signed on July 29, 2010. As presented, the letter primarily discusses the applicability with respect to Section 106 properties (and the area of potential effect); however, the exemption is for all Section 4(f) resources within the vicinity of the Dallas Floodway (as further identified in your letter) and applies to all Alternatives being considered for the Trinity Parkway Project.

For the proposed Trinity Parkway Project, we concur that the requirements of Section 4(f) do not apply to any parks, recreation areas, wildlife or waterfowl refuges of national, State, or local significance or land of a historic site of national, State, or local significance within the Dallas Floodway or "in the vicinity of the Dallas Floodway," as defined in your October 13, 2011, letter. As such, the requirements of Section 4(f) do not apply to the alternatives under consideration for the proposed Trinity Parkway Project as of the date of this letter and that no further Section 4(f) analysis is required. Should you have any questions, please contact Anita N. Wilson at (512) 536-5951.

Sincerely,

Salvador Deocampo
District Engineer

APPENDIX B

Cultural Resources Consultation

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CULTURAL RESOURCES COORDINATION

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Texas Department of Transportation

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

June 11, 2009

SECTION 106: PROPOSAL FOR ADDITIONAL RECONNAISSANCE AND WINDSHIELD LEVEL SURVEYS

Dallas County
CSJ # 0918-45-121; 0918-45-122

Trinity River Parkway Corridor

Ms. Adrienne Campbell
History Division
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Dear Ms. Campbell:

In accordance with the Amended Programmatic Agreement (PA-TU) among TxDOT, FHWA, the Advisory Council on Historic Preservation, and the THC, this letter *continues* Section 106 consultation for the proposed Trinity River Parkway. This correspondence is written in response to our meeting on June 4, 2009 where we discussed possible methodologies for added reconnaissance and windshield level surveys to further identify historic-age properties in various alternatives.

PROJECT BACKGROUND:

The Trinity River Parkway is intended to solve transportation problems along the Trinity River Corridor in the city of Dallas, Dallas County, Texas. The project will also be integrated with plans for the Trinity River Floodway, a major open space resource in the center of Dallas. High population growth and lack of alternative routes have extended the hours of congestion, increased the number of accidents, and contributed to air pollution in this part of Dallas.

The Trinity Parkway is designed to lessen congestion and to improve mobility in central Dallas and its adjacent areas. Five alternatives have been identified to meet the goal of increased efficiency in the mobility of travelers in this section of Dallas:

Alternative 2A – Industrial Boulevard (elevated)
Alternative 2B – Industrial Boulevard (at grade)
Alternative 3A, B, C – Combined Alternative East Riverside of Levee
Alternative 4A, B – Split Parkway Riverside
Alternative 5 – Split Parkway Landside

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SECTION 106 COORDINATION BACKGROUND:

Prior coordination with your agency established the configuration and size for the area of potential effects (APE) for the five alternatives based on the proposed Trinity Parkway right-of-way (ROW), existing traffic patterns of the connecting arteries that feed the proposed alignments, and the areas surrounding those arteries and alignments. The APEs extend for a minimum of 100 ft. beyond the proposed ROW, and that of the connecting arteries. In some areas, the APE was extended to include entire neighborhoods, historic districts (i.e. Colonial Hills, Westend), and blocks that contain homogeneous resources, such as those with commercial warehouses (see attached).

The APE for each of these alternatives was determined in previous correspondence between our agencies dated March 16, 2000 (see-attached). Since that time, alternatives 3 and 4 were modified to include 3B, 3C and 4B. These modifications, however, have not substantively altered the size of the original APEs along alignments 3 and 4.

In February 2001, TxDOT completed a study entitled "Historic Resource Survey of the Building Displacements for the Trinity River Parkway." The purpose of this study was to identify listed and eligible properties directly located in the alignments of the five proposed alternatives that would result in "takings." This study was produced at the suggestion of TxDOT CRM staff to identify potential Section 4(f) properties along the alternatives.

In a letter dated June 5, 2002, TxDOT requested THC concurrence on determinations of eligibility for the 317 buildings 50 years of age or older (built prior to 1962) identified in the study. In a response dated July 2, 2002, your agency agreed with TxDOT's determinations that 6 properties targeted for displacement were eligible to the National Register of Historic Places (NRHP; see attached correspondence):

Site ID 113 -- City of Dallas Water Pumping Facility (c. 1925), 2255 Irving
(located in Alternative 5)

Site ID 172 -- Shipping/Warehouse Facility (1954), 1715 Market Center
(located in Alternative 2A)

Site ID 199 -- Shipping/Warehouse Facility, 1202 Industrial Blvd.
(located in Alternative 2A)

Site ID 287 -- Dallas ISD Storage Facility, formerly Procter and Gamble manufacturing facility (1920), 3701 Lamar
(located in Alternative 2B)

Site ID 375 -- Sportatorium (1950), 1000 Industrial Blvd.
(located in Alternative 2A, and now demolished)

Site ID 387-388 -- Oak Cliff Box Co. (1948-1950), 1212 Industrial Blvd.
(located in Alternative 2A)

While the study revealed that there were no NRHP-listed properties located directly in any of the alignments, there is one NRHP-listed bridge and several NRHP-eligible vehicular and railroad bridges that will be affected by this undertaking under alternatives 3, 4, and 5, which would locate the parkway along the sides of the earthen levees. These effects will occur in the area where the parkway goes under the bridges and at the exits and connections of the vehicular bridges with the new facility:

-- Houston Street Viaduct (1910), NRHP-listed
-- Continental Avenue Viaduct (1930), NRHP-eligible
-- Corinth Street Viaduct (1935), NRHP-eligible
-- Commerce Street Viaduct (1915), NRHP-eligible
-- Union Pacific Railroad Bridge, NRHP-eligible
-- AT&SF Railroad Truss and Trestle, NRHP-eligible
-- M-K-T Railroad Bridge, NRHP-eligible

PROPOSED NEW SURVEYS:

While the 2001 displacements study was specifically conducted to address Section 4(f) issues (i.e. direct takings), in 2006 qualified TxDOT historians compiled a reconnaissance level survey for alternatives 3B and 4. These alternatives were selected for survey due to their favorable review in public meetings.

The purpose of the 2006 survey was to better assess effects on historic properties under Section 106, especially those identified as "indirect." Of note are possible indirect effects on NRHP-listed historic districts, including Colonial Hills, Westend, Dealey Plaza and Lake Cliff. While there are no takings or demolitions in these districts, there may be potential traffic, noise, land use changes, and visual intrusions on the part of several alternatives in these areas. We note that the 2006 survey has not been presented to THC pending revisions that may be necessary based on comments by other resource agencies.

In order to improve the assessment of effects, TxDOT now proposes to enhance its survey efforts to selectively include historic-age properties in alternatives 2A, 2B and 5 that were not identified in the 2001 displacements study. Targeted to achieve a more even assessment of effects between the various alternatives under Section 106, this effort will include the following:

Reconnaissance survey of expanded APE at displaced NRHP-eligible properties:
TxDOT proposes to survey an area extending 150 feet beyond the parcel of the eligible properties targeted for displacement (site ID #s 113, 172, 199, 287 and 388-387). This additional reconnaissance-level survey effort would provide information to support the planning of avoidance or minimization of direct impacts to these historic properties. In evaluating the completed surveys around these properties, this has already been accomplished for #s 113, 199, 387-388 (see attached).

Windshield survey to assess indirect effects:
In specific areas where a completed survey does not extend beyond the actual alignment, TxDOT staff proposes to identify historic-age properties within the established APE by conducting a windshield survey. Combined with research in the survey files of the City of Dallas, this effort would provide sufficient information to determine potential indirect effect to historic properties in these areas.

We request your comments with these enhanced survey proposals within 20 days of receiving this letter. We propose this methodology per your indication in our June 4th meeting that a lesser, more programmatic survey and mitigation effort would not adequately consider the presence and effects to historic properties in the APE of the various alternatives. If you need further information, please feel free to call me at 416-2626.

Sincerely,

Lisa Hart
Director
Cultural Resources Management Section
Environmental Affairs Division

Attachments

bcc. Dallas District, Dan Perge
Dallas District, Timothy Nesbitt
ENV/PM, Elvia Gonzalez
ENV/PM, Mario L. Sánchez

TEXAS HISTORICAL COMMISSION
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June 23, 2009

Lisa Hart
Director, Cultural Resources Management Section
Environmental Affairs Division
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701

Re: Project review under Section 106 of the National Historic Preservation Act of 1966, Proposal for Additional Reconnaissance and Windshield Level Surveys (TxDOT/ FHWA)
TxDOT CSJ # 0918-45-121, 0918-45-122

Dear Ms. Hart:

This letter serves as a comment on your proposal for additional survey for the proposed undertaking from the State Historic Preservation Officer (SHPO), the Executive Director of the Texas Historical Commission (THC).

We understand that your purpose in conducting additional survey is to comply with the Federal Highway Administration's (FHWA) requirement for more in-depth information about indirect effects before a preferred alternative is selected, based on their review of the Supplemental Draft Environmental Impact Statement for the project. Based on the information you have submitted, THC staff agrees that your proposal to conduct a windshield survey is sufficient to consider indirect effects to historic properties at this phase of project development, with the condition that additional reconnaissance survey may be necessary once the preferred alternative is selected. For large scale projects such as this one, a phased approach to the identification and evaluation of historic properties is appropriate. For the proposed reconnaissance survey of an expanded APE at displaced- NRHP properties, we suggest that the APE be 300 feet instead of 150, since it is likely that avoidance of these properties would result in the construction of new alignment. We also suggest that the 300 feet be measured from the proposed road alignment instead of the parcels of the eligible properties.

Thank you for seeking the comment of the Texas Historical Commission and for your participation in the federal review process. If you have any questions concerning this review or if we can be of further assistance, please contact Adrienne Campbell at 512/936-7403.

Sincerely,

Adrienne Vaughan Campbell
for: Mark Wolfe
Deputy State Historic Preservation Officer

RICK PERRY, GOVERNOR • JON T. HANSEN, CHAIRMAN • F. LAWERENCE OAKS, EXECUTIVE DIRECTOR
P.O. BOX 12276 • AUSTIN, TEXAS • 78711-2276 • P 512.463.6100 • F 512.475.4872 • TDD 1.800.735.2989 • www.thc.state.tx.us

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

September 21, 2009

SECTION 106 -- IDENTIFICATION OF HISTORIC PROPERTIES: FORMER PROCTER AND GAMBLE MANUFACTURING PLANT INTENSIVE SURVEY

Dallas County
CSJ # 0918-45-121; 0918-45-122
Trinity River Parkway Corridor

RECEIVED
SEP 21 2009
Texas Historical Commission

Ms. Adrienne Campbell
History Division
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Dear Ms. Campbell:

In accordance with the First Amended Programmatic Agreement (PA) among TxDOT, FHWA, the Advisory Council on Historic Preservation, and the THC, this letter *continues* Section 106 consultation for the proposed Trinity River Parkway. We hereby submit the results of an intensive level historic resource survey for the above-referenced property.

PROJECT BACKGROUND:

The Trinity River Parkway is intended to solve transportation problems along the Trinity River Corridor in the city of Dallas, Dallas County, Texas. The project will also be integrated with plans for the Trinity River Floodway, a major open space resource in the center of Dallas.

Several alternatives have been identified to meet the goal of increased efficiency in the mobility of travelers in central Dallas. A customized area of potential effects (APE) for each of these alternatives was determined in previous correspondence between our agencies on March 16, 2000.

Subsequently, in a letter dated June 5, 2002, TxDOT submitted a survey of historic-age buildings to be displaced by the project due to their direct location within the proposed right-of-way. In a written response dated July 2, 2002, the THC determined six properties to be **eligible** to the National Register of historic Places (NRHP) (see attached). Since that time, one historic property, the Sportatorium at 1000 Industrial, has been demolished.

Another property, the former Procter and Gamble Manufacturing Plant at 3701 Lamar, was presented in the displacements survey and determined **eligible** under Criterion A, Community Development, and Criterion C, Architecture, both at the local level of significance. At that time, only the 1920-1947 portion of the complex located in

its own separate legal plat was presented in the survey. Recently, in further investigations, TxDOT consultants uncovered that a warehouse facility (the River Warehouse) on the south side of the UPRR railroad tracks, located at 1301 McDonald Street in a separate legal parcel, was part of the complex after its initial 1960 construction date.

The enclosed intensive level survey is designed to establish the significance of all resources in relation to the Procter and Gamble complex as a whole; assess their integrity; identify their period of significance within an expanded historic context; and determine their eligibility to the NRHP (page 2). In completing the survey, TxDOT's technical expert conducted extensive archival research, performed title searches for each property, consulted historic aerials and plans from the City of Dallas' Building Inspection Office, and interviewed employees in the Archives Division of Procter and Gamble (page 3).

The attached survey is being forwarded at this time to streamline the Section 106 review process before the completion of a larger survey of historic-age properties that supplements the previously submitted displacements inventory.

INTENSIVE SURVEY FINDINGS:

In essence, the intensive survey reaffirms the previously identified portion of the facility, or main campus at 3701 Lamar, as **eligible** to the NRHP under Criterion A for its role in community and economic development, transportation, and industrial development in Dallas during the early to mid-20th century; and under Criterion C, Architecture, for its design/construction, both at the local level of significance (page 14). The period of significance extends 1920-1960, including the construction dates for all buildings at the plant contained within the historic period. This period coincides with the era of major development and construction of American manufacturing plants during the defense industry upsurge just before World War II, and also encompasses Procter and Gamble's contribution to the economy of the City of Dallas (page 3).

As a fully integrated facility, the main campus played an innovative, leading role in the transportation and industrial development of Dallas prior to 1960, as it grew and diversified steadily 1920-1947. Architecturally, the main campus incorporates modern industrial engineering traits through the use of reinforced concrete, multiple floors, and expansive windows, thereby exemplifying early 20th century industrial architecture (pages 8, 14). With a majority of its components retaining integrity, the 3701 Lamar campus retains its essential physical characteristics from the period of significance, thus conveying its associations with Procter and Gamble's earliest and evolving operations in Dallas (page 14). Illustrating the facility's evolution, for example, the main campus included loading docks for three dozen trucking lines to distribute products to nearby states, thereby reflecting the firm's response to increased highway construction in the US and the transition from rail to trucking (page 14).

The River Warehouse, constructed in three segments 1960-1967, brings no significant shift or technological advance in the community development, transportation, industrial development, or industrial architecture themes for which the main campus and its contributing structures are eligible to the NRHP. As a mere storage, common

architectural type with compromised integrity, the McDonald property reinforces continued, similar type of development at a larger scale for Procter and Gamble (page 19). It is not a representative example of progressive industrial warehouse architecture in Dallas (page 9).

In regard to the conveyor, the survey finds that is was added in 1965, beyond the period of significance, and that is it not an essential feature required to convey significance of the primary, or NRHP-eligible main campus (page 17).

CONCLUSION:

The intensive survey reveals the property at 3701 Lamar as **eligible** to the NRHP as the example that best conveys, comprehensively and substantively, the significance of the Procter and Gamble property under Criteria A and C. With a majority of its components still possessing integrity, the main complex is illustrative of an integrated, self-contained industrial system showcasing the interdependent cycles of manufacturing: production, storage, transportation and distribution (page 22-23).

The River Warehouse at 1301 McDonald is determined by the survey as **not eligible** to the NRHP, either as a contributing resource or individually. Architecturally undistinguished, lacking in historical significance and in the majority of its aspects of integrity, the property offers no technical advances in transportation, construction or industrial manufacturing in the evolution of Procter and Gamble when compared with the multi-dimensional main campus (page 23).

We request your written concurrence with these determinations of eligibility within 20 days of receiving this letter. If you need further information, please feel free to call me at 416-2770.

Sincerely,

Mario L. Sánchez, Ph.D., R.A.
Historical Architect
Environmental Affairs Division

CONCUR
by
for Mark Wolfe
Executive Director, THC
Date 10-9-09
Track#

Attachment

cc. Halff Associates, Jason Diamond
NTTA, Elizabeth Mow
FHWA, Theresa Claxton

Texas Department of Transportation
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October 26, 2009

SECTION 106 -- IDENTIFICATION OF HISTORIC PROPERTIES: HISTORIC-AGE RESOURCE RECONNAISSANCE SURVEY REPORT (NON-DISPLACED PROPERTIES)

Dallas County; CSJ # 0918-45-121; 0918-45-122
Trinity River Parkway Corridor

Ms. Adrienne Campbell
History Division
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Dear Ms. Campbell:

In accordance with the First Amended Programmatic Agreement (PA) among TxDOT, FHWA, the Advisory Council on Historic Preservation, and the THC, this letter *continues* Section 106 consultation for the proposed Trinity River Parkway. We hereby submit the results of a historic resource reconnaissance survey report for the above-referenced project focusing on properties not targeted for displacement in the area of potential effects (APE).

PROJECT DESCRIPTION:

The North Texas Tollway Authority, the City of Dallas, and the Texas Department of Transportation (TxDOT) propose to construct a new controlled access tollway along the Trinity River Corridor in the city of Dallas, Dallas County, Texas. The project would construct a limited-access tolled facility from the IH 35E/SH 183 interchange (northern terminus) to the US 175/SH 310 interchange (southern terminus), a distance of approximately nine miles, in central Dallas. The facility, which is called the Trinity Parkway, would 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.

Nine alternatives—eight build and one no-build—have been proposed. Five of the build alternatives were developed after a lengthy public participation process, and a sixth alternative was added in 2003 after additional public input and consultation with the Dallas City Council. Two additional alternatives were added based on agency consultation after the February 2005 publication of the Draft Environmental Impact Statement. These eight build alternatives were advanced for further analysis in a Supplemental Draft Environmental Impact Statement (SDEIS), published in February

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2009, because they met the project's purpose and need, avoided or minimized adverse environmental impacts, and/or were supported by local governments and various public and private groups. The following eight build alternatives were evaluated in the SDEIS:

- Alternative 2A Irving/Industrial Boulevard – Elevated
- Alternative 2B Irving/Industrial Boulevard – At Grade
- Alternative 3A Combined Parkway – Original
- Alternative 3B Combined Parkway – Modified
- Alternative 3C Combined Parkway – Further Modified
- Alternative 4A Split Parkway Riverside – Original
- Alternative 4B Split Parkway Riverside – Modified
- Alternative 5 Split Parkway – Landside

Four alternatives—2A, 2B, 3C and 4B—were selected for reconnaissance-level survey. Alternatives 3A, 3B, 4A, and 5 are not being advanced for further study due to concerns expressed by the US Army Corps of Engineers (USACE) regarding these alternatives.

The project area is located to the south and west of the Dallas central business district. The Dallas Floodway is the dominant land use feature in the central portion of the project area. This large, grassy open space is classified as flood control parkland and accounts for more than 50 percent of the land use in the project area. The remaining land use consists of mixed office, retail, industrial, commercial and residential uses.

PREVIOUS FIELD INVESTIGATIONS -- METHODOLOGIES AND FINDINGS:

The Trinity River Parkway project is part of TxDOT's long range plans to improve mobility in central Dallas and its adjacent areas. As part of these planning efforts, the THC was invited to attend a day-long cultural resource scoping meeting and tour of the project area on September 8, 1999 to identify areas and issues of concern for historic-age properties. From the findings in that tour, a customized APE for the varied alternatives was developed jointly by the two agencies and concurred with on March 16, 2000.

Based on the proposed alternative alignments, which traverse large areas of central Dallas, TxDOT initiated its field investigations focused on the identification historic-age properties targeted for displacements. In a January 6, 2000 meeting at the THC with TxDOT, the US Army Corps of Engineers (USACE), and project consultants for cultural resources, the concept of a displacements survey was presented as a more manageable approach for identification of historic-age properties in a densely built large-scale urban area.

In another meeting in Dallas with city and TxDOT staff on October 2, 2000, and with former THC executive director Larry Oaks regarding proposed projects along the floodway, the historic bridges crossing the Trinity were identified as the main issue of concern for historic preservation. The historic bridges were again identified as the issue of concern in the "Mayor's Summit" of October 11, 2001 with the participation of staff

from the City of Dallas, TxDOT, THC, USACE, North Texas Tollway Authority (NTTA), the Federal Highway Administration (FHWA) and the Environmental Protection Agency.

After a second on-site tour with staff from THC, TxDOT, NTTA, and the Dallas Landmark Commission on January 17, 2001, Norman Alston Architects produced the *Historic Resource Survey of the Building Displacements for the Trinity River Parkway* dated February 19, 2001. In a letter dated June 5, 2002, TxDOT submitted this survey of historic-age buildings to be displaced due to their direct location within the proposed project's right-of-way. In a written response dated July 2, 2002, the THC determined six of the 317 surveyed properties to be **eligible** to the National Register of Historic Places (NRHP). Since that time, one historic property, the Sportatorium at 1000 Industrial, has been demolished, and a parcel of the Procter and Gamble property at 1310 McDonald has been determined not eligible or contributing to the historic manufacturing plant at 3701 Lamar Street.

As part of its survey methodology, the Alston report identified two areas extending along Industrial Boulevard with the potential for two historic districts labeled "A" and "B." On May 9, 2002, TxDOT staff met with THC historian Bob Brinkman regarding these districts. On May 12th, Mr. Brinkman drove this area with maps prepared by TxDOT locating the streets and structures of the potential historic districts. Mr. Brinkman's findings in his July 2nd letter that there were no historic districts "due to significant alterations and loss of architectural integrity" were based on his fieldwork.

For your convenience, we include a photocopy of the Alston report in Appendix G of the current survey submitted with this correspondence. Letters illustrating previous coordination efforts on Trinity and other related projects are also included in the attached survey in Appendix E.

CURRENT FIELD INVESTIGATIONS -- METHODOLOGIES AND FINDINGS:

With this letter, the current, most recent survey is attached for your review. The October 2009 *Non-Archeological Historic-Age Resource Reconnaissance Survey Report* compiles a series of field investigations dating from 2005 to 2009 totaling 974 buildings and structures dating to 1965 on 822 locations for Alternatives 2A, 2B, 3C, and 4B. In contrast to the Alston survey, the current one identifies properties in the APEs *beyond* the proposed right-of-way which, by their location, are not targeted for displacement. Together with the Alston report, TxDOT and its consultants have identified over 1,000 locations containing historic-age resources within the APEs of the Trinity Parkway Project.

The current survey does <u>not</u> include historic-age properties previously coordinated with your agency for eligibility to the NRHP. As such, it does <u>not</u> include the properties surveyed by Alston in its overall tally and charts. Rather, these previously surveyed properties are acknowledged in the aerial maps in their own specific color and with the identification number assigned by Alston. Also due to previous coordination efforts, the survey does <u>not</u> include properties such as the Trinity River bridges and levees. The coordination of these properties is acknowledged in pages 16-18 of the

survey with a list of TxDOT/THC correspondence and findings. Table 4 on page 18 lists the 12 properties previously determined eligible. Together with the NRHP-listed properties in the APEs, and those previously determined eligible, a total of 18 historic sites are illustrated in the map on page 1 of Appendix B.

Historic-age properties in the attached survey are evaluated for NRHP eligibility under thematic contexts described in pages 23-39. A chart or inventory table is provided in Appendix A. For manageability, the large-scale APEs are divided into 13 geographic zones, each identified with their own two-letter prefix and with their resources numbered in the set of aerials maps in Appendix B. The lettered prefix distinguishes the newly surveyed properties from those in the Alston report. The historical and architectural character of each zone is discussed in pages 51-73, while Appendix C provides an individual inventory sheet for each property. *Please note that numbers are not entirely sequential, as several properties have been removed from the tally due to demolition.*

Evaluation of the currently surveyed sites yielded *three additional properties* that meet the criteria for eligibility to the National Register:

CA-2 – Salinas International Freight Co. (1957), 7138 Envoy Court, one-story, International Style-influenced tan brick building, under Criterion A, Commerce, and Criterion C, Architecture, both at the local level of significance, see page 52.

ES-1 – Atlas Metal Works Complex (1929), 818 Singleton Blvd., large complex of metal-clad buildings for industrial manufacturing with an Art Moderne front office building, under Criterion C, Architecture, at the local level of significance, see page 56.

IN-47 – Clifton Carpets (1954), 959 Dragon Street, Art Moderne-influenced one-story masonry structure with its original, stylistic company sign, under Criterion A, Commerce, and Criterion C, Architecture, both at the local level of significance, see page 64.

Listed below are the five properties identified in the Alston report that still stand from the six that were determined eligible by THC on July 2, 2002:

Site 113 (Alston #) – City of Dallas Water Pumping Facility (1929), 2255 Irving, under Criterion C, Architecture, at the local level of significance.

Site 172 – warehouse facility (1954), 1715 Market Center, under Criterion C, Architecture, at the local level of significance.

Site 199 – warehouse facility (1947), 1202 Industrial Blvd., under Criterion C, Architecture, at the local level of significance.

Site 287 – Procter and Gamble manufacturing facility, (1920-1947), 3701 Lamar, under Criterion A, Community and Economic Development, and Criterion C, Architecture, both at the local level of significance.

Sites 387-388 – Oak Cliff Box Co. (1948-1950), 1212 Industrial Blvd., under Criterion C, Architecture, at the local level of significance.

Together with the three properties determined eligible in the current survey, TxDOT has inventoried a total of eight NRHP-eligible properties, notwithstanding listed and previously determined eligible properties identified in the attached survey.

REAFFIRMATION OF NO ADDITIONAL HISTORIC DISTRICTS:

Four NRHP-listed historic districts exist in the APEs: West End, Dealey Plaza, Lake Cliff and Colonial Hills. These are located in the perimeter areas of the APEs, with the great majority of their resources distant from the proposed project alignments. The July 2, 2002 letter from THC concurred that "no potential historic districts eligible for listing on the NRHP exist in the APE." TxDOT's current survey *reaffirms* this previous determination, as it found most of the surveyed historic-age resources to be "part of incongruous groupings, either remnants of larger neighborhoods that are no longer cohesive entities, or the results of infill and partial demolition over the intervening decades since construction."

Industrial Blvd. Potential Historic Districts "A" and "B" in Alston report:

While not duplicating the Alston survey, the current one identified numerous properties that are not targeted for displacement in the areas identified by Alston as potential districts "A" and "B." In 2002, TxDOT and THC had found that these areas lack integrity, a finding reaffirmed with the newly inventoried properties in this vicinity.

For district "A," please refer to properties IN-5 to IN-20 located in maps 4, 5, and 8. Blocked openings are shown in IN-9 and 16; new materials in IN-8; new fenestration in IN-10 and 21; incompatible urban infill in IN-12; and severe alterations in IN-15 and 17.

For district "B," please refer to properties IN-20 to IN-60s located in maps 9 and 10. New doors and fenestration are shown in IN-22, 24, 25 and 54; altered or blocked openings in IN-32, 35, 37, 44, and 62; severe alterations in IN-26, 46, 53 and 61.

New metal overhead doors are shown throughout the entirety of both areas. The photographs clearly illustrate why both of these areas are not NRHP-eligible as districts due to significant and repeated alterations to the historic-age fabric.

Residential Areas Ancillary to the Colonial Hills Historic District:

Since some neighborhoods immediately to the west and east of the Colonial Hills Historic District share similar characteristics, TxDOT historians evaluated these groupings for NRHP eligibility as potential residential suburban historic districts. The houses in the perimeter areas of Colonial Hills comprise a mix of styles and construction dates with discontinued segments of unified building fabric interspersed by later infill. Individually, none of the residences rise to the level of NRHP eligibility. As a whole, the areas do not display the cohesiveness required for residential historic districts with numerous modifications affecting the integrity of the urban fabric. In essence, the current survey reaffirms the findings of the 1995 NRHP nomination's boundary justification for

Colonial Hills as "one of Dallas' largest intact and most illustrative examples of the classic streetcar suburban pattern," and "one of the oldest such neighborhoods in South Dallas that still retains its original housing stock."

Trinity River Reclamation Historic District proposed by the USACE:

On October 7, 2009, TxDOT received an exploratory study compiled by the USACE proposing the NRHP eligibility of the Dallas Trinity River Reclamation District. The proposal presents a 10,000-acre area comprised of the floodway, levees, realigned river channel, old river channel, pumping stations, sluices, pressure sewers, interceptors, and Industrial Blvd. commercial properties as contributing resources to a historic district that harks back to a vision outlined in the famed 1912 Kessler Plan for the city of Dallas. Careful examination of the USACE assertions in conjunction with previous and current fieldwork and research findings associated with the Trinity River Parkway project planning efforts have resulted in a reaffirmation of TxDOT's determinations developed in consultation with the THC. Neither the levee system nor a potential historic district including the floodway and its reclaimed lands retain sufficient integrity of design, materials, workmanship, setting, feeling or association to convey significance under the criteria for evaluation set forth in the NRHP. The levees are compromised by their 1950s alterations, and partial re-alignment; the floodway is compromised by the presence of not NRHP eligible and non-historic age bridges and intrusive utility lines; the pumping stations are compromised by alterations to their architecture and the location of non-historic-age additions in their immediate vicinity; and the Industrial Blvd. area is compromised by the numerous unsympathetic alterations and intrusions to its commercial fabric.

PENDING DETERMINATION OF EFFECTS:

Effects to NRHP-listed and eligible historic properties from the proposed undertaking cannot yet be determined due to ongoing design decisions that may affect the proposed alignments. A phased approach to effects coordination with ensuing maps showing property right-of-way delineations will be conducted as information becomes available. Pursuant to Stipulation VII of the PA-TU and MOU between FHWA, SHPO, ACHP, and TxDOT, ENV historians will determine the effects of this project in the course of individual coordination with the Texas Historical Commission.

CONCLUSION:

The current survey reinforces previous determinations of NRHP eligibility by TxDOT with THC concurrence made in compliance with the Programmatic Agreement for Cultural Resources between our agencies. New determinations of eligibility in the current survey follow appropriate application of contextual research and consistent application of NRHP criteria required for compliance with Section 106 of the National Historic Preservation Act of 1966.

We hereby request your written concurrence with these determinations of eligibility within 20 days of receiving this letter. If you need further information, please feel free to call me at 416-2770.

Sincerely,

Mario L. Sánchez, Ph.D., R.A.
Historical Architect
Environmental Affairs Division

Attachments

cc. Halff Associates, Jason Diamond
NTTA, Elizabeth Mow
FHWA, Theresa Claxton
USACE, Joseph Murphey
HNTB, Kelly Johnson
Preservation Dallas, Katherine Seale
Dallas CLG, Jim Anderson
Dallas Co. Historical Commission, Mike Lowenberg

November 13, 2009

Mario L. Sanchez
Historical Architect, Environmental Affairs
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701

Re: Trinity River Parkway Corridor, Dallas, Dallas County (FHWA)
CSJ # 0918-45-121; 0918-45-122

Dear Dr. Sanchez:

Thank you for providing the information regarding the above-mentioned project. This letter serves as a comment on the plans from the State Historic Preservation Officer (SHPO), the Executive Director of the Texas Historical Commission (THC).

First, we wish to acknowledge a potential conflict between federal agencies which may both have jurisdiction over this project, the Federal Highways Administration (FHWA) and the US Army Corps of Engineers (Corps). At a Trinity Parkway Section 106 meeting on September 16, 2009, it was apparent that the Corps and FHWA/ TxDOT had the potential for conflicting determinations of eligibility for historic-age resources in the overlapping Areas of Potential Effects (APE) for the Trinity River Parkway and the Trinity River Reclamation Project.

When two federal agencies cannot resolve a disagreement regarding the eligibility of a historic-age resource, they must seek final resolution from the Keeper of the National Register of Historic Places (NRHP) at the National Park Service. However, at the request of FHWA and with the assent of the Corps, THC has agreed to consider a draft paper provided by the Corps in our review of the Trinity River Parkway Corridor, in an effort to avoid prolonged coordination with the Keeper of the NRHP and to prevent the environmental coordination for this project from further delay. Both agencies have indicated a concern over the potential for derailment of the environmental process, and therefore we have agreed to provide input regarding this potential dispute. However, as you know, our agency does not have the final word on eligibility, especially when there is a disagreement between federal agencies. If you do not agree with our findings or that of the Corps after they present their survey findings and cannot reach compromise, you should address the Keeper of the NRHP for a determination of eligibility and/or the Advisory Council on Historic Preservation for conflict resolution.

In addition, our office does not consider determinations of eligibility to be static, as they can change due to several factors including the provision of more information, change in

historic integrity, and the passage of time allowing non-historic properties to reach historic age. Without having the survey data and completed report from the Corps for the Dallas Trinity River Reclamation Project, we cannot predict their determinations of eligibility or whether our agency will concur with or object to those determinations. We acknowledge that the Corps' position paper is a draft of a working document and that they are not seeking formal comment from THC at this time. Rather, the Corps has provided the document to TxDOT and FHWA to keep your agencies informed of potential findings of eligibility and effects that might differ from what previous surveys and coordination has identified. Nor can THC make inalterable decisions based on what is the equivalent of a research design, when all parties acknowledge the Corps has yet to undertake survey.

Within the constraints of the situation outlined above, THC staff has reviewed the material submitted with your coordination letter dated October 26, 2009. Based on the information you have provided, we cannot concur with all of your determinations of eligibility for listing in the NRHP at this time. Please find our comments, as follows:

Previously Identified Historic Resources in the APE
Resources in the APE of this project have been determined eligible for listing in the NRHP during coordination for other projects with overlapping APEs, as well as in previous coordination for this project. Therefore, our first comment is a reiteration that the following properties are NRHP eligible:

1. Corinth Street Viaduct over the Trinity River
2. Corinth Street Overpass
3. Commerce Street Viaduct
4. Continental Street Viaduct
5. Atchison, Topeka & Santa Fe Railroad Bridge over the Trinity River
6. Missouri, Kansas & Texas Railroad Bridge over the Trinity River
7. Union Pacific Railroad Bridge over the Trinity River (previously referred to as the Southern Pacific Railroad Bridge)
8. City and County Levee Operations Pump Station B (Baker)
9. 1715 Market Center Blvd.
10. 1202 Riverfront Blvd. (previously referred to as Industrial Blvd.)
11. 1212 Riverfront Blvd. (previously referred to as Industrial Blvd.)
12. 3701 South Lamar St.

We also acknowledge that the Sportatorium, previously identified as NRHP eligible in 2002, has been demolished.

1. Colonial Hill Historic District
2. Dealey Plaza Historic District
3. West End Historic District
4. Lake Cliff Historic District
5. Houston Street Viaduct

Newly Identified Historic Properties

Based on the findings of additional survey of the project area between 2006 and 2009, we concur with your determination that the following properties are individually eligible for NRHP listing:

1. 7138 Envoy Court (Salinas International Freight Office Building)
2. 818 Singleton Avenue (Atlas Metal Works)
3. 959 Dragon Street (Clifton Carpets)

Objections to Determinations of Eligibility for Individual Properties:
We object to your determination that the following resources are not eligible:

1. WT-3A- The US Army Corps of Engineers (Corps) has determined that Pavaho Pump Station is eligible for listing in the NRHP in anticipation of an upcoming federal undertaking for which they will be the lead agency. THC staff concurred with this determination of eligibility on November 12, 2009. Although the proposed project will have an adverse effect to the historic resource, at this time the station is considered eligible.
2. OC-5A (911 N. Lancaster Ave.)- This property is a good example of its type and we consider it eligible for listing in the NRHP under Criterion C, in the area of Architecture, at the local level of significance.
3. OC-8 (Oak Farms Dairy at 1114 N. Lancaster Ave.)- Despite expansion of the Oak Farms Dairy in the 1970s and 1990s, there is not sufficient information for us to concur that the 1954 core of this dairy operation is not eligible for listing in the NRHP under Criterion A, in the area of Agriculture, at the local level of significance. In order for THC staff to concur with a determination of eligibility for this complex, an intensive survey would be required.
4. MK-2 (1000 Forest Ave.)- There is not sufficient information provided to concur with a determination that this property is not eligible for listing in the NRHP. The loss of integrity appears to consist solely of windows covered with plywood and is not sufficient to remove the property from consideration. Individual resources appear to meet the criteria for eligibility under C, in the area of Architecture, at the local level of significance. Also, the dates appear to be incorrect for most of the property. The survey identifies MK-2C as a 1926 former "Godberson" residence, converted into offices; however, the 1922 Sanborn maps show it as the Guiberson Corporation. In order for THC staff to concur with a determination of eligibility for this complex, an intensive survey would be required.
5. 115 (2255 Irving Blvd.)- Some additional historical context for the Trinity Industrial District and the Industrial Properties Corporation was provided in the Corps' position paper that indicates this building requires reconsideration for eligibility under Criterion A. In addition, the 2001 survey estimated a construction date of this building as 1960, when it is probably a contemporary of the Baker Pump Station. We cannot concur that this building is not eligible for listing in the NRHP without an intensive survey.
6. ES-2 (2920 Sylvan Ave.), ES-4 (730 Singleton Blvd.), WS-95 (900 Singleton Blvd.)- There is not sufficient information to concur with a determination that these properties are not eligible for the NRHP individually, or as a district, at this time. These properties and at least one other outside the APE are grouped around

Atlas Metal Works and may share a similar historic context. We request more information, including better photographs, for these properties for our evaluation.

Objections to Determinations of Eligibility for Districts:
As you know, the draft paper by the Corps proposes that the Pegasus report did not properly consider the levees for eligibility for listing in the NRHP and that a more comprehensive context and survey would take into consideration the entire Floodway, and include the diversion channel, the open area between the levees, pumping plants, pressure sewers, sluices, and interceptors. The Corps has also suggested that the viaducts that cross the floodway and the reclamation area (old river channel, Industrial Boulevard alignment, industrial properties in the hydraulic fill area, and the triple underpass) should also be considered in any evaluation of eligibility. The contextual information in their draft paper and the supporting documentation, such as the American Society of Civil Engineer's (ASCE) civil engineering landmark designation, provide support for their position. After careful consideration of the draft paper provided by the Corps and TxDOT's rebuttal, THC staff acknowledges that we have previously concurred with your determination in 2004 that the levees are not eligible for listing. However, as Mr. Murphey points out, the changes made by the USACE have reached historic age since this time. Since this determination, THC and other agencies have given more consideration to historic-age infrastructure. An indication of this consideration is the THC's recent coordination in which staff concurred with determinations of eligibility for levees or independent determination that levee systems are eligible for listing. In 2006, the Forth Worth flood control system, built between 1910 and 1957, was determined eligible by the Corps under Criterion A for Community Planning and Development, at the local level of significance. This determination was made during Section 106 coordination for the Trinity River Vision project. In February 2009, THC objected to the determination that the Donna-to-Brownsville Levee and levee gate boxes are not eligible for listing and countered that the levee was eligible under Criterion A, in the areas of Agriculture and Politics/Government and Criterion C, in the area of Engineering, at the local level of significance. The 1950s changes made to the levees, originally constructed in the 1930s, were identified as having taken place during the period of significance and contributed to the significance of the levee. THC's letter to the consultant included the following statement:

> Our reviewers understand that structures such as this earthen levee and its associated mechanical gate boxes are subject to periodic maintenance and replacement, but the integrity of this massive earthwork is quite high, as it is still in place and serving its original function as in its historic period of significance. Its local importance to the further growth and development of neighboring agricultural communities, struggling to control or reduce flood damage during those years, cannot be denied, and the levee continues to play this important role today. It is likely that the addition of earth to the levee profile or footprint, or the in-kind replacement of the levee gate box components, would not pose an adverse effect to the NRHP-eligible resources.

In March 2009, THC objected to a determination that the Lateral A levee in the Lateral A and Retama Dike Systems within the Lower Rio Grande Flood Control Project in Hidalgo County was not eligible for listing in the NRHP. THC staff suggested that the levee and its associated levee gate boxes were eligible under Criterion A for Agriculture at the local level of significance and that periodic minor changes due to maintenance and

replacement were necessary for the function of the levee and therefore did not significantly detract from the integrity of the resource.

Therefore, it is quite possible that with the presentation of additional information, such as the establishment of a period of significance and a survey evaluating the integrity of the components of the system, THC could change our previous concurrence that the levees are not eligible to concurrence with the determination that the levees are either individually eligible structures or are eligible as part of a larger Dallas Floodway Historic District that would include the elements listed above, including the viaducts. Although there is no context developed at this time to support a determination of eligibility at the state or national level, there is sufficient information to indicate that it is eligible at the local level of significance. We do not agree with your comments in the rebuttal document that the Dallas Floodway should be evaluated within a greater local context. Rather, we agree with the Corps' assertion that Dallas is the appropriate local context, and while other levee systems along the Trinity River in Kaufman and Tarrant County may be interesting to compare with Dallas, it is not necessary to do so to establish significance. Dallas is a major city and the context is community planning and development for the city, not a broader region. As a result, we find that the development of the floodway system is historically significant. However, the question your rebuttal document posed regarding change in levee alignment is worth investigation. Without survey data and analysis, the integrity system of the levee is unknown and staff cannot reach a conclusion regarding eligibility.

Regarding the consideration of a larger district including the reclaimed area with Industrial Boulevard and the surrounding industrial district, THC has previously considered TxDOT's survey of Industrial Boulevard, which included consideration of a larger historic industrial warehouse district. At the time we reviewed the survey in 2002, staff concurred with the determination that no district was present, although a few individual properties were eligible for listing. Due to the different types of resources and areas of significance, we find it more appropriate to consider the industrial area as a separate district and not as part of a greater Dallas Floodway Historic District.

Since 2002, coordination with THC by TxDOT, FHWA, NTTA, and consultants for NTTA for this undertaking has focused on previously-determined eligible properties that would be directly impacted. It has been seven years since the last coordination regarding eligibility of historic-age resources. We therefore revisited the methodology in the coordination from 2002 to ensure that buildings constructed before 1965 were considered, as they have been in the most recent survey. We observed that the methodology of the report included a 40-year date for consideration of historic properties (buildings built in 1961 or earlier). While the methodology included a consideration of buildings built after 1961 and several resources built after 1961 were surveyed, the methodology does not clearly illustrate to what extent buildings constructed after 1961 were evaluated for individual eligibility or for consideration as contributing resources within a historic district. As many of the buildings in Irving/ Riverfront Corridor date from the mid 1950s to the late 1960s, many of them have become "historic-age" in the years since our 2002 coordination.

There is not a strong context developed for mid-century industrial resources in Dallas to assist in evaluating eligibility of the resources in these surveys. Also, no consideration is given to the potential for larger mid-century industrial historic districts that may intersect with the APE. Cursory examination of the strips of light industrial properties in the Irving/ Riverfront areas indicates that more than 50% of the buildings retain sufficient integrity to contribute to a district. Without more information on the history of the buildings and individuals associated with these areas, and without knowing of other large concentrations of mid-century commercial buildings in Dallas, it is difficult to assess their importance within the context of the city's commercial history. The industrial area seems to be significant locally and merits consideration as a district, and THC would like the buildings evaluated within a district context that extends beyond the APE. As the survey data has previously been collected within the APE and only up-to-date analysis of the survey is lacking, we therefore request TxDOT re-evaluate the properties in the Irving/ Riverfront Blvd. corridor, defining all buildings constructed before 1965 as historic-age and include comparative analysis with other mid-century industrial areas, such as the area south of the intersection of Stemmons and 183. Reconsideration of the properties from this survey should include analysis of potential for properties to be individually eligible, as well.

We concur with your determination that the remaining properties are not eligible for listing in the NRHP.

Thank you for your participation in this federal review process; we look forward to additional Section 106 coordination with your office for this undertaking in the near future. Our staff will be happy to meet with you at your convenience to discuss this letter and the additional information we have requested. If you have any questions concerning this review or if we can be of further assistance, please contact Adrienne Campbell at 512/936-7403.

Sincerely,

Mark Wolfe

Mark Wolfe
State Historic Preservation Officer

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

December 11, 2009

SECTION 106 – CONTINUATION OF CONSULTATION:
RESULTS OF 12/9/09 MEETING BETWEEN TxDOT AND THC

Dallas County; CSJ # 0918-45-121; 0918-45-122
Trinity River Parkway Corridor

Ms. Adrienne Campbell
History Division
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Dear Ms. Campbell:

In accordance with the First Amended Programmatic Agreement (PA) among TxDOT, FHWA, the Advisory Council on Historic Preservation, and the THC, this letter *continues* Section 106 consultation for the proposed Trinity River Parkway. The purpose of this correspondence is to re-affirm the results of the meeting between TxDOT staff, its historical survey consultants, and yourself and Linda Henderson of the Texas Historical Commission on December 9, 2009.

We met on December 9th to discuss data gaps on certain historic-age properties identified in your letter to TxDOT dated November 13, 2009. In the course of the meeting, we agreed to the following:

Resource WT-3A (Pavaho Station):
The station was determined **eligible** by the US Corps of Engineers (USACE) with concurrence by the THC as part of a project that will adversely affect it due to the construction of a sizeable addition in its vicinity.

Resource OC-5A (911 N. Lancaster Ave.):
The apartment building is **eligible** to the National Register under Criterion C, Architecture, at the local level of significance, in light of similar multi-family property types listed in the register in the City of Dallas.

Resource OC-8 (Oak Farms Dairy at 1114 N. Lancaster Ave.):
Your request for an intensive survey of the property in the November 13th letter is rescinded and, given the evidence of numerous additions and alterations presented at the meeting, the property is **not eligible** to the National Register.

Resource MK-2 (1000 Forest Avenue):
Your November 13th request for an intensive survey was revised to one for additional

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information. TxDOT will provide additional research to determine eligibility under Criterion A including plats with property boundaries, change of ownership over time, and a brief history of the company and individuals associated with it.

Resource 115 (Alston survey; 2255 Irving Blvd.):
TxDOT will provide additional information, as opposed to an intensive survey, on this property to determine if its meets the criteria for National Register eligibility.

Resources ES-2 (2920 Sylvan Ave.); ES-4 (730 Singleton Blvd.); WS-95 (900 Singleton Blvd.):
TxDOT will provide additional information requested in your November 13th letter to determine the presence of a potential industrial historic district in the area around the Atlas Metal Works Corp. The information will be in the form of a windshield survey to denote possible district boundaries, photographs of streetscapes, and identification of historic contexts to evaluate district significance. The survey will include these three properties targeted by THC, plus others in the immediate area that could be part of the potential district.

Greater Dallas Floodway Historic District:
Your comments on this district being proposed by the USACE are being taken into account by our agency, which in cooperation with the USACE, will be jointly looking at the eligibility of this resource and its multiple components.

CONCLUSION:

This letter relates and reaffirms the results of our December 9th meeting. If you do not respond within three days of receipt, we will determine that you concur with these results and the extent of information TxDOT is to provide to your agency. If you need to discuss any of these issues within the next three days, please feel free to call me at 416-2770.

Sincerely,

Mario L. Sánchez, Ph.D., R.A.
Historical Architect
Environmental Affairs Division

Attachments

cc. Halff Associates, Jason Diamond
NTTA, Elizabeth Mow
FHWA, Theresa Claxton
USACE, Joseph Murphey
HNTB, Kelly Johnson
Preservation Dallas, Katherine Seale
Dallas CLG, Jim Anderson
Dallas Co. Historical Commission, Mike Lowenberg
ECOMM Corp., Tom Eisenhour

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

4 January 2010

RECEIVED
JAN 07 2010
TEXAS HISTORICAL COMMISSION

Section 106 and Antiquities Code Coordination
Dallas County
CSJ 0918-45-121
Antiquities Permit No. 4986

Trinity River Parkway from IH 35E/US 183 to SH 310/US 175

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

The proposed project will be undertaken with state and federal assistance. As required by the National Historic Preservation Act of 1966, as amended, and by Senate Bill 58, The Antiquities Code of Texas, and our Memorandum of Understanding with your agency, we are coordinating the proposed bridge replacement project with your office.

Please find attached a copy of *Archeological Testing of Site 41DL441 for the Trinity River Parkway in Dallas, Dallas County, Texas* by Lance K. Trask, Jesse Todd, and S. Alan Skinner of AR Consultants, Inc. In September 2008, AR Consultants excavated a number of backhoe trenches in an attempt to relocate a buried hearth found during their previous trenching in 2006 (Frederick et al. 2006). The 2006 backhoe trenching uncovered a hearth at 70 cm below the present ground surface in Backhoe Trench #34. No artifacts or additional features were discovered in the trench, or in Backhoe Trenches #35 and #36 which were dug in close proximity to #34. The hearth location was then designated as site 41DL441, and charcoal samples were taken from the feature and also "at a loci thought to be on the same horizontal surface" (Trask et al. 2009). Radiocarbon results from the two samples indicated dates of 170 ± 40 BP (AD 1780) and 230 ± 40 BP (AD 1720). Given the dated samples, AR Consultants anticipated uncovering a Protohistoric occupation.

The additional trenching in 2008 relocated the 41DL441 feature. Two backhoe trenches were excavated, with Backhoe Trench #1 locating disturbed soil from the 2006 trenching. A second backhoe trench exposed the top of the hearth which consisted of a thin ash lens approximately 5 mm thick along with burned clay. A shard of unheated clear glass was found in the ash. No trademarks were present on the glass fragment, so identification and date of manufacture was not possible. The glass fragment would suggest a twentieth century date, however. No artifacts associated with the Protohistoric period were identified. No other artifacts were identified with the feature. Four more trenches were dug close to the hearth feature to determine if other features were present, but no more features, artifacts or staining were found. The site size covers less than 5 meters.

Although the modern glass bottle fragment did not show evidence of heat damage, it was none the less uncovered mixed in the ash deposit. The feature may be an example of disturbed deposition.

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Given that no other glass fragments were found at the site, the shard may have been redeposited by the fluvial environment of the meander channel from some other location.

The hearth may represent an ephemeral feature used only once and for a brief interval if the hearth is associated with human occupation. Due to the lack of cultural materials, the ash and charcoal could have been caused by a lightning strike or other natural event. Without artifacts or more features, little evidence is available that could aid in development of research questions. Considering the floodway location and intrusive glass shard, the potential for adequate site integrity is low.

A TxDOT archeologist evaluated the potential for the proposed undertaking to affect archeological historic properties (36 CFR 800.16(l)) or State Archeological Landmarks (13 TAC 26.12) in the area of potential effects (APE).TxDOT recommends that site 41DL441 does not meet the criteria of significance for National Register of Historic Places eligibility or for nomination as a State Archeological Landmark as it lacks potential to contribute to further scientific research.

Pursuant to Stipulation VI of the PA-TU, TxDOT finds that the APE does not contain archeological historic properties (36 CFR 800.16(l)), and thus the proposed undertaking would not affect archeological historic properties. The project does not merit further field investigations. Project planning can also proceed, in compliance with 13 TAC 26.20(2) and 43 TAC 2.24(f)(1)(C) of the MOU. If unanticipated archeological deposits are encountered during construction, work in the immediate area will cease, and TxDOT archeological staff will be contacted to initiate post-review discovery procedures under the provisions of the PA and MOU.

We request your review and comment on the attached draft report. If you have any questions, please call Barbara Hickman at 512-416-2637 or e-mail bhickman@dot.state.tx.us.

Sincerely,

Barbara J Hickman

Barbara J Hickman, Staff Archeologist
Archeological Studies Program
Environmental Affairs Division

Attachment
cc w/o attachment: Dallas District, attn: Mr. Robert Hall, District Environmental Coordinator
ERG BJH ETS-Scan PA files

Mr. David Morgan
Halff Associates, Inc.
8616 Northwest Plaza Drive
Dallas TX 75225

Concurrence by: Mark H Wolfe 1-7-10
For Mark Wolfe, State Historic Preservation Officer Date

AR Consultants, Inc.

Archaeological and Environmental Consulting
11020 Audelia Road, Suite C105, Dallas, Texas 75243-9085
Phone: (214) 368-0478
Fax: (214) 221-1519
E-mail: arcdigs@aol.com

ARCHAEOLOGICAL TESTING OF

SITE 41DL441

FOR THE TRINITY PARKWAY IN DALLAS,

DALLAS COUNTY, TEXAS

CSJ: 0918-45-121

Texas Antiquities Permit No. 4986

Lance K. Trask, BS
Jesse Todd, MS, MA
and
S. Alan Skinner, PhD

DRAFT REPORT ACCEPTABLE
by
for Mark Wolfe
Executive Director, THC
Date 1-7-10
Track#

Prepared for:

HALFF ASSOCIATES, INC.
and the
NORTH TEXAS TOLLWAY AUTHORITY

Prepared by:

AR CONSULTANTS, INC.
11020 Audelia Road, Suite C105
Dallas, Texas 75243-9085

Cultural Resources Report 2008-83
December 1, 2008,
Revised July 27, 2009

HISTORIC BUILDINGS ARCHAEOLOGY NATURAL SCIENCES

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

January 7, 2010

Mr. Jimmy Arterberry, THPO
Comanche Nation of Oklahoma
Comanche Nation Office of Historic Preservation
P.O. Box 908
Lawton, OK 73502

RE: CSJ: 0918-45-121; Trinity River Parkway, from IH 35E/US 183 to SH 310/US 175, New Location Bypass, Eligibility Testing for Site 41DL441; Dallas County, Dallas District

Dear Mr. Arterberry:

The above referenced transportation project is being considered for construction by the Federal Highway Administration (FHWA) and the Texas Department of Transportation (TxDOT). Environmental studies are in the process of being conducted for this project. The purpose of this letter is to contact you in order to initiate Section 106 consultation with your community pursuant to stipulations of the First Amended Programmatic Agreement among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU). The project is located in an area that is of interest to your Tribe.

The North Texas Tollway Authority (NTTA) proposes to construct an approximately 9-mile-long, limited-access toll facility from IH 35E / SH 183 interchange to the US 175 / SH 310 interchange in the City of Dallas. The proposed facility would be known as the Trinity Parkway and would initially consist of four to six mixed-flow main lanes, local street interchanges and freeway-to-freeway interchanges. The area of potential effects (APE) for the proposed project would be approximately 100 feet on either side of the Dallas Floodway levee toe (bottom of the slope) in those areas where proposed alternatives would be immediately on the inside or outside of the levees (distance of approximately 6 miles). The estimated right of way (ROW) required for the proposed Trinity Parkway ranges from 264 to 490 acres, depending upon the alternative. Potential excavation areas within the floodway that could serve as a source of borrow material for roadway embankment may disturb a total estimated surface area of up to 335 acres. The assumed average depths of excavations within the potential floodway borrow areas range from 3 to 18 feet below ground surface.

The APE is located in an area that is either heavily developed or disturbed by previous floodway and levee construction. Archeological investigation of the APE has been limited to the Dallas Floodway in areas where old meanders of the Trinity River are located and also the general area of potential borrow excavations. In 2006, under contract to NTTA, AR Consultants, Inc. (ARC) recorded a site (41DL441) at a depth of approximately 70 centimeters ((27.5 inches) (see Figure 1, page 2, in attached report). Site 41DL441 was identified as a hearth, and charcoal samples were taken from the feature and also "at a loci thought to be on the same horizontal surface" (see attached testing report). Radiocarbon results from the two samples indicated dates of 170 ± 40 BP (AD 1780) and 230 ± 40 BP (AD 1720). Given the dated samples, ARC anticipated uncovering a Protohistoric occupation.

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Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Project, Dallas District
CSJ: 0918-45-121; Trinity River Parkway, from IH 35E/US 183 to SH 310/US 175,
New Location Bypass, Eligibility Testing for Site 41DL441; Dallas County

Please find attached a copy of *Archeological Testing of Site 41DL441 for the Trinity River Parkway in Dallas, Dallas County, Texas* by Lance K. Trask, Jesse Todd, and S. Alan Skinner of AR Consultants, Inc. In September 2008, AR Consultants excavated a number of backhoe trenches in an attempt to relocate a buried hearth found during their previous trenching in 2006. ARC relocated site 41DL441 and conducted archeological testing of the location to determine eligibility for listing in the National Register of Historic Places (NRHP). Two backhoe trenches were excavated, with Backhoe Trench #1 locating disturbed soil from the 2006 trenching. A second backhoe trench exposed the top of the hearth which consisted of a thin ash lens approximately 5 millimeters (0.2 inch) thick along with burned clay (see Figure 4, page 16, in attached report). A shard of unheated clear glass was found in the ash. No trademarks were present on the glass fragment, so identification and date of manufacture was not possible. The glass fragment would suggest a twentieth-century date, however. No artifacts associated with the Protohistoric period were identified. No other artifacts were identified with the feature. Four more trenches were dug close to the hearth feature to determine if other features were present, but no more features, artifacts or staining were found. The site size covers less than 5 meters (16.4 feet). Although the modern glass bottle fragment did not show evidence of heat damage, it was none the less uncovered mixed in the ash deposit. The feature may be an example of disturbed deposition. Given that no other glass fragments were found at the site, the shard may have been redeposited by the fluvial environment of the meander channel from some other location.

The hearth may represent an ephemeral feature used only once and for a brief interval if the hearth is associated with human occupation. Due to the lack of cultural materials, the ash and charcoal could have been caused by a lightning strike or other natural event. Without artifacts or more features, little evidence is available that could aid in development of research questions. Considering the floodway location and intrusive glass shard, the potential for adequate site integrity is low.

A TxDOT archeologist evaluated the potential for the proposed undertaking to affect archeological historic properties (36 CFR 800.16(l)) or State Archeological Landmarks (13 TAC 26.12) in the APE. Based on previous work done in the area (see Previous Investigations section of enclosed report, page 5), and results of the eligibility testing, TxDOT proposes the following findings and recommendations:

1) that site 41DL441 does not meet the criteria of significance for NRHP eligibility or for nomination as a State Archeological Landmark as it lacks potential to contribute to further scientific research
2) that pursuant to Stipulation VI of the PA-TU the APE does not contain and would therefore not affect archeological historic properties
3) that no further archeological investigation is warranted
4) that project planning can proceed, in compliance with 13 TAC 26.20(2) and 43 TAC 2.24(f)(1)(C) of the Memorandum of Understanding (MOU) with the Texas Historical Commission
5) if unanticipated archeological deposits are encountered during construction, work in the immediate area would cease and your Tribe would be contacted for further consultation

According to our Programmatic Agreement under Section 106 of the National Historic Preservation Act, we are writing to request your comments on historic properties of cultural or religious significance to your Tribe that may be affected by the proposed undertaking. Any comments you may have on the TxDOT recommendation should also be provided. Please provide your comments within 30 days of receipt of this letter. Any comments provided after that time will be addressed to the fullest extent possible. If you do not object that the proposed findings and recommendations are appropriate, please sign below to indicate your concurrence. In the event that further investigations by our office disclose the presence of archeological deposits, we will contact your Tribe to continue consultation.

Re: Section 106 Consultation, National Historic Preservation Act;
Proposed Texas Department of Transportation Project, Dallas District
CSJ: 0918-45-121; Trinity River Parkway, from IH 35E/US 183 to SH 310/US 175,
New Location Bypass, Eligibility Testing for Site 41DL441; Dallas County

Thank you for your attention to this matter. If you have questions, please contact Barbara Hickman (TxDOT Archeologist) at 512/416-2637 (email: bhickman@dot.state.tx.us) or me at 512/416-2631 (email: spletka@dot.state.tx.us). When replying to this correspondence, please ensure that the envelope address includes reference to the Archeological Studies Branch, Environmental Affairs Division.

Sincerely,

Scott Pletka, Ph.D., Supervisor
Archeological Studies Branch
Environmental Affairs Division

Concurrence by: _____ Date: _____

Attachments

cc w/attachments: Barbara Maley, Environmental Coordinator FHWA; Robert Hall, TxDOT Dallas District Environmental Coordinator; Margaret Canty, ENV-PM TxDOT; Barbara Hickman, ENV-ARCH TxDOT; ENV-ARCH Project File

cc w/o attachments: ETS Scan

The attached letter was sent to the following tribes on January 7, 2010

Mr. Jimmy Arterberry, THPO
Comanche Nation of Oklahoma
Comanche Nation Office of Historic Preservation
P.O. Box 908
Lawton, OK 73502

Ms. Jame Eskew,
c/o Kiowa Culture Preservation Authority
Kiowa Indian Tribe of Oklahoma
P.O. Box 885
Carnegie, OK 73015

Mr. Carleton Naiche-Palmer, President
c/o Holly Houghten
Mescalero Apache Tribe
P.O. Box 227
Mescalero, NM 88340

Mr. Don Patterson, President
Tonkawa Tribe of Indians of Oklahoma
1 Rush Buffalo Rd
Tonkawa, OK 74653

[sent by Email]

U.S. Department of Transportation
Federal Highway Administration

FEDERAL HIGHWAY ADMINISTRATION
300 EAST 8TH STREET, RM 826
AUSTIN, TEXAS 78701

Texas Department of Transportation

TEXAS DEPARTMENT OF TRANSPORTATION
125 E. 11th STREET
AUSTIN, TEXAS 78701-2483

January 7, 2010

Mr. Leslie Standing, President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

RE: CSJ: 0918-45-121; Trinity River Parkway, from IH 35E/US 183 to SH 310/US 175, New Location Bypass, Eligibility Testing for Site 41DL441; Dallas County, Dallas District

Dear Mr. Standing:

The above referenced transportation project is being considered for construction by the Federal Highway Administration (FHWA) and the Texas Department of Transportation (TxDOT). Environmental studies are in the process of being conducted for this project. The purpose of this letter is to contact you in order to initiate Section 106 consultation with your community pursuant to stipulations of the First Amended Programmatic Agreement among the Federal Highway Administration, the Texas Department of Transportation, the Texas State Historic Preservation Officer, and the Advisory Council on Historic Preservation Regarding the Implementation of Transportation Undertakings (PA-TU). The project is located in an area that may be of interest to your Tribe.

The North Texas Tollway Authority (NTTA) proposes to construct an approximately 9-mile-long, limited-access toll facility from IH 35E / SH 183 interchange to the US 175 / SH 310 interchange in the City of Dallas. The proposed facility would be known as the Trinity Parkway and would initially consist of four to six mixed-flow main lanes, local street interchanges and freeway-to-freeway interchanges. The area of potential effects (APE) for the proposed project would be approximately 100 feet on either side of the Dallas Floodway levee toe (bottom of the slope) in those areas where proposed alternatives would be immediately on the inside or outside of the levees (distance of approximately 6 miles). The estimated right of way (ROW) required for the proposed Trinity Parkway ranges from 264 to 490 acres, depending upon the alternative. Potential excavation areas within the floodway that could serve as a source of borrow material for roadway embankment may disturb a total estimated surface area of up to 335 acres. The assumed average depths of excavations within the potential floodway borrow areas range from 3 to 18 feet below ground surface.

The APE is located in an area that is either heavily developed or disturbed by previous floodway and levee construction. Archeological investigation of the APE has been limited to the Dallas Floodway in areas where old meanders of the Trinity River are located and also the general area of potential borrow

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excavations. In 2006, under contract to NTTA, AR Consultants, Inc. (ARC) recorded a site (41DL441) at a depth of approximately 70 centimeters ((27.5 inches) (see Figure 1, page 2, in attached report). Site 41DL441 was identified as a hearth, and charcoal samples were taken from the feature and also "at a loci thought to be on the same horizontal surface" (see attached testing report). Radiocarbon results from the two samples indicated dates of 170 ± 40 BP (AD 1780) and 230 ± 40 BP (AD 1720). Given the dated samples, ARC anticipated uncovering a Protohistoric occupation.

Please find attached a copy of *Archeological Testing of Site 41DL441 for the Trinity River Parkway in Dallas, Dallas County, Texas* by Lance K. Trask, Jesse Todd, and S. Alan Skinner of AR Consultants, Inc. In September 2008, AR Consultants excavated a number of backhoe trenches in an attempt to relocate a buried hearth found during their previous trenching in 2006. ARC relocated site 41DL441 and conducted archeological testing of the location to determine eligibility for listing in the National Register of Historic Places (NRHP). Two backhoe trenches were excavated, with Backhoe Trench #1 locating disturbed soil from the 2006 trenching. A second backhoe trench exposed the top of the hearth which consisted of a thin ash lens approximately 5 millimeters (0.2 inch) thick along with burned clay (see Figure 4, page 16, in attached report). A shard of unheated clear glass was found in the ash. No trademarks were present on the glass fragment, so identification and date of manufacture was not possible. The glass fragment would suggest a twentieth-century date, however. No artifacts associated with the Protohistoric period were identified. No other artifacts were identified with the feature. Four more trenches were dug close to the hearth feature to determine if other features were present, but no more features, artifacts or staining were found. The site size covers less than 5 meters (16.4 feet). Although the modern glass bottle fragment did not show evidence of heat damage, it was none the less uncovered mixed in the ash deposit. The feature may be an example of disturbed deposition. Given that no other glass fragments were found at the site, the shard may have been redeposited by the fluvial environment of the meander channel from some other location.

The hearth may represent an ephemeral feature used only once and for a brief interval if the hearth is associated with human occupation. Due to the lack of cultural materials, the ash and charcoal could have been caused by a lightning strike or other natural event. Without artifacts or more features, little evidence is available that could aid in development of research questions. Considering the floodway location and intrusive glass shard, the potential for adequate site integrity is low.

A TxDOT archeologist evaluated the potential for the proposed undertaking to affect archeological historic properties (36 CFR 800.16(l)) or State Archeological Landmarks (13 TAC 26.12) in the APE. Based on previous work done in the area (see Previous Investigations section of enclosed report, page 5), and results of the eligibility testing, TxDOT proposes the following findings and recommendations:

1) that site 41DL441 does not meet the criteria of significance for NRHP eligibility or for nomination as a State Archeological Landmark as it lacks potential to contribute to further scientific research
2) that pursuant to Stipulation VI of the PA-TU the APE does not contain and would therefore not affect archeological historic properties
3) that no further archeological investigation is warranted
4) that project planning can proceed, in compliance with 13 TAC 26.20(2) and 43 TAC 2.24(f)(1)(C) of the Memorandum of Understanding (MOU) with the Texas Historical Commission
5) if unanticipated archeological deposits are encountered during construction, work in the immediate area would cease and your Tribe would be contacted for further consultation

According to our procedures and at the request of the FHWA under Section 106 of the National Historic Preservation Act, we are writing to request your comments on historic properties of cultural or religious significance to your Tribe that may be affected by the proposed undertaking. Any comments you may

have on the TxDOT recommendation should also be provided. Please provide your comments within 30 days of receipt of this letter. Any comments provided after that time will be addressed to the fullest extent possible. If you do not object that the proposed findings and recommendations are appropriate, please sign below to indicate your concurrence. In the event that further investigations by our office disclose the presence of archeological deposits, we will contact your Tribe to continue consultation.

Thank you for your attention to this matter. If you have questions, please contact Barbara Hickman (TxDOT Archeologist) at 512/416-2637 (email: bhickman@dot.state.tx.us) or me at 512/416-2631 (email: spletka@dot.state.tx.us). When replying to this correspondence, please ensure that the envelope address includes reference to the Archeological Studies Branch, Environmental Affairs Division.

Sincerely,

Scott Pletka, Ph.D., Supervisor
Archeological Studies Branch
Environmental Affairs Division

Concurrence by: _____ Date: _____

Attachments

cc w/attachments: Barbara Maley, Environmental Coordinator FHWA; Robert Hall, TxDOT Dallas District Environmental Coordinator; Margaret Canty, ENV-PM TxDOT; Barbara Hickman, ENV-ARCH TxDOT; **ENV-ARCH Project File**

cc w/o attachments: **ETS Scan**

The attached letter was sent to the following tribes on January 7, 2010:

Mr. Leslie Standing, President
Wichita and Affiliated Tribes
P.O. Box 729
Anadarko, OK 73005

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

June 16, 2010

SECTION 106 --
SUPPLEMENTAL AND INTENSIVE-LEVEL INVESTIGATIONS FOR SELECTED HISTORIC-AGE PROPERTIES AND POTENTIAL HISTORIC DISTRICTS

Dallas County; CSJs # 0918-45-121; 0918-45-122
Trinity River Parkway Corridor

Ms. Adrienne Campbell
History Division
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Dear Ms. Campbell:

In accordance with the First Amended Programmatic Agreement (PA) among TxDOT, FHWA, the Advisory Council on Historic Preservation, and the THC, this letter *continues* Section 106 consultation for the proposed Trinity River Parkway. We hereby submit the results of research efforts in two attached documents that provide you with the additional information requested in your letter of November 13, 2009.

THC REQUEST FOR ADDITIONAL INFORMATION:

In our letter of October 26, 2009, we submitted to your agency the *Non-Archeological Historic-Age Resource Reconnaissance Survey Report (October 2009)* for the Trinity Parkway Project. Your reply of November 13, 2009 identified a series of data gaps, which resulted in a meeting on December 9, 2009 between you and TxDOT historians; issuance of a clarification letter by TxDOT on December 11, 2009; and another meeting on January 26, 2010. As per our January meeting, we narrowed the data gaps as follows:

1). Provide further research on the presence of a potential industrial historic district in the immediate vicinity of the National Register of Historic Places-eligible (NRHP) Atlas Metal Works (ES-1). (Originally, THC had requested a larger area for the potential district, but this was reduced following additional research submitted by Ecomm Corp. revealing a lack of continuity of industrial historic fabric along Singleton Blvd.).
2). Provide further research on the not eligible Austin Bridge Company (WS-95), located near Atlas Metal Works, in the form of a windshield survey to determine the number of historic-age structures in the facility, as well as their integrity.

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3). Provide further research on the not eligible resources ES-2 and ES-4, both located in the area of the potential industrial district.
4). Provide additional research on the not eligible resource MK-2, the former Guiberson Corp., with information on change of ownership, property boundaries, and brief history of the company and individuals associated with it.
5). Provide further research on the not eligible Alston survey resource #115, historically associated with the Trinity Industrial District.
6). Complete intensive-level investigations on the historic resources that encompass the reclaimed lands along the Trinity River in the vicinity of downtown, Dallas. (That area was originally surveyed by Norman Alston and presented in his 2001 *Historic Resource Survey of the Building Displacements for the Trinity River Parkway*. It was determined by TxDOT as not eligible as a historic district in a TxDOT letter to THC dated June 5, 2002. THC concurred with that finding in its letter of July 2, 2002 based on "significant alterations and loss of architectural integrity" in the area).

TRINITY INDUSTRIAL DISTRICT:
***INTENSIVE-LEVEL INVESTIGATIONS IN SUPPORT OF PROPOSED TRINITY PARKWAY PROJECT* (FEB. 15, 2010)**

In accordance with the request expressed in your November 13th letter that "the industrial area seems to be significant locally and merits consideration as a district," TxDOT undertook a new survey at the intensive level focused on the potential historic district along the reclaimed lands of the Trinity River. This is the area originally identified in the Alston report as potential historic districts "A" and "B." TxDOT, with THC concurrence on July 2, 2002, determined the area to lack historical integrity, a finding that is *reaffirmed* in the attached intensive-level survey.

The recent intensive-level investigations center on the commercial area along the N. Industrial (Riverfront) Boulevard corridor. Specifically, this "Hydraulic Fill Area," as it is known historically, was identified in the US Army Corps of Engineers' (USACE) position paper of 2009 as part of a potential 10,000-acre Dallas Floodway Historic District. As per your November 13th letter, it was agreed that the "fill area" would be researched "as a separate district and not part of the greater Dallas Floodway Historic District."

The intensive-level investigations undertaken in Dallas focused on primary source materials available at governmental agencies and private firms. Among the most important sources of information were:

- Dallas Public Works Department's building permit records, plat maps, and historic aerials
- Dallas Central Library's database of Dallas newspapers
- Crow Properties' photo inventory of 200 area properties dating to 1966

Research confirmed that the area under evaluation lies within the Trinity Industrial District, which was historically developed primarily by Industrial Properties Corporation. Despite its name, the Trinity Industrial District has always contained

relatively few industrial concerns and was mostly comprised of small warehouses that were occupied by wholesalers and distributors.

The development of the area was based on a "three-part system" that relied on (a) two railroads; (b) a street network that enabled vehicular traffic to flow into Industrial Boulevard; (c) and warehouses that were used as conduit of goods being shipped or received by rail at their rear and trucks at their front (see pages 26-31). All three parts of the system "created favorable conditions that were essential to the area's history, development, and ongoing operation," (page 31).

Research also indicates that the targeted area for investigation was closely associated with John Stemmons, who served as President of Industrial Properties Corporation. Historically, this prominent Dallas businessman is largely credited as the person most responsible for the creation of the Trinity Industrial District.

To establish appropriate boundaries for the potential historic district, field investigators noted concentrations of resources and identified areas where new construction and/or empty lots disrupted the overall historic character of the area. Hence, boundaries for the intensive-level investigations were refined to fall within an area bounded by Payne Street on the south, Slocum and Dragon Street on the east, Oak Lawn Boulevard on the north, and East Levee on the west. The area is distinct from its surroundings and is clearly discernible as a concentration of one-story masonry warehouses that date from the late 1940s and early 1950s (see pages 16-19).

Using the Dallas County Appraisal District (DCAD) to conduct the investigations, historians downloaded information on all properties in the area being evaluated. Historians used a sampling of research data from building permit records and historic newspaper articles to confirm DCAD dates of construction. The historians noted that among all extant buildings within the area:

- 90.5 percent were built between 1947 and 1956.
- 4.0 percent were built between 1957 and 1966
- 5.5 percent were built between 1967 and 2009

The period of significance for the district begins in 1946, when the first plat was filed at the Dallas County Clerk's Office. Despite the fact that 90% of the buildings in the area being researched were constructed by 1956, historians extended the period of significance to 1966 to reflect continued commercial activity to the closure of the historic period (see pages 32-33).

The area evaluated for NRHP eligibility as a historic district represents the historic-age core of the Trinity Industrial District. Research and analysis of the built environment indicates that the Trinity Industrial District possesses significance at the local level under Criterion A in the area of Community Planning and Development, and under Criterion B for association with John Stemmons. Although the area contains a high concentration of buildings constructed within a short time frame that share many common physical and architectural qualities, the area does not possess significance under

Criterion C, Design/Construction, because modifications to their design "takes away many of the qualities that distinguished the area's historic character," (see pages 41-42).

Based on the attached intensive survey, "the combined effect of changes to the buildings and the urban landscape as a whole have diminished [the area's] ability to convey certain aspects of its significance," (page 56). The findings indicate that,

> "Very few buildings have remained unaltered, and most have had their original windows and doors replaced. For the most part, the replacements do not utilize the same materials or follow the same configuration as original units. The brick-surfaced exterior of most buildings have also been painted. One of the most significant changes has been the removal of the railroad tracks in recent years," (page 40).

As a result, the potential district area no longer retains its Integrity of Design, Materials, Feeling, and Association, and lacks the ability to convey its significance under Criterion A or B. The intensive-level investigations conclude that the Trinity Industrial District is **not eligible** to the National Register of Historic Places. (For a detailed discussion of all aspects of integrity with numerous illustrations depicting significant and repeated modifications to the historic-age fabric throughout the district see pages 42-56).

Also per your request, and included in the intensive-level survey, TxDOT is providing additional research on the NRHP eligibility of Alston resource #115 at 2245 Irving Blvd. The 1948 one-part commercial block served as an equipment shop for the Industrial Properties Corporation, which was the entity responsible for the layout and development of much of the Trinity River reclaimed lands. As in 2002, the new research *reaffirms* TxDOT's previous determination that this resource is **not eligible** to the NRHP, as it illustrates no significance under Criteria A, B, or C, and exhibits compromised historical integrity (see page 61).

***SUPPLEMENTAL NON-ARCHEOLOGICAL HISTORIC-AGE RESOURCE SURVEY REPORT, TRINITY PARKWAY* (JUNE 2010)**

Information to close the remaining data gaps identified in your November 13, 2009 letter is also submitted in the attached *Supplemental Non-Archeological Historic-Age Resource Survey Report (June 2010)*. Field and archival research in this supplemental effort *reaffirm* the previous **not eligible** determinations for the targeted resources that were submitted by TXDOT in its October 26, 2009 letter to your agency. The attached supplemental survey concludes as follows:

Resources ES-2 and ES-4:
ES-2a is a small 1964 commercial/industrial facility located in front of the over-scaled 1965 ES-2b. ES-4 is mansard-roofed commercial establishment that appears to be associated with ES-3, a 1957 former gas station without its pumps, signage or awning. The supplemental survey finds that these resources are **not eligible** to the NRHP either individually or as part of an industrial district. They have no known associations to demonstrate significance under Criterion A or B, and they are not distinctive examples of architecture in the Dallas area under Criterion C.

Resource WS-95 (Austin Bridge Company):
This is the historic location of the Austin Bridge Company prior to its consolidation under the name of Austin Industries when it moved to new headquarters in Dallas. The buildings identified in the October 2009 report comprised the original manufacturing facility, as well as other later storage and manufacturing buildings. By the time of the supplemental survey, however, the original manufacturing facilities, as well as other structures were demolished. Figure 3 illustrates surviving historic-age buildings, along with locations of demolished historic-age structures. While the resource may have been significant under Criterion A for Transportation and Criterion C for Industrial Architecture, the property today retains little, if any, of its historical integrity. The demolition of its key buildings and the removal of company operations from the property greatly impact its integrity of location, setting, design, materials, workmanship, feeling and association. Since it is unable to convey its significance, it is determined as **not eligible** to the NRHP.

Resource MK-2 (Guiberson Corporation):
Additional research and visits to MK-2 reveal that historic-age structures were built during the Guiberson Corp. period 1926-1956 and the Dresser Corp. era 1956-1965. Sanborn map research shows that, although the former Guiberson residence and the majority of the machine shop are still intact, a number of historic-age buildings are demolished (see Figure 4). Other historic-age buildings, or parts thereof, are now linked or enveloped by newer post-1965 facilities (see figures 5, 6). The greatest expansion of the property is post-1965. The growth of the property is typical for an industrial facility under multiple ownership and use changes throughout its history.

The supplemental survey found that the Guiberson Corp. had a number of oil industry related patents and may have had an impact in the Dallas oil industry. It is thus significant under Criterion A, Industry, at the local level, for a period of significance 1926-1956 extending from the establishment of the corporation to the year of its sale to Dresser Industries. The property was also found to be significant under Criterion B for its association with company founder Samuel A. Guiberson Jr. during a period of significance 1934-1956, which coincides with the time of his residence in Dallas and ends with the purchase of the company by Dresser Industries in 1956.

In the area of Architecture, the property is significant under Criterion C beginning in 1926 at the time of initial construction and extending to 1965 to reflect continued industrial activity at the facility to the end of the historic period. Demonstrating only marginal architectural significance, the buildings at MK-2 do not represent a significant shift or technical advance in the field of industrial design when compared to the nearby, NRHP-eligible Procter and Gamble facility. Later additions and modifications to the complex also do not provide particularly innovative or strong examples of industrial building design.

The findings of the supplemental survey indicate that,

> "Resource MK-2 lacks sufficient integrity to convey its significance. Under Criteria A and B, most of the current building stock was built after the periods of significance by Dresser Industries or by Faubion Associates, and it is not associated with the Guiberson Corporation or Samuel A. Guiberson, Jr. The

original buildings have been overshadowed by the new construction, which minimizes Guiberson's association with the property. These changes impact integrity of setting, materials, workmanship, feeling and association to a degree that the property is unable to convey its significance under Criteria A and B. Likewise, the same modifications impact the integrity of buildings and diminish their ability to convey significance under Criterion C, leading to a loss of integrity of setting, design, materials, and workmanship. Although change is part of the evolution of industrial properties, in this case the combined effects of these modern alterations significantly overshadow the historic building stock (see Figure 6)," (pages 23-24).

TxDOT thus *reaffirms* its original determination that Resource MK-2 is **not eligible** to the NRHP.

Industrial Historic District Evaluation in the vicinity of Atlas Metal Works:

The supplemental survey also researched the possibility of an industrial historic in the Sylvan-Singleton area of West Dallas in the vicinity of Atlas Metal Works and Austin Bridge Company. The survey found that West Dallas has undergone numerous changes in the past fifty years as "economic forces have closed many of the old industrial facilities and altered the landscape," (page 26). Since "other industrial properties have been appropriated and modified by other businesses, or altered with modern materials," (pages 25-26), the survey concludes that in the proposed district area, "Only Atlas Metal Works retains its original appearance of the identified historic-age industrial properties," (page 25). As such, the survey concludes there is no cohesive, recognizable industrial historic district present in the vicinity of Atlas Metal Works facility.

DALLAS FLOODWAY HISTORIC DISTRICT PROPOSED BY THE USACE:

In consultation with FHWA, TxDOT continues to assess the potential for a greater Dallas Floodway Historic District as it reviews a newly revised survey of that area dated May 3, 2010 undertaken by the USACE. Upon completion of their review, TxDOT and FHWA will share their findings with the Corps of Engineers.

PENDING DETERMINATION OF EFFECTS:

Effects to NRHP-listed and eligible historic properties from the proposed undertaking cannot yet be determined due to ongoing design decisions that may affect the proposed alignments. A phased approach to effects coordination with ensuing maps showing property right-of-way delineations will be conducted as information becomes available. Pursuant to Stipulation VII of the PA-TU and MOU between FHWA, SHPO, ACHP, and TxDOT, ENV historians will determine the effects of this project in the course of future individual coordination with the Texas Historical Commission.

CONCLUSION:

The current surveys reinforce the previous determinations submitted by TxDOT to THC demonstrating the lack of NRHP eligibility of the above-referenced properties. The determinations of eligibility in the two attached documents follow appropriate application of contextual research and consistent application of NRHP criteria required for compliance with Section 106 of the National Historic Preservation Act of 1966.

We hereby request your written concurrence with these determinations of eligibility within 20 days of receiving this letter. If you need further information, please feel free to call me at 416-2770.

Sincerely,

Mario L. Sánchez, Ph.D., R.A.
Historical Architect
Environmental Affairs Division

Attachments

CONCUR
HISTORIC-AGE PROPERTIES AND POTENTIAL DISTRICTS
NOT ELIGIBLE
TO THE NATIONAL REGISTER OF HISTORIC PLACES
Trinity River Parkway Corridor
CSJs # 0918-45-121; 0918-45-122

NAME: _____ DATE: _____
for: Mark Wolfe
State Historic Preservation Officer

cc. Halff Associates, Jason Diamond
NTTA, Elizabeth Mow
FHWA, Theresa Claxton
USACE, Joseph Murphey
HNTB, Kelly Johnson
Preservation Dallas, Katherine Seale
Dallas CLG, Mark Doty
Dallas Co. Historical Commission, Mike Lowenberg

TEXAS HISTORICAL COMMISSION
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July 6, 2010

Mario L. Sanchez
Historical Architect, Environmental Affairs
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701

Re: Project review under Section 106 of the National Historic Preservation Act of 1966, Trinity River Parkway Corridor, Supplemental and Intensive-level Investigations for Selected Historic-age Properties and Potential Historic Districts, Dallas County (FHWA) TxDOT CSJ # 0918-45-121; 0918-45-122

Dear Dr. Sanchez:

Thank you for the information provided in your June 16, 2010 letter and for the additional information provided in our meeting today, July 6, 2010. This letter serves as a comment from the State Historic Preservation Officer (SHPO), the Executive Director of the Texas Historical Commission (THC).

Based on the information you have provided, we concur with your determination that, with the exception of the Guiberson property (MK-2), the resources for which you have provided additional information are not eligible for listing in the National Register of Historic Places, either individually or as a historic district.

In the case of the Guiberson property, we find that the buildings identified as MK-2C and MK-2D still retain sufficient integrity to convey the significance of the property under criteria B, in the area of Industry, at the local level of significance, for its association with Samuel A. Guiberson. We concur that because buildings from the period of significance were lost and several buildings on the parcel post-date the period of significance, resulting in loss of integrity of setting, materials, and design, the complex itself no longer retains sufficient integrity for listing. However, these two buildings (the office and the machine shop) were the most prominent and important of the buildings from the period of significance (1934 to 1956). They have undergone relatively minor physical changes and are still recognizable. Attached, please find an appropriate National Register boundary for the resources.

RICK PERRY, GOVERNOR • JON T. HANSEN, CHAIRMAN • MARK WOLFE, EXECUTIVE DIRECTOR
P.O. BOX 12276 • AUSTIN, TEXAS • 78711-2276 • P 512.463.6100 • F 512.475.4872 • TDD 1.800.735.2989 • www.thc.state.tx.us

We look forward to working with your office regarding evaluation of effect. If you have any questions concerning this review or if we can be of further assistance, please contact Adrienne Campbell at 512/936-7403.

Sincerely,

Mark Wolfe
State Historic Preservation Officer

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

May 31, 2011

SECTION 106 -- DETERMINATION OF EEFECTS: Submittal of *Section 106 Effects Report, Trinity Parkway* (March 2011)

Dallas County; CSJ # 0918-45-121; 0918-45-122
Trinity River Parkway Corridor

Ms. Adrienne Campbell
History Division
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Dear Ms. Campbell:

In accordance with 36 CFR 800 and the Programmatic Agreement (PA) between the Texas Department of Transportation (TxDOT), the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation, and the Texas Historical Commission (THC), this letter *continues* Section 106 consultation for the above referenced project. We hereby present the results of a report on the effects of the proposed undertaking on properties listed and eligible to the National Register of Historic Places (NRHP).

Previous Coordination:

NRHP eligibility coordination with the THC began in the year 2000 and continued through 2010 in numerous exchanges of correspondence involving both reconnaissance and intensive-level surveys, and supplemental reports. During that lengthy and detailed coordination process, TxDOT identified over 1000 properties dating to 1966. Of that total, THC concurred that 24 properties (including historic districts) are listed or eligible to the NRHP in the area of potential effects (APE) of the four build alternatives advanced for further study (see Table 1, page 13):

Landside alignments:
- 2A – Irving/Industrial Blvd. – Elevated
- 2B – Irving/Industrial Blvd. – At Grade

Dallas Floodway alignments:
- 3C – Combined Parkway – Further Modified
- 4B – Split Parkway Riverside -- Modified

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***Section 106 Effects Report, Trinity Parkway* (March 2011):**

In the attached report, the 24 listed and eligible properties are analyzed for potential adverse effects from project activities. The document concludes that alternatives 2A, 2B, and 4B would have **no adverse effect** on historic properties, and that alternative 3C would have an **adverse effect** on one of the eligible resources (see Table 2, page 40).

Please note that this report does not include the Dallas Floodway as a historic resource. A determination of NRHP eligibility for the floodway is still pending per continued assessment by TxDOT and FHWA. Once the eligibility assessment is complete, Section 106 coordination for this resource will be initiated with THC.

Determination of Effects:

The Criteria of Effect and the Criteria of Adverse Effect were applied to the listed and eligible resources within the APE. TxDOT historians have determined that the proposed undertaking will have no adverse effect on the historical associations and architectural features of 23 of the 24 properties identified as historically significant.

As part of the project development process, design refinements for the four build alternatives were examined so as to avoid or minimize harm to historic properties where these alternatives were likely to cause adverse effects. Discussion of these design refinements, or avoidance alternative options, involved staff from FHWA, TxDOT, NTTA and the THC. These options were evaluated in light of engineering constraints, potential safety and operational problems, costs, and potential social and environmental impacts that may result from avoidance of the historic property. The preservation of the historic property was also weighed against the magnitude of potential harm to other resources that would be caused by its avoidance.

On December 15, 2009 a meeting was specifically held for the purpose of identifying viable project routes that avoided adverse effects to various listed and eligible properties. In that meeting, the above-referenced agencies, including THC, concurred with avoidance alternatives for Colonial Hills Historic District, Houston and Corinth viaducts, AT & SF trestle, the former Procter and Gamble facility, 1715 Market, and 1202 and 1212 Industrial Blvd. Due to the difficulty of inserting code-compliant ramps beneath the north approaches of Continental Viaduct, avoidance alternatives for that resource remained under further study following that meeting.

The concurred with avoidance alternatives form the basis for this effects coordination phase of the Section 106 consultation process. Comments about effects for all historic properties are provided below, while avoidance alternatives for selected resources are graphically presented in the report's schematic plans in Appendix A.

NRHP listed or eligible properties	NRHP Status	Distance from Proposed Facility to Hist. Property	Construction Activities	Comments

No. 1 – Colonial Hills Historic District	Listed A, C	2A – 1,000' 2B – 1,000' 3C – 1,000' 4B – 1,000'	All alts. essentially at same distant location from the 130.5-acre district.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. Shifts to the west of original 2A, 2B alignments allow greater distance from the hist. district; eliminates proximity impacts (noise, visual); reduces displacements; decreases impacts to parks, woodlands and wetlands.
No. 2 – Houston St. Viaduct	Listed A, C	2A – above 2B – below 3C – below 4B – below	Elevated 2A crosses viaduct 35 ft. above. At-grade 2B avoids structure. 3C partially fills supports for 3 out of 51 brg. arches for pkwy. main lanes. 4B partially fills supports for 4 out of 51 brg. arches for pkwy. main lanes. 3C, 4B flood sep. wall not phys. connected to brg.	**No adverse effect for all alts.**; no impact to majority of seven aspects of integrity. All alts. avoid direct connectors to 6,562 ft. long viaduct precluding removal of hist. railing. Proposed new Jefferson bridge (reinstated into MTP regional plan) will provide connectors to pkwy. For 2A, 2B the setting in north portion of the viaduct already altered with crossings beneath by Industrial Blvd. and IH 35E. For 3C, 4B minimal number of arches affected by main lanes.
No. 3 – Union Pacific RR Bridge	Eligible C	2A – 1,000' 2B – 1,000' 3C – below 4B – below	3C partially fills 4 out of 31 brg. piers for pkwy. main lanes. 4B partially fills 6 out of 31 brg. piers for pkwy. main lanes. 3C, 4B flood sep. wall not phys. connected to brg.	**No adverse effect for all alts.**; no impact to seven aspects of integrity of the 2,050 ft. long structure.
No. 4 – Corinth St. Viaduct	Eligible A, C	2A – 300' 2B – 300' 3C – below 4B – below	3C partially fills 12 out of 88 brg. piers for pkwy. main lanes. 4B partially fills 12 out of 88 brg. piers for pkwy. main lanes. 3C, 4B flood sep. wall not phys. connected to brg.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. Original schematic design for 3C, 4B with direct connector ramps to the 3,400 ft. long bridge revised to a new T-intersection located 1,000 ft. from viaduct linking Industrial Blvd. and pkwy. and avoiding removal of hist. railing.
No. 5 – AT&SF RR Bridge	Eligible C	2A – 400' 2B – 400' 3C – on ROW 4B – on ROW	2A, 2B on landside of levee. 3C, 4B remove 350' of unused north trestle out of a total of 2,800 ft. long historic structure.	2A, 2B avoid impacts. Alts. 3C, 4B's trestle removal required to build code-compliant T-intersection to avoid Corinth Viaduct. <u>Without</u> trestle removal, pkwy. main lanes and T-intersection ramps would hover above DART brg. and trestle at 70' height with non-compliant slope. This segment of trestle also targeted for removal by USACE's levee improvement project. **No adverse effect for all alts.**; segment to be removed minimally impacts integrity of materials, design or workmanship of the 2,800 ft. long trestle.
No. 6 – MKT RR Bridge	Eligible C	2A – 600' 2B – 600' 3C – 600' 4B – 600'	All alternatives are located on the landside of USACE's proposed levee extension for this portion of the floodway.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. Distance and proposed levee extension shields 205 ft. long bridge from the new pkwy. facility.

No. 7 – Continental Ave. Viaduct	Eligible A, C	2A – 800' 2B – 800' 3C – below 4B – below	3C partially fills 10 out of 74 brg. piers for pkwy. main lanes. At-grade connector ramps to Woodall Rogers fwy. require removal of 195' of hist. brg. approach spans (9.2% of total structure length). 4B partially fills 12 out of 74 brg. piers for pkwy. main lanes. 3C, 4B flood sep. wall not phys. connected to brg.	**2A, 2B no adverse effect,** as they do not impact viaduct due to distance. **4B no adverse effect** as one connector ramp from Woodall fwy. would go over and another under the 2,130 ft. long viaduct. **3C adverse effect**; removal of 195 ft. of the bridge's north approach spans for connector ramps to Woodall Rogers fwy. negatively affects seven aspects of integrity, *although floodway portion of bridge remains visually intact.* 3C's removal of approach spans avoids 24 business displacements and impacts to 36 parcels in the commercial warehouse area. Proposed at-grade connector ramps to Woodall Rogers cannot go under exist. approach spans due to narrow, unsafe dimensions; proposed ramps cannot go over the historic approach spans because they would also need to go over suspension bridge, which is not feasible.
No. 8 – Commerce St. Viaduct	Eligible A, C	2A – 600' 2B – 600' 3C – below 4B – below	3C partially fills 12 out of 66 brg. piers for pkwy. main lanes. 4B partially fills 12 out of 66 brg. piers for pkwy. main lanes. 3C, 4B flood sep. wall not phys. connected to brg.	**No adverse effect for all alts.**; no impact to seven aspects of integrity of the 1,980 ft. long structure.
No. 9 – Pump Station B (Baker)	Eligible C	2A – 434' 2B – 226' 3C – 135' 4B – 135'	2A, 2B on landside of levee; 3C, 4B in floodway.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. 3C and 4B's location within floodway shields the station from pkwy. with levee as visual barrier. Large existing sump area separates station from alts. 2A, 2B.
No. 10 – Former Procter & Gamble Manuf. Facility (3701 S. Lamar St.)	Eligible A, C	2A – Adjacent 2B – Adjacent 3C – Adjacent 4B – Adjacent	All alts. located to SE; 2A, 2B -- 0.22 acre new ROW 3C, 4B -- 1.98 acre new ROW.	No contributing features of the 27-acre site impacted by minimal new ROW taken from its parking lot. Revised SE location for all alts. allows for more distance from Col. Hills Hist. Distr. and no takings of commercial properties along Lamar St.; reduces original taking from property from 4.7 (2A) and 9.8 (2B) acres to negligible 0.22 (2A, 2B), and 1.98 (3C, 4B) acres; reduces impacts to wetlands and park. **No adverse effect for all alts.**; no impact to seven aspects of integrity. Transportation already traditional part of its setting with exist. adjacent RR line.

No. 11 – 1715 Market Center Blvd.	Eligible C	2A – 15-22' 2B – 18' 3C – 1,600' 4B – 1,600'	2A, 2B turn Industrial Blvd. into elevated, at grade structure, respectively	**No adverse effect for all alts.**; no impact to seven aspects of integrity. This formerly displaced property now preserved due to shift in alt. 2A. Proposed ROW further distant than current ROW; 76,500 s.f. property retains on-street parking and at grade relationship with pavement; reduces displacements from 49 to 22; Industrial Blvd. already highly trafficked artery.
No. 12 – 1202 Industrial Blvd.	Eligible C	2A – 33' 2B – 32' 3C – 1,580' 4B – 1,580'	2A, 2B turn Industrial Blvd. into elevated, at grade structure, respectively	**No adverse effect for all alts.**; no impact to seven aspects of integrity. This formerly displaced property now preserved due to shift in alt. 2A. Proposed ROW further distant than current ROW, which retains on-street parking and at grade relationship with pavement; reduces displacements from 49 to 22; Industrial Blvd. already highly trafficked artery. Current ROW almost at building face of the 22,500 s.f. property.
No. 14 – Oak Cliff Box Co. (1212 Industrial Blvd.)	Eligible C	2A – 15' 2B – 30' 3C – 900' 4B – 900'	2A, 2B turn Industrial Blvd. into elevated, at grade structure, respectively. Revised 2A alignment shifted to rear of property.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. This formerly displaced property now preserved due to alt. 2A shift to rear of 10,000 s.f. resource, which also reduces displacements from 11 to 2; Industrial Blvd. already highly trafficked artery. For Alt. 2B, proposed ROW further distant than current ROW.
No. 15 – Corinth St. Underpass	Eligible A, C	2A – 800' 2B – 800' 3C – 1,600' 4B – 1,600'	All alts. at substantial distance from resource.	**No adverse effect for all alts.**; no impact to seven aspects of integrity.
No. 16 – Dealey Plaza Historic District	Listed A, B, C (NHL)	2A – 700' 2B – 700' 3C – 2,400' 4B – 2,400'	All alts. at substantial distance from resource.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. 15-acre district separated from proposed facility by Stemmons Fwy. (IH 35E).
No. 17 – West End Historic District	Listed A, C	2A – 930' 2B – 930' 3C – 2,400' 4B – 2,400'	All alts. at substantial distance from resource.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. 67.5-acre district separated from proposed facility by Stemmons Fwy. (IH 35E).
No. 18 – Lake Cliff Historic District	Listed A, C	2A – 4,000' 2B – 3,500' 3C – 3,000' 4B – 1,000'	All alts. at substantial distance from resource.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. 75-acre district buffered from closest alt. 4B by distance and levee.
CA-2 – Salinas International Freight Bldg. (7138 Envoy Court)	Eligible A, C	2A – 290' 2B – 290' 3C – 3,000' 4B – 3,000'	All alts. at substantial distance from resource.	**No adverse effect for all alts.**; no impact to seven aspects of integrity of the 12,000 s.f. resource.
DT-8 – Terminal Annex Bldg. (207 S. Houston St.)	Eligible C	2A – 1,300' 2B – 1,300' 3C – 2,400' 4B – 2,400'	All alts. at substantial distance from resource.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. 237,500 s.f. resource separated from proposed facility by Stemmons Fwy. (IH 35E).

ES-1 – Atlas Metal Works (818 Singleton Blvd.)	Eligible C	2A – 6,000' 2B – 6,000' 3C – 4,500' 4B – 3,000'	All alts. at substantial distance from resource.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. 25,250 s.f. facility buffered from closest alt. 4B by distance and levee.
IN-47 – Clifton Carpets (959 Dragon)	Eligible A, C	2A – 180' 2B – 180' 3C – 1,600' 4B – 1,600'	2A and 2B one block south of resource.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. 18,400 s.f. resource at sufficient distance from all alts.
MK-2 – Faubion Industries (1000 Forest Ave.)	Eligible B	2A – 160' 2B – 150' 3C – 800' 4B – 800'	2A, 2B located within the not eligible portion of the property.	**No adverse effect for all alts.**; no impact to majority of aspects of integrity. Setting of the 98,100 s.f. facility already compromised due to non-contributing additions to the property. Revised 2A, 2B avoidance alts. take less acreage from Procter and Gamble and more distant from Col. Hills than original designs. 3C, 4B's distance and proposed USACE levee extension shields eligible buildings from the new facility; avoids property entirely.
OC-5A – Apartment Bldg. (911 N. Lancaster).	Eligible C	2A – 3,700' 2B – 3,200' 3C – 2,500' 4B – 1,200'	All alts. at substantial distance from resource.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. 4,000 s.f. resource buffered from closest alt. 4B by distance and levee.
WT-3A – Pavaho Pump Station (613 Canada Drive)+	Eligible A, C	2A – 4,200' 2B – 4,000' 3C – 2,200' 4B – 200'	All alts. at substantial distance from resource.	**No adverse effect for all alts.**; no impact to seven aspects of integrity. 850 s.f. resource buffered from closest alt. 4B by levee.

Effects to Historic Bridges:

Separate from the report, we attach a sectional view of Commerce Street Viaduct that illustrates the parkway's main lane embankments requiring the partial fill of bridge supports in floodway alternatives where those lanes cross beneath the historic viaducts. This sectional view should be considered as typical and applicable to other floodway structures, including the Houston, Continental and Corinth viaducts, as well as the UPRR bridge. Also shown in this view is the 18 ft. tall flood separation wall on the river side of the main lanes.

In general, for all bridges, the proposed partial fill of supports affects only a small number of piers when compared to the large number of supports found in these lengthy structures. On average, after introduction of the main lane embankments, 18 ft. of the 25-30 ft. tall piers of the Corinth, UPRR and Commerce bridges will remain exposed, 14.5 ft. of the 16.5 ft. tall piers of the Houston Viaduct will be exposed, while 30 ft. of the 40 ft. tall piers of the Continental Viaduct will be exposed. The proposed flood separation wall shown in the view is detached from the viaduct supports, thereby minimizing its impact upon the structures. Based on this proposed design, we have determined that the partial fill of supports and the flood separation wall will have **no adverse effect** upon the historic bridges of the Dallas Floodway.

Effects/Mitigation to Continental Viaduct:

We have determined that alternative 3C will have an **adverse effect** upon the north approach spans of the Continental Viaduct, which are slated for removal to insert code-compliant, at-grade connector ramps from Woodall Rogers Freeway to the Trinity Parkway. Please note that this design option was developed to reduce safety concerns, minimize displacements, and provide a balanced approach to the competing needs of multiple transportation and utility projects along the floodway. In order to minimize harm, the new Continental approach spans to be constructed as part of the Trinity Parkway project will be built in a compatible but distinct design from that of the historic bridge. The proposed C-411 open rail is compatible with the existing rail of the viaduct, and it is the same type as that of the future Hampton Road Bridge over the floodway.

In the attached report, a sectional view of the proposed Continental Viaduct approach spans (fold-out page 25) shows the wider spans required for the Woodall Rogers ramps to be located under the structure. Also for your review, we include a separate view of the viaduct illustrating the detached flood separation wall.

Indirect Effects:

Project induced development is not expected to adversely alter the physical appearance of historic properties in the vicinity of Trinity Parkway. No specific reasonably foreseeable development that may be caused by the Trinity Parkway would likely impact Continental Avenue Viaduct. The proposed future rehabilitation of that viaduct is not an effect caused by Trinity Parkway, but rather facilitated by the Woodall Rogers Freeway extension that is currently under construction.

Cumulative Impacts:

The rehabilitation of the Continental Viaduct as a pedestrian-only structure by the City of Dallas is a reasonably foreseeable action impacting this historic structure. Such an action should not adversely affect the viaduct, as its conversion to pedestrian use is compatible with established preservation standards. The rehabilitation would also not contribute to any cumulative impacts on other historic bridges along the Dallas Floodway.

Other reasonably foreseeable actions impacting historic bridges in the Dallas Floodway include the following:

a). City of Dallas Balanced Vision Plan/USACE Dallas Floodway Improvements:
Approved by the City of Dallas in 2004, but still under evaluation, the plan calls for the removal of portions of the AT & SF trestle to improve hydraulic conveyance in the floodway.

b). Dallas Floodway Extension:
The project will lengthen the Dallas Floodway downriver with the addition of new levees south of the existing levees, thereby extending flood protection to another segment of the city. The project will not affect any of the floodway's historic bridges.

c). Santa Fe Trestle Hike and Bike Trail
A TxDOT enhancement project sponsored by the City of Dallas, the 1.2-mile trail crosses the floodway along the decommissioned AT & SF bridge. In previous consultation with THC, removal of a small portion of the trestle for the trail was determined to have no adverse effect.

Conclusion:

Landside alignments 2A and 2B, and floodway alignment 4B will have **no adverse effect** upon historic properties. Floodway alignment 3C impacts the north approach spans of the historic Continental Viaduct to introduce at-grade connector ramps, but considerably reduces the number of commercial displacements and does not call for design exceptions. While the proposed alignment constitutes an **adverse effect** to the viaduct, *the main portion of the historic bridge traversing the floodway between the levees will remain intact as a visual unit that will still be able to convey its historic and engineering significance.* The new approach spans will be built in a compatible but distinct design from that of the historic structure.

We request your written concurrence with these determinations of effects within 20 days of receiving this letter. If you have any questions or comments concerning these determinations, please call me at 416-2770.

Sincerely,

Mario L. Sanchez, Ph.D., R.A.
Historical Architect
Environmental Affairs Division

Attachments

cc. Halff Associates, Jason Diamond
NTTA, Elizabeth Mow
FHWA, Theresa Claxton
USACE, Joseph Murphey
HNTB, Kelly Johnson
Preservation Dallas, Katherine Seale
Dallas CLG, Mark Doty
Dallas Co. Historical Commission, Ann Spillman
Ecomm Corp., Tom Eisenhour
Ecomm Corp., Kurt Korfmacher

TEXAS HISTORICAL COMMISSION
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June 7, 2011

Mario L. Sanchez
Historical Architect, Environmental Affairs
Texas Department of Transportation
125 E. 11th Street
Austin, Texas 78701

Re: Project review under Section 106 of the National Historic Preservation Act of 1966, Trinity River Parkway Corridor Effects Report, Dallas County (FHWA)
TxDOT CSJ # 0918-45-121; 0918-45-122

Dear Dr. Sanchez:

Thank you for the information provided in your May 31, 2011 letter. This letter serves as a comment from the State Historic Preservation Officer (SHPO), the Executive Director of the Texas Historical Commission (THC).

Based on the information you have provided, we concur with your determination that the project poses an adverse effect to the Continental Viaduct (resource #7) and that the project poses no adverse effect to the following resources:
Resource #1, Colonial Hills Historic District
Resource #2, Houston Street Viaduct
Resource #3, Union Pacific Railroad Bridge
Resource #4, Corinth Street Viaduct
Resource #6, MKT Railroad Bridge
Resource #8, Commerce Street Viaduct
Resource #9, Pump Station B (Baker)
Resource #10, Former Procter & Gamble Manufacturing Facility (3701 S. Lamar Street)
Resource #15, Corinth Street Underpass
Resource #16, Dealey Plaza Historic District
Resource #17, West End Historic District
Resource #18, Lake Cliff Historic District
Resource CA-2, Salinas International Freight Building (7138 Envoy Court)
Resource DT-8, Terminal Annex Building (207 S. Houston Street)
Resource ES-1, Atlas Metal Works (818 Singleton Boulevard)
Resource IN-47, Clifton Carpets (959 Dragon)
Resource MK-2, Faubion Industries (1000 Forest Avenue)
Resource OC-5A, Apartment Building (911 N. Lancaster)
Resource WT-3A, Pavaho Pump Station (613 Canada Drive)

RICK PERRY, GOVERNOR • JON T. HANSEN, CHAIRMAN • MARK WOLFE, EXECUTIVE DIRECTOR
P.O. BOX 12276 • AUSTIN, TEXAS • 78711-2276 • P 512.463.6100 • F 512.475.4872 • TDD 1.800.735.2989 • www.thc.state.tx.us

Your letter states that the December 15, 2009 meeting discussed the avoidance of adverse effects to historic properties and the agencies agreed upon the avoidance alternatives. We note that the December 2009 meeting was specifically focused on the avoidance of direct effects to historic properties, not indirect or cumulative effects. Based on the information that you have provided in this report, we are concerned regarding the potential for indirect visual effects for resources 11, 12, and 14 and we request additional information before we can concur with your determination of effects to those properties.

For resources 11 (1715 Market Center Boulevard) and 12 (1202 N. Riverfront Boulevard), we note that alternative 2A will be elevated in close proximity to these buildings. We certainly appreciate the efforts to minimize adverse effects by moving the right-of-way away from these buildings for this alternative and allowing the retention of a parking lane. However, while the figures in the report clearly identify the distance of the proposed right-of-way and elevated section of roadway from the buildings, the heights of the buildings and roadway are not included. These heights, as well as additional graphic information (renderings that include the resources and the elevated roadway, for example) will assist THC staff in evaluating your determination.

Likewise, resource 14 (Oak Cliff Box Company Office Building) has an elevated alternative 2A in proximity to the rear (north) elevation of the building. Again, the figure in the report indicates distance between the proposed elevated roadway, right-of-way and building face, but does not indicate building or roadway height. Neither do we have photographs of this elevation of the building, as it faces away from the current roadway; we therefore request photos of the north façade of the building. Alternative 2B remains along the current alignment of Riverfront Boulevard and while it has no direct effect to resource 14, it requires the removal of several buildings in the immediate vicinity of the National Register-eligible resource. As such, it changes the character of the setting of the building and isolates it along a large roadway corridor. We suggest that alternative 2B therefore poses an indirect, visual adverse effect to resource 14 (adverse effect to setting, feeling and association).

We are also concerned regarding direct effects to resource 5, the Atchison, Topeka, and Santa Fe (AT&SF) Bridge, and request additional information for that resource, as alternatives 3C and 4B require the removal of 350 feet of wood trestle of the bridge. In our December 15, 2009 meeting, THC staff indicated that a determination of no adverse effect "may be possible ...but a very strong argument may be needed." A strong argument in favor of a "no adverse effect" determination should include more supporting information. The report does not include any description or documentation of the section of trestle that will need to be removed (for example, does this section include the concrete firewall?). As suggested in the December 2009 meeting, one argument for "no adverse effect" argument might be that there is an existing "disconnect in the relationship between the resource and the space surrounding it due to the influence of the newer DART bridge located adjacent and parallel to the AT&SF railroad bridge." Another suggestion from that meeting was that a comparison between the overall length of the bridge and the portion that will be removed might identify that a relatively small percentage of the trestle is proposed for removal (at the time of the December 2009 meeting, 200 feet, rather than 350, were proposed for removal).

Regarding proposed mitigation for the Continental Viaduct, we suggest that the approach spans include a railing that replicates the existing railing, instead of using the C-411; because this bridge will be converted to pedestrian use, there is no obligation to install a crash-tested roadway railing. We also request THC review of the design of the replacement spans as it develops. Because the adverse effect to this resource may result in its loss of eligibility for listing in the National Register, particularly considering the cumulative effects to this resource, we also suggest that appropriate mitigation would include the preparation of a National Register nomination for one of the other historic bridges in the project corridor, such as the Corinth Street viaduct.

In anticipation of mitigation for indirect adverse effects to some of the other resources, the preparation of National Register nominations may also be an appropriate mitigation alternative. TxDOT has undertaken similar mitigation on other projects with indirect adverse effects and it would not be outside the scope of this project to do the same.

Thank you for your consideration of our comments. We look forward to working with your office regarding the resolution of our concerns and completion of coordination. If you have any questions concerning this review or if we can be of further assistance, please contact Adrienne Campbell at 512/936-7403.We understand that you are also seeking comments from the Historic Bridge Foundation regarding adverse effects to Continental Viaduct. Please consider the comments of your consulting party in this process and inform us as you work with that organization. In addition, we understand that Federal Highway Administration (FHWA) has yet to rule on whether this project is exempt from Section 4(f) review under Section 405(b) of the Supplemental Appropriations Act of 2010. Please inform us when that agency makes a formal determination. Finally, we understand that FHWA will conduct Section 106 coordination with THC regarding determinations of eligibility and effect for the Dallas Floodway; we look forward to working with that agency once they initiate coordination.

Sincerely,

Mark Wolfe

Mark Wolfe
State Historic Preservation Officer

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

July 12, 2011

SECTION 106 – CONTINUATION OF DETERMINATION OF EFFECTS

Dallas County: CSJs # 0918-45-121; 0918-45-122
Trinity River Parkway Corridor

RECEIVED
JUL 12 2011
History Programs Division

Ms. Adrienne Campbell
History Division
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

Dear Ms. Campbell:

In accordance with 36 CFR 800 and the Programmatic Agreement (PA) between the Texas Department of Transportation (TxDOT), the Federal Highway Administration (FHWA), the Advisory Council on Historic Preservation, and the Texas Historical Commission (THC), this letter *continues* Section 106 consultation for the above referenced project. We hereby present the additional information requested in your letter dated June 7, 2011 to clarify potential effects to several properties determined eligible to the National Register of Historic Places (NRHP).

Recent THC/TxDOT correspondence:

In its May 31, 2011 correspondence addressed to THC, TxDOT determined that landside alignments 2A and 2B and floodway alignment 4B of the Trinity Parkway project would have no adverse effect to historic properties. Floodway alignment 3C was determined to have an adverse effect on the Continental Avenue Viaduct due to the removal of its north approach spans required to incorporate parkway connector ramps.

Also in that correspondence, we noted that a determination of the Dallas Floodway as a historic resource remains outstanding per continued evaluation by TxDOT and FHWA. Once the eligibility assessment is complete, Section 106 coordination for this resource will be initiated with THC.

Your response on June 7, 2011 determined that the project would have no adverse effect upon 19 of the 24 NRHP eligible and listed properties identified by TxDOT for possible effects from project activities. Additional information was requested by THC for the five remaining resources: 1715 Market Center; 1202 and 1212 Industrial Blvd.; AT & ST Trestle; and the Continental Avenue Viaduct.

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Additional Information Requested by THC:

Below please find the requested information for the five outstanding properties:

Resources #11and #12 – 1715 Market Center Blvd. and 1202 Industrial Blvd.:

To better evaluate our determination of no adverse effect upon these two resources for alternative 2A, we provide a new image that more accurately represents the proposed elevated facility. The image illustrates the approx. 20' height of the one-story warehouse buildings at 1715 Market Center and 1202 Industrial as they relate to the elevated highway structure, which is approx. 22'-24' in height. Please note the horizontal distance between the faces of the buildings and the elevated highway, which allows room for a grassy median and parking lane along the sides of Industrial Blvd. located below the proposed facility.

As observed in our May 31st letter, the revised shift in alternative 2A from its original alignment reduced the number of displacements from 49 to 22, and preserved resources 11 and 12. We also include the sectional views from our previous correspondence as a reminder that the horizontal distance between the elevated alternative and the buildings' faces is greater under 2A than it is from the current Industrial Blvd. We reiterate our determination that the project will have **no adverse effect** upon these two resources.

Resource #14 – 1212 Industrial Blvd.:

In regard to your request for a rear photo of the building to better evaluate effects under elevated alternative 2A, we attach photos showing a dense grove of trees, which obscures what is likely to be a utilitarian elevation that is not contributing to the resource's eligibility under Criterion C. Due to a design shift that relocates 2A to the rear of the property, the historic building is preserved from demolition; displacements are reduced from 11 to 2; and the alignment is placed along a non-distinctive sump, or drainage area clearly depicted in the photos and sectional view.

In regard to your observation about a possible indirect visual adverse effect to this resource as a result of at-grade alternative 2B, we note that the property's current ad hoc setting is not a defining or contributing feature to its NRHP eligibility under Criterion C. As shown in the attached aerial photos, that setting is characterized by large vacant lots, parking lots and non-descript warehouse-type resources. To its rear and side, the large Alford warehouse complex was recently demolished leaving an enormous vacant lot that contributes to a significant change in setting (see before and after photos).

Alternative 2B will not impact the resource's integrity of location, design, materials, or workmanship, which are paramount for Criterion C eligibility, and it will not be detrimental to the building's integrity of setting, feeling or association. The grouping of structures adjacent to the resource on its side of the road will remain under alternative 2B, providing it with similar surroundings to the current ones. As such, we reiterate our determination that the project will have **no adverse effect** upon this resource.

Resource #5 – AT & SF Railroad Trestle:

As stated in our letter of May 31st, 350 ft., or 12% of the 2,800 ft.-long trestle, will be removed under alternatives 3C and 4B to incorporate the Trinity Parkway travel lanes. No portion of the trestle would be removed for alternatives 2A and 2B. The segment slated for removal is limited to the wooden portion, and not the steel or concrete segments.

Without the proposed removal, the Trinity main lanes would hover over the trestle and the adjacent DART bridge at a height of 70 ft. with a non-compliant slope. Also, without removal of the trestle segment, the proposed T-intersection for avoidance of the Corinth Street Viaduct would not be code compliant.

Attached please find a set of photos showing the location of where the trestle is to be removed and the Trinity main lanes are to be constructed. Given the small amount of structure to be removed, we determine that the proposed work will have **no adverse effect** on the integrity of the trestle's materials, design, workmanship or location, and that the trestle's abandonment, and its immediate proximity to the much taller DART bridge considerably detract from its setting and feeling.

Resource #7 – Continental Ave. Viaduct:

TxDOT acknowledges it previous determination that alternative 3C will have an **adverse effect** with the removal of the 195 ft.-long north approach spans of the 2,130 ft.-long Continental Viaduct. The removal is necessary to insert code-compliant, at-grade connector ramps extending from Woodall Rogers Freeway to the Trinity Parkway. This design option was developed to reduce safety concerns, minimize displacements, and provide a balanced approach to the competing needs of multiple transportation and utility projects along the floodway without design exceptions. While the proposed 3C alignment constitutes an adverse effect to the viaduct, *the main portion of the historic bridge traversing the floodway between the levees will remain intact as a visual unit that will still be able to convey its historic and engineering significance.*

Since replacement and re-design of the north approach spans would only be required if 3C is selected as the preferred alternative, TxDOT hereby *defers* development of mitigation plans for this adverse effect until an alternative is selected during the Final Environmental Impact Statement phase of the project. *At that time, if alternative 3C is selected, TxDOT will consult with THC regarding the design of the new approach spans and their compatibility with the existing historic structure.*

Conclusion:

Specifically, in response to your correspondence of June 7, 2011, we determine that the project will have **no adverse effect** upon resources 5, 11, 12 and 14. As a result, landside alignments 2A and 2B, and floodway alignment 4B will have **no adverse effect** upon historic properties.

Floodway alignment 3C impacts the north approach spans of the Continental Viaduct and will have an **adverse effect** upon this historic structure. TxDOT will continue consultation with THC to mitigate this adverse effect if 3C is selected as the preferred alternative for Trinity Parkway.

We request your written concurrence with these determinations of effects within 20 days of receiving this letter. If you have any questions or comments concerning these determinations, please call me at 416-2770.

Sincerely,

Mario L. Sanchez, Ph.D., R.A.
Historical Architect
Environmental Affairs Division

Attachments

CONCUR
Trinity River Parkway Corridor
(CSJs -- 0918-45-121; 0918-45-122)

Alternatives 2A, 2B, 4C:
NO ADVERSE EFFECT TO HISTORIC PROPERTIES

Alternative 3C:
ADVERSE EFFECT TO CONTINENTAL AVENUE VIADUCT/
CONTINUED CONSULTATION WITH THC IF ALT. 3C IS SELECTED

Name: Mark Wolfe Date: 7/21/11
State Historic Preservation Officer

cc. Halff Associates, Jason Diamond
NTTA, Elizabeth Mow
FHWA, Theresa Claxton
USACE, Joseph Murphey
HNTB, Dan Chapman
Preservation Dallas, Katherine Seale
Dallas CLG, Mark Doty
Dallas Co. Historical Commission, Ann Spillman
Ecomm Corp., Tom Eisenhour, Kurt Korfmacher
Historic Bridge Foundation, Kitty Henderson

U.S. Department
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November 29, 2011

In Reply Refer To:
HA-TX

Ms. Adrienne Campbell
History Division
Texas Historical Commission
P.O. Box 12276
Austin, Texas 78711

SECTION 106: DETERMINATION OF ELIGIBILITY -- DALLAS FLOODWAY
Trinity Parkway Project: from IH 35-E/SH 183 to US 175/SH 310 in Dallas County, Texas
Control Section Job 0918-45-121

Dear Ms. Campbell:

In accordance with 36 CFR 800, we are continuing consultation for the above-referenced, project, which constitutes a federal undertaking requiring interstate access approval from the Federal Highway Administration (FHWA). The purpose of this correspondence is to request agency review regarding the eligibility of the Dallas Floodway for listing in the National Register of Historic Places (NRHP).

PREVIOUS COORDINATION:

Section 106 eligibility and effects consultation for additional resources within the proposed project's area of potential effects was completed in previous separate consultation between the Texas Department of Transportation (TxDOT) and the Texas Historical Commission (THC). In a letter dated July 12, 2011, TxDOT determined that Alternatives 2A, 2B and 4B would have no adverse effect on historic properties, and that Alternative 3C, if selected, would have an adverse effect on the Continental Viaduct. THC concurred with those determinations on July 21, 2011.

In its July 12, 2011, correspondence, TxDOT noted that a determination of eligibility on the Dallas Floodway remained outstanding per further evaluation by TxDOT and FHWA. TxDOT had originally made a determination that the floodway was not eligible as a historic district in its letter dated October 26, 2009, based on the findings in the *Non-Archeological Historic-Age Reconnaissance Survey Report, Trinity Parkway (October 2009).* In its response dated November 12, 2009, your agency indicated that the floodway could be eligible as a historic district at the local level of significance, but that additional information was needed regarding the integrity of floodway resources before making a final determination.

Since that time, based on careful examination of data submitted by the US Army Corps of Engineers (USACE), together with information provided by the City of Dallas Flood Control District, and in conjunction with previous field work and findings associated with the Trinity Parkway Project, FHWA can now reaffirm that the Dallas Floodway is **not eligible** to the NRHP. An accumulation of alterations, modifications, and additions affecting the majority of floodway components associated with water control and drainage result in an overall diminished integrity for these resources to sufficiently convey significance under any NRHP criteria.

THE DALLAS FLOODWAY:

The Dallas Floodway is located along the Trinity River in Dallas, Texas. The floodway extends roughly to Loop 12 at Elm Fork to the north, IH 30 at West Fork to the west, and the AT&SF Railroad crossing over the Trinity River to the south. The Trinity River and the floodway bisect the city of Dallas (see attached location map). Historical information, period of significance, floodway component descriptions, and historical significance discussed below are based on information provided by the USACE in unpublished reports and previous TxDOT-led studies, including:

--*Non-Archeological Historic-Age Reconnaissance Survey Report, Trinity Parkway (TxDOT, October 2009)*
--*The Dallas Trinity River Reclamation Project: An Exploratory Study of Historic Significance, Integrity and Potential National Register Eligibility for the USACE Comprehensive Analysis Environmental Impact Statement (USACE, October 7, 2009)*
--*Intensive Engineering and Architectural Inventory of the Dallas Floodway, Dallas, Texas (USACE, January, 2010)*
--*Intensive Engineering and Architectural Inventory of the Dallas Floodway, Dallas, Texas (USACE, May 3, 2010)*
--*Intensive-Level Investigations in support of Proposed Trinity Parkway Project, Dallas, Dallas County, Texas (TxDOT, June 3, 2010)*
-- *Intensive Engineering Inventory of the Dallas Floodway, Dallas, Texas (USACE, August, 2010)*

Property Type Evaluation

Based on numerous exchanges between TxDOT, FHWA and the USACE pertaining to the above-referenced reports, agreement was reached that an evaluation as an engineering structure was the most appropriate property type for assessing the floodway for eligibility to the NRHP.

To qualify for eligibility as an historic district, the resource must meet the NRHP definition of possessing "a significant concentration, linkage, or continuity of sites, buildings, structures or objects united historically or aesthetically by plan or physical development".[1] A cultural landscape is "a geographic area, including both cultural and natural resources and the wildlife or domestic animals therein, associated with a historic event, activity, or person or exhibiting other cultural or aesthetic values" and may be one or more of four possible general types: historic

[1] National Park Service, *How to Apply the National Register Criteria for Evaluation* (Washington, D.C.: National Park Service, 1997) 15.

sites, historic designed landscapes, historic vernacular landscapes, and ethnographic landscapes.[2] The brief continues to state that "historic landscapes include residential gardens and community parks, scenic highways, rural communities, institutional grounds, cemeteries, battlefields and zoological gardens that are composed of a number of character-defining features which, individually or collectively contribute to the landscape's physical appearance as they have evolved over time. In addition to vegetation and topography, cultural landscapes may include water features, such as ponds, streams, and fountains; circulation features, such as roads, paths, steps, and walls; buildings; and furnishings, including fences, benches, lights and sculptural objects, as well as views, spatial organization, and natural systems."[3]

While conceptually the Dallas Floodway was intended to convey a united vision or plan (historic designed landscape) or could have represented the evolution of a built landscape over time (historic vernacular landscape), this vision was never fully achieved and the resource today does not represent a manifestation of a wide variety of resource types linked through a plan or development. As the original vision for the floodway as an integrated community resource and engineering feature did not materialize, it cannot be recommended for eligibility as an historic district or cultural landscape.

In evaluating the floodway as an engineering structure, the entire system is viewed as a single, interconnected entity composed of above- and below-ground components working collectively as a "flood control machine" (USACE, August 2010, p. 3-9). Evaluation as a structure would also allow research efforts to concentrate solely on the water drainage components of the floodway system.

Period of Significance

The period of significance (POS) for the floodway begins at the start of its construction in 1928. By 1932, the essential components of the floodway – the levees, overbank, channelized river, and pump stations – were built with city bond monies to contain the waters of the Trinity. In 1945, under an act of the US Congress, the USACE became involved in construction activities to strengthen the floodway by substantially adding, repairing and modifying its components. Initiated in 1953, the second construction phase was finished in 1959, thus closing the POS.

Historic Context

Founded by John Neely Bryan in 1841 and platted by J.P. Dumas in 1844, the city of Dallas was susceptible to flooding by the Trinity River. In 1908, a massive flood hit the city, widening the river to an estimated 2-mile width and causing $2.5 million in damage.

In 1910, the city enlisted the help of George E. Kessler to create a plan for a flood control levee system, but its implementation was interrupted by World War I. After the war, the city requested that Kessler revise his plan to widen and raise the height of the proposed levees. The plan also included creation of two parkways, purchase of five municipal parks, and construction of boulevards. In 1925, the Ulrickson Committee finalized Kessler's plan, and the Joint Plan of Reclamation was updated again in 1928 adding storm sewer systems, water works, and traffic

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[2]Charles Birnbaum, Preservation Bulletin 36, *Protecting Cultural Landscapes: Planning, Treatment, and Management of Historic Landscapes*, (Washington, D.C., National Park Service, 1994).
[3] Ibid.

ways, and solidifying the levee system to control flooding in 10,500 acres along the Trinity River.

Construction of the 26-mile floodway began in 1928. The confluence of the Trinity River was moved three and a half miles west of its original location and the Trinity River channel was straightened. Approximately 15 miles of new river channels were excavated. The floodway and overbanks were intended to be unobstructed, open spaces in order to carry floodwaters.

Two parallel levees totaling 24.6 miles ran alongside the main channel. The East and West Levees, together with their tie-backs, were 11.9 and 10.9 miles in length, respectively, while the Northwest Levee was 2.8 miles in length. The levees were an average height of 26 feet, 156 feet wide at the base, and six feet wide at the crown. The levee's infrastructure included four pump stations, five sluiceways, and three pressure sewers. The levees were originally to be a 3:1 slope but in 1931, in an effort to save costs, the Joint Plan of Reclamation was amended and the levees were changed to 2.5:1, and in some places, 2:1.

In 1946, the Dallas County Flood Control District was established to protect state resources and control the maintenance of the levees. Based on an act of Congress, the USACE was also charged with repairing and reconstructing the floodway. The 1949 flood of the Trinity River led Congress to commission a new USACE District in Fort Worth that would control all levee projects in Dallas and Fort Worth. The district produced six project reports detailing plans to strengthen components of the Dallas Floodway.

Construction of the USACE's Dallas Floodway project began in 1953 and ended in 1959. The project included building three new pump stations, three new gate controlled culverts, and two new pressure sewers. Between Belleview Pressure Sewer and the Cadiz Street Viaduct, the river channel was moved 100 feet to the west of its original path. Additional fill was placed on the river side to change the slope of and enlarge the East and West Levees. USACE increased the average levee height to 28 feet, extended the crown to 16 feet wide and its side slopes to 3:1, and moved their centerline by as much as 44 feet in some segments. The additional fill on the riverside reduced the width of the floodway by 30 feet.

In the post-war era, the city's land mass had increased to ninety square miles by 1960, reflecting a residential and commercial construction boom. The flood control undertaking allowed for hundreds of acres of new development along the Trinity River in an area known as the Hydraulic Fill Area, which became known as the Trinity Industrial District. When the Dallas County Flood District expired in 1968, the city of Dallas and Irving took control of the Dallas Floodway responsibilities. The USACE retains its oversight and inspections of the entire length of the floodway. Additional pumping plants, outlet gate structures, pressure sewers, and sluices were constructed between 1970 and 2000 together with levee and main river channel modifications in the 1990s.

Dallas Floodway Essential Physical Features

Per NRHP Bulletin #15, "essential physical features are those features that define both why a property is significant (Applicable Criteria and Areas of Significance) and when it was

significant (Periods of Significance)."[4] The Dallas Floodway consists of four essential physical features: 1) Levees, 2) Diversion channels, 3) Overbank, and 4) Structures. The four essential physical features function in unity within the larger flood control system. Without any one of the features of this four-part system, the floodway could not function as a flood control system. A brief description of the four essential physical features is provided below, with additional discussion following in the character-defining features section:

--Levees are battered, manmade earthen embankments forming the outer walls of the overbank area to contain floodwater within the floodway.

--Diversion channels are manmade dredged channels designed to carry redirected water to the new, channelized Trinity River, as well as from storm water outfalls, the original river bed, and other diversion channels within the interior drainage system.

--Overbank is the area of land between the levees throughout the floodway. The outer areas of the overbank contain outlet gates and outspill structures associated with pumping plants and pressure sewers.

--Structures associated with the floodway assist in flood control and include pumping plants, outlet gates structures, pressure sewers, sluices, intakes, culverts, sumps, and emergency control structures.

Character-defining Features within Essential Physical Features

The four essential physical features also contain character-defining features to assist in flood control (see attached map for location of these features):

Levees

The levees encompass four separate levee systems: East Levee, West Levee, Northwest Levee, and tie backs. The East and West levees each extend 12 miles along the floodway in a general west-to-northwest downstream direction parallel to the Trinity River diversion channel. To the north, the two levees split into the 2.8-mile long Northwest Levee and East and West Tie Back Levees.

The distinguishing features of the levees include their height, width, and trapezoidal profile. The levees are approximately 28 feet above the overbank and consist of a 16-foot crown at the top of the levee and a 3:1 slope for the side walls, flattening to a 3.5:1 slope on the land side in some areas. Earthen ramps are also built into the levee walls providing vehicular access to and from roadways on the land and river sides.

Diversion Channels

The diversion channels consist of the main, channelized Trinity River, 15 miles of secondary diversion channels, and two miles of auxiliary channels:

[4] National Park Service, *How to Apply the National Register Criteria for Evaluation* (Washington, D.C.: National Park Service, 1997) 46.

--Trinity River diversion channel is the seven-mile-long relocated channel of the Trinity River. It is a manmade dredged channel with stone rip rap and vegetation lining the banks, and extends down the center of the floodway between the levees in a northwest-to-southeast direction.

--West Fork and Elm Fork diversion channels are two secondary waterways along the West Tie Back and East Tie Back levees, respectively.

--Old West and Elm Fork Channels and the Old Trinity River Channel are outside of the levees and floodway and are no longer essential to the function of the floodway.

Overbank
The overbank contains the main Trinity River diversion channel and measures approximately 2,000 to 3,000 feet between the levee toes. The overbank encompasses the area between the West Fork Diversion Channel and the West Tie Back Levee, and the land between the East Tie Back Levee and the Northwest Levee at either side of the Elm Fork Diversion Channel channels. It is a wide, flat, undeveloped stretch of land with riparian areas and wetland depressions. Tree growth is dispersed throughout the overbank.

The overbank also contains a myriad of modern intrusions, including 20-acre Trammell Crow Lake Park (containing a lake, sports fields, and a boat ramp), extensive overhead electric lines mounted on large metal towers in the area just north of Continental bridge and extending south on the southwest side of the overbank to the AT&SF bridge, and overhead electric lines crossing the West Tie Back Levee and East Levee. While not maintained by the City of Dallas, the 220-acre Trinity View Park and the 330-acre Trinity Wells Park and Golf Course spill into the floodway area.

Structures
The multitude of structures include pumping plants, outlet gate structures, pressure sewers, intakes, sluices, culverts, sumps, and emergency control structures, a number of which were built before 1960 during the period of significance. All of these structures – both above and below ground – are integral to the flood control system. They function contiguously to make the overall flood control structure manageable and keep dry the reclaimed and other adjacent lands by transferring water from the landside of the levees to the diversion channel within the overbank.

--Pumping plants are facilities that contain the pumps necessary for moving water from one location to another. The pumps operate over a discharge chamber, which diverts the water from the plant into the overbank area through an underground sluiceway that leads to the outlet gate structures. They are located adjacent to the levees on the land side.

--Outlet gate structures are outspill structures that carry storm water from the pressure sewers and pumping plant facilities out to the channelized river to avoid flooding. The tall concrete towers housing gate hoists are located on the inside of the overbank on the river side of the levees.

--Pressure sewers are systems of pipes that carry storm water runoff to higher elevations, or in the case of the Trinity River, to the diversion channel. They are located on both the river and land sides of the levees. The concrete structures house reinforced metal pipes to handle the water flow between the riverside and landside of the levees.

--Intake structures are large, grated concrete openings where water enters into the floodway's system of sluiceways and culverts. They are associated with the larger pumping plants and pressure sewers and are located in the watershed.

--Sluices are gravity-controlled and, along with the culverts, they are concrete water channels controlled by a gate utilized to direct water levels. They are located on the outer edges of the East and West Levees.

--Sumps (totaling 373, according to a 1969 report) are drainage ditches that collect local storm water runoff and discharge it into culverts throughout the floodway system. They are located near the levees and often adjacent to pumping plants on the landside.

--Emergency control structures are concrete bulkheads that allow for the closure, if necessary, of two sanitary sewer lines that cross the East Levee in the event of excessive leakage or failure during periods of high water.

Statement of Significance

Criterion A

The Dallas Floodway demonstrates significance at the local level under NRHP Criterion A: Community Planning and Development, for its contribution to the physical growth and development of the City of Dallas. Its function as a flood control system facilitated the city's planning efforts, allowing residential and industrial growth along the Trinity River.

The floodway had two phases of development during its 1928-1959 period of significance. The first phase was the initial construction of the floodway between 1928 and 1932 that was partly based on Kessler's plan, plus the two Joint Plans of Reclamation of 1928 and 1931. The second phase was USACE's program between 1953 and 1959 that repaired, modified, strengthened and partly re-aligned the levee system and added new pumping plants and pressure sewers. This latter phase allowed development of reclaimed lands during the 1940s and 1950s, including commercial development in the Trinity Industrial District, and commercial and residential development in West Dallas. (In a separate survey report forwarded by TxDOT to THC in a letter dated June 16, 2010, the Trinity Industrial District was determined to be not eligible to the NRHP under Criteria A, B, or C. THC concurred with those findings on July 6, 2010).

While the floodway contributed to the city's development, it has undergone numerous alterations and modifications since the closing of its period of significance in 1959, thus impairing its associative significance under Criterion A. As a result of these major modifications, the floodway no longer retains integrity of design, setting, workmanship, materials, or association and feeling. (See integrity discussion in the section below: "Factors Compromising Integrity of the Dallas Floodway").

Criterion B

The Dallas Floodway is not significant under Criterion B because it lacks sufficient integrity of association with significant historical figures. Several individuals who made important contributions to the history of Dallas were involved in the Dallas Floodway project, but they did not gain importance within their professional areas due to the project:

--George Dealey championed the reclamation of the Trinity River for development, but his significance is better understood as publisher of *The Dallas Morning News* and crusader of redevelopment in an area in downtown Dallas.

--George E. Kessler developed a plan for the Dallas Floodway, but his significance in city planning and landscape design is not specifically connected to this plan, which was never fully implemented as Kessler originally envisioned.

--Leslie Stemmons was creator and supervisor of the City and County of Dallas Levee Improvement District which developed the Joint Plan of Reclamation. He acted, however, in conjunction with the multitude of additional agencies and organizations involved in the floodway project and his role did not significantly influence the design, engineering, or implementation of the floodway project. He is more known for his significant contributions as a business leader and real estate developer in Dallas.

--John Stemmons, son of Leslie Stemmons, assisted in creating the Dallas County Flood Control District, which operated and maintained the Dallas Floodway between 1945 and 1968, ending ten years after the period of significance for the floodway. Stemmons' historical significance is more appropriately conveyed through his role as president of the Industrial Properties Corporation that developed the Trinity Industrial District. Consequently, his most significant achievements in community development are not illustrated by the floodway.

Criterion C

Diminished integrity of materials, workmanship, setting, and design compromise the floodway's ability to convey its engineering significance. The floodway is also not "exceptionally innovative in terms of engineering" (USACE, Aug. 2010, p. 5-68), nor is it a precedent-setting flood control project, as it does not employ unique or distinctive design elements, materials, equipment or innovative technology. Per the recognition of the 1932 floodway components by the Texas section of the American Society of Civil Engineers, the floodway "did not incorporate any truly innovative civil engineering design."[5] The Miami River flood control project in Dayton, Ohio was a precedent-setting project constructed between 1918 and 1922, and at the time was the largest public works project in the world.[6]

<u>Factors Supporting Compromised Integrity of the Dallas Floodway</u>

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[5] American Society of Civil Engineers, *National Historic Civil Engineering Landmark Nomination Form*, p. 3.

[6] "The History of MCD: Construction." <http://www.miamiconservancy.org/about/construction.asp> Accessed 13 January 2011.

As illustrated below, modifications, improvements, and modern intrusions into the Dallas Floodway since the closing of its period of significance in 1959 are neither inconsequential nor negligible. The combined effects of these alterations to its engineering components compromise the integrity of the floodway as a whole, thereby diminishing its aspects of design, setting, materials, workmanship, feeling and association.

The fact that the floodway still denotes function is not sufficient for establishing its eligibility to the NRHP. Its evaluation as a single engineering structure with a set of interrelated components requires that all of its essential physical features evidence their historical integrity. Lack of integrity in any one of those essential features that serve as the foundation for the floodway's operation – levees, overbank, diversions channels, or structures – affects integrity of the unified flood control system.

FHWA and TxDOT note that the extensive collection of underground floodway components (culverts, sluices, pressure sewers etc.) were un-assessed by the USACE due to lack of visibility. The USACE acknowledged that the Dallas Floodway is "one continuous entity that includes all of its underground and above ground components as one engineering system working in concert," (USACE, August 2010, p. 5-66), and that "levees, pumping plants and pressure sewers are the engineering components that make it work in unity" (USACE, August 2010, p. 3-9). As discussed in NRHP Bulletin #15, the essential physical features of eligible properties must not only be retained, but must also be "visible enough to convey their significance." If significant features are concealed under modern construction -- as are those in the Dallas Floodway – a property's integrity is "questionable."[7]

While the length and breadth of improvements to the floodway's underground features cannot be fully ascertained, USACE reports acknowledge their continued upgrades by the City of Dallas Flood Control District, including "improvements [that] primarily took place underground, within, or underneath the pumping plant complexes" (USACE, August 2010, p. 5-29). Since these buried components are part of the floodway's operational system, their repeated improvements and upgrades renders questionable the integrity of a significant and integral portion of the flood control structure and, thereby, its ability to convey significance.

Below is a list of modifications and alterations affecting the integrity of the Dallas Floodway:

1. Location
    - North and southeast sluices of Northwest Levee abandoned in 1990 and replaced by a pump station
2. Materials
    - While two of the pumping plants (Old Baker, 1930, and Pavaho, 1954) were determined individually eligible under criteria A and C in 2009, over half of the existing pumping plants have experienced alterations outside the POS that ***changed the function of the plant*** by increasing the plants' pumping capacity with upgraded pumps, switchgear, sluices, sizeable roof equipment, and

[7] National Park Service, *How to Apply the National Register Criteria for Evaluation* (Washington, D.C: National Park Service, 1997) 46.

uncomplimentary additions in near proximity that alter their historic appearance. The utilitarian design of the pumping plants magnifies the importance of their alterations with bricked windows openings, among others, when evaluating their integrity:

- 13 pump stations in the floodway
- 3 pumping plants upgraded in 1960s and 1970s: Delta (upgraded pumps and switchgear), Charlie (replacement pumps and switchgear), Able (upgraded 20,000 gallons per minute (gpm) pumps with 40,000 gpm pumps)
- 2 new pumping plants built in 1975: Hampton Road and additional plant at Baker location
- 2 small pump houses added in 1970s to Able, Charlie, Delta, and Pavaho pumping plants
- Northwest Levee new pump stations 1974 and 1995

3. Design

- Ledbetter Dike: modifications in 1960s include new gate-control structure, new conduit, and intake and outlet structure for new conduit, automated gate operators added in 1990s that changed the function of the dike from man-powered and gravity-driven to automatic machine-operated
- Addition of 4 ft.-tall, 12 ft.-wide pipelines atop levees between 1969 and 1977, assisting the levees with flood control and no longer allowing the levee in those sections to function independently within the larger system
- Change in river side slope of East and West levees from 3:1 during POS to 4:1 in late 1990s, resulting in flatter, wider levee; East and West levees' crowns raised by 2 feet in late 1990s. Such modifications occurred in the segment downstream of the Continental Street Viaduct, encompassing one-third of the floodway system
- Northwest Levee vertical and horizontal enlargement 1974; modifications 2006, 2008
- Parallel Levee Channel along Northwest Levee now drains its water through metal pipe installed in 1960s, steel tie-rods and metal sheet pile installed in 2007; heavily reinforced due to buckling of side walls in 2010
- Main diversion channel widened in late 1990s, changing the flood control capacity of the channel
- New Frazier Dam installed at Elm Fork diversion channel in 1965 for flood control purposes, resulting in the 180 ft.-long dam controlling the flow of water and any flooding rather than the Elm Fork diversion channel acting as the sole flood control feature in this area
- New structures and parks added to overbank after the POS: extensive power lines, Trammell Crow Lake Park, Trinity Wells Park and Golf Course and Trinity View Park
- Two new pressure sewers and outlet gate structures -- Woodall Rogers (1979), Coombs Creek (1989); improvements to existing pressure sewers at Turtle Creek, Lake Cliff, Dallas Branch, Belleview (1989); new outlet gate structure at Old Coombs Creek Pressure Sewer (1989)

- Sluices and culverts modified throughout 1980s and 1990s to add floodway capacity, specifically Elm Fork Sluice extended 1960, Grauwyler C.S.G. and Ledbetter C.S.G. modified 1990s; new sluice at Northwest Levee (1974)

4. Workmanship
    - See above modifications that eliminated or unsympathetically modified the work completed during the POS
5. Setting
    - Compromised due to disruption of the original open viewshed design of the floodway by encroachment with physical elements to the overbank and levees, including sizeable utility towers, 21 bridges (including the new Signature Bridge) and 3 parks that create visual barriers and diminish its historic character; change in levee topography due to flattening of levees after the POS; wooded vegetation along main diversion channel; and pipelines constructed after the POS atop levees
6. Feeling
    - The floodway possesses diminished integrity of feeling due to the alterations noted above. If setting, design, materials, and workmanship are compromised, it follows that integrity of feeling is also compromised, thereby negating the identity for which the resource could be rendered significant under any NRHP criteria
7. Association
    - The floodway possesses diminished integrity of association due to the alterations noted above. If setting, design, materials, workmanship and feeling are compromised, it follows that integrity of association is also compromised, thereby negating the identity for which the resource could be rendered significant under any NRHP criteria.

DALLAS FLOODWAY: DETERMINATION OF ELIGIBILITY TO THE NRHP

The Dallas Floodway within the City of Dallas extends roughly to Loop 12 at Elm Fork to the north, IH 30 at West Fork to the west, and the AT&SF Railroad crossing over the Trinity River to the south. The period of significance for the resource dates from 1928, the year construction began on the floodway, to 1959, the year the USACE completed construction of projects that significantly modified the system.

The Dallas Floodway contains four essential physical features (levees, diversion channels, overbanks, and structures) with an extensive set of character-defining features, all of which incrementally and continually have been encroached upon with substantive modifications and intrusions since 1960. To effectively convey significance, the Dallas Floodway cannot overcome the modern development intrusions upon its immediate and surrounding environment, as well as surmount the new additions and alterations to its engineering and architectural components that enable it to function as a flood control system in Central Dallas. Substantively and cumulatively, the combined effects of these factors significantly compromise the integrity of the Dallas Floodway by affecting its integrity of setting, design, workmanship, materials, feeling and association. These intrusions and alterations are not negligible, and they do not allow the floodway to convey its significance as an intact historic resource. Consequently, and on the basis of on-going consultation with TxDOT, FHWA determines the Dallas Floodway is **not eligible** for listing in the National Register of Historic Places under:

-- Criterion A: Community Planning and Development, at local level of significance, due to diminished aspects of integrity that compromise its associative significance.

-- Criterion B due to lack of sufficient integrity of association with significant historical figures.

-- Criterion C due to diminished integrity compromising the floodway's ability to convey its engineering significance, and due to information provided by the USACE indicating that the floodway is not an exceptionally innovative engineering feat, nor a precedent-setting flood control project.

CONCLUSION:

We request your expedited written concurrence with this determination of eligibility to coincide with your evaluation of the findings on the floodway recently submitted to THC by the City of Dallas. If you have any questions or comments concerning these determinations, please contact Anita Wilson at anita.wilson@dot.gov or (512) 536-5951 or Theresa Claxton at theresa.claxton@dot.gov or (512) 536-5943.

Sincerely,

Salvador Deocampo
District Engineer

Enclosure

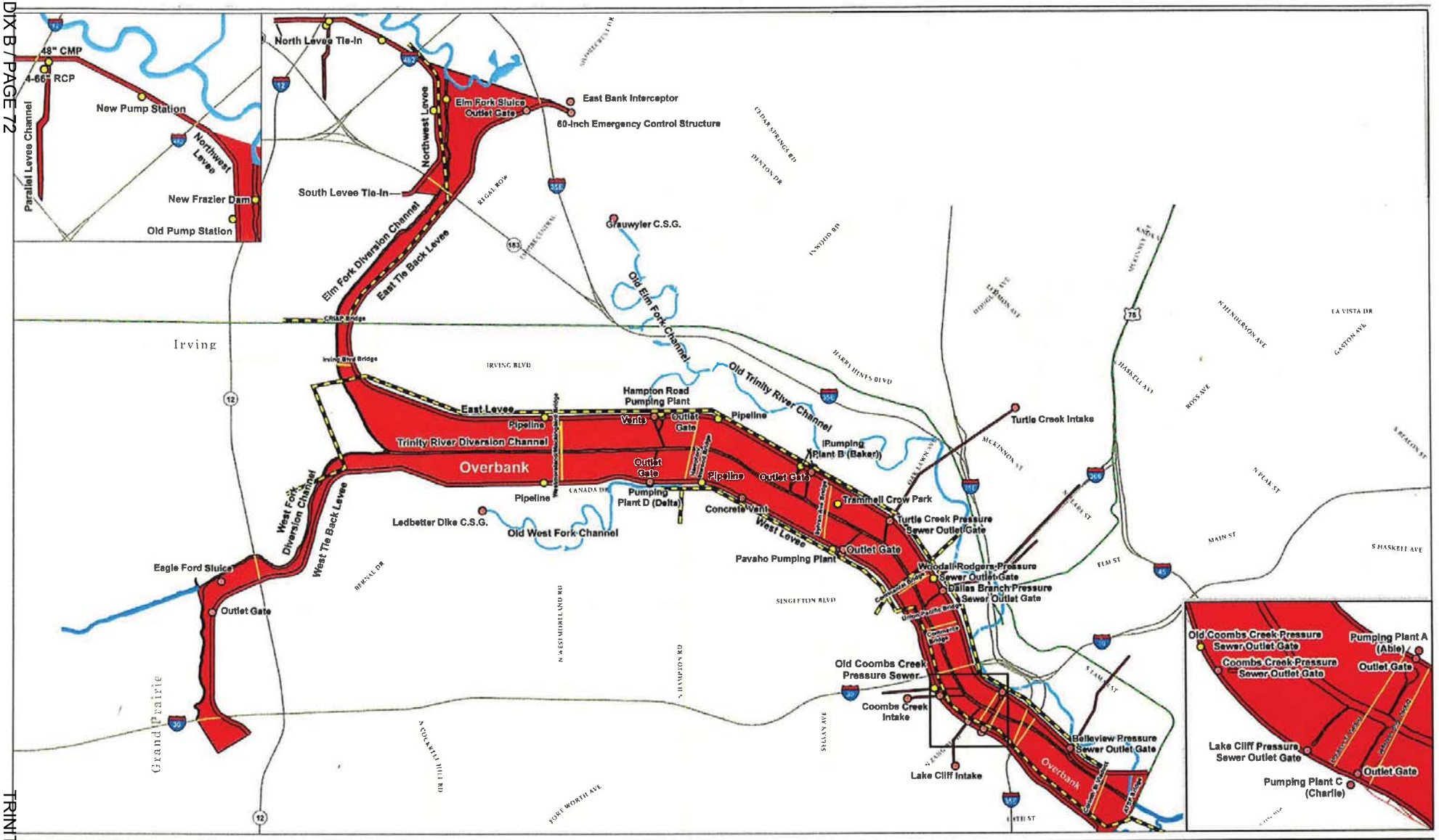
CONCUR
DALLAS FLOODWAY
NOT ELIGIBLE to the National Register of Historic Places
Associated with the Trinity Parkway Project (CSJ **0918-45-121)**

NAME:_____ **DATE:** _____
for: Mark Wolfe
State Historic Preservation Officer

cc. FHWA, Anita Wilson, Theresa Claxton
USACE, Joseph Murphey

ecc. Halff Associates, Jason Diamond
NTTA, Elizabeth Mow
HNTB, Dan Chapman
Preservation Dallas, Katherine Seale
Dallas CLG, Mark Doty
Dallas Co. Historical Commission, Ann Spillman
Ecomm Corp., Tom Eisenhour, Kurt Korfmacher
Historic Bridge Foundation, Kitty Henderson

bcc. Dallas District, Dan Perge
Dallas District, Nasser Askari
ENV/PD, Lindsey Kimmitt
ENV/PM, Lisa Hart
ENV/HIST, Bruce Jensen
ENV/HIST, Mario L. Sanchez



Location Map -- Dallas Floodway Features

December 30, 2011

Salvador Deocampo
District Engineer
U.S. Department of Transportation
Federal Highway Administration
Texas Division
300 E 8th Street, Rm 826
Austin, Texas 78701

Re: Project review under Section 106 of the National Historic Preservation Act of 1966, Trinity River Parkway Corridor Determination of Eligibility for Dallas Floodway, Dallas County (FHWA)
TxDOT CSJ # 0918-45-121

Dear Mr. Deocampo:

Thank you for the information provided in your November 29, 2011 letter. This letter serves as a comment from the State Historic Preservation Officer (SHPO), the Executive Director of the Texas Historical Commission (THC).

Based on the information you have provided and the information in the *Intensive Engineering Inventory and Analysis of the Dallas Floodway* report provided by the City of Dallas and the U.S. Army Corps of Engineers (USACE), we do not concur with your determination that the Dallas Floodway is not eligible for listing in the National Register of Historic Places (NRHP). A review of the report by THC staff leads our staff to the conclusion that the Dallas Floodway is eligible for listing in the National Register of Historic Places, at the local level of significance, in the areas of Engineering and Community Planning and Development, under criterion A.

You noted several changes that took place after the historic period and diminish integrity of location, materials, design, workmanship, setting, feeling, and association. We concur that there has been a loss of historic integrity based on these changes, but we do not concur that it is sufficient to render the floodway ineligible for listing in the NRHP. The floodway retains the essential physical features that made up its character or appearance during the period of significance. We base our conclusion on the following considerations:

- National Register Bulletin 15 states "a basic integrity test for a property associated with an important event or person is whether a historical contemporary would recognize the property as it exists today." Based on historic photos and the documentation of the existence and condition of key character-defining features from the historic period (the levees, overbank, diversion channel, old river channels, pumping plant buildings, pressure sewers, and other historic structures) in the report, it is certainly recognizable.
- For infrastructure properties to retain eligibility under Criterion A, integrity of materials and workmanship is not as essential as location, design, feeling, and association. Therefore, while the replacement of equipment and bricked window openings at the historic pumping plant buildings do detract from integrity of materials and workmanship,

these aspects of integrity are not as essential in the consideration of eligibility to the NRHP.

- Past coordination between the International Boundary and Water Commission and THC regarding levees in South Texas that were considered eligible for listing in the National Register of Historic Places resulted in a determination that adding soil to levees does not constitute an adverse effect to this type of resource. Therefore, we do not consider post-historic modifications to the slope and crowns of the levees to detract from the eligibility of the floodway.
- From previous coordination of complex infrastructure resources, such as irrigation systems and floodways, we have found that there is a hierarchy of significance for features within the system. The majority of the key character-defining features of this system are extant and operable; few have been demolished or modified to the extent that they are no longer recognizable to the historic period. The replacement of equipment at the pumping plants and modifications to gates, sluices, and culverts are minor changes and only have a small impact on the integrity of the larger system.
- Because of the evolution of technology, non-historic components should be expected at still-functioning infrastructure resources. Despite the addition of newer plant buildings at the pumping plants, the retention of the historic pumping plant buildings allows the floodway to continue to convey its significance from the historic period. Similarly, the non-historic dam, pressure sewers, and outlet gate structures do not detract from the integrity of the system. In general, these "new" features meet the *Secretary of the Interior's Standards for Rehabilitation* as these features are differentiated from the old (most often by the use of new technology) and are often compatible with the massing, size and scale of adjacent construction and certainly with the floodway as a whole.
- Regarding underground features, you refer to National Register Bulletin 15 where it states "properties eligible under Criteria A, B, and C must not only retain their essential physical features, but the features must be visible enough to convey their significance. This means that even if a property is physically intact, its integrity is questionable if its significant features are concealed under modern construction." Although we recognize the challenge that underground features represent, we do not agree with your application of this standard to them, as it is specifically meant for features that were visible during the period of significance, but are no longer visible. Components of the floodway that were historically underground and still are underground in the same location cannot detract from the integrity of the system. For the purpose of comparison with another resource type with underground features, we referred to National Register Bulletin No. 42, "Guidelines for Identifying, Evaluating, and Registering Historic Mining Properties." According to the National Park Service, underground components of mining properties "need not be inspected for National Register integrity." Instead, design integrity for these features should be evaluated by the information gathered in review of written records that document any changes to them. Your letter identifies that improvements and upgrades took place underground in the areas of the pumping plant complexes, but the documentation of these changes in the report provided by the City of Dallas and USACE is not sufficient to support a determination that changes to underground components have resulted in a net loss of integrity that would make the Dallas Floodway not eligible. Without knowing what all of these changes and upgrades are, it is difficult to apply the *Secretary of the Interior's Standards for Rehabilitation* and evaluate whether they adversely affected the floodway.
- You note that alterations to many of the pumping plants have changed the function of the plants. We do not concur that the function of these plants has been changed. Rather, their capacity has increased by the equipment upgrades and construction of larger, adjacent

pump stations. Neither do we agree that a change in function would, by itself, make a building or structure ineligible for listing in the NRHP.

- Regarding your evaluation that the power lines, new bridges and parks pose a severe adverse effect to the setting of the floodway, we disagree. Instead, we support the characterization of the USACE report: "neither the power lines nor the bridges create a physical or visual barrier in the floodway system, and as a result, these features have not diminished the historic character of the floodway or its ability to convey its historic significance." Some changes in setting must be expected in an urban area.

Thank you for your consideration of our comments. Based on this review, we anticipate that neither the construction of additional bridges across the floodway in future projects nor the construction of alternatives 2A or 2B of the Trinity Parkway project have the potential to adversely affect the historic floodway. Alternatives 3C and 4B have a greater potential for effect. We would not consider the construction of roads on the overbank alone to be an adverse effect; however, other considerations in the design, such as floodwalls, may increase the potential for adverse effect. We look forward to working with your office regarding the resolution of our concerns and completion of coordination. If you have any questions concerning this review or if we can be of further assistance, please contact Adrienne Campbell at 512/936-7403.

Sincerely,

Mark Wolfe

Mark Wolfe
State Historic Preservation Officer

Cc: Theresa Claxton, FHWA
Anita Wilson, FHWA
Joseph Murphey, USACE
Bruce Jensen, TxDOT
Dr. Mario Sanchez, TxDOT

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APPENDIX C

Tabulation of Dallas Floodway System Deficiencies

(City of Dallas MDCP Plan)

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Memorandum

CITY OF DALLAS

DATE May 13, 2011

TO Trinity River Corridor Project Committee Members:

David A. Neumann (Chairman)	Vonciel Jones Hill
Steve Salazar (Vice-Chair)	Delia Jasso
Mayor Pro Tem Dwaine Caraway	Linda Koop
Deputy Mayor Pro Tem Pauline Medrano	Ann Margolin
Carolyn R. Davis	

SUBJECT **Periodic Inspection Report No. 9 - Maintenance Deficiency Correction Period (MDCP) March 2011 Update**

As of March 31, 2011, the City has completed **193** of the 198 items in the MDCP plan which is the action plan staff submitted to the US Corps of Engineers (Corps) to address the O&M deficiencies in the levee system as described in the Periodic Inspection Report No. 9 (PI #9).

The remaining **five** MDCP items are listed below. Two of these items cannot be addressed until after completion of construction of the Margaret Hunt Hill Bridge.

- 1 item related to a plan to systematically inspect pipes, culverts or conduits in the levees - the plan has been submitted to the Corps and will be removed from this list upon Corps' approval of the plan
- 2 items related to locating or obtaining permits for multiple utility crossings at the Central Wastewater Treatment Plant Levee – the plans to address the multiple utility crossings have been submitted to the Corps and discussions on the resolution of the utility crossings are underway
- 1 item related to encroachment in the flood plain due to construction equipment for the Margaret Hunt Hill Bridge – this item will be addressed upon completion of the bridge construction
- 1 item related to erosion will be addressed by the completion of the Margaret Hunt Hill Bridge

The City and their consultant submitted the Draft Section 408 Package and Environmental Assessment document to the Corps on April 4, 2011 for 100-Year Levee Remediation. Reviews and coordination efforts with the Corps on the documents is ongoing.

If you have additional questions, please let me know.

Jill A. Jordan, P.E.
Assistant City Manager

THE TRINITY
DALLAS

c: Honorable Mayor and Members of the City Council
Mary K. Suhm, City Manager
Ryan S. Evans, First Assistant City Manager
A. C. Gonzalez, Assistant City Manager
Forest E. Turner, Assistant City Manager
Jeanne Chipperfield, Chief Financial Officer
Deborah A. Watkins, City Secretary
Thomas P. Perkins, Jr., City Attorney
Craig D. Kinton, City Auditor
Judge C. Victor Lander
Helena Stevens-Thompson, Assistant to the City Manager
Frank Librio, Director, Public Information Office
Kelly High, Director, Trinity Watershed Management
Rebecca Rasor, P.E., Managing Director, Trinity River Corridor Project

February 2011 Update
Previously Address "M" and "U" Items

ID	Rated Item	Overall Rating	Remark Rating	Levee/ Structure	Template Section	Location/ Remarks/ Recommendations	Explanation	Proposed Correction Plan	Date Addressed	Routine Maintenance	No Corps Approval Req'd	Corps Approval Req'd
001	Unwanted Vegetation Growth	U	M	East Levee	Embankment	Sta. 260+90 – Bushes growing at the base of power line towers off the landside levee toes. (Also at Sta. 54+95.)		Bushes were cut and added to routine maintenance.	Feb-09	X	✓	
013	Encroachments	U	M	East Levee	Embankment	Sta. 292+91 had 10 feet diameter concrete debris pile in the channel off river side levee toe next to bridge piers.		Responsible contractor has removed debris pile and will continue to coordinate timely debris removal.	Jan-09		✓	
014	Encroachments	U	U	East Levee	Embankment	Hampton Bridge Sta. 292+91 had 5 foot void under the land side bridge slope paving.		The void was filled and concrete slope paving replaced.	Jan-09		✓	
016	Encroachments	U	M	East Levee	Embankment	I-35 Northbound Bridge Sta. 81+00 abutment had void (10'L x 17'W x 4'D) under the broken slope paving of the ramp which was on the land side of the levee and a cracked bridge beam on south abutment ramp. This had been reported to TXDOT bridge authorities.		TxDOT has been informed of this identified problem.	Mar-09		✓	
021	Closure Structures	U	Obs	East Levee	Embankment	Sta. 13+50 had stop log sand pile for sealing at railroad tracks overgrown with weeds and brush.		Weeds removed and stock pile covered with plastic sheeting.	Mar-09	X	✓	
024	Slope Stability	M	Obs	East Levee	Embankment	Sta. 54+95 - Repaired land side slide.		City will continue to repair slides as needed.	Oct-07		✓	
026	Slope Stability	M	M	East Levee	Embankment	Sta. 551+50 - Repaired channel side slope slide (1" wide cracks on landside crest edge).		No cracking was observed at this location.	Mar-09		✓	
029	Erosion/ Bank Caving	U	M	East Levee	Embankment	Sta. 25+00 had erosion gully (30'L x 4'W x 3'D) in landside levee toe ditch.		Erosion gully repaired with concrete flume.	Mar-09		✓	
030	Erosion/ Bank Caving	U	M	East Levee	Embankment	TRE Railroad Bridge Sta. 473+90 had erosion gully (20'L x 2'W x 1'D) on the river side slope.		Erosion gully was repaired using similar riprap stone.	Mar-09		✓	
035	Revetments other than Riprap	M	M	East Levee	Embankment	Hampton Bridge Sta. 292+91 had 2" displacement on land side bridge slope paving.		The void was filled and concrete slope paving replaced.	Jan-09		✓	
053	Encroachments	U	M	East Levee	Interior Drainage	Trash in intake channels of some pump stations.		Trash was removed and added to routine maintenance schedule.	Feb-09	X	✓	
055	Ponding Areas	M	M	East Levee	Interior Drainage	Trash in levee toe ditch.		Trash was removed and added to routine maintenance schedule.	Feb-09	X	✓	
061	Foundation of Concrete Structures	U	U	East Levee	Interior Drainage	Drainage chute at right side of trash rack for Able Small Pump House failing.		Drainage chute was replaced	Mar-09		✓	
075	Unwanted Vegetation Growth	M	M	East Levee	Floodwall	Bush growing along the north side of the flood wall.		Bushes were removed and added to routine maintenance.	Mar-09	X	✓	
078	Vegetation and Obstructions	U	M	East Levee	Flood Damage Reduction Channel	Trees growing on both ends of the Santa Fe Railroad Bridge, in the flood plain and channel slopes.		Trees were removed and added to routine maintenance schedule.	Mar-09	X	✓	
079	Vegetation and Obstructions	U	M	East Levee	Flood Damage Reduction Channel	Debris caught in Continental Bridge piers.		Debris was removed and added to routine maintenance schedule.	Feb-09	X	✓	
084	Encroachments	M	M	East Levee	Flood Damage Reduction Channel	Hampton/Inwood Road Bridge Sta. 292+10 had concrete debris pile 10' dia. in channel next to bridge.		Responsible contractor has removed debris pile and will continue to coordinate timely debris removal.	Jan-09	X	✓	
090	Plant Building	M	M	Able Pump Station - EL	Pump Station	Able Pump Station - Intakes and buildings appeared to be in fair condition and fully operational. There had been movement of masonry walls in the large pump house away from the concrete columns.		The concrete columns and the masonry walls are completely independent structures and this is not an item of concern.	Jun-09		✓	
092	Plant Building	M	M	Able Pump Station - EL	Pump Station	Able Pump Station - There was a void under the grouted slope on the right side of the trash rack at the old pump house.		Void repaired.	Mar-09		✓	
095	Sumps / Wet well	M	M	Able Pump Station - EL	Pump Station	Able Pump Station - Trash in the sump ponding area next to the trash racks.		Trash was removed and added to routine maintenance schedule.	Mar-09	X	✓	
098	Plant Building	M	M	Baker Pump Station - EL	Pump Station	Stairs at New Baker Pump House shifted as result of being struck by bobcat.	Repair complete	Stairs will be reattached with brackets and a stop will be placed to ensure it doesn't happen again.	Mar-09		✓	
103	Sumps / Wet well	M	M	Baker Pump Station - EL	Pump Station	Baker Pump Station - Trash in the sump ponding area next to the trash racks.		Trash was removed and added to routine maintenance schedule.	Mar-09	X	✓	
108	Structure	M	Obs	Woodall Rogers Pressure Outfall - EL	Pressure Outfall	Woodall Rogers Pressure Outfall - 4 foot tall vegetation was growing at the base of the control structure.		Vegetation was removed and added to routine maintenance schedule.	Mar-09	X	✓	
111	Structure	U	Obs	Turtle Creek Pressure Conduit - EL	Pressure Conduit	Turtle Creek Pressure Conduit - A homeless shelter was under the bridge at the bridge abutment.		The homeless were relocated and the shelter removed.	Mar-09	X	✓	
117	Plant Building	M	M	Hampton Road Pumping Plant EL	Pump Station	Hampton Pump Station - Erosion gully (2'W x 10'L x 18"D) from run-off from the parking lot above the left intake wing wall was found.		Erosion gully was repaired using established levee slide repair procedure.	Dec-08		✓	

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ID	Rated Item	Overall Rating	Remark Rating	Levee/ Structure	Template Section	Location/ Remarks/ Recommendations	Explanation	Proposed Correction Plan	Date Addressed	Routine Maintenance	No Corps Approval Req'd	Corps Approval Req'd
118	Plant Building	M	M	Hampton Road Pumping Plant EL	Pump Station	The fiberglass dome supporting the manhole cover over the low flow for the Old Hampton Pump House had failed.		Fiberglass dome replaced with a new unit.	May-09		✓	
136	Encroachments	U	M	West Levee	Embankment	I-35 Northbound Bridge Sta. 52+50 had 4 shopping carts full of rock protection made into homeless shelter.		Shopping carts and shelter removed.	Jan-09		✓	
138	Slope Stability	M	M	West Levee	Embankment	Repaired slope slides at Stations 316+00 (2 slides), 317+60, 338+40, 350+00, 371+50 to 376+50, and 377+50 (420' repaired channel slope shallow slide).		City will continue to repair slides as needed.	Jul-07		✓	
147	Depressions/Rutting	M	Obs	West Levee	Embankment	There was 3 inch deep mower rutting on the riverside slope around the Delta Pump Station service bridge.		Procedures have been reviewed to prevent this from reoccurring.	Mar-09		✓	
154	Vegetation and Obstructions	U	M	West Levee	Interior Drainage	Debris obstructing 10% of inlet for small pump house at Charlie Pump Station.		Debris was removed and added to routine maintenance schedule.	Feb-09	X	✓	
155	Vegetation and Obstructions	U	M	West Levee	Interior Drainage	Silted in trash rack at small inlet (10%) for Pavaho Pump Station.		Silt was removed and added to routine maintenance schedule.	Feb-09	X	✓	
156	Vegetation and Obstructions	U	U	West Levee	Interior Drainage	Debris obstructing 50% inlet at Ledbetter Sluice.		Debris was removed and added to routine maintenance schedule.	Mar-09	X	✓	
158	Sumps / Wet well	M	M	Charlie Pump Station - WL	Pump Station	Charlie Pump Station - Trash in the sump ponding area next to the trash racks.		Trash was removed and added to routine maintenance schedule.	Apr-09	X	✓	
160	Sumps / Wet well	M	M	Pavaho Pump Station - WL	Pump Station	Pavaho Pump Station - Light debris in the sump ponding area.		Debris was removed and added to routine maintenance schedule.	Apr-09	X	✓	
162	Tilting, Sliding or Settlement of Concrete and Sheet Pile Structures	U	U	West Levee	Interior Drainage	Steel brace installed to prevent movement of wing walls at Little Coombs Creek Pressure Conduit had become disconnected from the right wing wall and ha failed.		Steel brace removed and new unit installed.	Apr-09		✓	
164	Foundation of Concrete Structures	M	M	West Levee	Interior Drainage	Delta Pump Station had erosion on the right slope (50'W x 80' L x 12'D) of the discharge channel.		Erosion was repaired using established levee slide repair procedure.	Feb-09		✓	
170	Other Metallic Items	U	M	West Levee	Interior Drainage	Delta Pump Station - Corrosion on trash racks.	Trash rack replaced	Trash rack was replaced.	Feb-09		✓	
176	Plant Building	U	U	Delta Pump Station - WL	Pump Station	Delta Pump Station - The intakes, equipment and buildings appeared to be in good condition. A slope slide (60'W x 70'L x5'D) occurred just upstream and below the pump house.		The slope was repaired using established levee slide repair procedures.	Feb-09		✓	
179	Other Metallic Items	M	M	Delta Pump Station - WL	Pump Station	Delta Pump Station - Corrosion on trash racks.		Trash rack was replaced.	Feb-09		✓	
184	Fencing and Gates	M	M	Pavaho Pump Station - WL	Pump Station	Pavaho Pump Station - Chain link fencing was leaning on the east side of the building.		Chain link fence re-installed.	Feb-09		✓	
185	Structure	U	U	Eagle Ford Sluice - WL	Sluice	The Eagle Ford Sluice had sustained significant structural damage to the walls of the CMU structure.		The CMU building replaced with a concrete building.	Feb-09		✓	
208	Depressions/Rutting	M	M	Rochester	Embankment	Sta. 51+00 had a 24" diameter 1 foot deep moist depression on the levee crest at the crossing.		Moisture has not been observed since inspection.	Mar-09		✓	
221	Unwanted Vegetation Growth	M	M	Rochester	Floodwall	Light brush up to 6 feet high up against the west side of the flood wall.		Brush was removed and added to routine maintenance schedule.	May-09	X	✓	
223	Closure Structures	U	U	Rochester	Floodwall	The ladder was bent on one of the swinging gates for the "closure at Rail Road Street" and the turnbuckle was jammed between steel attachments such that it cannot easily be manipulated to create a tight closure for the gate.		Ladders straightened and turnbuckle removed and fully functional.	May-09		✓	
235	Flap Gates/ Flap Valves/ Pinch Valves	M	M	West Levee	Interior Drainage	Eagle Ford Sluice - Debris behind left flap gate at outlet was preventing it from closing tightly.		Debris was removed and added to routine maintenance schedule.	Mar-09	X	✓	
237	Sumps / Wet well	M	M	Delta Pump Station - WL	Pump Station	Delta Pump Station - Trash in the sump ponding area.		Debris and trash was removed and added to routine maintenance schedule.	Feb-09	X	✓	
043	Riprap Revetments & Bank Protection	M	M	East Levee	Embankment	Continental Ave Bridge Sta. 163+60 had stone protection moving down slope.		Stone protection was replaced as necessary.	Jul-09		✓	
049	Vegetation and Obstructions	M	Obs	East Levee	Interior Drainage	Turtle Creek Pressure Sewer had light debris in the intake, and deposition (8'L x 3'W) in the discharge channel.		Debris was removed and added to routine maintenance schedule.	Jul-09	X	✓	
050	Flap Gates/ Flap Valves/ Pinch Valves	M	M	West Levee	Interior Drainage	Little Coombs Creek Conduit - Debris behind flap gate was preventing it from sealing.		Debris was removed and added to routine maintenance schedule.	Jul-09	X	✓	
070	Other Metallic Items	U	M	East Levee	Interior Drainage	Woodall Rogers Pressure Outfall - Corrosion on both flap gates.		Corrosion was neutralized and gate painted.	Jul-09		✓	
071	Other Metallic Items	U	M	East Levee	Interior Drainage	Hampton Road Pumping Plant - Corrosion on flap gate.		Corrosion was neutralized and gate painted.	Jul-09		✓	

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072	Other Metallic Items	U	U	East Levee	Interior Drainage	Dallas Branch Pressure Conduit - gate tower, the bottom of two posts for the handrail at the left side of the operating deck have completely rusted out - Safety issue.		The handrail was removed and replaced with a new unit.	Jul-09		✓	
091	Plant Building	M	M	Able Pump Station - EL	Pump Station	Able Pump Station - Exterior brick masonry was cracking near a corner of the pump house.		The cracking has been determined to be a non-issue and is not affecting the structural integrity of the station.	Jul-09		✓	
110	Structure	U	M	Turtle Creek Pressure Conduit - EL	Pressure Conduit	Turtle Creek Pressure Conduit - The service bridge abutment had settled.		Annual inspections will be performed to monitor settlement.	Jul-09		✓	
112	Other Metallic Items	M	M	Turtle Creek Pressure Conduit - EL	Pressure Conduit	Turtle Creek Pressure Conduit - Corrosion on the lower part of the intake trash rack at entrance to conduit.		Corrosion was neutralized and trash rack painted.	Jul-09		✓	
113	Plant Building	M	M	Hampton Road Pumping Plant EL	Pump Station	Hampton Pump Station - The concrete slabs adjacent to the new structure have settled 6" on both sides of the structure.		Slabs will be monitored annually for continued settlement.	Jul-09		✓	
119	Structure	M	M	Elm Fork Sluice - EL	Sluice	Elm Fork Sluice - Exposed steel reinforcement at bridge support on control structure.		Exposed rebar will be covered with epoxy.	Jul-09		✓	
120	Structure	M	M	East Levee	Emergency Control Structure	Elm Fork Sluice - There was a 8-inch erosion depression on the down slope side of the control structure and service bridge abutment on the levee.		Erosion depression was repaired using established levee slide repair procedure.	Jul-09		✓	
151	Riprap Revetments & Bank Protection	M	M	West Levee	Embankment	I-35 Northbound Bridge Sta. 52+50 had riverside levee slope stone protection under bridge moved/displaced to just off the toe.		The riprap stone was replaced and additional stone was added as necessary.	Jul-09		✓	
157	Encroachments	M	M	West Levee	Interior Drainage	Three 36" RCPs appeared abandoned at the left side of the Pavaho Pumping Station sump.	City to submit corrective action plan for review/approval.	The 3 RCP pipes have been removed.	Jul-09			✓
171	Other Metallic Items	M	M	Lake Cliff Pressure Conduit - WL	Pressure Conduit	Lake Cliff Pressure Conduit - Corrosion on flap gate.		Corrosion was neutralized and the gate painted.	Jul-09		✓	
172	Other Metallic Items	U	M	West Levee	Interior Drainage	Coombs Creek Pressure Diversion - 16 feet long handrail on the right discharge wing wall had broken off and was in the bottom of the discharge channel.		Handrail was removed from discharge channel and replaced.	Jul-09		✓	
173	Other Metallic Items	U	M	West Levee	Interior Drainage	Little Coombs Creek Conduit - Corrosion on flap gate.		Corrosion was neutralized and the gate painted.	Jul-09		✓	
182	Plant Building	U	U	Pavaho Pump Station - WL	Pump Station	Pavaho Pump Station - The pumping equipment and buildings appeared to be in good condition. A large slope failure (20'L x 20'W) under the drive left the concrete slab cantilevered at the edge of the drive.		The slope was repaired using established levee slide repair procedures.	Jul-09		✓	
047	Vegetation and Obstructions	M	M	East Levee	Interior Drainage	Dallas Branch Pressure Conduit had deposition of 70% on the right side of the discharge channel.		Discharge channel was be de-silted.	Aug-09		✓	
048	Vegetation and Obstructions	M	M	East Levee	Interior Drainage	Woodall Rogers Outfall had deposition of 75% on the right side of the discharge channel.		Discharge channel was be de-silted.	Aug-09		✓	
063	Foundation of Concrete Structures	U	M	East Levee	Interior Drainage	Turtle Creek Pressure Sewer had erosion on both the right and left slope just above the corners of the discharge chute.		Erosion was repaired using established levee slide repair procedure.	Aug-09		✓	
066	Other Metallic Items	M	M	Belleview Pressure Conduit - EL	Pressure Conduit	Belleview Pressure Conduit - Slight rust on upper bridge girder.		Rust was neutralized and bridge girder painted.	Aug-09		✓	
073	Riprap Revetments of Inlet/ Discharge Areas	U	U	East Levee	Interior Drainage	Riprap displaced from slopes of discharge chute to the bottom of the channel at New Hampton exposing bedding.		Riprap was removed, the slope repaired and riprap replaced.	Aug-09		✓	
074	Riprap Revetments of Inlet/ Discharge Areas	U	M	East Levee	Interior Drainage	Hampton - Slides on the right and left slopes downstream of this displaced riprap.		Slides were repaired using established levee slide repair procedure.	Aug-09		✓	
089	Riprap Revetments & Banks	U	U	East Levee	Flood Damage Reduction Channel	Hampton Pumping Station - Riprap displaced from slopes of discharge chute to the bottom of the channel at New Hampton exposing bedding		Riprap was removed, the slope repaired and riprap replaced.	Aug-09		✓	
104	Other Metallic Items	M	M	Baker Pump Station - EL	Pump Station	Baker Pump Station - Broken hand rails at the top of the stairs behind the building.		Handrail was removed and replaced.	Aug-09		✓	
106	Structure	M	M	Dallas Branch Pressure Conduit - EL	Pressure Conduit	Dallas Branch Pressure Conduit - There was a 12 inch erosion depression on the down slope side of the service bridge abutment and a 6 inch erosion depression on the right side of the control structure on the levee.		Depression was repaired using established levee slide repair procedure.	Aug-09		✓	

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109	Structure	U	M	Turtle Creek Pressure Conduit - EL	Pressure Conduit	Turtle Creek Pressure Conduit - Erosion (6"W x 6'L x 6"D) was found on the right side of the control structure.		Erosion was repaired using established levee slide repair procedure.	Aug-09		✓	
143	Erosion/ Bank Caving	M	M	West Levee	Embankment	Sta. 134+20 had 20 feet long erosion gully on river side levee ramp.		Erosion gully was repaired using established levee slide repair procedure.	Aug-09		✓	
150	Riprap Revetments & Bank Protection	M	M	West Levee	Embankment	Continental Ave Bridge Sta. 142+50 had depression in riverside riprap slope under bridge.		The riprap stone was replaced and additional stone was added as necessary.	Aug-09		✓	
159	Concrete Surfaces	M	M	West Levee	Interior Drainage	Exposed steel reinforcement in ceiling and cracks in floor and wall of conduit for Big Coombs Creek Pressure Conduit.		Concrete around exposed reinforcing was removed and the reinforcement sealed with epoxy and the hole patched with cementitious material.	Aug-09		✓	
168	Foundation of Concrete Structures	M	M	West Levee	Interior Drainage	Erosion above Lake Cliff discharge chute (8'W x 40'L).		Erosion was repaired using established levee slide repair procedure.	Aug-09		✓	
174	Other Metallic Items	M	M	Pavaho Pump Station - WL	Pump Station	Pavaho Pump Station - Corrosion on flap gates, trash racks and control structure grill platform.		Corrosion was neutralized and the metallic parts painted.	Aug-09		✓	
175	Plant Building	U	U	Charlie Pump Station - WL	Pump Station	Charlie Pump Station - The intake structure, pumping equipment and buildings appeared to be in good condition. There was an erosion void under the stairs next to the pump house on the west side of the building. It was unclear how far back the void goes.		Void was filled with flowable fill. Pump Station replacement under design.	Aug-09		✓	
186	Structure	U	M	Eagle Ford Sluice - WL	Sluice	Eagle Ford Sluice - Erosion gully (6"W x 3'L x 1'D) next to the landside upstream corner of the control structure which had undermined corner post of guardrail.		Erosion gully was be repaired using established levee slide repair procedure.	Aug-09		✓	
215	Other Metallic Items	M	M	Rochester	Pump Station	Rust on pump station flap gates and walk way.		Rust was neutralized and gate painted.	Aug-09		✓	
219	Other Metallic Items	M	M	Rochester	Interior Drainage	Rust on flap gates.		Rust was neutralized and gate painted.	Aug-09		✓	
229	Structure	M	M	Lake Cliff Pressure Conduit - WL	Pressure Conduit	Lake Cliff Pressure Conduit - There was a 6 inch erosion depression on the down slope side of the service bridge abutment on the levee.		Erosion depression was repaired using established levee slide repair procedure.	Aug-09		✓	
238	Trash Racks (non-mechanical)	A	Obs	West Levee	Interior Drainage	Pavaho Pump Station - 5"W x 8"L tear in the right side rail screen.		Rail screen was repaired.	Aug-09		✓	
027	Slope Stability	M	Obs	East Levee	Embankment	Sta. 175+70 - Bench on the levee on the channel side mid-slope observed.		The bench is strengthening the levee by having been placed on the channel slide - no action necessary	Sep-09		✓	
082	Encroachments	M	M	East Levee	Flood Damage Reduction Channel	East Levee Sta. 380+00 had 700' long ponded flood plain area and ruts from ATVs.		Access to be restricted. Ponding within floodplain is not an issue for flood protection	Sep-09		✓	
083	Encroachments	M	M	East Levee	Flood Damage Reduction Channel	East Levee Sta. 568+70 had 100' diameter ponded flood plain area and ruts from ATVs.		Access to be restricted. Ponding within floodplain is not an issue for flood protection	Sep-09		✓	
115	Plant Building	M	M	Hampton Road Pumping Plant EL	Pump Station	Significant bowing of headwall at outlet for Old Hampton Pump House.		Headwall inspected, incorrectly formed and not in danger of failure. No action necessary.	Sep-09		✓	
141	Encroachments	U	M	WWTP	Embankment	Excavated pit behind the levee.		No Action - this refers to the concrete lined peak flow basin	Sep-09		✓	
193	Erosion/Bank Caving	M	Obs	WWTP	Embankment	Odd 24" diameter depression 30 feet off the river side toe of the north levee on the lawn.		Depression was repaired using established levee slide repair procedure.	Sep-09		✓	
198	Riprap Revetments & Bank Protection	M	M	WWTP	Embankment	Riprap at a discharge had grass growing in it.		Grass was removed.	Sep-09		✓	
200	Erosion/Bank Caving	M	M	WWTP	Embankment	Erosion around one discharge chute.		Erosion was repaired using established levee slide repair procedures.	Sep-09		✓	
202	Flap Gates/ Flap Valves/ Pinch Valves	M	M	WWTP	Interior Drainage	The bottom of a 24" round flap gate was silted in at the sewer plant.		Silt was removed and gate will be routinely inspected and cleared after rain events.	Sep-09		✓	
204	Riprap Revetments of Inlet/ Discharge Areas	M	M	WWTP	Interior Drainage	Vines in riprap above one discharge chute.		Vines were removed.	Sep-09		✓	
213	Settlement	M	M	Rochester	Embankment	Recent elevation survey records needed to verify current elevation.	Submittal required.	Required survey to be conducted by USACE as part of DFE contract.	Sep-09			✓
031	Erosion/ Bank Caving	U	M	East Levee	Embankment	Sylvan Ave Bridge Sta. 225+00 had erosion gully (12'L x 3'W x 1'D) on slope under bridge.		Slope under bridge was riprapped until new bridge is built in 2010.	Oct-09		✓	
051	Encroachments	U	U	East Levee	Interior Drainage	Turtle Creek Pressure Sewer - 6 trees growing in the upper section of a gabion retaining wall on the left side of the channel to the intake. Remove these trees.	City to submit corrective action plan for review/approval.	Trees were removed by cutting them at their base at the gabion wall and treated to prevent regrowth	Oct-09			✓
052	Encroachments	U	U	East Levee	Interior Drainage	Turtle Creek Pressure Sewer had a tree growing next to the right side box culvert at the intake.	City to submit corrective action plan for review/approval.	Tree was removed and the excavation backfilled following levee slide repair procedure.	Oct-09			✓

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094	Plant Building	M	M	Able Pump Station - EL	Pump Station	Able Pump Station - The bearing for the service bridge at the outlet works was cracked and settlement of the abutment at the levee end had resulted in binding of the anchor bolts.		Bearing, bolts and abutment have been repaired	Oct-09		✓	
096	Plant Building	M	M	Baker Pump Station - EL	Pump Station	Baker Pump Station - Service bridge tilted relative to bridge abutment and girder up tight against abutment.		This is not a structural issue and will be monitored annually to ensure no further cracking/spalling occurs.	Oct-09		✓	
100	Plant Building	M	M	Baker Pump Station - EL	Pump Station	There was a major fracture in the retaining wall at stairs behind Old Baker Pump House.		Concrete was doweled and patched. Ponding water and drainage issues were corrected.	Oct-09		✓	
101	Plant Building	M	Obs	Baker Pump Station - EL	Pump Station	Baker Pump Station - The fracture had been sealed but either the sealant had shrunk or further separation of the concrete had occurred and caused the sealant to fail. Lower concrete wall panel right of trash racks displaced 1 inch inward, possibly from co		Concrete was doweled and patched. Ponding water and drainage issues were corrected.	Oct-09		✓	
121	Structure	M	M	East Levee	Emergency Control Structure	The service bridge was tight against both the bridge abutment and control structure.		This is not a structural issue and will be monitored annually to ensure no cracking/spalling occurs.	Oct-09		✓	
178	Plant Building	U	M	Delta Pump Station - WL	Pump Station	Delta Pump Station - Bolt bent on bridge abutment at levee end of bridge.		This is not a structural issue and will be monitored annually to ensure no cracking/spalling or bolt shearing occurs.	Oct-09		✓	
180	Structure	M	M	Coombs Creek Pressure Diversion - WL	Pressure Conduit	Plate girder for bridge was up against abutment and rocker arm was rocked back further than it should be (this note was for "one" of the Coombs Creek Pressure Conduit bridges).		This is not a structural issue and will be monitored annually to ensure no cracking/spalling occurs.	Oct-09		✓	
007	Encroachments	U	U	East Levee	Embankment	Sta. 147+40 had construction stockpile on crest of levee.		The construction pile has been removed and the integrity of the site restored.	Nov-09		✓	
033	Erosion/ Bank Caving	U	M	East Levee	Embankment	Jefferson Bridge Sta. 97+50 had minor erosion on levee slope.		Slope paving was placed on levee under bridge.	Nov-09		✓	
114	Plant Building	M	M	Hampton Road Pumping Plant EL	Pump Station	The vertical joint at the corner in the left wing wall at the intake for the Old Hampton Pump Station had a 2 inch separation and the left wall had tilted toward the channel by 1/2 inch at the joint.		Expansion joint filler was removed and replaced. Erosion behind joint was repaired	Nov-09		✓	
187	Unwanted Vegetation Growth	M	M	WWTP	Embankment	Brush between landside north levee toe and the retention pond.		Brush was cleared.	Nov-09		✓	
003	Sod Cover	M	M	System	Embankment	Johnson grass growth was wide spread over entire project. The rapid growth hindered inspection and covered seepage.		Increased mowing cycles have been implemented.	Dec-09	X	✓	
018	Depressions/Rutting	M	M	East Levee	Embankment	Sta. 175+70, 380+00, 473+90, and 568+70 had rutting on levee slopes from ATV use.		Ruts have been repaired as necessary.	Dec-09	X	✓	
023	Slope Stability	M	M	East Levee	Embankment	Sta. 480+20 & 563+40 - Repaired channel side slide (bulging observed).		Previous channel slides are monitored and repaired as necessary.	Dec-09		✓	
025	Slope Stability	M	Obs	East Levee	Embankment	Sta. 320+00, 515+75, 520+00 & 524+25 to 530+75 - Repaired channel side slides. (Sta. 527+00)		Previous channel slides are monitored and repaired as necessary.	Dec-09		✓	
039	Animal Control	A	Obs	System	Embankment	No animal control program.		Animal Control program has been developed	Dec-09		✓	
042	Culverts/Discharge Pipes	M	Obs	East Levee	Embankment	Belleview Pressure Conduit - Damage to concrete around perimeter of outlet.		Concrete was repaired.	Dec-09		✓	
064	Foundation of Concrete Structures	U	Obs	East Levee	Interior Drainage	Erosion had created a 25 foot diameter pond just upstream of the Elm Fork Sluice discharge channel.		Ponded area will be monitored and addressed if needed, but is not currently an issue.	Dec-09		✓	
097	Plant Building	M	M	Baker Pump Station - EL	Pump Station	Baker Pump Station - Spall under bridge support at the control structure.		Loose concrete removed, rebar sealed and patched with cementitious material.	Dec-09		✓	
102	Plant Building	U	M	Charlie Pump Station - WL	Pump Station	Charlie Pump Station - Scaling concrete was on the bridge support corbel under the bridge girders at the control structure.		Loose concrete removed, rebar sealed and patched with cementitious material.	Dec-09		✓	
142	Erosion/ Bank Caving	M	M	West Levee	Embankment	I-35 Bridge northbound Sta. 52+50 had group of erosion gullies on riverside levee slope.		Slope paving was placed on levee slope under bridge.	Dec-09		✓	
149	Culverts/Discharge Pipes	M	M	West Levee	Interior Drainage	Little Coombs Creek Conduit - A failed patch over scour, second scour area, and 6" dia. hole in bottom of conduit.		Scour patches and hole were repaired using cementitious material.	Dec-09		✓	
169	Trash Racks (non-mechanical)	A	M	West Levee	Interior Drainage	Coombs Creek Pressure Diversion - Non-Mechanical Trash Racks at inlet was bent and had rust.		Trash rack was straightened and painted after the rust was removed.	Dec-09		✓	
183	Plant Building	U	M	Pavaho Pump Station - WL	Pump Station	Pavaho Pump Station - The intake right wing wall had a 1 inch separation from the intake.		Sealed with expansion joint sealant	Dec-09		✓	

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203	Flap Gates/ Flap Valves/ Pinch Valves	M	Obs	WWTP	Interior Drainage	Second flap gate under water.		Gate was and will be routinely inspected after rain events.	Dec-09		✓	
236	Culverts/Discharge Pipes	M	Obs	East Levee	Interior Drainage	Belleview Pressure Conduit - Damage to concrete around perimeter of outlet.		Concrete was repaired.	Dec-09		✓	
037	Depressions/Rutting	M	M	East Levee	Embankment	Railroad Bridge Sta. 147+70 had depression on slope below bridge.		Slopes under bridges were not flattened with levee slopes in 90s. Slopes inspected and not causing an issue, so no action is required.	Jan-10		✓	
059	Tilting, Sliding or Settlement of Concrete and Sheet Pile Structures	U	U	East Levee	Interior Drainage	Turtle Creek Pressure Sewer Sta. 194+13 had left discharge failing wing wall displaced 3 inches with erosion behind it (5'W x 4'L x 3'D) the offset between the headwall and wing wall appears to be getting worse over time.	City to submit corrective action plan for review/approval.	Erosion has been repaired. Wingwall will be monitored.	Jan-10			✓
060	Tilting, Sliding or Settlement of Concrete and Sheet Pile Structures	U	M	East Levee	Interior Drainage	Turtle Creek Pressure Sewer - Second wall joint had separated by 2 inches and moved channel ward by 1/4 inch relative wing wall.	City to submit corrective action plan for review/approval.	Erosion was repaired. Wingwall will be monitored.	Jan-10			✓
068	Sluice / Slide Gates	U	M	East Levee	Interior Drainage	Dallas Branch Pressure Conduit - Replacement of rusted bolts at the base of the stem for the right gate operator appears to have caused cracking in the concrete deck. The crack allows freeze/thaw damage.		Concrete deck was repaired using a cementitious material.	Jan-10		✓	
099	Plant Building	M	M	Baker Pump Station - EL	Pump Station	Cracking and spalling of the concrete panels at both the right and left side of the trash rack at New Baker Pump House.		Loose concrete removed and patched with a cementitious material.	Jan-10		✓	
105	Structure	M	M	Dallas Branch Pressure Conduit - EL	Pressure Conduit	Dallas Branch Pressure conduit - There was a 3 feet long crack in the right wing wall of the discharge chute with seepage flowing slowly from the bottom 5 inches of the crack.		Crack was sealed with epoxy sealant.	Jan-10		✓	
107	Structure	M	M	Woodall Rogers Pressure Outfall - EL	Pressure Outfall	Woodall Rogers Pressure Outfall - The concrete was cracked at the corners of the wing walls at the discharge basin.		Loose concrete removed and patched with a cementitious material.	Jan-10		✓	
146	Revetments other than Riprap	M	M	West Levee	Interior Drainage	Union Pacific Railroad Bridge Station 133+20 & Corinth Street Bridge Station 5+40 South Bank have depression in riverside levee slope protection under the bridge.		Slopes under bridges were not flattened with levee slopes in 90s. Slopes inspected and not causing an issue, so no action is required.	Jan-10		✓	
181	Plant Building	M	M	Little Coombs Creek Conduit - WL	Pressure Conduit	Little Coombs Creek Conduit - Service bridge abutment had moderate cracking.		Crack was sealed with epoxy sealant.	Jan-10		✓	
201	Encroachments	U	U	Rochester	Embankment	Sta. 51+00 had sanitary sewer control valve on the levee crest.	Unauthorized Encroachments. City to provide permit request with documentation.	With USACE approval, this item was moved to the DFE to be addressed with ID 207.	Jan-10			✓
220	Revetments other than Riprap	U	U	Rochester	Interior Drainage	Sta. 89+00 had intake gravity flow structure that had depressions on the gabion slopes on both sides of the intake caused by erosion of soil material under the gabions next to the wing walls. The right side had a 2 foot deep gully next to the wing wall (e		Gabion structure was removed, the depression repaired and gabion structure replaced.	Jan-10		✓	
012	Encroachments	U	M	East Levee	Embankment	Sta. 621+10 had 48" abandoned water line.	Unauthorized Encroachments. City to provide closure plan.	Utility in place prior to 1960 and on original levee design plans.	Feb-10			✓
116	Plant Building	M	M	Hampton Road Pumping Plant EL	Pump Station	Hampton Pump Station - Metal plates at the end of bridge deck and bridge abutment were butting up against each other.		Expansion joint gap has been restored.	Feb-10		✓	
132	Encroachments	U	U	West Levee	Embankment	Sta.466+50 had 8" petroleum line crossing over levee (streamlined).	Unauthorized Encroachments. City to provide permit request with documentation.	Utility in place prior to 1960 and on original levee design plans.	Feb-10			✓
134	Encroachments	U	U	West Levee	Embankment	Sta. 11+90 & 25+40 had line crossing levee.	Unauthorized Encroachments. City to provide permit request with documentation.	Utility in place prior to 1960 and on original levee design plans.	Feb-10			✓

February 2011 Update
Previously Address "M" and "U" Items

ID	Rated Item	Overall Rating	Remark Rating	Levee/ Structure	Template Section	Location/ Remarks/ Recommendations	Explanation	Proposed Correction Plan	Date Addressed	Routine Maintenance	No Corps Approval Req'd	Corps Approval Req'd
135	Encroachments	U	M	West Levee	Embankment	Sta. 244+80 & 309+30 had fiber optic line crossing over levee (not streamlined).	Unauthorized Encroachments. City to provide permit request with documentation.	Utility in place prior to 1960 and on original levee design plans.	Feb-10			✓
004	Sod Cover	M	Obs	East Levee	Embankment	Localized bare areas along the levee were more susceptible to cracking and erosion.		Levees were seeded as necessary.	Mar-10		✓	
				West Levee	Embankment	Localized bare areas along the levee were more susceptible to cracking and erosion.		Levees were seeded as necessary.	Mar-10		✓	
015	Encroachments	U	U	East Levee	Embankment	Highway 183 Bridge Sta. 546+30 had a void under the pier support beam on the river side levee crest.		Void has been repaired by TxDOT.	Mar-10		✓	
032	Erosion/ Bank Caving	U	M	East Levee	Embankment	I-30 Bridge Sta. 118+30 had multiple large erosion gullies on landside of levee slopes under bridge (30'L x 6'W x 5'D each).		Drainage from bridge deck was captured and diverted from levee slope.	Mar-10		✓	
036	Depressions/Rutting	M	M	East Levee	Embankment	Highway 183 Bridge Sta. 546+30 had 6 feet diameter depression/erosion on the levee slope.		Drainage from bridge deck will be captured and diverted from levee slope.	Mar-10		✓	
040	Culverts/Discharge Pipes	M	M	East Levee	Interior Drainage	Able Pump Station - There was a hole (12"W x 24"L) next to the concrete slab where water bubbles up through ground above the box conduits from the old pump house during times of high water.		Conduit was inspected and no issues were observed, therefore no action is required.	Mar-10		✓	
057	Intake and Discharge Pipelines	M	M	Turtle Creek Pressure Conduit - EL	Pressure Conduit	Turtle Creek Pressure Conduit had 4 locations where exposed steel reinforcement in ceiling of conduit were corroding and two locations where steel objects were protruding from the ceiling and left wall of the conduit (also, sweating forming on ceiling of	City to submit corrective action plan for review/approval.	Steel objects have been removed. Concrete around exposed reinforcing was removed and the reinforcement was sealed with epoxy and the hole patched with cementitious material.	Mar-10			✓
062	Foundation of Concrete Structures	U	M	East Levee	Interior Drainage	Baker Pump Station had erosion (4'W x 35'L) on the slope above the discharge chute, erosion (15'W x 35'L) on the left slope and erosion (50'W x 80'L) on the right side of the discharge channel.		Erosion was repaired using established levee repair procedure.	Mar-10		✓	
065	Monolith Joints	U	U	East Levee	Interior Drainage	DART railroad bridge - Some seals were out at joints in the floodwall near the bridge.		Seals have been replaced.	Mar-10		✓	
076	Monolith Joints	U	U	East Levee	Floodwall	DART Railroad Bridge - Some seals were out at joints in the floodwall near the DART railroad bridge.		Seals have been replaced.	Mar-10		✓	
093	Plant Building	M	M	Able Pump Station - EL	Pump Station	Able Pump Station - There was a misaligned joint in earth retaining wall at the outlet and a large concrete spall in upstream side of control tower.		This is not a structural issue and will be monitored annually to ensure no further separation occurs.	Mar-10		✓	
122	Unwanted Vegetation Growth	U	U	West Levee	Embankment	Eagle Ford Slice Sta. 479+72 had trees growing on the landside slope.		Trees have been removed.	Mar-10		✓	
144	Erosion/ Bank Caving	M	M	West Levee	Embankment	Walton Walker Bridge 475+65 had erosion gully next to pier.		Drainage from bridge deck was captured and diverted from levee slope.	Mar-10		✓	
153	Vegetation and Obstructions	U	U	West Levee	Interior Drainage	Eagle Ford Slice Sta. 479+72 had trees growing within levee toe drainage ditch and sediments filling in 60% of the inlet inflow		Trees have been removed.	Mar-10		✓	
177	Plant Building	U	M	Delta Pump Station - WL	Pump Station	Delta Pump Station - Erosion washed out soil from under a concrete structure behind the pump house.		Erosion was repaired using established levee slide repair procedure.	Mar-10		✓	
188	Encroachments	U	U	WWTP	Embankment	Odor control fan poles in the exterior levee slope (north and west side of levee)	Unauthorized Encroachment. No documentation of District Engineer review or authorization.	Fans were no longer being utilized and have been removed.	Mar-10			✓
217	Concrete Surfaces	M	M	Rochester	Interior Drainage	Sta. 89+00 the intake gravity flow structure that had 4 foot crack over the left box culvert.		Crack was injected with epoxy sealant.	Mar-10		✓	
224	Closure Structures	U	M	Rochester	Floodwall	The bottom seals on the stop logs for the closings at the railroad tracks were deformed near the ends due to the stop logs being stored with a section of the bottom seals resting on concrete stands.		Interim solution is HESCO Bastions. The bottom seals for stop logs will be taken into account during design of the permanent solution.	Mar-10		✓	

February 2011 Update
Previously Address "M" and "U" Items

ID	Rated Item	Overall Rating	Remark Rating	Levee/ Structure	Template Section	Location/ Remarks/ Recommendations	Explanation	Proposed Correction Plan	Date Addressed	Routine Maintenance	No Corps Approval Req'd	Corps Approval Req'd
225	Closure Structures	U	Obs	Rochester	Floodwall	It would be a good idea if when the seals were replaced to adapt the concrete stands to hold the stop logs without the rubber seals resting on the concrete, perhaps by cutting a groove in the concrete to remedy the situation (Observed).		Interim solution is HESCO Bastions. The bottom seals for stop logs will be taken into account during design of the permanent solution.	Mar-10		✓	
232	Closure Structures	U	U	East Levee	Floodwall	No record of trial erections completed		Interim solution is HESCO Bastions	Mar-10		✓	
067	Sluice/ Slide Gates	U	U	Able Pump Station - EL	Pump Station	Able Pump Station - Left gate in the tower was either loose or out of alignment. Either the guide was broken or the gate was raised too high and came off the guide. Most likely the guide had rusted and broke Floodway personnel will have to construct a		Sluice gate was replaced.	Apr-10		✓	
041	Intake and Discharge Pipelines	M	M	Turtle Creek Pressure Conduit - EL	Pressure Conduit	Turtle Creek Pressure Conduit - There was moderate seepage at some of the joints.	City to submit corrective action plan for review/approval.	Loose concrete was chipped out and patched with cementitious material.	Jun-10			✓
058	Concrete Surfaces	M	M	East Levee	Interior Drainage	Turtle Creek Pressure Conduit - There was moderate seepage at some of the joints.	City to submit corrective action plan for review/approval.	Loose concrete was chipped out and patched with cementitious material.	Jun-10			✓
069	Other Metallic Items	M	M	Baker Pump Station - EL	Pump Station	Baker Pump Station - Some corrosion on 4 flap gates.		Corrosion was neutralized and gate painted.	Jun-10		✓	
163	Foundation of Concrete Structures	M	M	West Levee	Interior Drainage	Charlie Pump Station had erosion gullies (Max. - at right side 5'W x 30'L x 3'D) on both slopes of the discharge channel and erosion on the right toe (5'W x 10'L) of the discharge channel.		Erosion was repaired using established levee slide repair procedure.	Jun-10		✓	
165	Foundation of Concrete Structures	M	M	West Levee	Interior Drainage	Coombs Creek Pressure Sewer had erosion above the chute (2 gullies) and on the right slope (10'W x 25' L x 2'D) of the discharge channel.		Erosion was repaired using established levee slide repair procedure.	Jun-10		✓	
166	Foundation of Concrete Structures	M	M	West Levee	Interior Drainage	Little Coombs Creek Pressure Conduit had erosion gully on the right slope (5'W x 12'L x 2'D) of the discharge channel.		Erosion was repaired using established levee slide repair procedure.	Jun-10		✓	
167	Foundation of Concrete Structures	M	M	West Levee	Interior Drainage	Pavaho discharge channel had a slope slide on the entire left bank (35'W x 150'L) and another slide (12'W x 20'L) on the right lower slope.		Erosion was repaired using established levee slide repair procedures.	Jun-10		✓	
019	Closure Structures	U	U	East Levee	Floodwall	2 Stop log gate structures had been compromised by unauthorized removal of the sill.	City to submit corrective action plan for review/approval.	Interim solution of HESCO Bastions has been implemented.	Jul-10			✓
020	Closure Structures	U	U	East Levee	Floodwall	The locations for placement of center posts for the stop logs were not visible.	City to submit corrective action plan for review/approval.	Interim solution of HESCO Bastions has been implemented.	Jul-10			✓
022	Closure Structures	U	U	East Levee	Embankment	Seepage under the stop logs through the RxR ballast expected.	City to submit corrective action plan for review/approval.	Interim solution of HESCO Bastions has been implemented.	Jul-10			✓
028	Erosion/ Bank Caving	U	U	East Levee	Embankment	DART Bridge Sta. 13+50 to 22+00 had erosion around bridge piers on the landside crest of the levee resulting from rain runoff from the bridge. This had reduced the levee crest width for thru seepage. Filter fabric and 12" stone protection had been placed	City to submit corrective action plan for review/approval.	DART installed deck drains along the bridge which outlet beyond the levees in the floodway an repair the erosion on the levees.	Jul-10			✓
131	Encroachments	U	U	West Levee	Embankment	Sta. 329+70 had 6" jet fuel pipeline crossing.	Permitted Encroachment. DE Authorization dated 3 JUN 1993. Pipeline Safety evaluation needed.	Utility in place prior to 1960 and on original levee design plans.	Jul-10			✓
161	Structure	M	M	Coombs Creek Pressure Diversion - WL	Pressure Conduit	Right wing wall at Coombs Creek Pressure Diversion had a 3 inch separated joint with exposed rebar.		Removed loose concrete, sealed rebar and patched with cementitious material.	Jul-10		✓	
189	Encroachments	U	U	WWTP	Embankment	Chain link fence with 12" concrete strip foundation running along the river side levee crest edge (north, east, and south side of levee).	Unauthorized Encroachments. City to provide permit request with documentation.	Fence is not an issue and is a required as the CWWTP is critical infrastructure, therefore No Action is Required.	Jul-10			✓
209	Closure Structures	U	U	Rochester	Embankment	Three active closures. The RxR closure at Rail Road Street had been damaged.	City to submit corrective action plan for review/approval.	Interim solution of HESCO Bastions has been implemented.	Jul-10			✓

February 2011 Update
Previously Address "M" and "U" Items

ID	Rated Item	Overall Rating	Remark Rating	Levee/ Structure	Template Section	Location/ Remarks/ Recommendations	Explanation	Proposed Correction Plan	Date Addressed	Routine Maintenance	No Corps Approval Req'd	Corps Approval Req'd
222	Closure Structures	U	U	Rochester	Floodwall	Three active closures. The "levee closure" structure for the railroad tracks did not have a concrete sill to effect a seal when the stop log is placed in the closure	City to submit corrective action plan for review/approval.	Interim solution of HESCO Bastions has been implemented.	Jul-10			✓
056	Fencing and Gates	A	Obs	East Levee	Interior Drainage	ATVs gaining unauthorized access.		Those locations where unauthorized access is occurring was closed.	Aug-10		✓	
212	Erosion/ Bank Caving	M	M	Rochester	Embankment	Sta. 87+00 – Area of erosion gullies (60'L x 10'W x 18"D) on the west side slope of the pump house.		Erosion gully was repaired using established levee repair procedure.	Aug-10		✓	
218	Plant Building	M	M	Rochester	Pump Station	There was soil erosion at the right side of the inlet and erosion (6'L x 2'W x 10"D) behind the right wing wall of the pump house intake for the Rochester Pump Station.		Soil erosion was repaired using established levee repair procedure.	Aug-10		✓	
009	Encroachments	U	M	East Levee	Embankment	Sta. 286+80 have fiber optic line crossing over levee (not streamlined).	Apparent Permitted Encroachment. DE Authorization dated 18 NOV 1988.	Concrete drainage channels were added to utility crossing.	Nov-10		✓	
010	Encroachments	U	M	East Levee	Embankment	Sta. 364+60 have fiber optic line crossing over levee (not streamlined).	Apparent Permitted Encroachment. DE Authorization dated 17 May 1999.	Concrete drainage channels were added to utility crossing.	Nov-10		✓	
011	Encroachments	U	M	East Levee	Embankment	Sta. 286+95 had fiber optic line crossing over levee.	Apparent Unauthorized Encroachment. Need to verify if this is same as ID 009.	This is the same as ID 009.	Nov-10		✓	
130	Encroachments	U	U	West Levee	Embankment	Sta. 253+70 had gas line crossing levee (not streamlined).	Unauthorized Encroachments. City to provide permit request with documentation.	Concrete drainage channels were added to utility crossing.	Nov-10			✓
002	Unwanted Vegetation Growth	U	Obs	System	Embankment	A survey of areas where trees were within 50 feet of levee toes needs to be conducted in the future. (Trees at Sta. 473+90, 524+25)		With USACE approval, all trees interfering with flood fighting activities were removed by a city contractor.	Jan-11		✓	
054	Encroachments	U	Obs	East Levee	Interior Drainage	Trees growing around levee toe sumps.		With USACE approval, all trees interfering with flood fighting activities were removed by a city contractor.	Jan-11		✓	
123	Unwanted Vegetation Growth	U	U	West Levee	Embankment	Sta. 350+00, 371+50, 376+50, and near HWY 30 had trees within 50 feet of levee toes.		With USACE approval, all trees interfering with flood fighting activities were removed by a city contractor.	Jan-11		✓	
205	Unwanted Vegetation Growth	U	U	Rochester	Embankment	Large trees within 50 feet of landside levee toe.		With USACE approval, all trees interfering with flood fighting activities were removed by a city contractor.	Jan-11		✓	
227	Unwanted Vegetation Growth	U	U	East Levee	Embankment	Sta. 147+70 - had tree growing on the river side levee toe.		With USACE approval, all trees interfering with flood fighting activities were removed by a city contractor.	Jan-11		✓	
228	Unwanted Vegetation Growth	U	U	East Levee	Embankment	Sta. 473+90, 524+25, & I-30 - Trees within 50 feet of levee toes.		With USACE approval, all trees interfering with flood fighting activities were removed by a city contractor.	Jan-11		✓	
080	Shoaling (sediment deposition)	U	U	East Levee	Flood Damage Reduction Channel	Shoaling with established vegetation was causing the diversion of the channel into the levee at Belleview Pressure Conduit.		The outfall slopes were repaired and protected with grouted riprap.	Feb-11		✓	
233	Riprap Revetments & Banks	U	U	East Levee	Flood Damage Reduction Channel	Erosion of the bank toward the levee at Belleview Pressure Conduit.		The outfall slopes were repaired and protected with grouted riprap.	Feb-11		✓	

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APPENDIX D

Cost Estimates and Construction Schedules

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COST ESTIMATES AND CONSTRUCTION SCHEDULES

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Category	TRINITY PARKWAY BUILD ALTERNATIVES			
	2A	2B	3C	4B
CONSTRUCTION COSTS (CURRENT $)				
ROADWAY	27,990,880	60,136,550	147,168,338	141,693,000
STRUCTURES	770,665,900	484,935,650	444,980,520	487,804,450
DRAINAGE	16,675,000	17,376,000	20,673,000	26,818,500
MISCELLANEOUS	221,202,335	226,233,215	131,242,985	133,017,070
TOLL PLAZAS	7,600,000	7,600,000	7,600,000	7,600,000
MAINTENANCE FACILITIES	11,300,000	11,300,000	11,300,000	11,300,000
MOBILIZATION (10%)	105,543,412	80,758,142	76,296,485	80,823,302
SUBTOTAL- CONSTRUCTION COSTS	1,160,977,527	888,339,557	839,261,328	889,056,322
CONSTRUCTION CONTINGENCIES (20%)	232,195,506	177,667,912	167,852,266	177,811,265
TOTAL CONSTRUCTION COST (CURRENT $)	1,393,173,033	1,066,007,469	1,007,113,594	1,066,867,587
ITS COSTS (CURRENT $)				
SUBTOTAL- ITS COSTS	8,550,000	8,550,000	8,550,000	8,550,000
CONTINGENCIES (20%)	1,710,000	1,710,000	1,710,000	1,710,000
TOTAL ITS COST (CURRENT $)	10,260,000	10,260,000	10,260,000	10,260,000
R.O.W. & UTILITY COSTS (CURRENT $)				
SUBTOTAL- R.O.W. & UTILITY COSTS	601,002,865	520,354,710	142,056,826	103,208,412
TOTAL R.O.W. & UTILITY COSTS (CURRENT $)	601,002,865	520,354,710	142,056,826	103,208,412
SOFT COSTS (CURRENT $)				
SUBTOTAL- SOFT COSTS	355,259,124	271,831,905	256,813,967	272,051,235
TOTAL AGENCY COST (CURRENT $)	355,259,124	271,831,905	256,813,967	272,051,235
PROJECT COST SUMMARY (CURRENT $) - ROUNDED UP				
CONSTRUCTION COST	1,393,173,033	1,066,007,469	1,007,113,594	1,066,867,587
ITS COST	10,260,000	10,260,000	10,260,000	10,260,000
R.O.W. & UTILITY COST	601,002,865	520,354,710	142,056,826	103,208,412
SOFT COST	355,259,124	271,831,905	256,813,967	272,051,235
TOTAL PROJECT COST (CURRENT $)	2,359,696,000	1,868,455,000	1,416,245,000	1,452,388,000
PROJECT COST SUMMARY (ESCALATED $) - ROUNDED UP				
ESCALATED CONSTRUCTION COST	1,762,808,335	1,348,839,524	1,274,319,984	1,349,927,848
ESCALATED ITS COST	12,982,173	12,982,173	12,982,173	12,982,173
R.O.W. & UTILITY COST	601,002,865	520,354,710	142,056,826	103,208,412
ESCALATED SOFT COST	449,516,126	343,954,079	324,951,597	344,231,602
TOTAL PROJECT COST (ESCALATED $)	2,826,310,000	2,226,131,000	1,754,311,000	1,810,351,000

1/4/2012

TOTAL PROJECT COST
TRINITY PARKWAY - ALT 2A
IH 35E TO US 175 (9.9 MILES) / SIX GP LANES (ULTIMATE SECTION)

PRELIMINARY/CONCEPTUAL ESTIMATE OF PROBABLE COSTS OF CONSTRUCTION

LEVEL "E" SCHEMATIC PHASE ESTIMATE

Version _____

Created By: JWM
Date: 3/1/2011
Checked by: MGC
Date: 1/4/2012

Official Estimate Date: 3/1/2011
Mid-point of Anticipated Construction: 7/1/2017
Anticipated Construction Duration:

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
1.0 ROADWAY					
1.01 A	Mainlane Pavement	24,240	SY	$ 70	$ 1,696,800
1.01 B	Asphalt Shoulders	28,500	SY	$ 50	$ 1,425,000
1.02	Frontage Road Pavement	220,122	SY	$ 70	$ 15,408,540
1.03	Ramp Pavement	25,682	SY	$ 70	$ 1,797,740
1.04	Cross Street Pavement	0	SY	$ 70	$ -
1.05	Monolithic Curb	52,270	LF	$ 2	$ 104,540
1.06	Pavement Striping (Solid)	397,780	LF	$ 2	$ 795,560
1.07	Pavement Striping (Broken)	85,550	LF	$ 2	$ 171,100
1.08	Concrete Traffic Barrier	43,520	LF	$ 50	$ 2,176,000
1.09	Excavation	9,120	CY	$ 5	$ 45,600
1.10	Embankment	267,500	CY	$ 10	$ 2,675,000
1.11	Embankment (Borrow)	113,000	CY	$ 15	$ 1,695,000
SUBTOTAL ROADWAY					**$ 27,990,880**
2.0 STRUCTURES					
2.01	Main Lane Bridge (Standard)	475,680	SF	$ 60	$ 28,540,800
2.02	Main Lane Bridge (Special)	5,247,120	SF	$ 95	$ 498,476,400
2.03	Frontage Road Bridge (Standard)	0	SF	$ 60	$ -
2.04	Frontage Road Bridge (Special)	0	SF	$ 95	$ -
2.05	Ramp Bridge (Standard)	175,360	SF	$ 60	$ 10,521,600
2.06	Ramp Bridge (Special)	1,130,500	SF	$ 95	$ 107,397,500
2.07	Cross Street Bridge	0	SF	$ 60	$ -
2.08	Retaining Wall (Cut)	0	SF	$ 42	$ -
2.09	Retaining Wall (Fill)	373,270	SF	$ 35	$ 13,064,450
2.10	Flood Wall	0	SF	$ 50	$ -
2.11	Park Access Bridge	0	SF	$ 56	$ -
2.12	Pedestrian Access Bridge	0	SF	$ 54	$ -
2.13	Reunion Pedestrian Platform	0	EA	$ 7,748,810	$ -
2.14	Bridge Widening (Standard)	9,360	SF	$ 90	$ 842,400
2.15	Bridge Widening (Special)	860,175	SF	$ 130	$ 111,822,750
SUBTOTAL STRUCTURES					**$ 770,665,900**
3.0 DRAINAGE					
3.01	Drainage	547	STA	$ 25,000	$ 13,675,000
3.02	Storm Drainage Lift Station	0	EA	$ 263,000	$ -
3.03	Large Drainage Structures	6,000	LF	$ 500	$ 3,000,000
3.04	Extend Pump Station/Sewer Outfall	0	EA	$ 817,500	$ -
SUBTOTAL DRAINAGE					**$ 16,675,000**
4.0 MISCELLANEOUS					
4.01 A	Demolition - Bridge Structure (0'-99')	0	EA	$ 15,000	$ -
4.01 B	Demolition - Bridge Structure (100'-499')	0	EA	$ 40,000	$ -
4.01 C	Demolition - Bridge Structure (500'-999')	3	EA	$ 100,000	$ 300,000
4.01 D	Demolition - Bridge Structure (>999')	0	EA	$ 200,000	$ -
4.02	Demolition - Pavement	220,987	SY	$ 5	$ 1,104,935
4.03	Sodding including Top Soil	85,660	SY	$ 3	$ 256,980
4.04	Intersection Signalization	19	EA	$ 150,000	$ 2,850,000
4.05	Signage	547	STA	$ 20,000	$ 10,940,000
4.06	Lighting	547	STA	$ 10,000	$ 5,470,000
4.07	Landscape	10	MI.	$ 1,000,000	$ 10,000,000

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
4.08	SWP3	547	STA	$ 10,000	$ 5,470,000
4.09	R.O.W. Fence	104,544	LF	$ 15	$ 1,568,160
4.10	Environmental Mitigation	1	LS	$ 48,208,400	$ 48,208,400
4.11	Mow Strip	154,176	LF	$ 25	$ 3,854,400
4.12	Concrete Sidewalk	31,556	SY	$ 35	$ 1,104,460
4.13	R.O.W. Prep	547	STA	$ 25,000	$ 13,675,000
4.14	Traffic Control (Urban)	547	STA	$ 200,000	$ 109,400,000
4.15	Traffic Control (Floodway)	0	STA	$ 5,000	$ -
4.16	Wick Drains	70	AC	$ 100,000	$ 7,000,000
SUBTOTAL MISCELLANEOUS					**$ 221,202,335**

5.0 GANTRIES

5.01	ETC Mainlane Gantry	4	Each	$ 1,000,000	$ 4,000,000
5.02	ETC Ramp Gantry	12	Each	$ 300,000	$ 3,600,000
SUBTOTAL Gantries					**$ 7,600,000**

6.0 MAINTENANCE FACILITIES

***	Maintenance Facilities	1	EA	$ 10,000,000	$ 10,000,000
***	Sand Stockpile	1	EA	$ 1,200,000	$ 1,200,000
***	Asset Data Management	1	EA	$ 100,000	$ 100,000
SUBTOTAL MAINTENANCE FACILITIES					**$ 11,300,000**

CONSTRUCTION COST SUMMARY

SUBTOTAL CONSTRUCTION	**$ 1,055,434,115**
Mobilization (10%)	**$ 105,543,412**
Subtotal Construction	**$ 1,160,977,527**
Construction Contingency (20%)	**$ 232,195,506**
TOTAL CONSTRUCTION COST (CURRENT DOLLARS)	**$ 1,393,173,033**
ESCALATED TOTAL CONSTRUCTION COST TO MID-POINT OF CONSTRUCTION (ENR CCI PROJECTION)	**$ 1,762,808,335**

7.0 ITS

7.01	CCTV	20	Each	$ 30,000	$ 600,000
7.02	Dynamic Messaging Sign	4	Each	$ 250,000	$ 1,000,000
7.03	Pavement Sensors	2	Each	$ 20,000	$ 40,000
7.04	AVI Travel Time Sensors	20	Each	$ 15,000	$ 300,000
7.05	Electronic Tolling Equipment	40	Lane	$ 80,000	$ 3,200,000
7.06	Fiber Optic (2 Operational Conduits)	9	Mile	$ 300,000	$ 2,610,000
7.07	Signage	40	Lane	$ 20,000	$ 800,000
SUBTOTAL ITS					**$ 8,550,000**
CONTINGENCY (20%)					**$ 1,710,000**
SUBTOTAL ITS COST					**$ 10,260,000**
ESCALATED TOTAL ITS COST TO MID-POINT OF CONSTRUCTION					**$ 12,982,173**

8.0 R.O.W. & UTILITIES

8.01	Land and Displacement(Acquisitions, relocations, demolition, fees)				$ 510,806,437
8.02 A	Relocate Small Utility Lines (<8")	32,449	LF	$ 90	$ 2,920,410
8.02 B	Relocate Medium Utility Lines (10"-21")	27,499	LF	$ 200	$ 5,499,800
8.02 C	Relocate Large Utility Lines (24"-42")	13,749	LF	$ 390	$ 5,362,110
8.02 D	Relocate Small Drainage Lines (<18")	32,449	LF	$ 120	$ 3,893,880
8.02 E	Relocate Medium Drainage Lines (21"-42")	27,499	LF	$ 190	$ 5,224,810
8.02 F	Relocate Large Drainage Lines (48"-72")	14,049	LF	$ 370	$ 5,198,130
8.02 G	Relocate Fiber Optics Line	27,499	LF	$ 250	$ 6,874,750
8.02 H	Relocate Transmission Tower	2	EA	$ 400,000	$ 800,000
8.02 I	Adjust Transmission Tower	58	EA	$ 400,000	$ 23,200,000
8.02 J	Relocate U/G Electric Distribution Line	22,549	LF	$ 200	$ 4,509,800
8.02 K	Relocate Overhead Transmission Line	8,000	LF	$ 210	$ 1,680,000
8.02 L	Relocate Electric Substation	1	EA	$ 10,000,000	$ 10,000,000
8.02 M	Utility Contingencies (20%)	1	LS	$15,032,738.0	$ 15,032,738
SUBTOTAL R.O.W. & UTILITIES					**$ 601,002,865**

9.0 SOFT COST

Subtotal Construction Cost		**$ 1,393,173,033**
9.01	**Administrative**	
	GEC / PMO (2.25%)	**$ 31,346,393**

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
	Corridor Management (2.5%)				$ 34,829,326
	Legal Consulting Fees (0.5%)				$ 6,965,865
9.02	**Planning**				
	Feasibility Studies & Advanced Planning (0.75%)				$ 10,448,798
	Cost of Finance (0.75%)				$ 10,448,798
	EIS/EA Schematic (0.5%)				$ 6,965,865
9.03	**Design**				
	PS&E (6.5%) (DSE, geotechnical, pavement, landscaping, MSE wall design)				$ 90,556,247
	Surveying (0.25%)				$ 3,482,933
9.04	**R.O.W. Acquisition Consultant (1.5%) (RAT Team, asbestos insp. & abatement)**				$ 20,897,595
9.05	**Construction Support**				
	Construction Management (6.75%)				$ 94,039,180
	Materials Testing & Environmental Compliance (1.25%)				$ 17,414,663
	Wall Engineer (0.25%)				$ 3,482,933
	Independent Assurance (0.75%)				$ 10,448,798
9.06	**Reimbursements (1%)**				$ 13,931,730
9.07	**Special Services Consultant**				$ -
9.08	**Unique Features (historic sites, wetlands) - Optional**				$ -
Subtotal Soft Cost					$ 355,259,124
ESCALATED TOTAL SOFT COST TO MID-POINT OF CONSTRUCTION					$ 449,516,126

TOTAL PROJECT COST SUMMARY (CURRENT DOLLARS)

Total Construction Cost		$ 1,393,173,033
Total ITS Cost		$ 10,260,000
Total R.O.W. & Utilities		$ 601,002,865
Total Soft Cost		$ 355,259,124
TOTAL PROJECT COST (CURRENT DOLLARS)		$ 2,359,695,022
	SAY	$ 2,359,696,000

TOTAL PROJECT COST SUMMARY (ESCALATED)

Escalated Total Construction Cost		$ 1,762,808,335
Escalated Total ITS		$ 12,982,173
Total R.O.W. & Utilities		$ 601,002,865
Escalated Total Soft Cost		$ 449,516,126
TOTAL PROJECT COST (ESCALATED)		$ 2,826,309,499
	SAY	$ 2,826,310,000

REPORTING COST DISTRIBUTION

Professional Services		$ 92,547,438
Planning		$ 35,256,167
Design		$ 118,989,563
Other		$ 17,628,083
Gantries		$ 10,578,067
ITS		$ 12,982,173
Right-of-Way and Utilities		$ 627,444,990
Construction Management		$ 158,652,750
Construction/Installation		$ 1,442,700,962
Construction Contingency		$ 293,801,389
Maintenance Facilities		$ 15,727,915
TOTAL PROJECT COST		$ 2,826,309,497
	SAY	$ 2,826,310,000

Notes:

1) The unit costs to construct this facility are based on the unit prices of recently constructed similar facilities and/or the latest average unit prices of TxDOT projects.
2) Preliminary horizontal and vertical alignments are developed. Approximate quantities of major roadway and structure elements can be calculated.
3) Proposed drainage and utilities elements are not developed and quantities are not calculated individually yet.
4) Major above surface utility relocations could be identified (i.e. electric transmission lines, telephone poles, etc).
5) Approximate right-of-way needs can be estimated.
6) Approximate ITS elements needs can be identified.
7) Unit costs of similar projects are used to calculate construction cost.
8) Contingencies are applied to construction and ITS cost.
9) The proposed Jefferson Street Bridge replacement is a TxDOT project and therefore not included in this cost estimate.

TOTAL PROJECT COST
TRINITY PARKWAY - ALT 2B
IH 35E TO US 175 (9.9 MILES) / SIX GP LANES (ULTIMATE SECTION)

PRELIMINARY/CONCEPTUAL ESTIMATE OF PROBABLE COSTS OF CONSTRUCTION

LEVEL "E" SCHEMATIC PHASE ESTIMATE

Version _____

Created By: JWM
Date: 3/1/2011
Checked by: MGC
Date: 1/4/2012

Official Estimate Date: 3/1/2011
Mid-point of Anticipated Construction: 7/1/2017
Anticipated Construction Duration:

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
1.0 ROADWAY					
1.01 A	Mainlane Pavement	237,740	SY	$ 70	$ 16,641,800
1.01 B	Asphalt Shoulders	73,394	SY	$ 50	$ 3,669,700
1.02	Frontage Road Pavement	252,250	SY	$ 70	$ 17,657,500
1.03	Ramp Pavement	15,493	SY	$ 70	$ 1,084,510
1.04	Cross Street Pavement	0	SY	$ 70	$ -
1.05	Monolithic Curb	119,600	LF	$ 2	$ 239,200
1.06	Pavement Striping (Solid)	421,270	LF	$ 2	$ 842,540
1.07	Pavement Striping (Broken)	83,600	LF	$ 2	$ 167,200
1.08	Concrete Traffic Barrier	99,370	LF	$ 50	$ 4,968,500
1.09	Excavation	180,200	CY	$ 5	$ 901,000
1.10	Embankment	1,057,460	CY	$ 10	$ 10,574,600
1.11	Embankment (Borrow)	226,000	CY	$ 15	$ 3,390,000
SUBTOTAL ROADWAY					**$ 60,136,550**
2.0 STRUCTURES					
2.01	Main Lane Bridge (Standard)	679,680	SF	$ 60	$ 40,780,800
2.02	Main Lane Bridge (Special)	3,091,920	SF	$ 95	$ 293,732,400
2.03	Frontage Road Bridge (Standard)	0	SF	$ 60	$ -
2.04	Frontage Road Bridge (Special)	0	SF	$ 95	$ -
2.05	Ramp Bridge (Standard)	380,080	SF	$ 60	$ 22,804,800
2.06	Ramp Bridge (Special)	817,000	SF	$ 95	$ 77,615,000
2.07	Cross Street Bridge	0	SF	$ 60	$ -
2.08	Retaining Wall (Cut)	0	SF	$ 42	$ -
2.09	Retaining Wall (Fill)	423,450	SF	$ 35	$ 14,820,750
2.10	Flood Wall	0	SF	$ 50	$ -
2.11	Park Access Bridge	0	SF	$ 56	$ -
2.12	Pedestrian Access Bridge	0	SF	$ 54	$ -
2.13	Reunion Pedestrian Platform	0	EA	$ 7,748,810	$ -
2.14	Bridge Widening (Standard)	9,360	SF	$ 90	$ 842,400
2.15	Bridge Widening (Special)	264,150	SF	$ 130	$ 34,339,500
SUBTOTAL STRUCTURES					**$ 484,935,650**
3.0 DRAINAGE					
3.01	Drainage	546	STA	$ 25,000	$ 13,650,000
3.02	Storm Drainage Lift Station	2	EA	$ 263,000	$ 526,000
3.03	Large Drainage Structures	6,400	LF	$ 500	$ 3,200,000
3.04	Extend Pump Station/Sewer Outfall	0	EA	$ 817,500	$ -
SUBTOTAL DRAINAGE					**$ 17,376,000**
4.0 MISCELLANEOUS					
4.01 A	Demolition - Bridge Structure (0'-99')	0	EA	$ 15,000	$ -
4.01 B	Demolition - Bridge Structure (100'-499')	0	EA	$ 40,000	$ -
4.01 C	Demolition - Bridge Structure (500'-999')	1	EA	$ 100,000	$ 100,000
4.01 D	Demolition - Bridge Structure (>999')	1	EA	$ 200,000	$ 200,000
4.02	Demolition - Pavement	289,867	SY	$ 5	$ 1,449,335
4.03	Sodding including Top Soil	85,660	SY	$ 3	$ 256,980
4.04	Intersection Signalization	19	EA	$ 150,000	$ 2,850,000
4.05	Signage	546	STA	$ 20,000	$ 10,920,000
4.06	Lighting	546	STA	$ 10,000	$ 5,460,000
4.07	Landscape	10	MI.	$ 1,000,000	$ 9,700,000

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
4.08	SWP3	546	STA	$ 10,000	$ 5,460,000
4.09	R.O.W. Fence	104,544	LF	$ 15	$ 1,568,160
4.10	Environmental Mitigation	1	LS	$ 45,238,800	$ 45,238,800
4.11	Mow Strip	154,176	LF	$ 25	$ 3,854,400
4.12	Concrete Sidewalk	66,444	SY	$ 35	$ 2,325,540
4.13	R.O.W. Prep	546	STA	$ 25,000	$ 13,650,000
4.14	Traffic Control (Urban)	546	STA	$ 200,000	$ 109,200,000
4.15	Traffic Control (Floodway)	0	STA	$ 5,000	$ -
4.16	Wick Drains	140	AC	$ 100,000	$ 14,000,000
SUBTOTAL MISCELLANEOUS					**$ 226,233,215**

5.0 GANTRIES

5.01	ETC Mainlane Gantry	4	Each	$ 1,000,000	$ 4,000,000
5.02	ETC Ramp Gantry	12	Each	$ 300,000	$ 3,600,000
SUBTOTAL Gantries					**$ 7,600,000**

6.0 MAINTENANCE FACILITIES

***	Maintenance Facilities	1	EA	$ 10,000,000	$ 10,000,000
***	Sand Stockpile	1	EA	$ 1,200,000	$ 1,200,000
***	Asset Data Management	1	EA	$ 100,000	$ 100,000
SUBTOTAL MAINTENANCE FACILITIES					**$ 11,300,000**

CONSTRUCTION COST SUMMARY

SUBTOTAL CONSTRUCTION	**$ 807,581,415**
Mobilization (10%)	**$ 80,758,142**
Subtotal Construction	**$ 888,339,557**
Construction Contingency (20%)	**$ 177,667,912**
TOTAL CONSTRUCTION COST (CURRENT DOLLARS)	**$ 1,066,007,469**
ESCALATED TOTAL CONSTRUCTION COST TO MID-POINT OF CONSTRUCTION (ENR CCI PROJECTION)	**$ 1,348,839,524**

7.0 ITS

7.01	CCTV	20	Each	$ 30,000	$ 600,000
7.02	Dynamic Messaging Sign	4	Each	$ 250,000	$ 1,000,000
7.03	Pavement Sensors	2	Each	$ 20,000	$ 40,000
7.04	AVI Travel Time Sensors	20	Each	$ 15,000	$ 300,000
7.05	Electronic Tolling Equipment	40	Lane	$ 80,000	$ 3,200,000
7.06	Fiber Optic (2 Operational Conduits)	9	Mile	$ 300,000	$ 2,610,000
7.07	Signage	40	Lane	$ 20,000	$ 800,000
SUBTOTAL ITS					**$ 8,550,000**
CONTINGENCY (20%)					**$ 1,710,000**
SUBTOTAL ITS COST					**$ 10,260,000**
ESCALATED TOTAL ITS COST TO MID-POINT OF CONSTRUCTION					**$ 12,982,173**

8.0 R.O.W. & UTILITIES

8.01	Land and Displacement(Acquisitions, relocations, demolition, fees)				$ 437,836,650
8.02 A	Relocate Small Utility Lines (<8")	32,401	LF	$ 90	$ 2,916,090
8.02 B	Relocate Medium Utility Lines (10"-21")	27,451	LF	$ 200	$ 5,490,200
8.02 C	Relocate Large Utility Lines (24"-42")	13,725	LF	$ 390	$ 5,352,750
8.02 D	Relocate Small Drainage Lines (<18")	32,401	LF	$ 120	$ 3,888,120
8.02 E	Relocate Medium Drainage Lines (21"-42")	27,451	LF	$ 190	$ 5,215,690
8.02 F	Relocate Large Drainage Lines (48"-72")	14,025	LF	$ 370	$ 5,189,250
8.02 G	Relocate Fiber Optics Line	27,451	LF	$ 250	$ 6,862,750
8.02 H	Relocate Transmission Tower	5	EA	$ 400,000	$ 2,000,000
8.02 I	Adjust Transmission Tower	57	EA	$ 400,000	$ 22,800,000
8.02 J	Relocate U/G Electric Distribution Line	22,501	LF	$ 200	$ 4,500,200
8.02 K	Relocate Overhead Transmission Line	20,000	LF	$ 210	$ 4,200,000
8.02 L	Relocate Electric Substation	1	EA	$ 350,000	$ 350,000
8.02 M	Utility Contingencies (20%)	1	LS	$13,753,010.0	$ 13,753,010
SUBTOTAL R.O.W. & UTILITIES					**$ 520,354,710**

9.0 SOFT COST

Subtotal Construction Cost		**$ 1,066,007,469**
9.01	**Administrative**	
	GEC / PMO (2.25%)	**$ 23,985,168**

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
	Corridor Management (2.5%)				$ 26,650,187
	Legal Consulting Fees (0.5%)				$ 5,330,037
9.02	**Planning**				
	Feasibility Studies & Advanced Planning (0.75%)				$ 7,995,056
	Cost of Finance (0.75%)				$ 7,995,056
	EIS/EA Schematic (0.5%)				$ 5,330,037
9.03	**Design**				
	PS&E (6.5%) (DSE, geotechnical, pavement, landscaping, MSE wall design)				$ 69,290,485
	Surveying (0.25%)				$ 2,665,019
9.04	**R.O.W. Acquisition Consultant (1.5%) (RAT Team, asbestos insp. & abatement)**				$ 15,990,112
9.05	**Construction Support**				
	Construction Management (6.75%)				$ 71,955,504
	Materials Testing & Environmental Compliance (1.25%)				$ 13,325,093
	Wall Engineer (0.25%)				$ 2,665,019
	Independent Assurance (0.75%)				$ 7,995,056
9.06	**Reimbursements (1%)**				$ 10,660,075
9.07	**Special Services Consultant**				$ -
9.08	**Unique Features (historic sites, wetlands) - Optional**				$ -
Subtotal Soft Cost					$ 271,831,905
ESCALATED TOTAL SOFT COST TO MID-POINT OF CONSTRUCTION					$ 343,954,079

TOTAL PROJECT COST SUMMARY (CURRENT DOLLARS)

Total Construction Cost		$ 1,066,007,469
Total ITS Cost		$ 10,260,000
Total R.O.W. & Utilities		$ 520,354,710
Total Soft Cost		$ 271,831,905
TOTAL PROJECT COST (CURRENT DOLLARS)		$ 1,868,454,084
	SAY	$ 1,868,455,000

TOTAL PROJECT COST SUMMARY (ESCALATED)

Escalated Total Construction Cost		$ 1,348,839,524
Escalated Total ITS		$ 12,982,173
Total R.O.W. & Utilities		$ 520,354,710
Escalated Total Soft Cost		$ 343,954,079
TOTAL PROJECT COST (ESCALATED)		$ 2,226,130,487
	SAY	$ 2,226,131,000

REPORTING COST DISTRIBUTION

Professional Services		$ 70,814,075
Planning		$ 26,976,790
Design		$ 91,046,668
Other		$ 13,488,395
Gantries		$ 10,578,067
ITS		$ 12,982,173
Right-of-Way and Utilities		$ 540,587,303
Construction Management		$ 121,395,557
Construction/Installation		$ 1,097,726,953
Construction Contingency		$ 224,806,587
Maintenance Facilities		$ 15,727,915
TOTAL PROJECT COST		$ 2,226,130,485
	SAY	$ 2,226,131,000

Notes:

1) The unit costs to construct this facility are based on the unit prices of recently constructed similar facilities and/or the latest average unit prices of TxDOT projects.
2) Preliminary horizontal and vertical alignments are developed. Approximate quantities of major roadway and structure elements can be calculated.
3) Proposed drainage and utilities elements are not developed and quantities are not calculated individually yet.
4) Major above surface utility relocations could be identified (i.e. electric transmission lines, telephone poles, etc).
5) Approximate right-of-way needs can be estimated.
6) Approximate ITS elements needs can be identified.
7) Unit costs of similar projects are used to calculate construction cost.
8) Contingencies are applied to construction and ITS cost.
9) The proposed Jefferson Street Bridge replacement is a TxDOT project and therefore not included in this cost estimate.

TOTAL PROJECT COST
TRINITY PARKWAY - ALT 3C
IH 35E TO US 175 (9.9 MILES) / SIX GP LANES (ULTIMATE SECTION)

PRELIMINARY/CONCEPTUAL ESTIMATE OF PROBABLE COSTS OF CONSTRUCTION

LEVEL "E" SCHEMATIC PHASE ESTIMATE

Version _____

Created By: JWM
Date: 3/1/2011
Checked by: MGC
Date: 1/4/2012

Official Estimate Date: 3/1/2011
Mid-point of Anticipated Construction: 7/1/2017
Anticipated Construction Duration:

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
1.0 ROADWAY					
1.01 A	Mainlane Pavement	355,693	SY	$ 70	$ 24,898,510
1.01 B	Asphalt Shoulders	188,545	SY	$ 50	$ 9,427,250
1.02	Frontage Road Pavement	50,093	SY	$ 70	$ 3,506,510
1.03	Ramp Pavement	58,477	SY	$ 70	$ 4,093,390
1.04	Cross Street Pavement	51,027	SY	$ 70	$ 3,571,890
1.05	Monolithic Curb	46,420	LF	$ 2	$ 92,840
1.06	Pavement Striping (Solid)	431,453	LF	$ 2	$ 862,906
1.07	Pavement Striping (Broken)	87,691	LF	$ 2	$ 175,382
1.08	Concrete Traffic Barrier	190,740	LF	$ 50	$ 9,537,000
1.09	Excavation	28,740	CY	$ 5	$ 143,700
1.10	Embankment	8,599,896	CY	$ 10	$ 85,998,960
1.11	Embankment (Borrow)	324,000	CY	$ 15	$ 4,860,000
SUBTOTAL ROADWAY					**$ 147,168,338**
2.0 STRUCTURES					
2.01	Main Lane Bridge (Standard)	2,890,278	SF	$ 60	$ 173,416,680
2.02	Main Lane Bridge (Special)	662,810	SF	$ 95	$ 62,966,950
2.03	Frontage Road Bridge (Standard)	0	SF	$ 60	$ -
2.04	Frontage Road Bridge (Special)	0	SF	$ 95	$ -
2.05	Ramp Bridge (Standard)	981,700	SF	$ 60	$ 58,902,000
2.06	Ramp Bridge (Special)	625,836	SF	$ 95	$ 59,454,420
2.07	Cross Street Bridge	2,080	SF	$ 60	$ 124,800
2.08	Retaining Wall (Cut)	0	SF	$ 42	$ -
2.09	Retaining Wall (Fill)	227,700	SF	$ 35	$ 7,969,500
2.10	Flood Wall	97,700	SF	$ 50	$ 4,885,000
2.11	Park Access Bridge	121,600	SF	$ 56	$ 6,809,600
2.12	Pedestrian Access Bridge	90,090	SF	$ 54	$ 4,864,860
2.13	Reunion Pedestrian Platform	1	EA	$ 7,748,810	$ 7,748,810
2.14	Bridge Widening (Standard)	270,180	SF	$ 90	$ 24,316,200
2.15	Bridge Widening (Special)	27,090	SF	$ 130	$ 3,521,700
2.16	Slurry Wall	30,000	LF	$ 1,000	$ 30,000,000
SUBTOTAL STRUCTURES					**$ 444,980,520**
3.0 DRAINAGE					
3.01	Drainage	633	STA	$ 25,000	$ 15,825,000
3.02	Storm Drainage Lift Station	6	EA	$ 263,000	$ 1,578,000
3.03	Large Drainage Structures	0	EA	$ -	$ -
3.04	Extend Pump Station/Sewer Outfall	4	EA	$ 817,500	$ 3,270,000
SUBTOTAL DRAINAGE					**$ 20,673,000**
4.0 MISCELLANEOUS					
4.01 A	Demolition - Bridge Structure (0'-99')	0	EA	$ 15,000	$ -
4.01 B	Demolition - Bridge Structure (100'-499')	7	EA	$ 40,000	$ 280,000
4.01 C	Demolition - Bridge Structure (500'-999')	7	EA	$ 100,000	$ 700,000
4.01 D	Demolition - Bridge Structure (>999')	0	EA	$ 200,000	$ -
4.02	Demolition - Pavement	163,000	SY	$ 5	$ 815,000
4.03	Sodding including Top Soil	102,090	SY	$ 3	$ 306,270
4.04	Intersection Signalization	23	EA	$ 150,000	$ 3,450,000
4.05	Signage	633	STA	$ 20,000	$ 12,660,000
4.06	Lighting	633	STA	$ 10,000	$ 6,330,000

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
4.07	Landscape	7	MI.	$ 1,000,000	$ 7,300,000
4.08	SWP3	633	STA	$ 10,000	$ 6,330,000
4.09	R.O.W. Fence	91,700	LF	$ 15	$ 1,375,500
4.10	Environmental Mitigation	1	LS	$ 16,301,100	$ 16,301,100
4.11	Mow Strip	91,700	LF	$ 25	$ 2,292,500
4.12	Concrete Sidewalk	25,789	SY	$ 35	$ 902,615
4.13	R.O.W. Prep	633	STA	$ 10,000	$ 6,330,000
4.14	Traffic Control (Urban)	219	STA	$ 200,000	$ 43,800,000
4.15	Traffic Control (Floodway)	414	STA	$ 5,000	$ 2,070,000
4.16	Wick Drains	200	AC	$ 100,000	$ 20,000,000
SUBTOTAL MISCELLANEOUS					**$ 131,242,985**

5.0 GANTRIES

5.01	ETC Mainlane Gantry	4	Each	$ 1,000,000	$ 4,000,000
5.02	ETC Ramp Gantry	12	Each	$ 300,000	$ 3,600,000
SUBTOTAL Gantries					**$ 7,600,000**

6.0 MAINTENANCE FACILITIES

***	Maintenance Facilities	1	EA	$ 10,000,000	$ 10,000,000
***	Sand Stockpile	1	EA	$ 1,200,000	$ 1,200,000
***	Asset Data Management	1	EA	$ 100,000	$ 100,000
SUBTOTAL MAINTENANCE FACILITIES					**$ 11,300,000**

CONSTRUCTION COST SUMMARY

SUBTOTAL CONSTRUCTION	**$ 762,964,843**
Mobilization (10%)	**$ 76,296,485**
Subtotal Construction	**$ 839,261,328**
Construction Contingency (20%)	**$ 167,852,266**
TOTAL CONSTRUCTION COST (CURRENT DOLLARS)	**$ 1,007,113,594**
ESCALATED TOTAL CONSTRUCTION COST TO MID-POINT OF CONSTRUCTION (ENR CCI PROJECTION)	**$ 1,274,319,984**

7.0 ITS

7.01	CCTV	20	Each	$ 30,000	$ 600,000
7.02	Dynamic Messaging Sign	4	Each	$ 250,000	$ 1,000,000
7.03	Pavement Sensors	2	Each	$ 20,000	$ 40,000
7.04	AVI Travel Time Sensors	20	Each	$ 15,000	$ 300,000
7.05	Electronic Tolling Equipment	40	Lane	$ 80,000	$ 3,200,000
7.06	Fiber Optic (2 Operational Conduits)	9	Mile	$ 300,000	$ 2,610,000
7.07	Signage	40	Lane	$ 20,000	$ 800,000
SUBTOTAL ITS					**$ 8,550,000**
CONTINGENCY (20%)					**$ 1,710,000**
SUBTOTAL ITS COST					**$ 10,260,000**
ESCALATED TOTAL ITS COST TO MID-POINT OF CONSTRUCTION					**$ 12,982,173**

8.0 R.O.W. & UTILITIES

8.01	Land and Displacement(Acquisitions, relocations, demolition, fees)				$ 103,479,526
8.02 A	Relocate Small Utility Lines (<8")	30,600	LF	$ 90	$ 2,754,000
8.02 B	Relocate Medium Utility Lines (10"-21")	13,250	LF	$ 200	$ 2,650,000
8.02 C	Relocate Large Utility Lines (24"-42")	9,475	LF	$ 390	$ 3,695,250
8.02 D	Relocate Small Drainage Lines (<18")	6,550	LF	$ 120	$ 786,000
8.02 E	Relocate Medium Drainage Lines (21"-42")	4,575	LF	$ 190	$ 869,250
8.02 F	Relocate Large Drainage Lines (48"-72")	2,475	LF	$ 370	$ 915,750
8.02 G	Relocate Fiber Optics Line	4,950	LF	$ 250	$ 1,237,500
8.02 H	Relocate Transmission Tower	11	EA	$ 400,000	$ 4,400,000
8.02 I	Adjust Transmission Tower	12	EA	$ 400,000	$ 4,800,000
8.02 J	Relocate U/G Electric Distribution Line	4,000	LF	$ 200	$ 800,000
8.02 K	Relocate Overhead Transmission Line	44,000	LF	$ 210	$ 9,240,000
8.02 L	Relocate Electric Substation	0	EA	$ 350,000	$ -
8.02 M	Utility Contingencies (20%)	1	LS	$ 6,429,550.0	$ 6,429,550
SUBTOTAL R.O.W. & UTILITIES					**$ 142,056,826**

9.0 SOFT COST

Subtotal Construction Cost		**$ 1,007,113,594**
9.01	**Administrative**	

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
	GEC / PMO (2.25%)				$ 22,660,056
	Corridor Management (2.5%)				$ 25,177,840
	Legal Consulting Fees (0.5%)				$ 5,035,568
9.02	**Planning**				
	Feasibility Studies & Advanced Planning (0.75%)				$ 7,553,352
	Cost of Finance (0.75%)				$ 7,553,352
	EIS/EA Schematic (0.5%)				$ 5,035,568
9.03	**Design**				
	PS&E (6.5%) (DSE, geotechnical, pavement, landscaping, MSE wall design)				$ 65,462,384
	Surveying (0.25%)				$ 2,517,784
9.04	**R.O.W. Acquisition Consultant (1.5%) (RAT Team, asbestos insp. & abatement)**				$ 15,106,704
9.05	**Construction Support**				
	Construction Management (6.75%)				$ 67,980,168
	Materials Testing & Environmental Compliance (1.25%)				$ 12,588,920
	Wall Engineer (0.25%)				$ 2,517,784
	Independent Assurance (0.75%)				$ 7,553,352
9.06	**Reimbursements (1%)**				$ 10,071,136
9.07	**Special Services Consultant**				$ -
9.08	**Unique Features (historic sites, wetlands) - Optional**				$ -
Subtotal Soft Cost					$ 256,813,967
ESCALATED TOTAL SOFT COST TO MID-POINT OF CONSTRUCTION					$ 324,951,597

TOTAL PROJECT COST SUMMARY (CURRENT DOLLARS)

Total Construction Cost		$ 1,007,113,594
Total ITS Cost		$ 10,260,000
Total R.O.W. & Utilities		$ 142,056,826
Total Soft Cost		$ 256,813,967
TOTAL PROJECT COST (CURRENT DOLLARS)		$ 1,416,244,387
	SAY	$ 1,416,245,000

TOTAL PROJECT COST SUMMARY (ESCALATED)

Escalated Total Construction Cost		$ 1,274,319,984
Escalated Total ITS		$ 12,982,173
Total R.O.W. & Utilities		$ 142,056,826
Escalated Total Soft Cost		$ 324,951,597
TOTAL PROJECT COST (ESCALATED)		$ 1,754,310,580
	SAY	$ 1,754,311,000

REPORTING COST DISTRIBUTION

	Professional Services	$ 66,901,799
	Planning	$ 25,486,400
	Design	$ 86,016,599
	Other	$ 12,743,200
	Gantries	$ 10,578,067
	ITS	$ 12,982,173
	Right-of-Way and Utilities	$ 161,171,626
	Construction Management	$ 114,688,799
	Construction/Installation	$ 1,035,627,337
	Construction Contingency	$ 212,386,664
	Maintenance Facilities	$ 15,727,915
TOTAL PROJECT COST		$ 1,754,310,578
	SAY	$ 1,754,311,000

Notes:

1) The unit costs to construct this facility are based on the unit prices of recently constructed similar facilities and/or the latest average unit prices of TxDOT projects.

2) Preliminary horizontal and vertical alignments are developed. Approximate quantities of major roadway and structure elements can be calculated.

3) Proposed drainage and utilities elements are not developed and quantities are not calculated individually yet.

4) Major above surface utility relocations could be identified (i.e. electric transmission lines, telephone poles, etc).

5) Approximate right-of-way needs can be estimated.

6) Approximate ITS elements needs can be identified.

7) Unit costs of similar projects are used to calculate construction cost.

8) Contingencies are applied to construction and ITS cost.

9) The proposed Jefferson Street Bridge replacement is a TxDOT project and therefore not included in this cost estimate.

TOTAL PROJECT COST
TRINITY PARKWAY - ALT 4B
IH 35E TO US 175 (9.9 MILES) / SIX GP LANES (ULTIMATE SECTION)

PRELIMINARY/CONCEPTUAL ESTIMATE OF PROBABLE COSTS OF CONSTRUCTION

LEVEL "E" SCHEMATIC PHASE ESTIMATE

Version _____

Created By: JWM
Date: 3/1/2011
Checked by: MGC
Date: 1/4/2012

Official Estimate Date: 3/1/2011
Mid-point of Anticipated Construction: 7/1/2017
Anticipated Construction Duration:

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
1.0 ROADWAY					
1.01 A	Mainlane Pavement	410,000	SY	$ 70	$ 28,700,000
1.01 B	Asphalt Shoulders	190,000	SY	$ 50	$ 9,500,000
1.02	Frontage Road Pavement	58,000	SY	$ 70	$ 4,060,000
1.03	Ramp Pavement	202,000	SY	$ 70	$ 14,140,000
1.04	Cross Street Pavement	0	SY	$ 70	$ -
1.05	Monolithic Curb	85,000	LF	$ 2	$ 170,000
1.06	Pavement Striping (Solid)	450,000	LF	$ 2	$ 900,000
1.07	Pavement Striping (Broken)	85,000	LF	$ 2	$ 170,000
1.08	Concrete Traffic Barrier	251,760	LF	$ 50	$ 12,588,000
1.09	Excavation	41,000	CY	$ 5	$ 205,000
1.10	Embankment	6,775,000	CY	$ 10	$ 67,750,000
1.11	Embankment (Borrow)	234,000	CY	$ 15	$ 3,510,000
SUBTOTAL ROADWAY					**$ 141,693,000**
2.0 STRUCTURES					
2.01	Main Lane Bridge (Standard)	2,100,000	SF	$ 60	$ 126,000,000
2.02	Main Lane Bridge (Special)	1,050,000	SF	$ 95	$ 99,750,000
2.03	Frontage Road Bridge (Standard)	179,240	SF	$ 60	$ 10,754,400
2.04	Frontage Road Bridge (Special)	0	SF	$ 95	$ -
2.05	Ramp Bridge (Standard)	800,000	SF	$ 60	$ 48,000,000
2.06	Ramp Bridge (Special)	400,000	SF	$ 95	$ 38,000,000
2.07	Cross Street Bridge	267,000	SF	$ 60	$ 16,020,000
2.08	Retaining Wall (Cut)	0	SF	$ 42	$ -
2.09	Retaining Wall (Fill)	437,000	SF	$ 35	$ 15,295,000
2.10	Flood Wall	100,000	SF	$ 50	$ 5,000,000
2.11	Park Access Bridge	195,200	SF	$ 56	$ 10,931,200
2.12	Pedestrian Access Bridge	197,460	SF	$ 54	$ 10,662,840
2.13	Reunion Pedestrian Platform	1	EA	$ 7,748,810	$ 7,748,810
2.14	Bridge Widening (Standard)	143,640	SF	$ 90	$ 12,927,600
2.15	Bridge Widening (Special)	282,420	SF	$ 130	$ 36,714,600
2.16	Slurry Wall	50,000	LF	$ 1,000	$ 50,000,000
SUBTOTAL STRUCTURES					**$ 487,804,450**
3.0 DRAINAGE					
3.01	Drainage	783	STA	$ 25,000	$ 19,575,000
3.02	Storm Drainage Lift Station	12	EA	$ 263,000	$ 3,156,000
3.03	Large Drainage Structures	0	EA	$ -	$ -
3.04	Extend Pump Station/Sewer Outfall	5	EA	$ 817,500	$ 4,087,500
SUBTOTAL DRAINAGE					**$ 26,818,500**
4.0 MISCELLANEOUS					
4.01 A	Demolition - Bridge Structure (0'-99')	0	EA	$ 15,000	$ -
4.01 B	Demolition - Bridge Structure (100'-499')	7	EA	$ 40,000	$ 280,000
4.01 C	Demolition - Bridge Structure (500'-999')	2	EA	$ 100,000	$ 200,000
4.01 D	Demolition - Bridge Structure (>999')	0	EA	$ 200,000	$ -
4.02	Demolition - Pavement	163,000	SY	$ 5	$ 815,000
4.03	Sodding including Top Soil	102,090	SY	$ 3	$ 306,270
4.04	Intersection Signalization	23	EA	$ 150,000	$ 3,450,000
4.05	Signage	783	STA	$ 20,000	$ 15,660,000
4.06	Lighting	783	STA	$ 10,000	$ 7,830,000

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
4.07	Landscape	7	MI.	$ 1,000,000	$ 7,300,000
4.08	SWP3	783	STA	$ 10,000	$ 7,830,000
4.09	R.O.W. Fence	92,000	LF	$ 15	$ 1,380,000
4.10	Environmental Mitigation	1	LS	$ 15,805,800	$ 15,805,800
4.11	Mow Strip	92,000	LF	$ 25	$ 2,300,000
4.12	Concrete Sidewalk	26,000	SY	$ 35	$ 910,000
4.13	R.O.W. Prep	783	STA	$ 10,000	$ 7,830,000
4.14	Traffic Control (Urban)	219	STA	$ 200,000	$ 43,800,000
4.15	Traffic Control (Floodway)	564	STA	$ 5,000	$ 2,820,000
4.16	Wick Drains	145	AC	$ 100,000	$ 14,500,000
SUBTOTAL MISCELLANEOUS					**$ 133,017,070**

5.0 GANTRIES

5.01	ETC Mainlane Gantry	4	Each	$ 1,000,000	$ 4,000,000
5.02	ETC Ramp Gantry	12	Each	$ 300,000	$ 3,600,000
SUBTOTAL Gantries					**$ 7,600,000**

6.0 MAINTENANCE FACILITIES

***	Maintenance Facilities	1	EA	$ 10,000,000	$ 10,000,000
***	Sand Stockpile	1	EA	$ 1,200,000	$ 1,200,000
***	Asset Data Management	1	EA	$ 100,000	$ 100,000
SUBTOTAL MAINTENANCE FACILITIES					**$ 11,300,000**

CONSTRUCTION COST SUMMARY

SUBTOTAL CONSTRUCTION	**$ 808,233,020**
Mobilization (10%)	**$ 80,823,302**
Subtotal Construction	**$ 889,056,322**
Construction Contingency (20%)	**$ 177,811,265**
TOTAL CONSTRUCTION COST (CURRENT DOLLARS)	**$ 1,066,867,587**
ESCALATED TOTAL CONSTRUCTION COST TO MID-POINT OF CONSTRUCTION (ENR CCI PROJECTION)	**$ 1,349,927,848**

7.0 ITS

7.01	CCTV	20	Each	$ 30,000	$ 600,000
7.02	Dynamic Messaging Sign	4	Each	$ 250,000	$ 1,000,000
7.03	Pavement Sensors	2	Each	$ 20,000	$ 40,000
7.04	AVI Travel Time Sensors	20	Each	$ 15,000	$ 300,000
7.05	Electronic Tolling Equipment	40	Lane	$ 80,000	$ 3,200,000
7.06	Fiber Optic (2 Operational Conduits)	9	Mile	$ 300,000	$ 2,610,000
7.07	Signage	40	Lane	$ 20,000	$ 800,000
SUBTOTAL ITS					**$ 8,550,000**
CONTINGENCY (20%)					**$ 1,710,000**
SUBTOTAL ITS COST					**$ 10,260,000**
ESCALATED TOTAL ITS COST TO MID-POINT OF CONSTRUCTION					**$ 12,982,173**

8.0 R.O.W. & UTILITIES

8.01	Land and Displacement(Acquisitions, relocations, demolition, fees)				$ 65,709,312
8.02 A	Relocate Small Utility Lines (<8")	24,200	LF	$ 90	$ 2,178,000
8.02 B	Relocate Medium Utility Lines (10"-21")	6,900	LF	$ 200	$ 1,380,000
8.02 C	Relocate Large Utility Lines (24"-42")	6,000	LF	$ 390	$ 2,340,000
8.02 D	Relocate Small Drainage Lines (<18")	6,450	LF	$ 120	$ 774,000
8.02 E	Relocate Medium Drainage Lines (21"-42")	6,375	LF	$ 190	$ 1,211,250
8.02 F	Relocate Large Drainage Lines (48"-72")	800	LF	$ 370	$ 296,000
8.02 G	Relocate Fiber Optics Line	7,400	LF	$ 250	$ 1,850,000
8.02 H	Relocate Transmission Tower	6	EA	$ 400,000	$ 2,400,000
8.02 I	Adjust Transmission Tower	31	EA	$ 400,000	$ 12,400,000
8.02 J	Relocate U/G Electric Distribution Line	6,900	LF	$ 200	$ 1,380,000
8.02 K	Relocate Overhead Transmission Line	24,000	LF	$ 210	$ 5,040,000
8.02 L	Relocate Electric Substation	0	EA	$ 350,000	$ -
8.02 M	Utility Contingencies (20%)	1	LS	$ 6,249,850.0	$ 6,249,850
SUBTOTAL R.O.W. & UTILITIES					**$ 103,208,412**

9.0 SOFT COST

Subtotal Construction Cost		**$ 1,066,867,587**
9.01	**Administrative**	

ITEM NO.	ITEM DESCRIPTION	QUANTITY	UNIT	UNIT COST	SUBTOTAL COST
	GEC / PMO (2.25%)				$ 24,004,521
	Corridor Management (2.5%)				$ 26,671,690
	Legal Consulting Fees (0.5%)				$ 5,334,338
9.02	**Planning**				
	Feasibility Studies & Advanced Planning (0.75%)				$ 8,001,507
	Cost of Finance (0.75%)				$ 8,001,507
	EIS/EA Schematic (0.5%)				$ 5,334,338
9.03	**Design**				
	PS&E (6.5%) (DSE, geotechnical, pavement, landscaping, MSE wall design)				$ 69,346,393
	Surveying (0.25%)				$ 2,667,169
9.04	**R.O.W. Acquisition Consultant (1.5%) (RAT Team, asbestos insp. & abatement)**				$ 16,003,014
9.05	**Construction Support**				
	Construction Management (6.75%)				$ 72,013,562
	Materials Testing & Environmental Compliance (1.25%)				$ 13,335,845
	Wall Engineer (0.25%)				$ 2,667,169
	Independent Assurance (0.75%)				$ 8,001,507
9.06	**Reimbursements (1%)**				$ 10,668,676
9.07	**Special Services Consultant**				$ -
9.08	**Unique Features (historic sites, wetlands) - Optional**				$ -
Subtotal Soft Cost					$ 272,051,235
ESCALATED TOTAL SOFT COST TO MID-POINT OF CONSTRUCTION					$ 344,231,602

TOTAL PROJECT COST SUMMARY (CURRENT DOLLARS)

Total Construction Cost		$ 1,066,867,587
Total ITS Cost		$ 10,260,000
Total R.O.W. & Utilities		$ 103,208,412
Total Soft Cost		$ 272,051,235
TOTAL PROJECT COST (CURRENT DOLLARS)		$ 1,452,387,234
	SAY	$ 1,452,388,000

TOTAL PROJECT COST SUMMARY (ESCALATED)

Escalated Total Construction Cost		$ 1,349,927,848
Escalated Total ITS		$ 12,982,173
Total R.O.W. & Utilities		$ 103,208,412
Escalated Total Soft Cost		$ 344,231,602
TOTAL PROJECT COST (ESCALATED)		$ 1,810,350,035
	SAY	$ 1,810,351,000

REPORTING COST DISTRIBUTION

Professional Services		$ 70,871,212
Planning		$ 26,998,557
Design		$ 91,120,130
Other		$ 13,499,278
Gantries		$ 10,578,067
ITS		$ 12,982,173
Right-of-Way and Utilities		$ 123,457,330
Construction Management		$ 121,493,506
Construction/Installation		$ 1,098,633,890
Construction Contingency		$ 224,987,975
Maintenance Facilities		$ 15,727,915
TOTAL PROJECT COST		$ 1,810,350,034
	SAY	$ 1,810,351,000

Notes:

1) The unit costs to construct this facility are based on the unit prices of recently constructed similar facilities and/or the latest average unit prices of TxDOT projects.

2) Preliminary horizontal and vertical alignments are developed. Approximate quantities of major roadway and structure elements can be calculated.

3) Proposed drainage and utilities elements are not developed and quantities are not calculated individually yet.

4) Major above surface utility relocations could be identified (i.e. electric transmission lines, telephone poles, etc).

5) Approximate right-of-way needs can be estimated.

6) Approximate ITS elements needs can be identified.

7) Unit costs of similar projects are used to calculate construction cost.

8) Contingencies are applied to construction and ITS cost.

9) The proposed Jefferson Street Bridge replacement is a TxDOT project and therefore not included in this cost estimate.

SUMMARY OF ESTIMATED ENVIRONMENTAL MITIGATION COSTS

Criteria	Trinity Parkway Build Alternatives			
	2A	2B	3C	4B
Vegetation Enhancements (Acres of Non-Wetland Woodlands Impacted)[1]	4.6	6.4	33.3	29.3
$13,000 per acre ($)	59,800	83,200	432,900	380,900
Noise Walls (Square Feet)	70,340	70,340	70,340	70,340
$40 per square foot ($)	2,813,600	2,813,600	2,813,600	2,813,600
Waters of U.S., Including Wetlands (Impacted Acres)[2]	4.2	9.1	90.9	110.6
$14,000 per acre ($)	58,800	127,400	1,272,600	1,548,400
Historic Structures (NRHP-Eligible or Listed Sites with Adverse Effects)	0	0	1 (Continental Avenue Viaduct)	0
No cost developed at this time. Section 106 coordination is ongoing and mitigation costs, if any, will be reflected in the FEIS.				
Hazardous Material Sites (Number of High Risk Sites within ROW)[3]	34	35	17	16
Total Investigation/Remediation Cost ($)	7,036,200	7,290,000	3,308,000	3,404,400
Building Displacements	285	245	35	35
Asbestos surveys and abatement[4] ($)	31,412,000	29,207,000	7,728,000	7,020,000
Building demolition[5]:				
$25,000 per commercial building ($)	6,800,000	5,700,000	725,000	600,000
$3,500 per residential building ($)	28,000	21,000	21,000	38,500
TOTAL ($)	**48,208,400**	**45,238,800**	**16,301,100**	**15,805,800**

Notes:

1. Woodland plantings used an assumed cost of $13,000 per acre; this was based on the following information:
   Bare root seedlings - plant and installation = $15/tree
   Plant 300 trees an acre = $4,500 per acre x 3 plantings = $13,500 per acre
   or
   2-inch diameter trees - $250 per inch of diameter x 2" = $400 per tree installed
   100 trees per acre x $400 per tree = $4,000 per acre x 3 plantings = $12,000 per acre
2. Restoration cost estimates for waters of the U.S., including wetlands used an assumed cost of $12,000 per acre; this was based on the following: Development of unit cost per acre assumed a 50-acre site excavated to an average depth of 1 foot below natural ground.
   - Excavation costs: 43,560 square feet per acre = 1,613 cubic yards per acre x $6.00 per cubic yard = $9,680 per acre; $10,000 per acre was used for wetland excavation.
   - Planting costs: wet prairie fringe mix 30 pound per acre x $45 per pound = $1,350 an acre; plus emergent sprig hand plantings at $5 per sprig x 500 plugs per acre = $2,500 per acre; $4,000 per acre was used for wetland plantings.
3. Remediation costs for hazardous material sites vary widely depending on the type and extent of remediation. The investigation/remediation costs presented in this table were prepared utilizing commonly accepted standard cost estimate practices.
4. Estimates for asbestos abatement were made using current asbestos abatement costs ranging from $7 to $11 per square foot and include costs for abatement specifications, air monitoring, and oversight.
5. Building demolition cost estimates assumed an average commercial building size of 5,000 square feet, with an average demolition cost of $5.00 per square foot = $25,000 per commercial building. For residential buildings, an average demolition cost of $3,500 per building was assumed.

Site Description (Plate ID)	Summary of Regulatory Databases	Regulatory Reference	Environmental Concerns	Documented/Suspected Constituents of Concern (COCs)	Investigation Response Actions	Investigation - Remediation Category	Remedial Design, Oversight, and Closure Category				Suspected Waste Classification/ Volume	ESTIMATED COST BASED ON Inv/Remed Category			
							2A	2B	3C	4B		2A	2B	3C	4B
Phase I Environmental Site Assessments affected parcels for each alternative	NA	NA	NA	NA	Phase I ESA in accordance with ASTM	Typical	402 parcels	380 parcels	170 parcels	184 parcels	Assume Phase I ESA for each parcel $2,600 each.	$1,045,200	$988,000	$442,000	$478,400
											Subtotal	**$1,045,200**	**$988,000**	**$442,000**	**$478,400**
I-35 to Trinity Floodway N. Levee	SWF/LF	Unpermitted Landfill	City of Highland Park Landfill Unpermitted landfilling activities. Uncontrolled fill. Impacts from off-site sources.	VOCs RCRA Metals TPH PAHs	Site Investigation Activities	Typical/Complex	1B	1C	1C	1C	2A Assume 1,500 CY MSW Bridge Piers	$21,000	$34,000	$34,000	$34,000
					TCEQ approval LF Penetrations	Typical					2B Assume 4,000 CY MSW Bridge Piers	$80,000	$80,000	$80,000	$80,000
					TCEQ APAR/RAP/RACR	Small/Typical	3A	3B	3B	3B	3C Assume 6,500 CY MSW Bridge Piers	$33,000	$49,000	$49,000	$49,000
					Remedial Design/Oversight	NA	NA	NA	NA	NA	4B Assume 8,500 CY MSW Bridge Piers	$0	$0	$0	$0
					Remedial Construction	T&D Class 2	NA	NA	NA	NA		$60,000	$120,000	$205,000	$265,000
											Subtotal	**$194,000**	**$283,000**	**$368,000**	**$428,000**
Bright Truck Leasing 3020 Irving Blvd. (Haz Mat site #4)	LPST	LPST No. 112718	LUST - Final Concurrence Issued/Site Closed	SVOCs Metals	Site Investigation Activities	Limited/Typical	1A	1B	NA	NA	2A: 18,260 sf take, assume adjacent to PST area, pier spoils suitable for reuse on-site. 2B: whole take assume pier spoils suitable for reuse on-site	$10,000	$21,000	$0	$0
											Subtotal	**$10,000**	**$21,000**	**$0**	**$0**
Volvo & GMC Trucks of Dallas 2959 Irving Blvd. (Haz Mat Site #52)	LPST RCRIS/SQG	LPST No. 95212	LUST - Final Concurrence Issued/Site Closed	TPH VOCs PAHs Metals		Typical	1A	NA	NA	NA	2A: 29,740 sf take, assume adjacent to PST area, pier spoils suitable for reuse on-site.	$10,000	$0	$0	$0
											Subtotal	**$10,000**	**$0**	**$0**	**$0**
Hylift, Inc. 2928 Irving Blvd. (Haz Mat Site #2)	RCRIS-LQG LPST PST	LUST No. 103984	LUST - Final Concurrence Issued/Site Closed Violations Texas Solid Waste rule	VOCs RCRA Metals TPH	Site Investigation Activities	Typ	1B	1B	NA	NA	2A and 2B whole take, assume no source removal required with MSD	$21,000	$21,000	$0	$0
					MSD	Typical	Yes	Yes	NA	NA		$45,000	$45,000	$0	$0
					TCEQ APAR/RAP/RACR	Small	3A	3A	NA	NA		$33,000	$33,000	$0	$0
					Remedial Design/Oversight	Small	NA	NA	NA	NA		$0	$0	$0	$0
					Remedial Construction	Small	NA	NA	NA	NA		$0	$0	$0	$0
											Subtotal	**$99,000**	**$99,000**	**$0**	**$0**
Aladin Car Wash 1449 Inwood (Haz Mat Site #5)	LPST PST	LPST No. 113975	LPST - Monitoring Piority 2.6 Impacted GW discharge to Surface Water Documented PSH	TPH VOCs	Site Investigation Activities	Typical	1B	1B	NA	NA	2A and 2B whole take, assume 1-12,000 gallon PST removal, excavate/dispose of 1,000 cy Class 1 soil, closure with MNA.	$21,000	$21,000	$0	$0
					TCEQ Documentation	Small	Site Specific	Site Specific	NA	NA		$15,000	$15,000	$0	$0
					MNA	Small	Site Specific	Site Specific	NA	NA		$15,000	$15,000	$0	$0
					Plans/Specs/Oversight	Small	Site Specific	Site Specific	NA	NA		$15,000	$15,000	$0	$0
					PST Removal/Construction	Small	Site Specific	Site Specific	NA	NA		$110,000	$110,000	$0	$0
											Subtotal	**$176,000**	**$176,000**	**$0**	**$0**

Site Description (Plate ID)	Summary of Regulatory Databases	Regulatory Reference	Environmental Concerns	Documented/Suspected Constituents of Concern (COCs)	Investigation Response Actions	Investigation - Remediation Category	Remedial Design, Oversight, and Closure Category				Suspected Waste Classification/ Volume	ESTIMATED COST BASED ON Inv/Remed Category			
							2A	2B	3C	4B		2A	2B	3C	4B
Motor Works/Dallas Battery 2743 Irving Blvd. (Haz Mat Site #6)	RCRIS-LQG		RCRIS SQG CERCLIS	VOCs RCRA Metals TPH	Site Investigation Activities	Typical	1B	1B	NA	NA	2A and 2B whole take, assume no source removal required with MSD	$25,000	$25,000	$0	$0
					MSD	Typical	Yes	Yes	NA	NA		$45,000	$45,000	$0	$0
					TCEQ APAR/RAP/RACR	Small	2B	2B	NA	NA		$50,000	$50,000	$0	$0
					Remedial Design/Oversight	Small	2B	2B	NA	NA		$0	$0	$0	$0
					Remedial Construction	Small	2B	2B	NA	NA		$0	$0	$0	$0
											Subtotal	**$120,000**	**$120,000**	**$0**	**$0**
Moody Day/Crescent Machinery 2323 Irving Blvd. (Haz Mat Site #54)	RCRIS-LQG LPST PST	LPST No. 95206	RCRIS SQG LUST Final Concurrence Issured/Site Closed	VOCs RCRA Metals TPH	Site Investigation Activities	Typical	1B	1B	NA	NA	2A and 2B whole take assume no source removal required with MSD, pier spoils for 2B suitable for reuse on-site.	$21,000	$21,000	$0	$0
					MSD	Typical	5	5	NA	NA		$45,000	$45,000	$0	$0
					TCEQ APAR/RAP/RACR	Typical	3B	3B	NA	NA		$49,000	$49,000	$0	$0
					Remedial Design/Oversight	NA	NA	NA	NA	NA		$0	$0	$0	$0
					Remedial Construction	NA	NA	NA	NA	NA		$0	$0	$0	$0
											Subtotal	**$115,000**	**$115,000**	**$0**	**$0**
Knox Oil of Texas 2221 Irving Blvd. (Haz Mat Site #60)	ICIS PST		ICIS - Enforcement Actions under Clean Water Act 8 PSTs in-use	VOCs RCRA Metals TPH	Site Investigation Activities	Typical	1B	1B	NA	NA	2A 9,500 sf take and 2B whole take, assume removal of 8-12,000 gal. PSTs, overexcavation 1,000 cy Class I soil, GW monitoring with MNA, pier spoils for 2B suitable for reuse on-site.	$21,000	$21,000	$0	$0
					MNA	NA	Site Specific	Site Specific	NA	NA		$0	$20,000	$0	$0
					RDR/RBA/Closure Report	NA	Site Specific	Site Specific	NA	NA		$15,000	$15,000	$0	$0
					Remedial Design/Oversight	NA	Site Specific	Site Specific	NA	NA		$0	$30,000	$0	$0
					Remedial Construction	NA	Site Specific	Site Specific	NA	NA		$0	$185,000	$0	$0
											Subtotal	**$36,000**	**$271,000**	**$0**	**$0**
Pioneer Concrete 2151 Irving Blvd. (Haz Mat Site #7)	ICIS LPST	LPST No. 115329	LPST GW Impact, No apparent threats or impacts to receptors. Pre-assessment. 2 PSTs removed from ground.	TPH VOCs	Site Investigation Activities	Typical	1A	1B	NA	NA	2A assume adjacent to PST area, pier spoils suitable for reuse on-site. 2B whole take assume GW monitoring with MNA.	$10,000	$21,000	$0	$0
					MNA	Typical	NA	Site Specific	NA	NA		$0	$20,000	$0	$0
					RDR/RBA/Closure Report	Typical	NA	Site Specific	NA	NA		$0	$15,000	$0	$0
					Remedial Design/Oversight	NA	NA	NA	NA	NA		$0	$0	$0	$0
					Remedial Construction	NA	NA	NA	NA	NA		$0	$0	$0	$0
											Subtotal	**$10,000**	**$56,000**	**$0**	**$0**

Site Description (Plate ID)	Summary of Regulatory Databases	Regulatory Reference	Environmental Concerns	Documented/Suspected Constituents of Concern (COCs)	Investigation Response Actions	Investigation - Remediation Category	Remedial Design, Oversight, and Closure Category				Suspected Waste Classification/ Volume	ESTIMATED COST BASED ON Inv/Remed Category			
							2A	2B	3C	4B		2A	2B	3C	4B
Artistic Furniture Craftsman 1820 Irving Blvd. (Haz Mat Site #37)	PST		PST vent pipe observed at site. Not registered with TCEQ. Potential abandoned PSTs.	TPH VOCs	Site Investigation Activities	Small	1A	NA	NA	NA	2A whole take, assume 1-12,000 gallon PST removal, closure with MNA.	$25,000	$0	$0	$0
					TCEQ Documentation	Small	Yes	NA	NA	NA		$15,000	$0	$0	$0
					MNA	Small	Site Specific	NA	NA	NA		$20,000	$0	$0	$0
					Plans/Specs/Oversight	Small	Site Specific	NA	NA	NA		$15,000	$0	$0	$0
					PST Removal/Construction	Small	Site Specific	NA	NA	NA		$15,000	$0	$0	$0
											Subtotal	**$90,000**	**$0**	**$0**	**$0**
Creative Type & Graphics 1201 Oak Lawn Ave. (Haz Mat Site #53)	RCRIS-SQG	EPA No. TXR000046649	Commercial printing facility. Wastes include ink solution, used oil, tetrachloroethylene, and benzene.	VOC SVOC Metals	Site investigation Activities	Typical	1 B	NA	NA	NA	2A whole take 2B adjacent Pier spoils suitable for reuse on-site No groundwater impact	$21,000	$0	$0	$0
					TCEQ APAR/RAP/RACR	Typical	2B	NA	NA	NA		$49,000	$0	$0	$0
					Remedial Construction Oversight	NA	NA	NA	NA	NA		$0	$0	$0	$0
					Remedial Construction	NA	NA	NA	NA	NA		$0	$0	$0	$0
											Subtotal	**$70,000**	**$0**	**$0**	**$0**
Hargrove Electric Co. 1522 Market Center Blvd. (Haz Mat Site #8)	LPST PST	LUST No. 114546	One UST permanently filled in-place. LPST Status – Final Concurrence Pending	VOC TPH		NA	NA	ADJ	NA	NA	2A elevated and adjacent, assume pier spoils suitable for reuse on-site. 2B on grade adjacent, no excavations	$0	$0	$0	$0
											Subtotal	**$0**	**$0**	**$0**	**$0**
Abandoned Gas Station 1129 N. Industrial Blvd. (Haz Mat Site #38)	Not Registered	Not Registered	Three UST system vent pipes and two former dispenser islands observed at the site. Potential USTs abandoned in place.	VOC SVOC Metals	PST Removals possible T&D	Site Specific	Site Specific	Site Specific	NA	NA	2A & 2B whole takes	$135,000	$135,000	$0	$0
					Site Investigation Activities	Typical	1B	1B	NA	NA	Assume 3 10,000-gal USTs	$21,000	$21,000	$0	$0
					Monitored Natural Attenuation	Site Specific	Site Specific	Site Specific	NA	NA	Assume impacted groundwater	$40,000	$40,000	$0	$0
					Remedial Design/Oversight	Site Specific	Site Specific	Site Specific	NA	NA	Assume 1,000 cy soil overexcavated & disposed as Class 1, pier spoils suitable for reuse on-site.	$30,000	$30,000	$0	$0
											Subtotal	**$226,000**	**$226,000**	**$0**	**$0**
Jim Lake Co. Property 166 Howell St. (Haz Mat Site #51)	LPST	LPST No. 116933	LPST Priority – Assessment incomplete, no apparent threats or impacts to receptors. LPST Status – Final concurrence issued/site closed	VOC SVOC Metals	Level II Investigation Activities	Small	NA	1A	NA	Na	2A adjacent, 2B whole take, assume pier spoils suitable for reuse on-site	$0	$10,000	$0	$0
											Subtotal	**$0**	**$10,000**	**$0**	**$0**

Site Description (Plate ID)	Summary of Regulatory Databases	Regulatory Reference	Environmental Concerns	Documented/Suspected Constituents of Concern (COCs)	Investigation Response Actions	Investigation - Remediation Category	Remedial Design, Oversight, and Closure Category				Suspected Waste Classification/ Volume	ESTIMATED COST BASED ON Inv/Remed Category			
							2A	2B	3C	4B		2A	2B	3C	4B
Auto Detail & Service 1101 N. Industrial Blvd. (Haz Mat Site #12)	LPST PST	LPST No. 110529	Three USTs removed from the ground, one UST in use. LPST Status – Pre-assessment/release determination. LPST Priority – Assessment incomplete, no apparent threats or impacts to receptors. Soils only.	VOC TPH	Site Investigation Activities	Small	1A	1A	NA	NA	2A & 2B whole takes, 1-10,000 gal UST removal/100 CY Class 1 waste T&D, No groundwater impact, Pier spoils suitable for reuse on-site	$10,000	$10,000	$0	$0
					TCEQ Documentation	Small	Site Specific	Site Specific	NA	NA		$15,000	$15,000	$0	$0
					MNA	Small	NA	NA	NA	NA		$0	$0	$0	$0
					Plans/Specs/Oversight	Small	Site Specific	Site Specific	NA	NA		$15,000	$15,000		
					PST Removal/Construction	Small	Site Specific	Site Specific	NA	NA		$10,000	$10,000	$0	$0
											Subtotal	**$50,000**	**$50,000**	**$0**	**$0**
Payless Convenience Store 1000 N. Industrial Blvd. (Haz Mat Site #13)	LPST PST	LPST No. 101987	Three USTs removed from the ground. LPST Status – Final concurrence issued, case closed. LPST Priority – Groundwater impacted, no apparent threats or impacts to receptors.	VOC TPH	Site Investigation Activities	Small	1A	1A	NA	NA	2A & 2B whole takes, assume pier spoils suitable for reuse on-site	$10,000	$10,000	$0	$0
											Subtotal	**$10,000**	**$10,000**	**$0**	**$0**
North Texas Tollway Authority (NTTA Maintenance Facility/Texas Turnpike Authority) 405 S. Industrial Blvd. (Haz Mat Site #49)	RCRIS-SQG VCP LPST	EPA No. TXD988040572 VCP No. 1960 LPST No. 104064	Received into the VCP in August 2006 due to VOCs, SVOCs, metals, and chlorinated solvents affected soils and groundwater at the site (4 acres). VCP Phase – Investigation. Wastes include stripping solution. LUST Status – Final concurrence issued, case closed.	VOC SVOC Metals	Site Investigation Activities	Typical	2B	NA	NA	NA	Assume investigation, APAR, VCP closure completed by others. Assume pier spoils suitable for reuse on-site	$21,000	$0	$0	$0
											Subtotal	**$21,000**	**$0**	**$0**	**$0**
Corinth to DART Numerous Parcels of Concern	LPST PST IHW		Machine shops, auto repair facilities, manufacturing, junk yards, historical facilities	VOC TPH Metals	Site Investigation Activities	Site Specific	Site Specific	NA	NA	NA	2A Site Inv. 1-1C: 2B Site Inv 1-1C. MSD, Pier spoils suitable for on-site reuse.	$34,000	$34,000	$0	$0
					TCEQ Documentation	Complex	3C	3C	NA	NA		$72,000	$72,000	$0	$0
					MNA	NA	NA	NA	NA	NA		$0	$0	$0	$0
					MSD	Site Specific	Site Specific	NA	NA	NA		$45,000	$45,000	$0	
						NA	NA	NA	NA	NA		$0	$0	$0	$0
											Subtotal	**$151,000**	**$151,000**	**$0**	**$0**
I-35 to Corinth Numerous Parcels of Concern	LPST PST IHW		Machine shops, auto repair facilities, manufacturing, junk yards, foundaries, historical facilities	VOC TPH Metals	Site Investigation Activities	Site Specific	Site Specific	NA	NA	NA	2A Site Inv. 2-1C: 2B Site Inv 2-1C. MSD, Pier spoils suitable for on-site reuse.	$68,000	$68,000	$0	$0
					TCEQ Documentation	Complex	3C	3C	NA	NA		$72,000	$72,000	$0	$0
					MNA	NA	NA	NA	NA	NA		$0	$0	$0	$0
					MSD	Site Specific	Site Specific	NA	NA	NA		$45,000	$45,000	$0	
						NA	NA	NA	NA	NA		$0	$0	$0	$0
											Subtotal	**$185,000**	**$185,000**	**$0**	**$0**
Jefferson to I-35 1 Parcel of Concern	LPST PST		Fuel City facility	VOC TPH	Site Investigation Activities	Site Specific	NA	Site Specific	NA	NA	2B Site Inv 1-1B; 2B 8-12,000 gal USTs removal/1000 CY Class 1 waste T&D, groundwater impact w/ MNA remedy. Pier spoils suitable for on-site reuse.	$0	$21,000	$0	$0
					TCEQ Documentation	Site Specific	NA	3B	NA	NA		$0	$49,000	$0	$0
					MNA	Site Specific	NA	Site Specific	NA	NA		$0	$36,000	$0	$0
					MSD	Site Specific	NA	NA	NA	NA		$0	$0		
					PST Removal/Construction	Site Specific	NA	Site Specific	NA	NA		$0	$217,000	$0	$0
											Subtotal	**$0**	**$323,000**	**$0**	**$0**

Site Description (Plate ID)	Summary of Regulatory Databases	Regulatory Reference	Environmental Concerns	Documented/Suspected Constituents of Concern (COCs)	Investigation Response Actions	Investigation - Remediation Category	Remedial Design, Oversight, and Closure Category				Suspected Waste Classification/ Volume	ESTIMATED COST BASED ON Inv/Remed Category			
							2A	2B	3C	4B		2A	2B	3C	4B
Continental to Jefferson 10 Parcels of Concern	LPST PST IHW		Trucking/distribution facilities, auto repair facilities, gas station, truck service facilities	VOC TPH Metals	Site Investigation Activities	Site Specific	Site Specific	Site Specific	NA	NA	2A Site Inv. 3-1A, 4-1B. & 2-1C: 2B Site Inv 4-1A, 3-1B, & 2-1C. 2B 3-12,000 gal USTs removal/1000 CY Class 1 waste T&D, groundwater impact w/ MNA remedy, MSD other site, Pier spoils suitable for on-site reuse.	$182,000	$171,000	$0	$0
					TCEQ Documentation	Site Specific	3C	3C	NA	NA		$72,000	$72,000	$0	$0
					MNA	Site Specific	Site Specific	Site Specific	NA	NA		$0	$36,000	$0	$0
					MSD	Site Specific	Site Specific	Site Specific	NA	NA		$45,000	$45,000		
					PST Removal/Construction	Site Specific	Site Specific	Site Specific	NA	NA		$0	$156,000	$0	$0
											Subtotal	**$299,000**	**$480,000**	**$0**	**$0**
Oaklawn to Continental 9 Parcels of Concern	LPST PST IHW		Trucking/distribution facilities, auto repair facilities, printing facilities, truck service facilities, historical facilities	VOC TPH Metals	Site Investigation Activities	Site Specific	Site Specific	NA	NA	NA	2A Site Inv. 4-1A, 3-1B & 1-1C: 2B Site Inv 5-1B & 2-1C. Pier spoils suitable for on-site reuse.	$137,000	$173,000	$0	$0
					TCEQ Documentation	Complex	3C	3C	NA	NA		$72,000	$72,000	$0	$0
					MNA	NA	NA	NA	NA	NA		$0	$0	$0	$0
					MSD	Site Specific	Site Specific	NA	NA	NA		$45,000	$45,000	$0	
						NA	NA	NA	NA	NA		$0	$0	$0	$0
											Subtotal	**$254,000**	**$290,000**	**$0**	**$0**
Wycliff to Oaklawn 1 Parcel of Concern	LPST PST IHW	LPST No. 110529	Three USTs removed from the ground, one UST in use. LPST Status – Pre-assessment/release determination. LPST Priority – Assessment incomplete, no apparent threats or impacts to receptors. Soils only.	VOC TPH	Site Investigation Activities	Site Specific	Site Specific	NA	NA	NA	2A Site Inv. 1-1A & 2-1B: 2B Site Inv 1-1A & 3-1B. Pier spoils suitable for on-site reuse.	$10,000	$0	$0	$0
					TCEQ Documentation	NA	NA	NA	NA	NA		$0	$0	$0	$0
					MNA	NA	NA	NA	NA	NA		$0	$0	$0	$0
					MSD	NA	NA	NA	NA	NA		$0	$0	$0	
						NA	NA	NA	NA	NA		$0	$0	$0	$0
											Subtotal	**$10,000**	**$0**	**$0**	**$0**
Medical District Dr to Wycliff 4 Parcels of Concern	LPST PST IHW		Trucking repair facility	VOC TPH Metals	Site Investigation Activities	Site Specific	Site Specific	Site Specific	NA	NA	2A Site Inv. 1-1A. Pier spoils suitable for on-site reuse.	$52,000	$73,000	$0	$0
					TCEQ Documentation	NA	NA	NA	NA	NA		$0	$0	$0	$0
					MNA	NA	NA	NA	NA	NA		$0	$0	$0	$0
					MSD	NA	NA	NA	NA	NA		$0	$0	$0	
						NA	NA	NA	NA	NA		$0	$0	$0	$0
											Subtotal	**$52,000**	**$73,000**	**$0**	**$0**
Commonwealth to Medical District Dr 8 Parcels of Concern	LPST PST IHW		Trucking/distribution facilities, auto repair facilities, gas station, truck service facilities	VOC TPH Metals	Site Investigation Activities	Site Specific	Site Specific	Site Specific	NA	NA	2A Site Inv. 4-1A, 3-1B. & 1-1C: 2B Site Inv 3-1A, 3-1B, & 2-1C. 2A & 2B 3-12,000 gal USTs removal/1000 CY Class 1 waste T&D, groundwater impact w/ MNA remedy, MSD other site, Pier spoils suitable for on-site reuse.	$137,000	$161,000	$0	$0
					TCEQ Documentation	Site Specific	3C	3C	NA	NA		$72,000	$72,000	$0	$0
					MNA	Site Specific	Site Specific	Site Specific	NA	NA		$36,000	$36,000	$0	$0
					MSD	Site Specific	Site Specific	Site Specific	NA	NA		$45,000	$45,000		
					PST Removal/Construction	Site Specific	Site Specific	Site Specific	NA	NA		$156,000	$156,000	$0	$0
											Subtotal	**$446,000**	**$470,000**	**$0**	**$0**

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							2A	2B	3C	4B		2A	2B	3C	4B
I 35 to Continental The Drive Shaft Shop 530 S. Industrial Blvd. (Haz Mat Site #55) **Southwest Industrial Gasses** 538 S. Industrial Blvd. (Haz Mat Site #59)	RCRIS-SQG	EPA No. TXD988018131 EPA No. TXD990798662	Motor vehicle parts and accessoriesshop. Waste include metal cleaning waste, tetrachloroethylene, immersion cleaner, and spent non-halogenated solvents Violations resulting in enforcement action under the Clean Water Act.	VOC SVOC Metals	Site Investigation Activities	Typical	1B	NA	NA	NA	2A Assume 700 LF Piers 2.700 cv Class 2 affected pier spoils	$21,000	$0	$0	$0
					TCEQ APAR/RAP/RACR	Typical	2B	NA	NA	NA		$49,000	$0	$0	$0
					Remedial Construction Oversight	Small	2A	NA	NA	NA		$76,000	$0	$0	$0
								NA	NA	NA					
					Remedial Construction	Small	Site Specific	NA	NA	NA		$112,000	$0	$0	$0
								NA	NA	NA					
											Subtotal	**$258,000**	**$0**	**$0**	**$0**
Industrial alignment DART to I 35 Ace Brass & Aluminum Co. 1203 S. Industrial Blvd. (Haz Mat Site #61)	ICIS	EPA No. 110005010683	Aluminum foundry (manufacturing of brass and aluminum castings). Violations resulting in enforcement action under the Clean Water Act.	VOC SVOC Metals	Site Investigation Activities	Typical	NA	1B	N	N	Assume no soil or groundwater exceedence	$0	$25,000	$0	$0
					TCEQ APAR/RAP/RACR	Typical	NA	2A				$0	$35,000	$0	$0
					Remedial Construction Oversight	Typical	NA	NA				$0	$0	$0	$0
					Remedial Construction	Small	NA	NA				$0	$0	$0	$0
											Subtotal	**$0**	**$60,000**	**$0**	**$0**
Industrial alignment DART to I 35 Chevron/Texaco/Gulf/Metro Cost Plus 201 Corinth St. (Haz Mat Site #22)	LPST PST	LPST No. 97465	Four USTs removed from the ground. Two 10,000-gallon gasoline USTs in use. LUST Status – Monitoring. LUST Priority – Groundwater impacted, no apparent threats or impacts to receptors.	VOC TPH	PST Removals	Typical	Site Specific	NA	NA	NA	Remove 2 - 10K USTs LPST Impacted Groundwater MNA	$36,000	$0	$0	$0
					Monitored Natural Attenuation	Typical	Site Specific	NA	NA	NA		$40,000	$0	$0	$0
											Subtotal	**$76,000**	**$0**	**$0**	**$0**
Industrial alignment DART to I 35 Atlas Scrap Iron & Metal 2209 S.Industrial (HM #24), Kwik Stop 418 Corinth, (HM #21), Okon Metals 2110 S. Industrial (HM #62), Ace Brass & Aluminum Co., 1203 S. Industrial (HM #61)	VCP	VCP No. 402	Scrap metal yard. VCP Site – 1.9 acres. Soils impacted by metals, total petroleum hydrocarbons, and VOCs. Excavation/removal of affected media and a surface cap were implemented to satisfy Risk Reduction Standard No. 3 requirements. Conditional certificate of	VOC SVOC TPH Metals	Site Investigation Activities	Complex	1C	1C	NA	NA	2A - 1,500 LF Piers 5,800 cy Class 2	$34,000	$34,000	$0	$0
					VCP Coord	Typical	Site Specific	Site Specific	NA	NA	2B - 300 LF Piers	$20,000	$20,000	$0	$0
					TCEQ APAR/RAP/RACR	Large	3C	3C	NA	NA	1,200 CY Class II	$72,000	$72,000	$0	$0
					Remedial Design/Oversight	Small	2A	2A	NA		Atlas VCP RRR 3	$76,000	$76,000	$0	$0
					Remedial Construction	Small	Site Specific	Site Specific	NA	NA		$240,000	$50,000	$0	$0
											Subtotal	**$442,000**	**$252,000**	**$0**	**$0**
Trinity Floodway North Levee to DART (Includes impacted soil in SB 016 and SB 031)	Affected soil & groundwater documented in floodway		Unpermitted landfilling activities. Uncontrolled fill. Impacts from off-site sources.	VOCs RCRA Metals TPH PAHs	Site Investigation Activities	Complex	NA	NA	Site Specific	Site Specific	3C & 4B Assume 5,000 CY Class 1	$0	$0	$100,000	$100,000
					MSD	Complex	NA	NA	Site Specific	Site Specific		$0	$0	$100,000	$100,000
					TCEQ APAR/RAP/RACR	Complex	NA	NA	3C	3C		$0	$0	$72,000	$72,000
					Remedial Design/Oversight	Typical	NA	NA	3B	3B		$0	$0	$126,000	$126,000
					Remedial Construction	Typical	NA	NA	5Aii	5Aii		$0	$0	$313,000	$313,000
											Subtotal	**$0**	**$0**	**$711,000**	**$711,000**
DART to MLK 1000, 1001, & 1005 Forest (Faubion, EZWALL STUCCO/PraxaireUnion Carbide/etc., & Brown Forest Prop./Forest Ave Landfill/Big City Crushed Concrete)	RCRIS-SQG RCRIS TDS LPST PST		Unpermitted Landfilling activities PSTs LPST	VOCs RCRA Metals TPH PAHs	Site Investigation Activities	Complex	1C	1C	1C	1C	2A & 2B 5,000 cy Class 2	$34,000	$34,000	$34,000	$34,000
					MSD	Typical	Site Specific	Site Specific	Site Specific	Site Specific		$20,000	$20,000	$20,000	$20,000
					TCEQ APAR/RAP/RACR	Typical	3B	3B	3B	3B		$49,000	$49,000	$49,000	$49,000
					Remedial Design/Oversight	Small	2A	2A	NA	NA		$76,000	$76,000	$0	$0
					Remedial Construction	Small	2B	2B	NA	NA		$213,000	$213,000	$0	$0
											Subtotal	**$392,000**	**$392,000**	**$103,000**	**$103,000**

Site Description (Plate ID)	Summary of Regulatory Databases	Regulatory Reference	Environmental Concerns	Documented/Suspected Constituents of Concern (COCs)	Investigation Response Actions	Investigation - Remediation Category	Remedial Design, Oversight, and Closure Category				Suspected Waste Classification/ Volume	ESTIMATED COST BASED ON Inv/Remed Category			
							2A	2B	3C	4B		2A	2B	3C	4B
MLK to MKT RR 1100 Lenway & 3301 National (Beal Concrete, Liquid Air, & Occidental)	RCRIS-LQG LPST PST VCP (Partial Response Action Area)		Unpermitted Landfilling activities PSTs LPST	VOCs RCRA Metals TPH PAHs	Site Investigation Activities	Complex/Typ	1C	1C	1B	1B	2A and 2B Assume 10,000 Cy Class 1	$34,000	$34,000	$21,000	$21,000
					MSD	Typical	Site Specific	Site Specific	Site Specific	Site Specific		$20,000	$20,000	$20,000	$20,000
					TCEQ APAR/RAP/RACR	Complex/Typ	2B	2B	2A	2A		$49,000	$49,000	$33,000	$33,000
					Remedial Design/Oversight	Typical	2B	2B	NA	NA		$126,000	$126,000	$0	$0
					Remedial Construction	Typical	5Bii	5Bii	NA	NA		$616,000	$616,000	$0	$0
											Subtotal	**$845,000**	**$845,000**	**$74,000**	**$74,000**
MKT RR to I45 3601, 4035, 3701, & 3637 S Lamar, 100 Lenway, 1301 McDonald, & 4115 Julius Schepps (DISD/Proctor and Gamble, Duggan Industries, & Corp Facility Resources)	RCRIS-SQG LPST PST		Unpermitted Landfilling activities PSTs LPST Vehicle Maintenance	VOCs RCRA Metals TPH PAHs	Site Investigation Activities	Complex	1C	1C	1C	1C	3C & 4B: 7,000 cy (3500 cy Class 2/3500 cy Class 1) 2A & 2B: 7,500 cy pier spoils	$34,000	$34,000	$34,000	$34,000
					MSD	Typical	Site Specific	Site Specific	Site Specific	Site Specific		$20,000	$20,000	$20,000	$20,000
					TCEQ APAR/RAP/RACR	Typical	3A	3A	3B	3B		$33,000	$33,000	$49,000	$49,000
					Remedial Design/Oversight	Small	NA	NA	2A	2A		$0	$0	$76,000	$76,000
					Remedial Construction	Small	Site Specific	Site Specific	Site Specific	Site Specific		$320,000	$320,000	$365,000	$365,000
											Subtotal	**$407,000**	**$407,000**	**$544,000**	**$544,000**
I-45 to SH 310 4305, 4605, 4717 S. Lamar (Gold Metal Recyclers Parcels)	PST VCP MSD		Metal Recycling Facilities PSTs/ASTs	VOCs RCRA Metals TPH PAHs	Site Investigation Activities	Complex	1C	1C	1C	1C	2A & 2B: 5100 cy Class 2 Pier Spoils 5,000 cy PAH affected surface soil	$34,000	$34,000	$34,000	$34,000
					MSD Application/Certification	Typical	Site Specific	Site Specific	Site Specific	Site Specific		$25,000	$25,000	$25,000	$25,000
					TCEQ APAR/RACR	Typical	2B	2B	2B	2B		$49,000	$49,000	$49,000	$49,000
					Remedial Construction Oversight	Typical	2A	2A	NA	NA		$75,000	$75,000	$0	$0
					Remedial Construction	Small	2A	2A	NA	NA		$420,000	$420,000	$0	$0
											Subtotal	**$603,000**	**$603,000**	**$108,000**	**$108,000**
I-45 to SH 310 4605, 4801, 5211-5311 S. Lamar (Trinity Recylcing/Herman Gibbons Landfill/ Greenleaf Auto Small Comm/Res Parcels)	ICIS PST IHW CESQ VCP MSD		Metal Recycling Facilities Unpermitted Landfills Metal Smelting/Refining PSTs/ASTs Machine Shops Auto Repair Facilities	VOCs RCRA Metals TPH PAHs Pesticides	Site Investigation Activities	Complex	1C	1C	1C	1C	3C & 4B: 5,000 cy Class 2 10,000 cy HW 2A & 2B: 5500 cy Class 2 Pier Spoils	$35,000	$35,000	$35,000	$35,000
					MSD	Typical	Site Specific	Site Specific	Site Specific	Site Specific		$25,000	$25,000	$25,000	$25,000
					TCEQ APAR/RAP/RACR	Typical	2B	2B	2C	2C		$49,000	$49,000	$72,000	$72,000
					Remedial Design/Oversight	Typical	NA	NA	3B	3B		$0	$0	$126,000	$126,000
					Remedial Construction	Complex	Site Specific	Site Specific	Site Specific	Site Specific		$225,000	$225,000	$700,000	$700,000
											Subtotal	**$334,000**	**$334,000**	**$958,000**	**$958,000**
	Updated: 12/01/2010										**TOTAL**	**$7,036,200**	**$7,290,000**	**$3,308,000**	**$3,404,400**
											TOTAL w/ Contingencies	**8,795,250**	**9,112,500**	**4,135,000**	**4,255,500**

Sources: Environmental Data Resources, Inc. (EDR), 2007; USACE, 1999.

Notes: * ROW take based on GIS calculations of alternative footprint within parcel 8/10/2009

********This cost estimate was prepared utilizing standard cost estimate practices, when actual cost or bids could not be used. It is understood and agreed that this is an estimate only, and that engineer, shall not be liable to owner or to third party for any failure to accurately estimate the cost of the project, or any part thereof.**********

EXCERPTS FROM THE FEBRUARY 2009 SDEIS

6.5 COST ESTIMATES FOR ANNUAL OPERATIONS AND MAINTENANCE

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

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

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

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

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

Notes:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

TRINITY PARKWAY - O M ESTIMATES

Roadway: TRINITY PARKWAY
County: DALLAS
SCHEMATIC ALTERNATIVE 3C - Option 1

Note	ITEM NO.	DESCRIPTION	UNIT	APPROX. QUANTITIES	ENGINEER'S ESTIMATE	
	ITEM NO.				UNIT PRICE	AMOUNT
1	0400	Landscape Replacement	MI	2.12	$ 500,000.00	$ 1,060,000.00
		Aesthetic Enhancements	SY	24,874.7	$ 10.00	$ 248,746.67
		Subtotal				**$ 1,308,746.67**
		DEBRIS &SEDIMENT REMOVAL				
		Initial Sampling and Testing	EA	20.0	$750	$ 15,000.00
		Transport of Debris on Rdwy (60 mi/round trip in 25 cuyd truck), Load	EA	10.0	$ 600.00	$ 6,000.00
		Disposal of Debris	Ton	250.0	$ 50.00	$ 12,500.00
		Final Sampling and Testing	EA	116.0	$750	$ 87,000.00
		Transport of sediment to landfill site (60 mi/round trip in 20 cuyd trucks), trip	EA	295.0	$ 660.00	$ 194,700.00
2		Sediment Disposal Charge	Ton	5,900.0	$ 50.00	$ 295,000.00
		Transport of Debris under roadway (60 mil/round trip in 25 cuyd trucks), trip	EA	34.0	$ 600.00	$ 20,400.00
		Disposal of Debris under roadway	Ton	850.0	$ 50.00	$ 42,500.00
		Cleanup of Water Separators	EA	6.0	$ 2,000.00	$ 12,000.00
3		Labor Force, 2 shifts (1 crew for each side of roadway)	Day	7.0	$ 19,600.80	$ 137,205.60
4		Labor Force,1 shift (1 crew for each side of roadway)	Day	7.0	$ 9,800.40	$ 68,602.80
5		Labor Force, 1 shift (1 crew for each side of roadway)	Day	7.0	$ 9,800.40	$ 68,602.80
6		Equipment Rental for Debris and Sediment removal	Day	14	$ 13,062.00	$ 182,868.00
6		Equipment for Water Separaters cleanup	Day	7	$ 2,555.00	$ 17,885.00
7		Traffic Control Set up	LS	1.0	$ 50,000.00	$ 50,000.00
		Subtotal				**$ 1,210,264.20**
		Other Costs				$ -
		Temp Construction Management Site	LS	1.0	$ 30,000.00	$ 30,000.00
		Maintenance Management Command Site	LS	1.0	$ 30,000.00	$ 30,000.00
		Environmental Scientists Team	hr	168.0	$ 250.00	$ 42,000.00
		Coordination with TCEQ, Waste Management Plan	hr	120.0	$ 200.00	$ 24,000.00
		Support Vehicles (8 vehicles at $ 100/day)	Day	30.0	$ 800.00	$ 24,000.00
						$ -
		Repair/replacement of pavements and aesthetic enahancements damaged during the clean up process	LS	1.0	$ 100,000.00	$ 100,000.00
		Subtotal				**$ 250,000.00**
		Total Cost				**$ 2,769,010.87**

Notes

1. Unit Price reduced to half for one side.
2. Assume that the sediment disposal charge is $50/ton
3. For debris and sediment clean up. Refer to Table 1 for Labor force break down.
4. For Debris removal under roadway. Refer to Table 1 for Labor force break down.
5. For Debris removal in the stormceptors. Refer to Table 1 for Labor force break down.
6. Refer to Table 2 equipment cost breakdown.
7. Assumes Traffic Control during sediment removal to open at least one lane,
   Traffic Control for Debris removal under roadway and water separator cleanup.

TRINITY PARKWAY - O M ESTIMATES

Roadway: TRINITY PARKWAY
County: DALLAS
SCHEMATIC ALTERNATIVE 3C - Option 2

Note	ITEM NO.	DESCRIPTION	UNIT	APPROX. QUANTITIES	ENGINEER'S ESTIMATE	
	ITEM NO.				UNIT PRICE	AMOUNT
1	0400	Landscape Replacement	MI	2.12	$ 500,000.00	$ 1,060,000.00
		Aesthetic Enhancements	SY	24,874.7	$ 10.00	$ 248,746.67
		Subtotal				**$ 1,308,746.67**
		DEBRIS &SEDIMENT REMOVAL				
		Initial Sampling and Testing	EA	20.0	$750	$ 15,000.00
		Transport of Debris on Rdwy (60 mi/round trip in 25 cuyd truck), Load	EA	10.0	$ 600.00	$ 6,000.00
		Disposal of Debris	Ton	250.0	$ 50.00	$ 12,500.00
		Final Sampling and Testing	EA	118.0	$750	$ 88,500.00
		Transport sediment to Staging Area	Cuyd	5,900.0		$ -
		Transport of sediment to landfill site (60 mi/round trip in 20 cuyd trucks), trip	EA	295.0	$ 660.00	$ 194,700.00
2		Sediment Disposal Charge	Ton	5,900.0	$ 50.00	$ 295,000.00
		Transport of Debris under roadway (60 mil/round trip in 25 cuyd trucks), trip	EA	34.0	$ 600.00	$ 20,400.00
		Disposal of Debris under roadway	Ton	850.0	$ 50.00	$ 42,500.00
		Cleanup of Water Separators	EA	6.0	$ 2,000.00	$ 12,000.00
3		Labor Force, 2 shifts (1 crew for each side of roadway)	Day	7.0	$ 19,600.80	$ 137,205.60
4		Labor Force,1 shift (1 crew for each side of roadway)	Day	7.0	$ 9,800.40	$ 68,602.80
5		Labor Force, 1 shift (1 crew for each side of roadway)	Day	7.0	$ 9,800.40	$ 68,602.80
6		Equipment Rental for Debris and Sediment removal	Day	14	$ 13,062.00	$ 182,868.00
6		Equipment for Water Separaters cleanup	Day	7	$ 2,555.00	$ 17,885.00
7		Traffic Control Set up	LS	1.0	$ 25,000.00	$ 25,000.00
8		BMP's for the Contaminated Sediment Stockpiled	LS	1.0	$ 20,000.00	$ 20,000.00
		Subtotal				**$ 1,206,764.20**
		Other Costs				$ -
		Temp Construction Management Site	LS	1.0	$ 30,000.00	$ 30,000.00
		Maintenance Management Command Site	LS	1.0	$ 30,000.00	$ 30,000.00
		Environmental Scientists Team	hr	168.0	$ 250.00	$ 42,000.00
		Coordination with TCEQ, Waste Management Plan	hr	120.0	$ 200.00	$ 24,000.00
		Support Vehicles (8 vehicles at $ 100/day)	Day	30.0	$ 800.00	$ 24,000.00
						$ -
		Repair/replacement of pavements and aesthetic enahancements damaged during the clean up process	LS	1.0	$ 100,000.00	$ 100,000.00
		Subtotal				**$ 250,000.00**
		Total Cost				**$ 2,765,510.87**

Notes

1. Unit Price reduced to half for one side.
2. Assume that the sediment disposal charge is $50/ton
3. For debris and sediment clean up. Refer to Table 1 for Labor force break down.
4. For Debris removal under roadway. Refer to Table 1 for Labor force break down.
5. For Debris removal in the stormceptors. Refer to Table 1 for Labor force break down.
6. Refer to Table 2 equipment cost breakdown.
7. Assumes Traffic Control for Debris removal under roadway and water separator cleanup.
8. Cost for Best Management Practices for Preventing Pollution by the Contaminated Sediments.

TRINITY PARKWAY - O M ESTIMATES

Roadway: TRINITY PARKWAY
County: DALLAS
SCHEMATIC ALTERNATIVE 4B - Option 1

Note	ITEM NO.	DESCRIPTION	UNIT	APPROX. QUANTITIES	ENGINEER'S ESTIMATE	
	ITEM NO.				UNIT PRICE	AMOUNT
1	0400	Landscape Replacement	MI	4.15	$ 500,000.00	$ 2,075,000.00
		Aesthetic Enhancements	SY	48,693.3	$ 10.00	$ 486,933.33
		Subtotal				**$ 2,561,933.33**
		DEBRIS &SEDIMENT REMOVAL				
		Initial Sampling and Testing	EA	40.0	$750	$ 30,000.00
		Transport of Debris on Rdwy (60 mi/round trip in 25 cuyd truck), Load	EA	20.0	$ 600.00	$ 12,000.00
		Disposal of Debris	Ton	500.0	$ 50.00	$ 25,000.00
		Final Sampling and Testing	EA	233.0	$750	$ 174,750.00
		Transport of sediment to landfill site (60 mi/round trip in 20 cuyd trucks), trip	EA	583.0	$ 660.00	$ 384,780.00
2		Sediment Disposal Charge	Ton	11,660.0	$ 50.00	$ 583,000.00
		Transport of Debris under roadway (60 mil/round trip in 25 cuyd trucks), trip	EA	66.4	$ 600.00	$ 39,840.00
		Disposal of Debris under roadway	Ton	1,660.0	$ 50.00	$ 83,000.00
		Cleanup of Water Separators	EA	10.0	$ 2,000.00	$ 20,000.00
3		Labor Force, 2 shifts (1 crew for each side of roadway)	Day	7.0	$ 39,201.60	$ 274,411.20
4		Labor Force,1 shift (1 crew for each side of roadway)	Day	7.0	$ 19,600.80	$ 137,205.60
5		Labor Force, 1 shift (1 crew for each side of roadway)	Day	7.0	$ 19,600.80	$ 137,205.60
6		Equipment Rental for Debris and Sediment removal	Day	14	$ 26,124.00	$ 365,736.00
6		Equipment for Water Separaters cleanup	Day	7	$ 5,110.00	$ 35,770.00
7		Traffic Control Set up	LS	1.0	$ 50,000.00	$ 50,000.00
		Subtotal				**$ 2,352,698.40**
		Other Costs				$ -
		Temp Construction Management Site	LS	1.0	$ 30,000.00	$ 30,000.00
		Maintenance Management Command Site	LS	1.0	$ 30,000.00	$ 30,000.00
		Environmental Scientists Team	hr	168.0	$ 250.00	$ 42,000.00
		Coordination with TCEQ, Waste Management Plan	hr	120.0	$ 200.00	$ 24,000.00
		Support Vehicles (8 vehicles at $ 100/day)	Day	30.0	$ 800.00	$ 24,000.00
						$ -
		Repair/replacement of pavements and aesthetic enahancements damaged during the clean up process	LS	1.0	$ 100,000.00	$ 100,000.00
		Subtotal				**$ 250,000.00**
		Total Cost				**$ 5,164,631.73**

Notes

1. Unit Price reduced to half for one side.
2. Assume that the sediment disposal charge is $50/ton
3. For debris and sediment clean up. Refer to Table 1 for Labor force break down. The unit price has been doubled to account for the crew on EB & WB side.
4. For Debris removal under roadway. Refer to Table 1 for Labor force break down. The unit price has been doubled to account for the crew on EB & WB side
5. For Debris removal in the stormceptors. Refer to Table 1 for Labor force break down. The unit price has been doubled to account for the crew on EB & WB side.
6. Refer to Table 2 equipment cost breakdown. The unit price has been doubled to account for the crew on EB & WB side.
7. Assumes Traffic Control for Debris removal under roadway and water separator cleanup for the EB & WB sides of the roadway

TRINITY PARKWAY - O M ESTIMATES

Roadway: TRINITY PARKWAY
County: DALLAS
SCHEMATIC ALTERNATIVE 4B - Option 2

Note	ITEM NO.	DESCRIPTION	UNIT	APPROX. QUANTITIES	ENGINEER'S ESTIMATE	
	ITEM NO.				UNIT PRICE	AMOUNT
1	0400	Landscape Replacement	MI	4.15	$ 500,000.00	$ 2,075,000.00
		Aesthetic Enhancements	SY	48,693.3	$ 10.00	$ 486,933.33
		Subtotal				**$ 2,561,933.33**
		DEBRIS &SEDIMENT REMOVAL				
		Initial Sampling and Testing	EA	40.0	$750	$ 30,000.00
		Transport of Debris on Rdwy (60 mi/round trip in 25 cuyd truck), Load	EA	20.0	$ 600.00	$ 12,000.00
		Disposal of Debris	Ton	500.0	$ 50.00	$ 25,000.00
		Final Sampling and Testing	EA	233.0	$750	$ 174,750.00
		Transport sediment to Staging Area	Cuyd	11,660.0		$ -
		Transport of sediment to landfill site (60 mi/round trip in 20 cuyd trucks), trip	EA	583.0	$ 660.00	$ 384,780.00
2		Sediment Disposal Charge	Ton	11,660.0	$ 50.00	$ 583,000.00
		Transport of Debris under roadway (60 mil/round trip in 25 cuyd trucks), trip	EA	66.4	$ 600.00	$ 39,840.00
		Disposal of Debris under roadway	Ton	1,660.0	$ 50.00	$ 83,000.00
		Cleanup of Water Separators	EA	10.0	$ 2,000.00	$ 20,000.00
3		Labor Force, 2 shifts (1 crew for each side of roadway)	Day	7.0	$ 39,201.60	$ 274,411.20
4		Labor Force,1 shift (1 crew for each side of roadway)	Day	7.0	$ 19,600.80	$ 137,205.60
5		Labor Force, 1 shift (1 crew for each side of roadway)	Day	7.0	$ 19,600.80	$ 137,205.60
6		Equipment Rental for Debris and Sediment removal	Day	14	$ 26,124.00	$ 365,736.00
6		Equipment for Water Separaters cleanup	Day	7	$ 5,110.00	$ 35,770.00
7		Traffic Control Set up	LS	1.0	$ 50,000.00	$ 50,000.00
8		BMP's for the Contaminated Sediment Stockpiled	LS	1.0	$ 40,000.00	$ 40,000.00
		Subtotal				**$ 2,392,698.40**
		Other Costs				$ -
		Temp Construction Management Site	LS	1.0	$ 30,000.00	$ 30,000.00
		Maintenance Management Command Site	LS	1.0	$ 30,000.00	$ 30,000.00
		Environmental Scientists Team	hr	168.0	$ 250.00	$ 42,000.00
		Coordination with TCEQ, Waste Management Plan	hr	120.0	$ 200.00	$ 24,000.00
		Support Vehicles (8 vehicles at $ 100/day)	Day	30.0	$ 800.00	$ 24,000.00
						$ -
		Repair/replacement of pavements and aesthetic enahancements damaged during the clean up process	LS	1.0	$ 100,000.00	$ 100,000.00
		Subtotal				**$ 250,000.00**
		Total Cost				**$ 5,204,631.73**

Notes

1. Unit Price reduced to half for one side.
2. Assume that the sediment disposal charge is $50/ton
3. For debris and sediment clean up. Refer to Table 1 for Labor force break down. The unit price has been doubled to account for the crew on EB & WB side.
4. For Debris removal under roadway. Refer to Table 1 for Labor force break down. The unit price has been doubled to account for the crew on EB & WB side
5. For Debris removal in the stormceptors. Refer to Table 1 for Labor force break down. The unit price has been doubled to account for the crew on EB & WB side.
6. Refer to Table 2 equipment cost breakdown. The unit price has been doubled to account for the crew on EB & WB side.
7. Assumes Traffic Control for Debris removal under roadway and water separator cleanup for the EB & WB sides of the roadway
8. Cost for Best Management Practices for Preventing Pollution by the Contaminated Sediments.

Table 1

Labor Force Break Down

Assume that the Crew is going to work for 12 hours

Crew Type	No.	Unit	Cost/hr from Means Manual	Cost for a 12 hour shift
Equipment Operator	6	hr	39.85	2,869.20
Truck Driver	6	hr	30.60	2,203.20
Skilled Worker	10	hr	39.40	4,728.00

	9,800.40	cost/day	Assuming 12 hr shift
Labor Force, 1 shift	9,800.40	cost/day	
Labor Force, 2 shifts	19600.8	cost/day	

*** Source: RSMEANS Heavy Construction Cost Data 22nd Annual Edition, 2008.*

Table 2

Equipment Cost Break Down

Equipment for Debris and Sediment Removal

Item	No.	Unit	Rent/day from Means Manual	Cost/day
12-1/2 C.Y. 690 H.P. Front End Loader	3	day	2,225.00	6,675.00
90 H.P. Roadway Sweeper	1	day	565.00	565.00
130 H.P. Bobcat Loader	2	day	355.00	710.00
20 C.Y. Dump Trucks	6	day	142.00	852.00
Equipment Mobilization Cost/day	12	Ea	355.00	4,260.00
Total Cost/day				13,062.00

Equipment for Cleaning Water Separators

Item	No.	Unit	Rent/day from Means Manual	Cost
Pressure Washer (1)	1	day	300.00	300.00
5000 Gallon Vacuum Truck	1	day	425.00	425.00
6000 Gallon Water Tank	1	day	765.00	765.00
Equipment Mobilization Cost/day	3	Ea	355.00	1,065.00
Total Cost/day				2,555.00

*** Source: RSMEANS Heavy Construction Cost Data 22nd Annual Edition, 2008.*

(1) This unit price is assumed

QUANTITY CALCULATIONS

Alternative 3C

Total length of roadway submerged 2.12 mi

Sediment deposited on the roadway, East Bound lanes,

From Sta	To Sta	Length (ft)	# of lanes	Width (ft)	Depth (ft)	Sediment Quantity (cy)
1180+00	1271+00	9,100	3	56	0.25	4,718.52
1271+00	1279+00	800	4	68	0.25	503.70
1304+00	1317+00	1,300	3	56	0.25	674.07

Total Sediment deposited on East Bound lanes 5,900.00 cu yd

Debris quantity on the roadway, assuming 30 cuyd per quarter mile 250 cu yd
Debris quantity under the roadway, assuming 100 cu.yd per quarter mile 850 cu yd
Number of Depression where a water separator may be located 6 EA

Alternative 4B

Total length of roadway submerged 4.15 mi

Sediment deposited on the roadway, East Bound and West Bound Lanes,

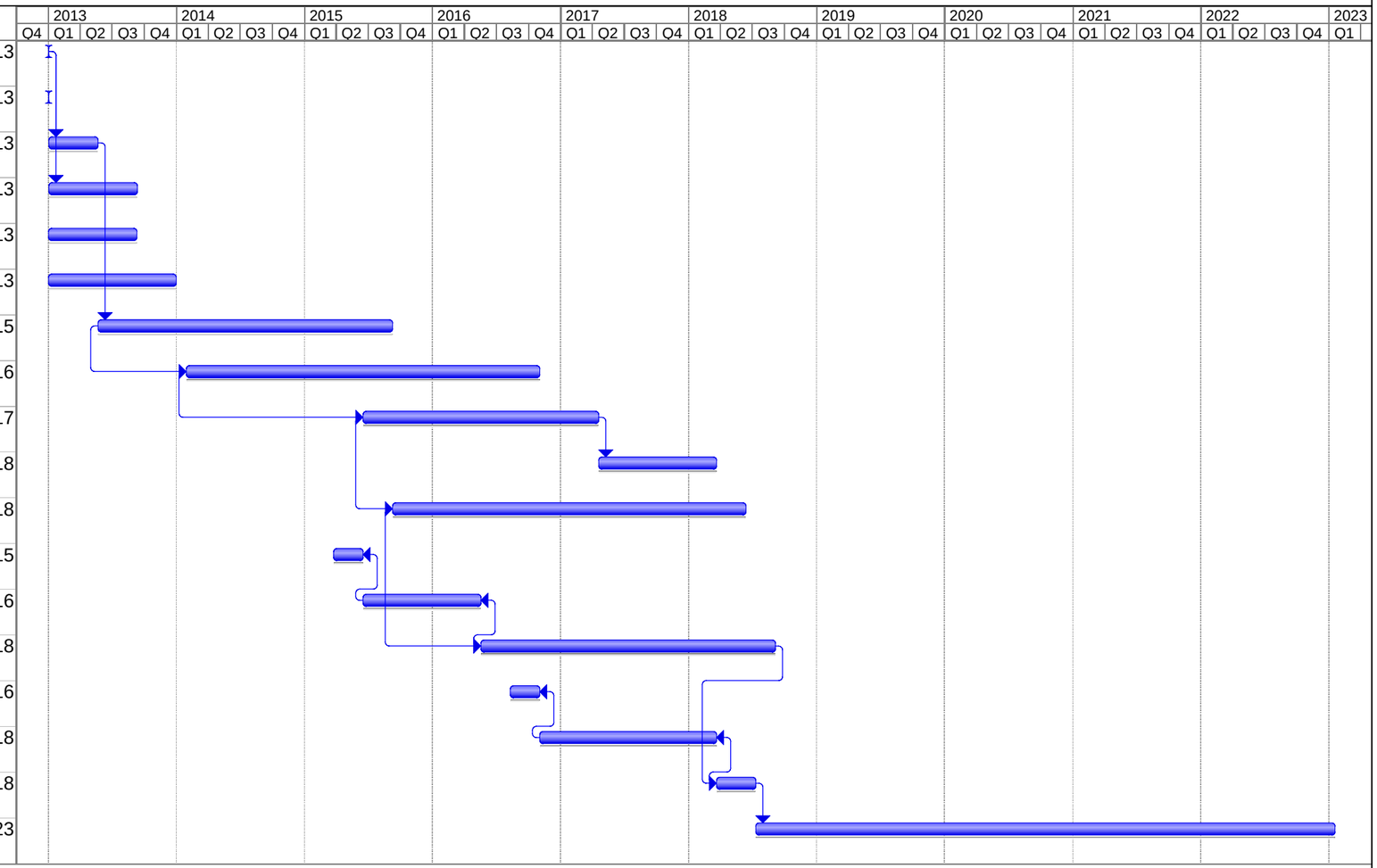
	From Sta	To Sta	Length (ft)	# of lanes	Width (ft)	Depth (ft)	Sediment Quantity (cy)
WB	1180+00	1270+00	9,000	3	56	0.25	4,666.67
	1270+00	1275+00	500	4	68	0.25	314.81
	1305+00	1317+00	1,200	3	56	0.25	622.22
EB	1190+00	1217+00	2,700	3	56	0.25	1,400.00
	1217+00	1235+00	1,800	4	68	0.25	1,133.33
	1235+00	1285+00	5,000	3	56	0.25	2,592.59
	1285+00	1289+00	400	4	68	0.25	251.85
	1323+00	1336+00	1,300	3	56	0.25	674.07

Total Sediment deposited on East Bound lanes 11,660.00 cu yd

Debris quantity on the roadway, assuming 30 cuyd per quarter mile 500 cu yd
Debris quantity under the roadway, assuming 100 cu.yd per quarter mile 1660 cu yd
Number of Depression where a water separator may be located 10

ALTERNATIVE 2A LOGICAL SEQUENCE OF ACTIVITIES AFTER ANTICIPATED RECORD OF DECISION (ROD)

ID	Task Name	Duration	Start	Finish
1	Parkway EIS Record of Decision	1 day	Wed 1/2/13	Wed 1/2/13
2	Corps Floodway EIS Record of Decision	1 day	Wed 1/2/13	Wed 1/2/13
3	Finalize Schematic, incl. VE Study	5 mons	Thu 1/3/13	Wed 5/22/13
4	Other Preliminary Engineering	9 mons	Thu 1/3/13	Wed 9/11/13
5	Traffic and Revenue Studies	9 mons	Wed 1/2/13	Tue 9/10/13
6	Local, State and Federal Permitting	13 mons	Wed 1/2/13	Tue 12/31/13
7	Surveys and Prelim Environmental Work	30 mons	Thu 5/23/13	Wed 9/9/15
8	ROW Acquisition and Relocations	36 mons	Thu 1/30/14	Wed 11/2/16
9	Municipal Setting Designation - Application	24 mons	Thu 6/18/15	Wed 4/19/17
10	Municipal Setting Designation - Reg Approval	12 mons	Thu 4/20/17	Wed 3/21/18
11	Property Cleanup, Abatement & Demolition	36 mons	Thu 9/10/15	Wed 6/13/18
12	Select Utility Design Consultants and Award	3 mons	Thu 3/26/15	Thu 6/18/15
13	Utility Relocations - Design	12 mons	Thu 6/18/15	Thu 5/19/16
14	Utility Relocations - Construction	30 mons	Thu 5/19/16	Wed 9/5/18
15	Select Tollway Design Consultants and Award	3 mons	Thu 8/11/16	Thu 11/3/16
16	Final Tollway Design	18 mons	Thu 11/3/16	Thu 3/22/18
17	Tollway Bid and Award	4 mons	Thu 3/22/18	Wed 7/11/18
18	Tollway Construction (5 Concurrent Contracts)	59 mons	Thu 7/12/18	Wed 1/18/23



Project: TPkwy - Alt 2A - Indust Elev
Date: Wed 10/12/11

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

ALTERNATIVE 2A LOGICAL SEQUENCE OF ACTIVITIES AFTER ANTICIPATED RECORD OF DECISION (ROD)

1 Parkway EIS Record of Decision

Schedules for all alternatives assume the FHWA and USACE ROD's are in place at the start of 2013.

7 Surveys and Prelim Environmental Work

Surveys include ~294 whole parcel takes, ~158 partial takes. ~285 total building takes, incl. 272 commercial bldgs. Environmental assumes ~230 ESA's and ~270 Asbestos Surveys.

8 ROW Acquisition and Relocations

Acquisitions include ~294 whole parcel takes, ~158 partial takes. ~285 total building takes, incl. 272 commercial bldgs. Some municipal bldgs (Police, Fire) would likely require newly constructed facilities prior to shutdown.

9 Municipal Setting Designation - Application

The MSD restricts future use of groundwater over the affected area, thereby allowing a reduction in the extent and cost of impacted soil remediation. The MSD process is not started until 18 mos after the start of the Acquisition and Relo process since the affected landowners need to cooperate. A new MSD is anticipated to be required in the Lamar area and in the Lower Cedars/Mixmaster area.

13 Utility Relocations - Design

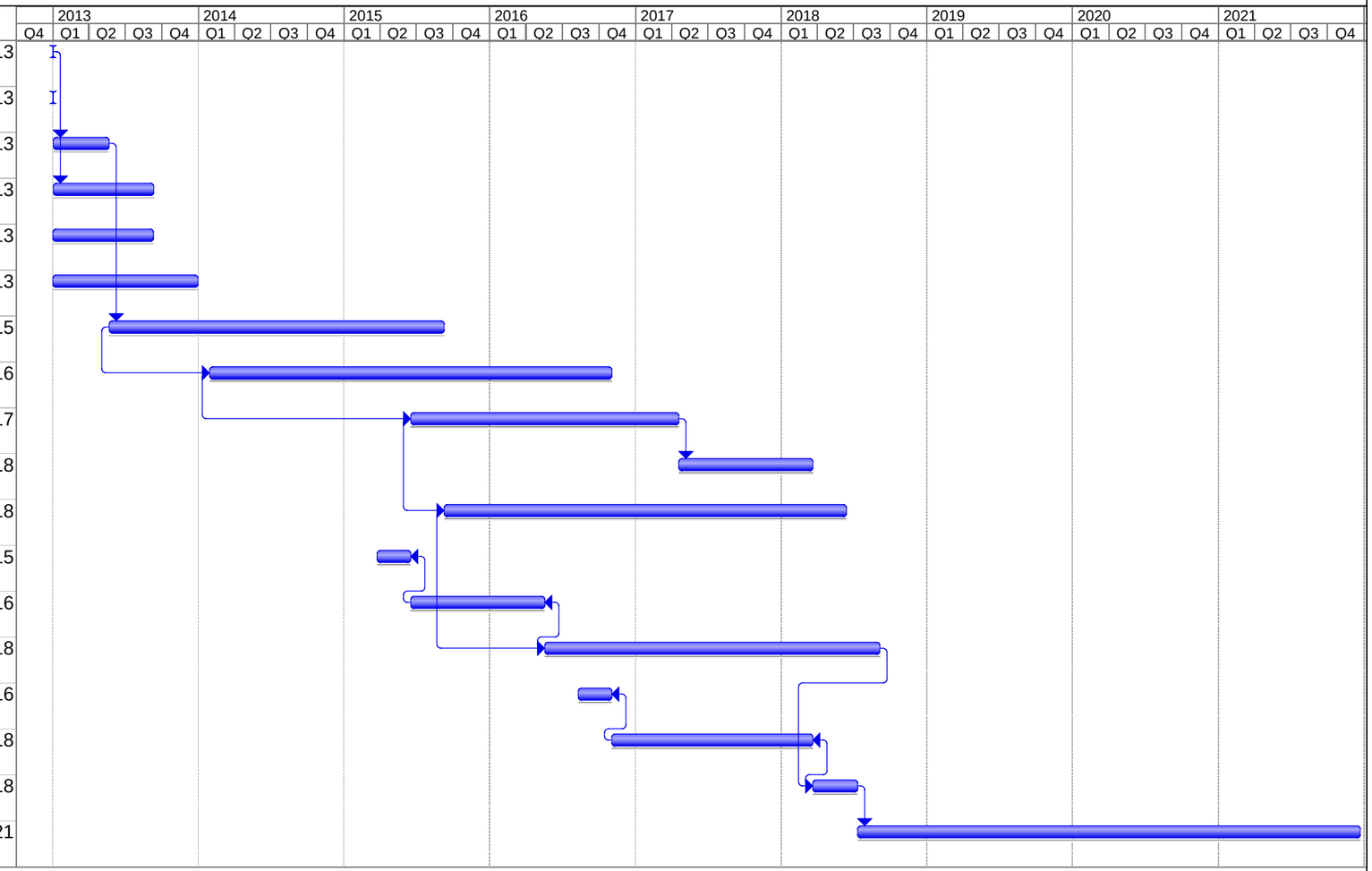
Utility Relocations include: Oncor 138kV and 345kV transmission lines, major storm drains under Riverfront (Industrial) Blvd., 60-inch sludge force main, and general underground and pole mounted utilities in the existing streets.

18 Tollway Construction (5 Concurrent Contracts)

The construction cost for Alt 2A is estimated at $1,759 million. Construction duration assumes 5 construction contracts working concurrently at a rate of $6 million per month each.

ALTERNATIVE 2B LOGICAL SEQUENCE OF ACTIVITIES AFTER ANTICIPATED RECORD OF DECISION (ROD)

ID	Task Name	Duration	Start	Finish
1	Parkway EIS Record of Decision	1 day	Wed 1/2/13	Wed 1/2/13
2	Corps Floodway EIS Record of Decision	1 day	Wed 1/2/13	Wed 1/2/13
3	Finalize Schematic, incl. VE Study	5 mons	Thu 1/3/13	Wed 5/22/13
4	Other Preliminary Engineering*	9 mons	Thu 1/3/13	Wed 9/11/13
5	Traffic and Revenue Studies	9 mons	Wed 1/2/13	Tue 9/10/13
6	Local, State and Federal Permitting	13 mons	Wed 1/2/13	Tue 12/31/13
7	Surveys and Prelim Environmental Work	30 mons	Thu 5/23/13	Wed 9/9/15
8	ROW Acquisition and Relocations	36 mons	Thu 1/30/14	Wed 11/2/16
9	Municipal Setting Designation - Application	24 mons	Thu 6/18/15	Wed 4/19/17
10	Municipal Setting Designation - Reg Approval	12 mons	Thu 4/20/17	Wed 3/21/18
11	Property Cleanup, Abatement & Demolition	36 mons	Thu 9/10/15	Wed 6/13/18
12	Select Utility Design Consultants and Award	3 mons	Thu 3/26/15	Thu 6/18/15
13	Utility Relocations - Design	12 mons	Thu 6/18/15	Thu 5/19/16
14	Utility Relocations - Construction	30 mons	Thu 5/19/16	Wed 9/5/18
15	Select Tollway Design Consultants and Award	3 mons	Thu 8/11/16	Thu 11/3/16
16	Final Tollway Design	18 mons	Thu 11/3/16	Thu 3/22/18
17	Tollway Bid and Award	4 mons	Thu 3/22/18	Wed 7/11/18
18	Tollway Construction (5 Concurrent Contracts)	45 mons	Thu 7/12/18	Wed 12/22/21



Project: TPkwy - Alt 2B - Indust AtGrd
Date: Wed 10/12/11

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

ALTERNATIVE 2B LOGICAL SEQUENCE OF ACTIVITIES AFTER ANTICIPATED RECORD OF DECISION (ROD)

1 Parkway EIS Record of Decision

Schedules for all alternatives assume FHWA and USACE ROD's are in place at the start of 2013.

7 Surveys and Prelim Environmental Work

Surveys include ~265 whole parcel takes, ~134 partial takes. ~245 total building takes, incl. 228 commercial bldgs. Environmental assumes ~200 ESA's and 230 Asbestos Surveys

8 ROW Acquisition and Relocations

Acquisitions include ~265 whole parcel takes, ~134 partial takes. ~245 total building takes, incl. 228 commercial bldgs. Some municipal bldgs (Police, Fire) would likely require newly constructed facilities prior to shutdown.

9 Municipal Setting Designation - Application

MSD restricts future use of groundwater over the affected area, thereby allowing a reduction in the extent and cost of impacted soil remediation. The MSD process is not started until 18 mos after the start of the Acquisition and Relo process since the affected landowners need to cooperate. A new MSD is anticipated to be required in the Lamar area and in the Lower Cedars/Mixmaster area.

13 Utility Relocations - Design

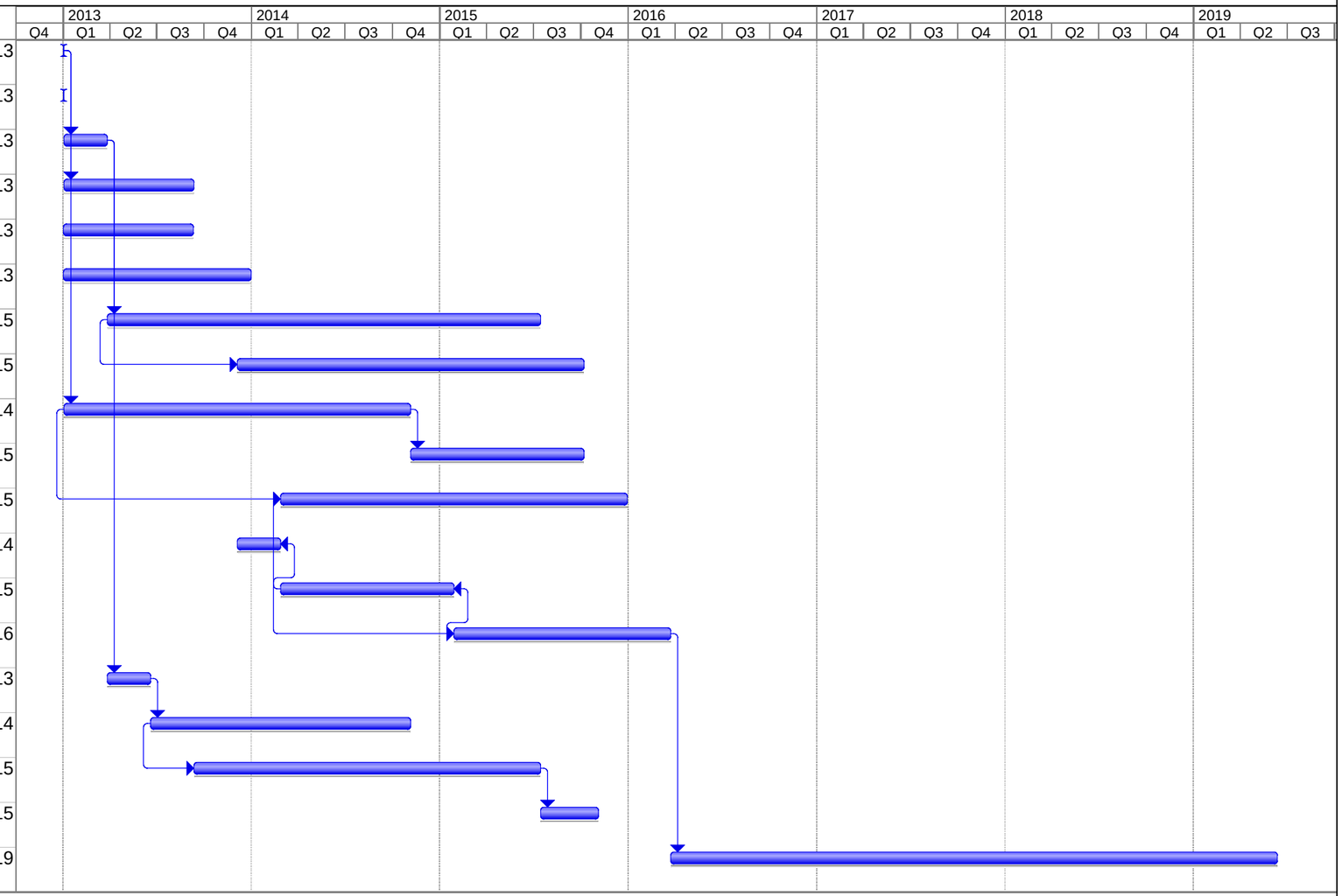
Utility Relocations include: Oncor 138kV and 345kV transmission lines, major storm drains under Riverfront (Industrial) Blvd., 60-inch sludge force main, and general underground and pole mounted utilities in the existing streets.

18 Tollway Construction (5 Concurrent Contracts)

The construction cost for Alt 2B is estimated at $1,348 million. Construction duration assumes 5 construction contracts working concurrently at a rate of ~$6 million per month each.

ALTERNATIVE 3C LOGICAL SEQUENCE OF ACTIVITIES AFTER ANTICIPATED RECORD OF DECISION (ROD)

ID	Task Name	Duration	Start	Finish
1	Parkway EIS Record of Decision	1 day	Wed 1/2/13	Wed 1/2/13
2	Corps Floodway EIS Record of Decision	1 day	Wed 1/2/13	Wed 1/2/13
3	Finalize Schematic, incl. VE Study	3 mons	Thu 1/3/13	Wed 3/27/13
4	Other Preliminary Engineering*	9 mons	Thu 1/3/13	Wed 9/11/13
5	Traffic and Revenue Studies	9 mons	Wed 1/2/13	Tue 9/10/13
6	Local, State and Federal Permitting	13 mons	Wed 1/2/13	Tue 12/31/13
7	Surveys and Prelim Environmental Work	30 mons	Thu 3/28/13	Wed 7/15/15
8	ROW Acquisition and Relocations	24 mons	Thu 12/5/13	Wed 10/7/15
9	Municipal Setting Designation - Application	24 mons	Thu 1/3/13	Wed 11/5/14
10	Municipal Setting Designation - Reg Approval	12 mons	Thu 11/6/14	Wed 10/7/15
11	Property Cleanup, Abatement & Demolition	24 mons	Thu 2/27/14	Wed 12/30/15
12	Select Utility Design Consultants and Award	3 mons	Thu 12/5/13	Thu 2/27/14
13	Utility Relocations - Design	12 mons	Thu 2/27/14	Thu 1/29/15
14	Utility Relocations - Construction	15 mons	Thu 1/29/15	Wed 3/23/16
15	Select Tollway Design Consultants and Award	3 mons	Thu 3/28/13	Wed 6/19/13
16	Final Tollway Design	18 mons	Thu 6/20/13	Wed 11/5/14
17	USACE 408 Design Approval	24 mons	Thu 9/12/13	Wed 7/15/15
18	Tollway Bid and Award	4 mons	Thu 7/16/15	Wed 11/4/15
19	Tollway Construction (5 Concurrent Contracts)	42 mons	Thu 3/24/16	Wed 6/12/19



Project: TPkwy - Alt 3C - Comb FMod
Date: Thu 1/5/12

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

ALTERNATIVE 3C LOGICAL SEQUENCE OF ACTIVITIES AFTER ANTICIPATED RECORD OF DECISION (ROD)

1 Parkway EIS Record of Decision

Schedules for all alternatives assume the FHWA and USACE ROD's are in place at the start of 2013.

7 Surveys and Prelim Environmental Work

Surveys include ~205 parcels. ~35 total building takes, incl. 29 commercial bldgs. Environmental assumes ~128 Level I ESA's, 25 Level II ESA's and 32 Asbestos Surveys.

8 ROW Acquisition and Relocations

Acquisitions include ~205 total parcel takes. ~35 total building takes, incl. 29 commercial bldgs. There are no municipal bldgs (Police, Fire) to be acquired.

9 Municipal Setting Designation - Application

The MSD restricts future use of groundwater over the affected area, thereby allowing a reduction in the extent and cost of impacted soil remediation. The MSD for the lower segment of Alt 3C (downstream of Corinth) is in preparation (Dec 2009) because it is needed for all Parkway alternatives as well as the Dallas Floodway Extension Lamar levee work. Due to the expected levels of impacted properties, It is not anticipated that an MSD will be required in the Dallas Floodway or in the Northern Terminus area. Thus, the MSD currently in progress is the only MSD needed for Alt 3C.

13 Utility Relocations - Design

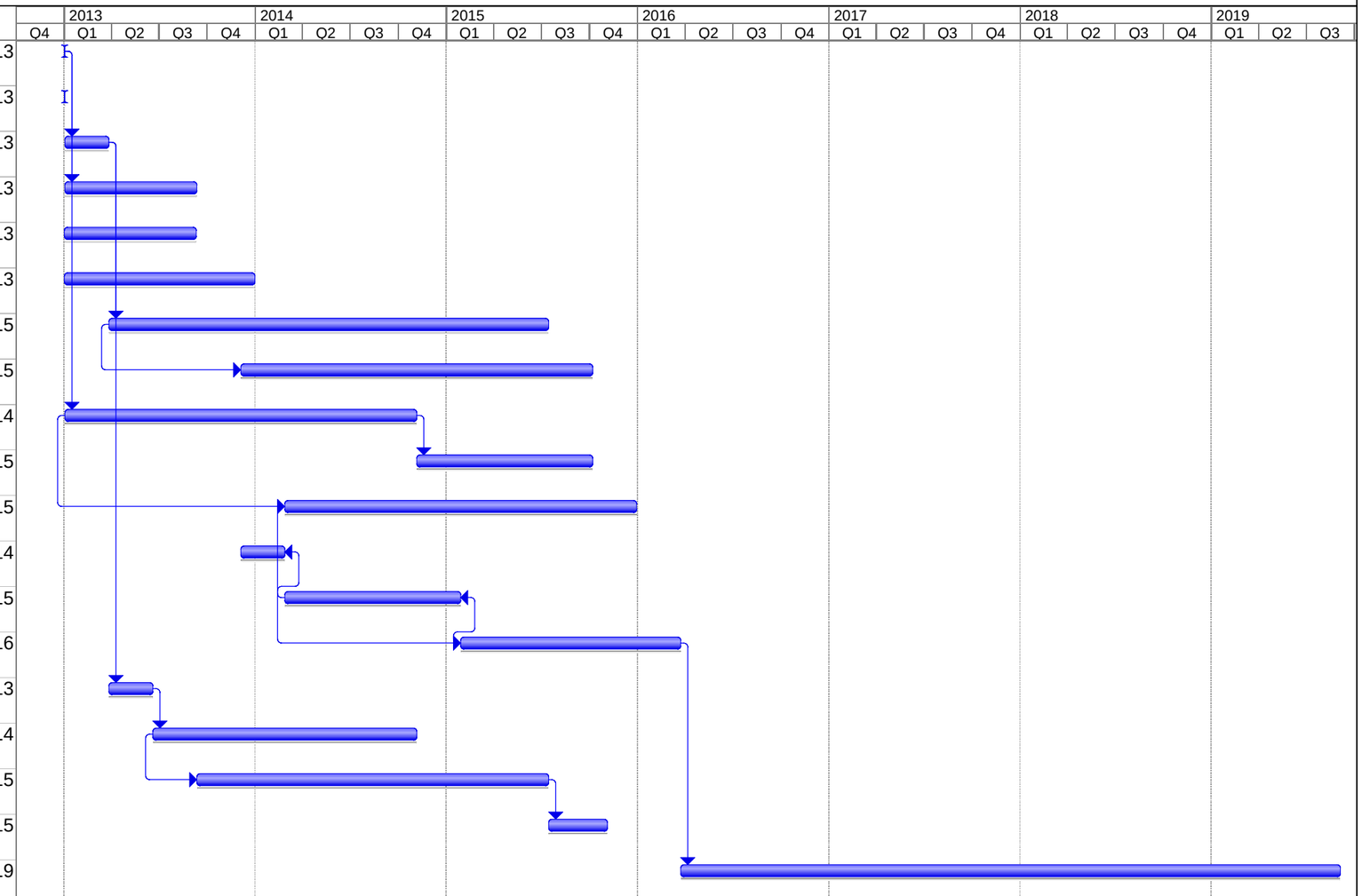
Utility Relocations avoid Oncor 138kV and 345kV transmission lines, and major storm drains under Riverfront (Industrial) Blvd.

19 Tollway Construction (5 Concurrent Contracts)

The construction cost for Alt 3C is estimated at $1,274 million. Construction duration assumes 5 construction contracts working concurrently at a rate of $6 million per month each.

ALTERNATIVE 4B LOGICAL SEQUENCE OF ACTIVITIES AFTER ANTICIPATED RECORD OF DECISION (ROD)

ID	Task Name	Duration	Start	Finish
1	Parkway EIS Record of Decision	1 day	Wed 1/2/13	Wed 1/2/13
2	Corps Floodway EIS Record of Decision	1 day	Wed 1/2/13	Wed 1/2/13
3	Finalize Schematic, incl. VE Study	3 mons	Thu 1/3/13	Wed 3/27/13
4	Other Preliminary Engineering*	9 mons	Thu 1/3/13	Wed 9/11/13
5	Traffic and Revenue Studies	9 mons	Wed 1/2/13	Tue 9/10/13
6	Local, State and Federal Permitting	13 mons	Wed 1/2/13	Tue 12/31/13
7	Surveys and Prelim Environmental Work	30 mons	Thu 3/28/13	Wed 7/15/15
8	ROW Acquisition and Relocations	24 mons	Thu 12/5/13	Wed 10/7/15
9	Municipal Setting Designation - Application	24 mons	Thu 1/3/13	Wed 11/5/14
10	Municipal Setting Designation - Reg Approval	12 mons	Thu 11/6/14	Wed 10/7/15
11	Property Cleanup, Abatement & Demolition	24 mons	Thu 2/27/14	Wed 12/30/15
12	Select Utility Design Consultants and Award	3 mons	Thu 12/5/13	Thu 2/27/14
13	Utility Relocations - Design	12 mons	Thu 2/27/14	Thu 1/29/15
14	Utility Relocations - Construction	15 mons	Thu 1/29/15	Wed 3/23/16
15	Select Tollway Design Consultants and Award	3 mons	Thu 3/28/13	Wed 6/19/13
16	Final Tollway Design	18 mons	Thu 6/20/13	Wed 11/5/14
17	USACE 408 Design Approval	24 mons	Thu 9/12/13	Wed 7/15/15
18	Tollway Bid and Award	4 mons	Thu 7/16/15	Wed 11/4/15
19	Tollway Construction (5 Concurrent Contracts)	45 mons	Thu 3/24/16	Wed 9/4/19



Project: TPkwy - Alt 4B Split Mod
Date: Thu 1/5/12

Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External Milestone | Deadline

ALTERNATIVE 4B LOGICAL SEQUENCE OF ACTIVITIES AFTER ANTICIPATED RECORD OF DECISION (ROD)

1 Parkway EIS Record of Decision

Schedules for all alternatives assume the FHWA and USACE ROD's are in place at the start of 2013.

7 Surveys and Prelim Environmental Work

Surveys include ~205 parcels. ~35 total building takes, incl. 24 commercial bldgs. Environmental assumes ~128 Level I ESA's, 25 Level II ESA's and 32 Asbestos Surveys.

8 ROW Acquisition and Relocations

Acquisitions include ~205 total parcel takes. ~35 total building takes, incl. 24 commercial bldgs. There are no municipal bldgs (Police, Fire) to be acquired.

9 Municipal Setting Designation - Application

The MSD restricts future use of groundwater over the affected area, thereby allowing a reduction in the extent and cost of impacted soil remediation. The MSD for the lower segment of the Alt 4B (downstream of Corinth) is in preparation (Dec 2009) because it is needed for all Parkway alternatives as well as the Dallas Floodway Extension Lamar levee work. Due to the expected levels of impacted properties, It is not anticipated that an MSD will be required in the Dallas Floodway or in the Northern Terminus area. Thus, the MSD currently in progress is the only MSD needed for Alt 4B.

13 Utility Relocations - Design

Utility Relocations avoid Oncor 138kV and 345kV transmission lines, and major storm drains under Riverfront (Industrial) Blvd.

19 Tollway Construction (5 Concurrent Contracts)

The construction cost for Alt 4B is estimated at $1,349 million. Construction duration assumes 5 construction contracts working concurrently at a rate of $6 million per month each.

APPENDIX E

Design Refinements Considered for Avoidance of Historic Properties

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DESIGN REFINEMENTS FOR AVOIDANCE OF COLONIAL HILL HISTORIC DISTRICT

Alternative 2A Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2 (Shift West - Parallel Future Lamar Levee)
Meets Design Criteria	Yes	Yes
Impacts to the Historic Resource	Proximity impacts, including noise and visual intrusion (Parkway adjacent to the Historic District)	None
ROW Takings	Taking from 105 parcels totaling 51.54 acres (No taking from the Colonial Hill HD; acreage excludes existing ROW)	Taking from 74 parcels totaling 54.08 acres (No taking from the Colonial Hill HD; acreage excludes existing ROW)
Displacements	54 (None from the Colonial Hill HD)	25 (None from the Colonial Hill HD)
Estimated Cost of ROW	$28.0 Million	$30.2 Million
ROW within Public Parks	0.2 Acre	None
High Risk Hazardous Material Sites Impacted	3	4
Waters of the U.S., Including Wetlands Impacted	2.87 Acres	0.07 Acre
ROW within 100-Year Floodplain	43.99 Acres	57.32 Acres
Woodlands Impacted	4.59 Acres	4.25 Acres
Noise Receivers Impacted	83 residences (including some within the Colonial Hill HD)	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,493,492.477, 6,964,408.298)** and **end point B (X, Y -- 2,504,370.318, 6,959,724.056)**, which encompasses the area where the design refinement deviates from the original alignment (generally between the DART bridge and the intersection of Lamar Street and Starks Street). The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

Alternative 2B Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2 (Shift West, Parallel Future Lamar Levee)
Meets Design Criteria	Yes	Yes
Impacts to the Historic Resource	Proximity impacts, including noise and visual intrusion (Parkway adjacent to the Historic District)	None
ROW Takings	Taking from 149 parcels totaling 78.14 acres (None from Colonial Hill HD)	Taking from 134 parcels totaling 70.78 acres (None from Colonial Hill HD)
Displacements	88 (None from Colonial Hill HD)	60 (None from Colonial Hill HD)
Estimated Cost of ROW	$42.6 Million	$49.2 Million
ROW within Public Parks	1.16 Acre	None
High Risk Hazardous Material Sites Impacted	6	8
Waters of the U.S., Including Wetlands Impacted	5.64 Acres	0.96 Acre
ROW within 100-Year Floodplain	58.17 Acres	61.95 Acres
Woodlands Impacted	6.42 Acres	4.49 Acres
Noise Receivers Impacted	76 residences	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,490,355.842, 6,966,310.162)** and **end point B (X, Y -- 2,505,251.483, 6,960,091.924)**, which encompasses the area where the design refinement deviates from the original alignment (generally between the DART bridge and the intersection of Lamar Street and Starks Street). The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

DESIGN REFINEMENTS FOR AVOIDANCE OF THE HOUSTON STREET VIADUCT

Alternative 2A Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2* (New Jefferson Bridge)
Meets Design Criteria	Yes	Yes
Impacts to the Historic Resource	Ramp connections resulting in removal of approximately 265 feet of railing (2.0% of total railing)	None; Mainlanes and ramps overpass Houston St. bridge (provides 16.5 feet minimum clearance)

Note:
*The right-of-way needed for the modified ramp configuration to the connect to the new Jefferson Bridge would not change from the original schematic plan; therefore, impacts to other resources would remain the same and are not shown in the above table as they would not differentiate the original design from the option to avoid the Houston Street viaduct.

Alternative 3C Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2 (New Jefferson Bridge)
Meets Design Criteria	Yes	No, ramp grades to Jefferson Bridge are 6.7% on NW side and 5.9% on SE side of the Jefferson Bridge
Impacts to the Historic Resource	Ramp connections resulting in removal of 450 feet of railing (3.4% of total railing); Mainlanes pass under	Avoids ramp connections to Houston St.; Mainlanes and ramps pass under (provides 16.5 feet minimum clearance from low chord of Houston St. bridge)
ROW Takings	Taking from 22 parcels totaling 31.95 acres	Taking from 8 parcels totaling 24.17 acres
Displacements	0	0
Estimated Cost of ROW	$1.3 Million	$62,714
ROW within Public Parks	28.50 Acres	24.18 Acres
High Risk Hazardous Material Sites Impacted	0	0
Waters of the U.S., Including Wetlands Impacted	6.36 Acres	5.60 Acres
ROW within 100-Year Floodplain	32.25 Acres	27.30 Acres
Woodlands Impacted	0	0
Noise Receivers Impacted	None	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,493,492.477, 6,964,408.298)** and **end point B (X, Y -- 2,504,370.318, 6,959,724.056)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

Alternative 4B Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2 (New Jefferson Bridge)
Meets Design Criteria	Yes	No, ramp grades would require design exception. For example, grades would be 8.8% for the northbound entrance ramp from the new Jefferson Bridge and 5.5% for the northbound exit ramp to Jefferson Street.
Impacts to the Historic Resource	Ramp connections resulting in removal of 314 feet of railing (2.4% of total railing); Mainlanes pass under	Avoids ramp connections to Houston St.; Mainlanes and ramps pass under
ROW Takings Between X and Y	Taking from 31 parcels totaling 50.95 acres	Taking from 25 parcels totaling 38.58 acres
Displacements	None	None
Estimated Cost of ROW	$1.8 Million	$471,870
ROW within Public Parks	49.25 Acres	38.90 Acres
High Risk Hazardous Material Sites Impacted	None	None
Waters of the U.S., Including Wetlands Impacted	10.32 Acres	5.52 Acres
ROW within 100-Year Floodplain	58.38 Acres	47.45 Acres
Woodlands Impacted	0.27 Acre	None
Noise Receivers Impacted	None	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,486,723, 6,966,855)** and **end point B (X, Y -- 2,490,196, 6,964,240)** for the north bound mainlanes and **start point A (X, Y – 2,485,422, 6,965,783)** and **end point B (X, Y – 2,489,150, 6,963,094)** for the south bound mainlanes, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

DESIGN REFINEMENTS FOR AVOIDANCE OF THE CORINTH STREET VIADUCT

Alternative 3C Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2 (Industrial Tee)
Meets Design Criteria	Yes	Yes
Impacts to the Historic Resource	Ramp connections resulting in removal of 197 feet of railing (2.8% of total railing); Mainlanes pass under	Avoids ramp connections to Corinth St.; Mainlanes pass under
ROW Takings	Taking from 26 parcels totaling 39.94 acres (exluding existing ROW)	Taking from 37 parcels totaling 30.12 acres (excluding existing ROW)
Displacements	4	5
Estimated Cost of ROW	$7.0 Million	$9.0 Million
ROW within Public Parks	22.63 Acres	20.50 Acres
High Risk Hazardous Material Sites Impacted	2	2
Waters of the U.S., Including Wetlands Impacted	4.26 Acres	3.30 Acres
ROW within 100-Year Floodplain	43.21 Acres	35.15 Acres
Woodlands Impacted	11.71 Acres	8.54 Acres
Noise Receivers Impacted	None	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,491,407.216, 6,964,256.769)** and **end point B (X, Y -- 2,496,782.699, 6,962,092.218)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

Alternative 4B Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2 (Industrial Tee)
Meets Design Criteria	Yes	Yes
Impacts to the Historic Resource	Ramp connections resulting in removal of 384 feet of railing (5.7% of total railing); Mainlanes pass under	Avoids ramp connections; Mainlanes pass under
ROW Takings Between X and Y	Taking from 5 parcels totaling 13.41 acres	Taking from 37 parcels totaling 16.44 acres
Displacements	None	7
Estimated Cost of ROW	$307,099	$8.5 Million
ROW within Public Parks	15.18 Acres	15.12 Acres
High Risk Hazardous Material Sites Impacted	None	2
Waters of the U.S., Including Wetlands Impacted	0.54 Acre	0.97 Acre
ROW within 100-Year Floodplain	18.46 Acres	19.24 Acres
Woodlands Impacted	0.26 Acre	0.14 Acre
Noise Receivers Impacted	None	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,492,102, 6,962,599)** and **end point B (X, Y -- 2,494,614, 6,962,218)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

DESIGN REFINEMENTS FOR AVOIDANCE OF THE AT&SF RAILROAD BRIDGE

Alternative 2A Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2 (Bridge Over AT&SF RR East of Historic Bridge Section)
Meets Design Criteria	Yes	Yes
Impacts to the Historic Resource	Proximity impacts, including noise and visual intrusion (Parkway adjacent to the Historic District)	None
ROW Takings	Taking from 105 parcels totaling 51.54 acres (No taking from the Colonial Hill HD; acreage excludes existing ROW)	Taking from 74 parcels totaling 54.08 acres (No taking from the Colonial Hill HD; acreage excludes existing ROW)
Displacements	54 (None from the Colonial Hill HD)	25 (None from the Colonial Hill HD)
Estimated Cost of ROW	$28.0 Million	$30.2 Million
ROW within Public Parks	0.2 Acre	None
High Risk Hazardous Material Sites Impacted	3	4
Waters of the U.S., Including Wetlands Impacted	2.87 Acres	0.07 Acre
ROW within 100-Year Floodplain	43.99 Acres	57.32 Acres
Woodlands Impacted	4.59 Acres	4.25 Acres
Noise Receivers Impacted	83 residences (including some within the Colonial Hill HD)	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,493,492.477, 6,964,408.298)** and **end point B (X, Y -- 2,504,370.318, 6,959,724.056)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

Alternative 2B Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2 (Bridge Over AT&SF RR East of Historic Bridge Section)
Meets Design Criteria	Yes	Yes
Impacts to the Historic Resource	400 LF section of wood trestle removed (14.3% of total structure length); No impacts to the steel truss	None
ROW Takings	Taking from 149 parcels totaling 78.14 acres	Taking from 134 parcels totaling 70.78 acres
Displacements	88	60
Estimated Cost of ROW	$42.6 Million	$49.2 Million
ROW within Public Parks	1.16 Acre	None
High Risk Hazardous Material Sites Impacted	6	8
Waters of the U.S., Including Wetlands Impacted	5.64 Acres	0.96 Acre
ROW within 100-Year Floodplain	58.17 Acres	61.95 Acres
Woodlands Impacted	6.42 Acres	4.49 Acres
Noise Receivers Impacted	76 residences	None

Note:
The information in the above table is for the area between start point **A (X, Y -- 2,490,355.842, 6,966,310.162)** and **end point B (X, Y -- 2,505,251.483, 6,960,091.924)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

Alternative 3C Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2 (Bridge Over AT&SF RR Bridge)
Meets Design Criteria	Yes	No (Industrial "T" grade would exceed 6%, Trinity Parkway mainlane grade would exceed 3%)
Impacts to the Historic Resource	300 LF section of wood trestle removed (10.7% of total structure length); No impacts to the steel truss	None
ROW Takings	Taking from 26 parcels totaling 39.94 acres (exluding existing ROW)	Taking from 37 parcels totaling 30.12 acres (excluding existing ROW)
Displacements	4	5
Estimated Cost of ROW	$7.0 Million	$9.0 Million
ROW within Public Parks	22.63 Acres	20.50 Acres
High Risk Hazardous Material Sites Impacted	2	2
Waters of the U.S., Including Wetlands Impacted	4.26 Acres	3.30 Acres
ROW within 100-Year Floodplain	43.21 Acres	35.15 Acres
Woodlands Impacted	11.71 Acres	8.54 Acres
Noise Receivers Impacted	None	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,491,407.216, 6,964,256.769)** and **end point B (X, Y -- 2,496,782.699, 6,962,092.218)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

Alternative 4B Comparisons (Original vs. Avoidance Option)

Description	Option 1 (Original)	Option 2 (Bridge Over AT&SF RR Bridge)
Meets Design Criteria	Yes	No (Industrial "T" grade exceeds 6%, Trinity Parkway mainlane grade exceeds 3%)
Impacts to the Historic Resource	440 LF section of wood trestle removed (15.7% of total structure length)	None
ROW Takings Between X and Y	Taking from 5 parcels totaling 13.41 acres	Taking from 37 parcels totaling 16.44 acres
Displacements	None	7
Estimated Cost of ROW	$307,099	$8.5 Million
ROW within Public Parks	15.18 Acres	15.12 Acres
High Risk Hazardous Material Sites Impacted	None	2
Waters of the U.S., Including Wetlands Impacted	0.54 Ac	0.97 Ac
ROW within 100-Year Floodplain	18.46 Ac	19.24 Ac
Woodlands Impacted	0.26 Ac	0.14 Ac
Noise Receivers Impacted	None	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,492,102, 6,962,599)** and **end point B (X, Y -- 2,494,614, 6,962,218)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

DESIGN REFINEMENTS FOR AVOIDANCE OF THE CONTINENTAL AVENUE VIADUCT

Alternative 3C Comparisons (Original vs. Avoidance Options)

Description	Option 1 (Original)	Option 2 (Shift Slightly East)	Option 3 (Shift East With Loop Ramp)	Option 4 (Reduced Ramp Width)	Preferred Option (Modified Original)
Meets Design Criteria	Yes	No (Ramp grades would require a design exception)	Yes	No (Ramp shoulders eliminated under bridge, and ramp width reduced to 21')	Yes
Impacts to the Historic Resource	Ramp connections, replace 110-foot long bridge section (5.3% of total structure length); Mainlanes pass under	Avoids bridge section replacement; Mainlanes pass under; Ramps bypass the viaduct to the east	Avoids bridge section replacement; Mainlanes and ramps pass under	Avoids bridge section replacement; Mainlanes and ramps pass under	Approximately 195 linear feet of the viaduct (9.2 percent of the total structure length) would be reconstructed to accommodate ramps; Mainlanes pass under
ROW Takings	Taking from 11 parcels totaling 34.10 acres	Taking from 24 parcels totaling 34.09 acres	Taking from 48 parcels totaling 34.67 acres	Taking from 13 parcels totaling 29.69 acres	Taking from 15 parcels totaling 30.71 acres
Displacements	1	6	23	1	3
Estimated Cost of ROW	$11.8 Million	$27.3 Million	$33.2 Million	$9.9 Million	$18.5 Million
ROW within Public Parks	24.75 Acres	20.86 Acres	20.86 Acres	21.21 Acres	19.17 Acres
High Risk Hazardous Material Sites Impacted	0	0	0	0	0
Waters of the U.S., Including Wetlands Impacted	1.09 Acres	0.84 Acre	0.84 Acre	0.84 Acre	0.58 Acre
ROW within 100-Year Floodplain	24.40 Acres	22.31 Acres	20.15 Acres	22.41 Acres	21.42 Acres
Woodlands Impacted	0	0	0	0	0
Noise Receivers Impacted	None	None	None	None	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,484,022.598, 6,973,790.475)** and **end point B (X, Y -- 2,485,595.423, 6,971,366.811)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

DESIGN REFINEMENTS FOR AVOIDANCE OF 1715 MARKET CENTER BOULEVARD

Alternative 2A Comparisons (Original vs. Avoidance Options)

Description	Option 1 (Original)	Option 2 (Shift West)	Option 3 (Reduce Border Width)
Meets Design Criteria	Yes	Yes	No, requires 4' wide border width
Impacts to the Historic Resource	Taking of land and loss of historic structure	None	None
ROW Takings	Taking from 51 parcels totaling 6.68 acres	Taking from 39 parcels totaling 7.32 acres	Taking from 61 parcels totaling 6.38 acres
Displacements	49	22	42
Estimated Cost of ROW	$121.4 Million	$84.1 Million	$98.4 Million
ROW within Public Parks	None (Adjacent to Trinity Strand Trail Park)	None (Adjacent to Trinity Strand Trail Park)	None (Adjacent to Trinity Strand Trail Park)
High Risk Hazardous Material Sites Impacted	1	1	1
Waters of the U.S., Including Wetlands Impacted	None	None	None
ROW within 100-Year Floodplain	None	None	None
Woodlands Impacted	None	None	None
Noise Receivers Impacted	None	None	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,482,087.423, 6,977,291.232)** and **end point B (X, Y -- 2,492,420.310, 6,965,111.978)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

DESIGN REFINEMENTS FOR AVOIDANCE OF 1202 N. INDUSTRIAL BOULEVARD

Alternative 2A Comparisons (Original vs. Avoidance Options)

Description	Option 1 (Original)	Option 2 (Shift West)	Option 3 (Reduce Border Width)
Meets Design Criteria	Yes	Yes	No
Impacts to the Historic Resource	Taking of parking area would require building displacement	None	None
ROW Takings	Taking from 51 parcels totaling 6.68 acres	Taking from 39 parcels totaling 7.32 acres	Taking from 61 parcels totaling 6.38 acres (not include existing ROW)
Displacements	49	22	42
Estimated Cost of ROW	$121.4 Million	$84.1 Million	$98.4 Million
ROW within Public Parks	None (Adjacent to Trinity Strand Trail Park)	None (Adjacent to Trinity Strand Trail Park)	None
High Risk Hazardous Material Sites Impacted	1	1	1
Waters of the U.S., Including Wetlands Impacted	None	None	None
ROW within 100-Year Floodplain	None	None	None
Woodlands Impacted	None	None	None
Noise Receivers Impacted	None	None	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,482,087.423, 6,977,291.232)** and **end point B (X, Y -- 2,492,420.310, 6,965,111.978)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

DESIGN REFINEMENTS FOR AVOIDANCE OF 1212 S. INDUSTRIAL BOULEVARD

Alternative 2A Comparisons (Original vs. Avoidance Options)

Description	Option 1 (Original)	Option 2 (Shift West)	Option 3 (Shift East)
Meets Design Criteria	Yes	Yes	Yes
Impacts to the Historic Resource	Loss of historic structure	None	None
ROW Takings	Taking 25 parcels totaling 7.70 acres	Taking 22 parcels totaling 4.72 acres	Taking 12 parcels totaling 5.97 acres
Displacements	11	11	2
Estimated Cost of ROW	$9.5 Million	$10.3 Million	$6.8 Million
ROW within Public Parks	None	None	None
High Risk Hazardous Material Sites Impacted	None	None	None
Waters of the U.S., Including Wetlands Impacted	0.33 Acre	0.16 Acre	0.50 Acre
ROW within 100-Year Floodplain	3.34 Acres	1.71 Acres	2.93 Acres; Impacts flood control sump (fill from bridge columns)
Woodlands Impacted	None	None	None
Noise Receivers Impacted	None	None	None

Note:
The information in the above table is for the area between **start point A (X, Y -- 2,489,652.505, 6,967,230.851)** and **end point B (X, Y -- 2,492,420.062, 6,965,112.047)**, which encompasses the area where the design refinement deviates from the original alignment. The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

DESIGN REFINEMENTS FOR AVOIDANCE OF 3701 S. LAMAR

Alternative 2A Comparisons (Original vs. Avoidance Options)

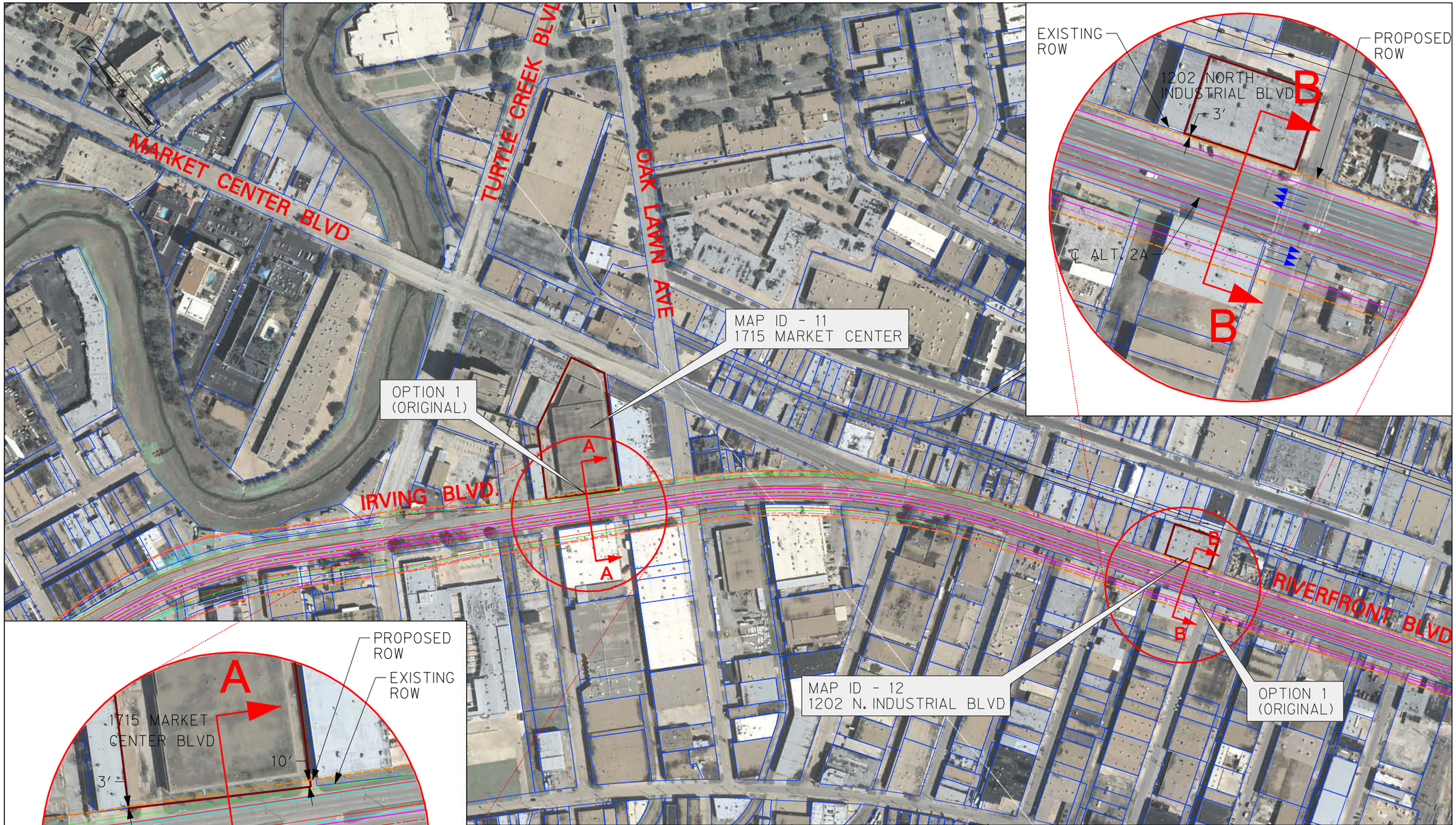
Description	Option 1 (Original)	Option 2 (Shift West - Parallel Future Lamar Levee)	Option 3 (Shift East)
Meets Design Criteria	Yes	Yes	Yes
Impacts to the Historic Resource	Taking of land (4.70 acres = 17% of 27.72-acre property) and loss of a contributing resource (railroad gatehouse); Displacement of two ancillary buildings not of historic age	Taking of land (0.22 acres = 0.8% of 27.72-acre property); No impacts to contributing resources	Taking of land (0.4 acres); No impacts to contributing resources
ROW Takings	Taking from 105 parcels totaling 51.54 acres (excludes existing ROW)	Taking from 74 parcels totaling 54.08 acres (excludes existing ROW)	Taking from 155 parcels totaling 43.27 acres (excludes existing ROW)
Displacements	54	25	87
Estimated Cost of ROW	$28.0 Million	$30.2 Million	$28.2 Million
ROW within Public Parks	0.2 Acre	None	None
High Risk Hazardous Material Sites Impacted	3	4	4
Waters of the U.S., Including Wetlands Impacted	2.87 Acres	0.07 Acre	0.09 Acre
ROW within 100-Year Floodplain	43.99 Acres	57.32 Acres	33.47 Acres
Woodlands Impacted	4.59 Acres	4.25 Acres	0.29 Acre
Noise Receivers Impacted	83 residences	None	90 residences

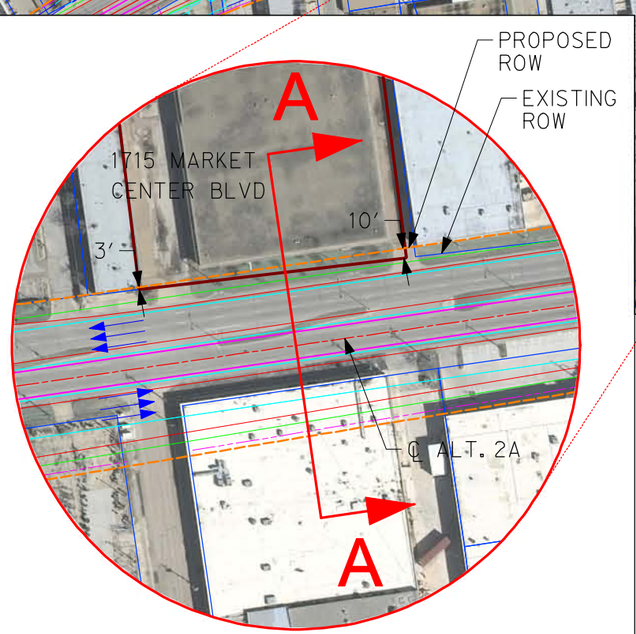
Note:
The information in the above table is for the area between **start point A (X, Y -- 2,493,492.477, 6,964,408.298)** and **end point B (X, Y -- 2,504,370.318, 6,959,724.056)**, which encompasses the area where the design refinement deviates from the original alignment (generally between the DART Bridge and the intersection of Lamar Street and Starks Street). The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.

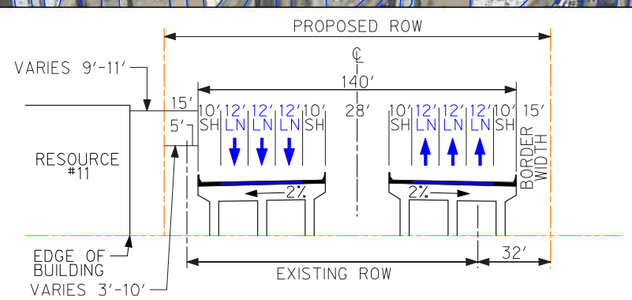
Alternative 2B Comparisons (Original vs. Avoidance Options)

Description	Option 1 (Original)	Option 2 (Shift West, Parallel Future Lamar Levee)	Option 3 (Shift East)
Meets Design Criteria	Yes	Yes	Yes
Impacts to the Historic Resource	Loss of historic structures (primary building and a railroad gatehouse) and taking of land (9.89 acres = 35% of total area)	Taking of land (0.23 acres = 0.8% of total property area); No contributing resources impacted	Taking of land (0.4 acres); No impacts to contributing resources
ROW Takings	Taking from 149 parcels totaling 78.14 acres	Taking from 134 parcels totaling 70.78 acres	Taking from 207 parcels totaling 61.02 acres
Displacements	88	60	123
Estimated Cost of ROW	$42.6 Million	$49.2 Million	$46.9 Million
ROW within Public Parks	1.16 Acre	None	None
High Risk Hazardous Material Sites Impacted	6	8	7
Waters of the U.S., Including Wetlands Impacted	5.64 Acres	0.96 Acre	1.15 Acre
ROW within 100-Year Floodplain	58.17 Acres	61.95 Acres	37.51 Acres
Woodlands Impacted	6.42 Acres	4.49 Acres	0.29 Acre
Noise Receivers Impacted	76 residences	None	86 residences

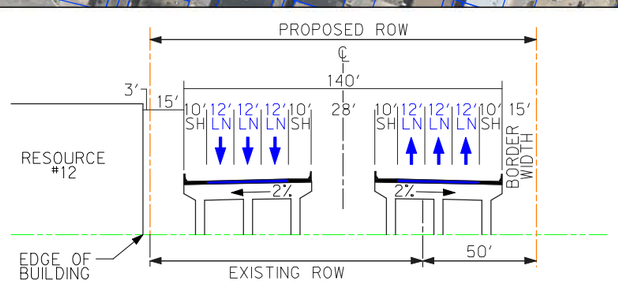
Note:
The information in the above table is for the area between start point **A (X, Y -- 2,490,355.842, 6,966,310.162)** and **end point B (X, Y -- 2,505,251.483, 6,960,091.924)**, which encompasses the area where the design refinement deviates from the original alignment (generally between the DART bridge and the intersection of Lamar Street and Starks Street). The X and Y values are based on NAD 83 State Plane TxDOT Dallas County surface coordinate system. Only the impacts within this area are shown for the purpose of evaluating the design refinement.







MAP ID - 11 OPTION 1
NOT TO SCALE



MAP ID - 12 OPTION 1
NOT TO SCALE

OPTION 1
-ORIGINAL-

EXHIBIT 2A-1-1 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL BLVD (ELEVATED)

1715 MARKET CENT. BLVD
1202 N. INDUSTRIAL BLVD

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

TRINITY PARKWAY
ENVIRONMENTAL IMPACT STATEMENT

PRELIMINARY
FOR INTERIM REVIEW ONLY

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HALFF ASSOCIATES FIRM REGISTRATION NUMBER: 312

Scale: 1" = 400'

Project No.:	17826
Issued:	February 16, 2010
Drawn By:	JDP
Checked By:	MGC
Sheet Title	ALT 2A - 1-1
Sheet Number	1 of 41

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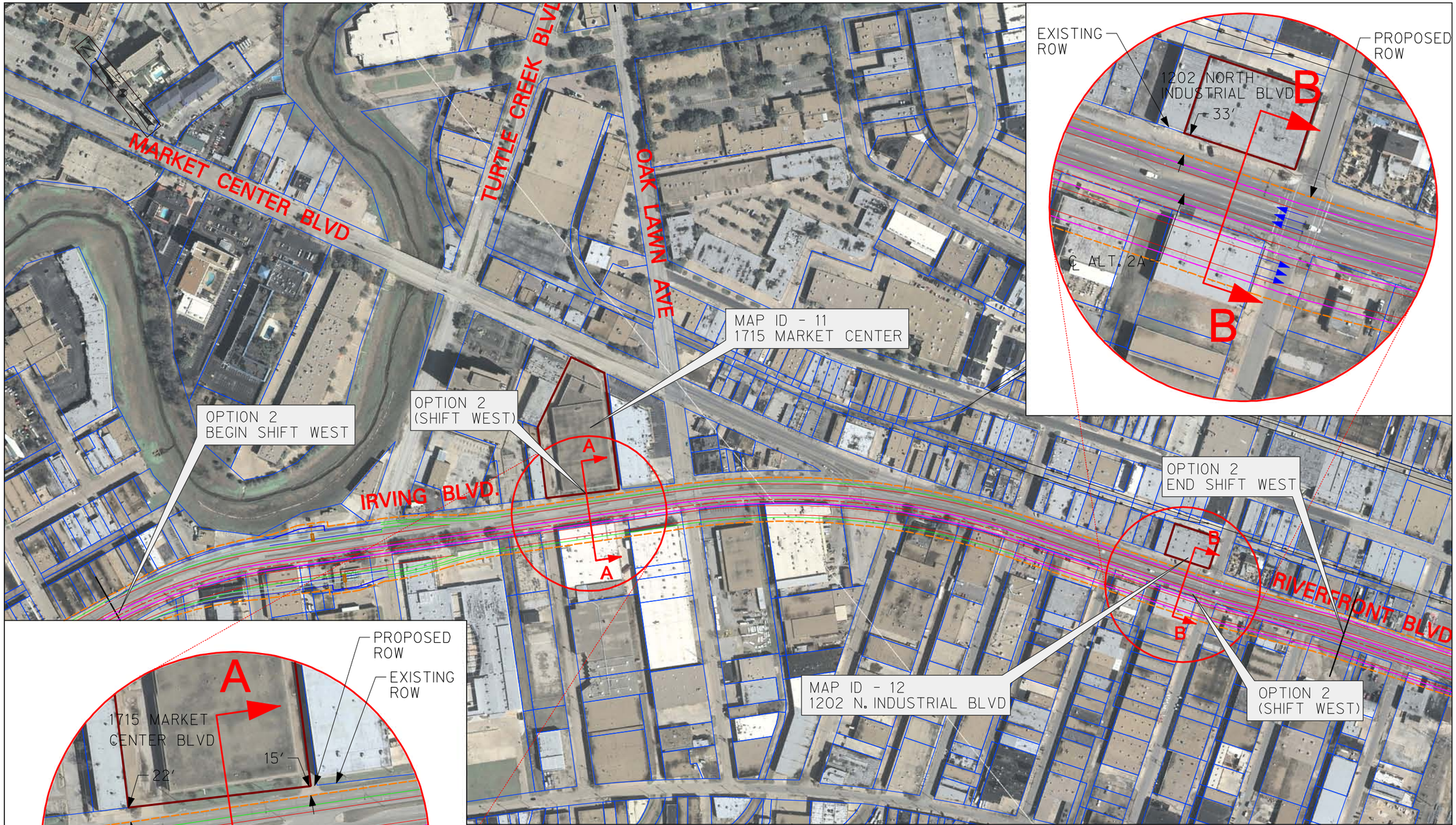

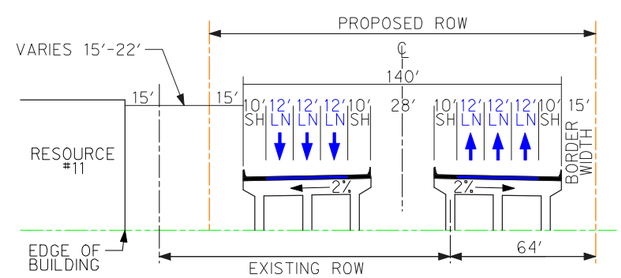

MAP ID - 11 OPTION 2
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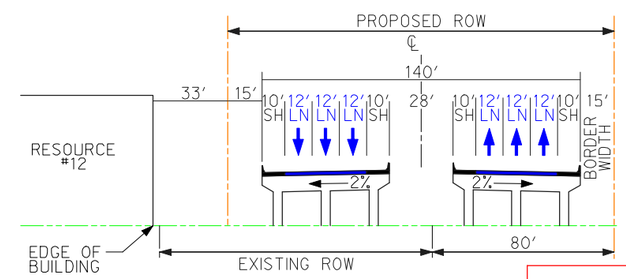

MAP ID - 12 OPTION 2
NOT TO SCALE

NO DIRECT IMPACT

OPTION 2
-SHIFT WEST-

EXHIBIT 2A-1-2 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL BLVD (ELEVATED)

1715 MARKET CENT. BLVD
1202 N. INDUSTRIAL BLVD

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

TRINITY PARKWAY
ENVIRONMENTAL IMPACT STATEMENT

PRELIMINARY
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MATTHEW G. CRAIG	69910
NAME	P.E. NO.
JONATHAN D. PYLANT	102339
NAME	P.E. NO.
DATE	2/16/2010

HALFF ASSOCIATES FIRM REGISTRATION NUMBER: 312

Scale: 1" = 400'

Project No.:	17826
Issued:	February 16, 2010
Drawn By:	JDP
Checked By:	MGC
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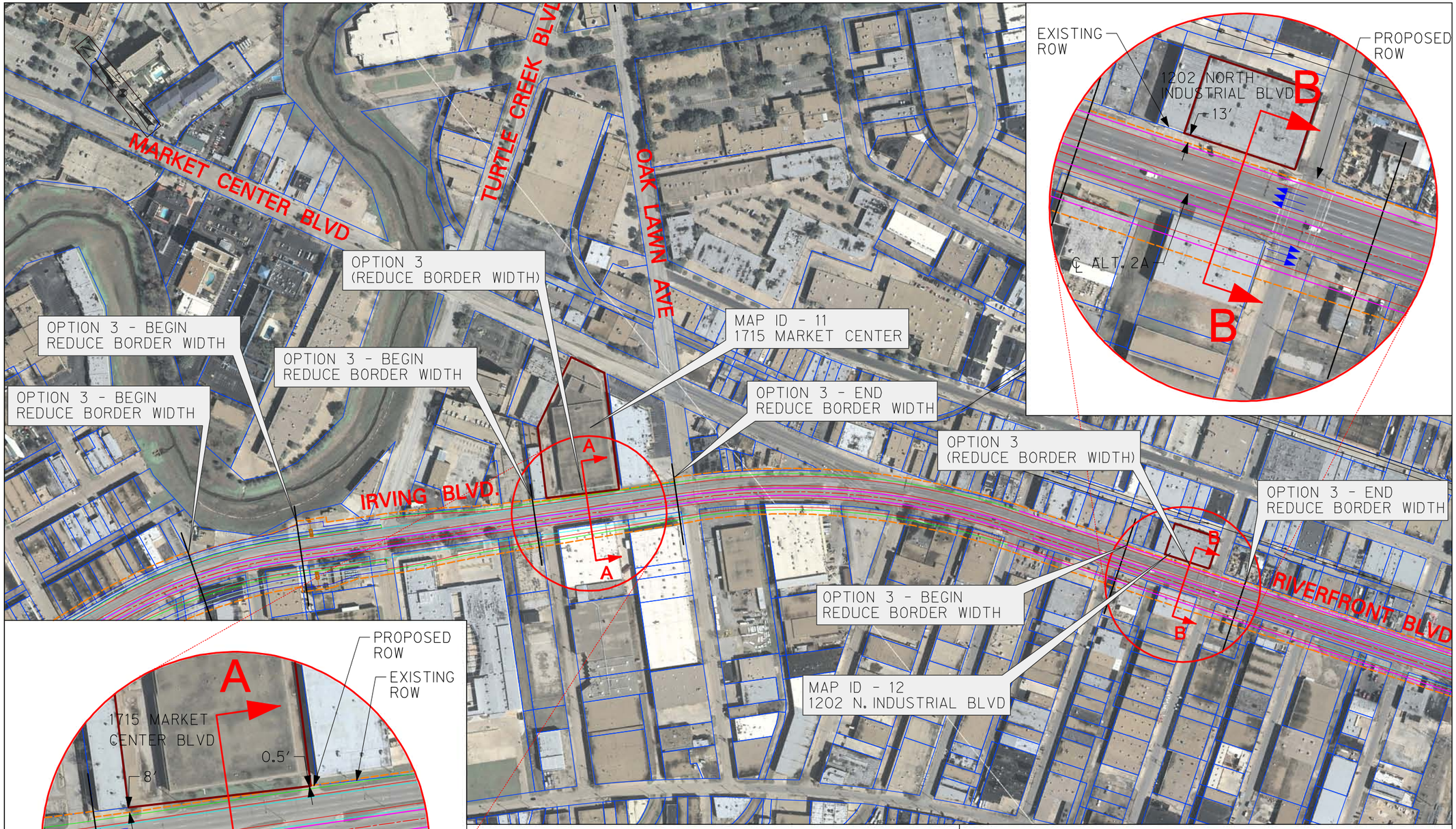

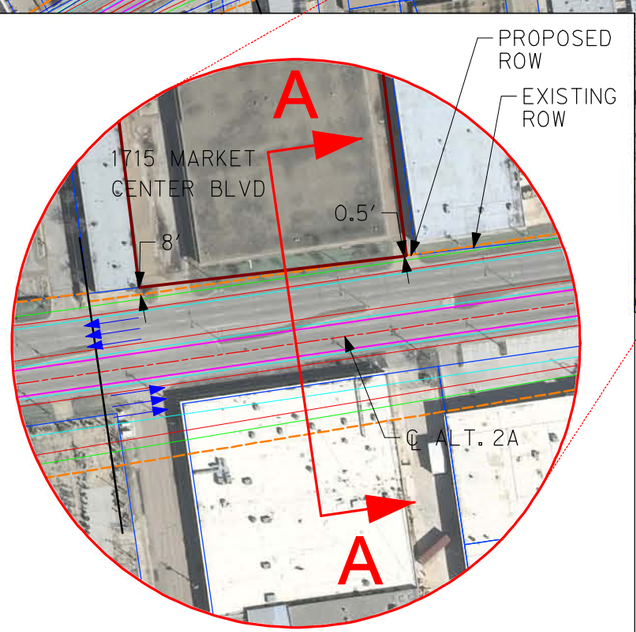

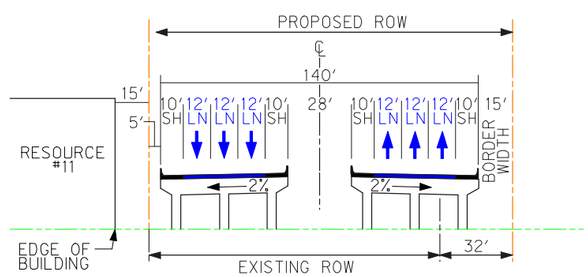

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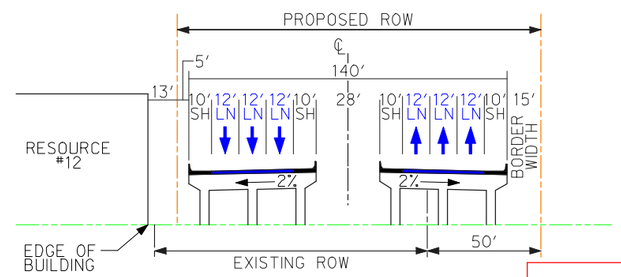

MAP ID - 12 OPTION 3

NOT TO SCALE

NO DIRECT IMPACT

OPTION 3
-REDUCE BORDER WIDTH-

EXHIBIT 2A-1-3 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL
BLVD (ELEVATED)

1715 MARKET CENT. BLVD
1202 N. INDUSTRIAL BLVD

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

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Scale: 1" = 400'

Project No.:	17826
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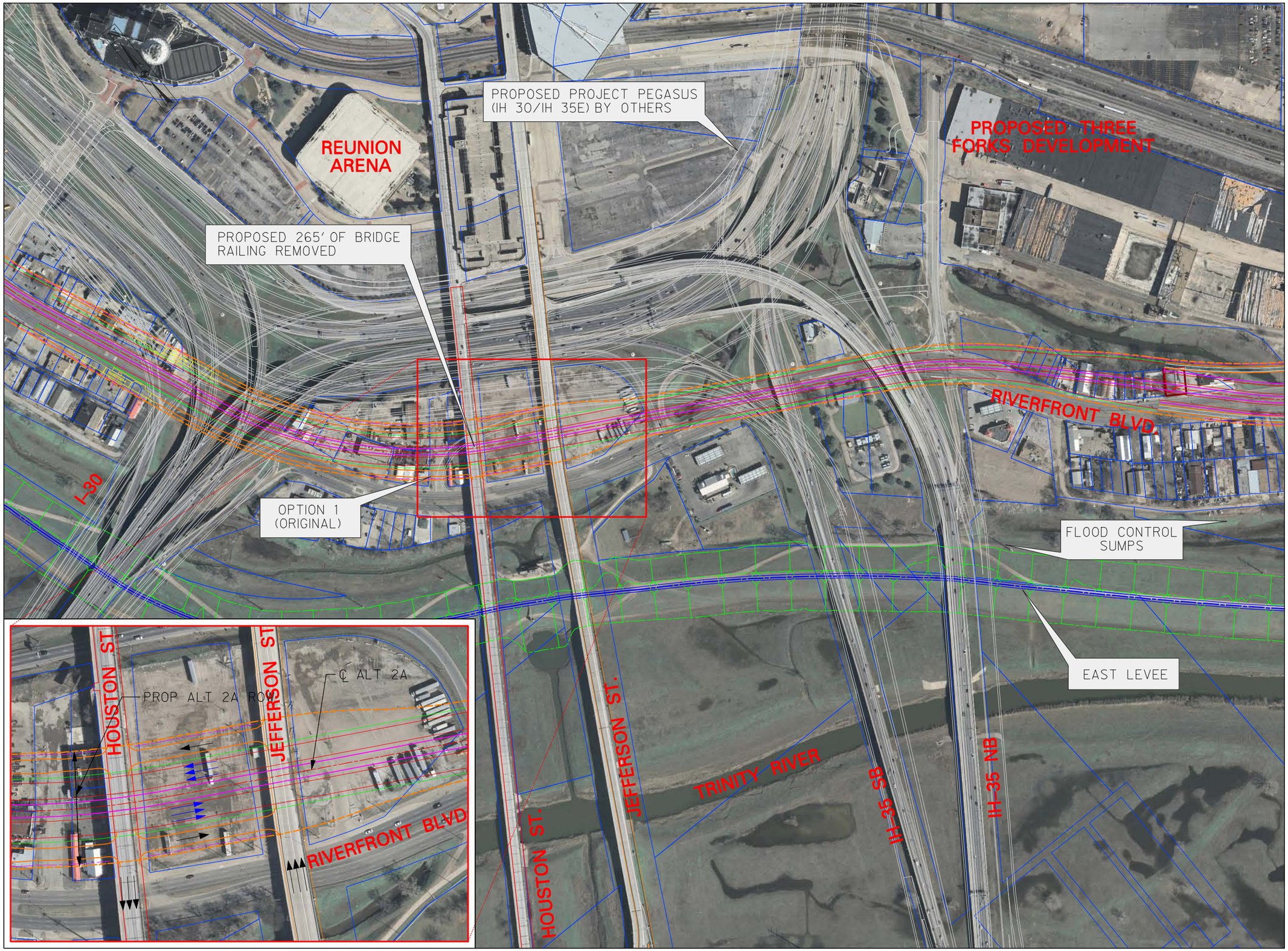

OPTION 1
-ORIGINAL-

EXHIBIT 2A-1-4 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL
BLVD (ELEVATED)

HOUSTON ST VIADUCT

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

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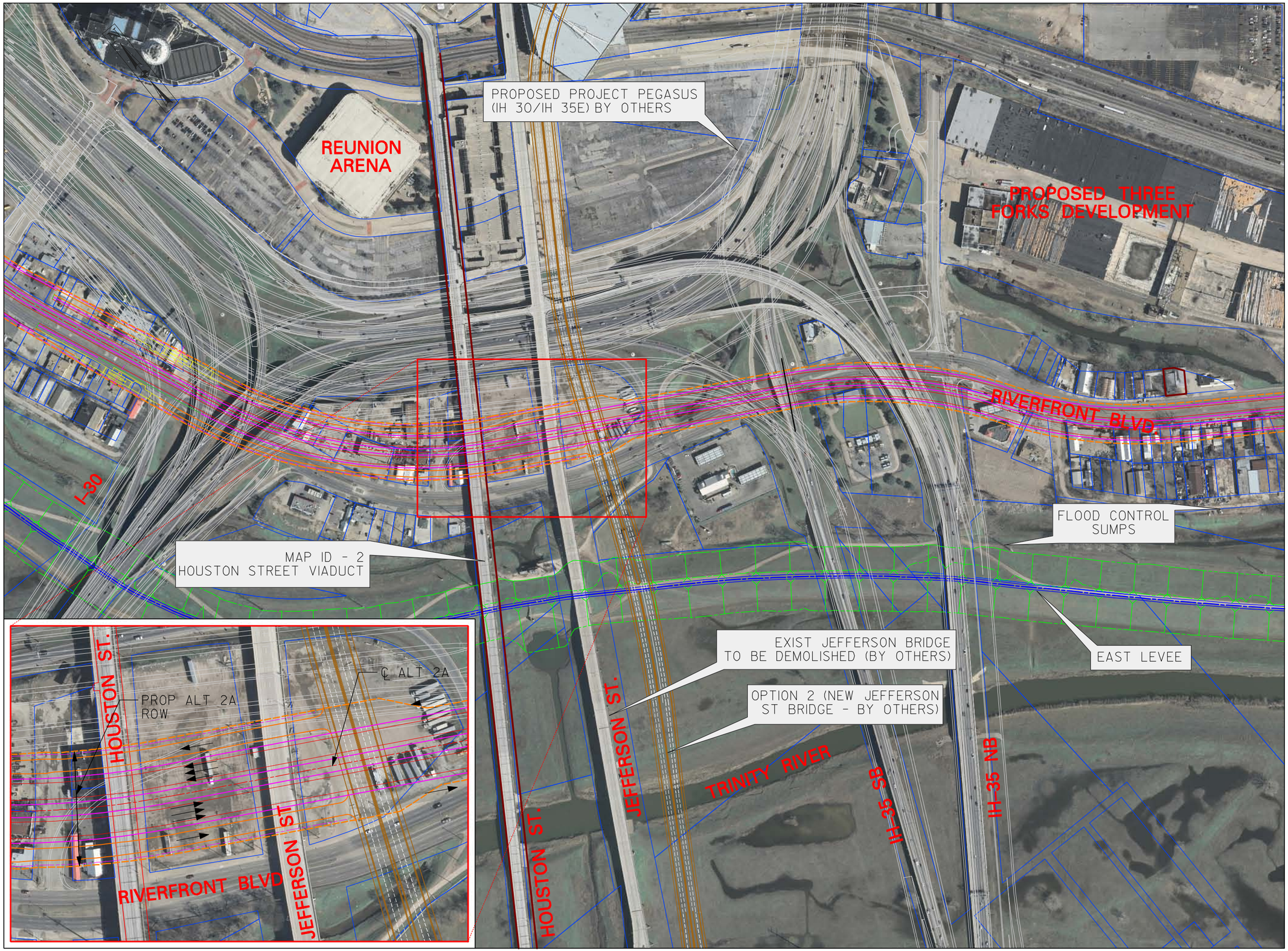

OPTION 2
NEW JEFFERSON BRIDGE

EXHIBIT 2A-1-5 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL
BLVD (ELEVATED)

HOUSTON ST VIADUCT

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Project No.:	17826
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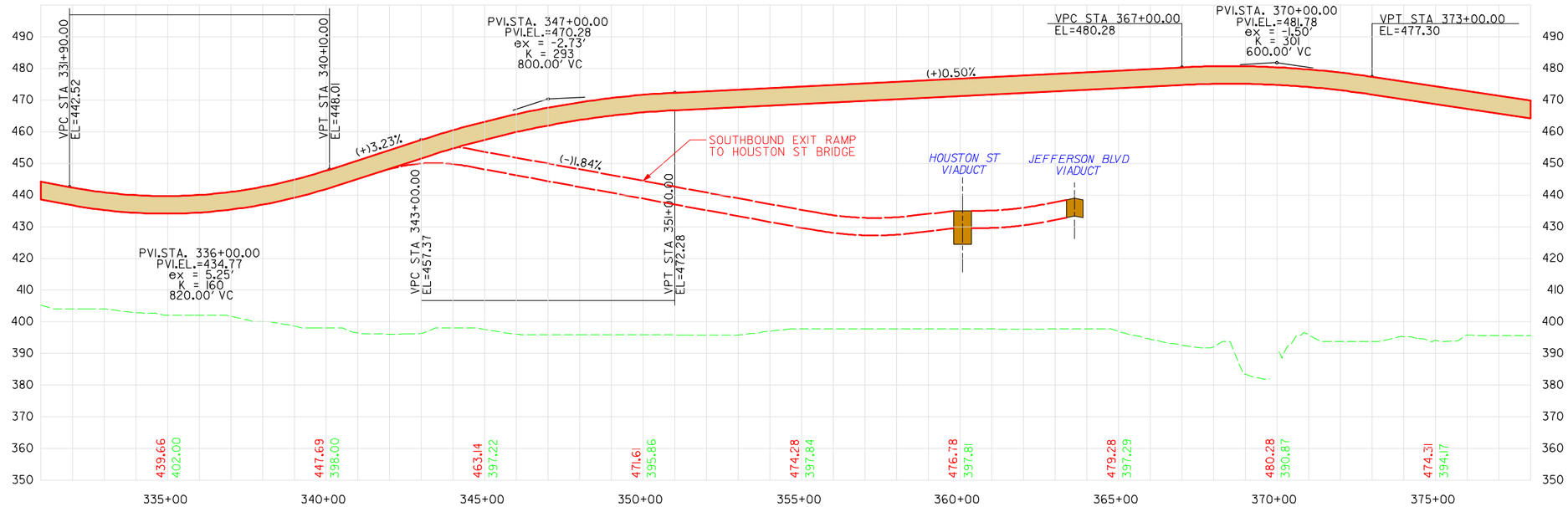
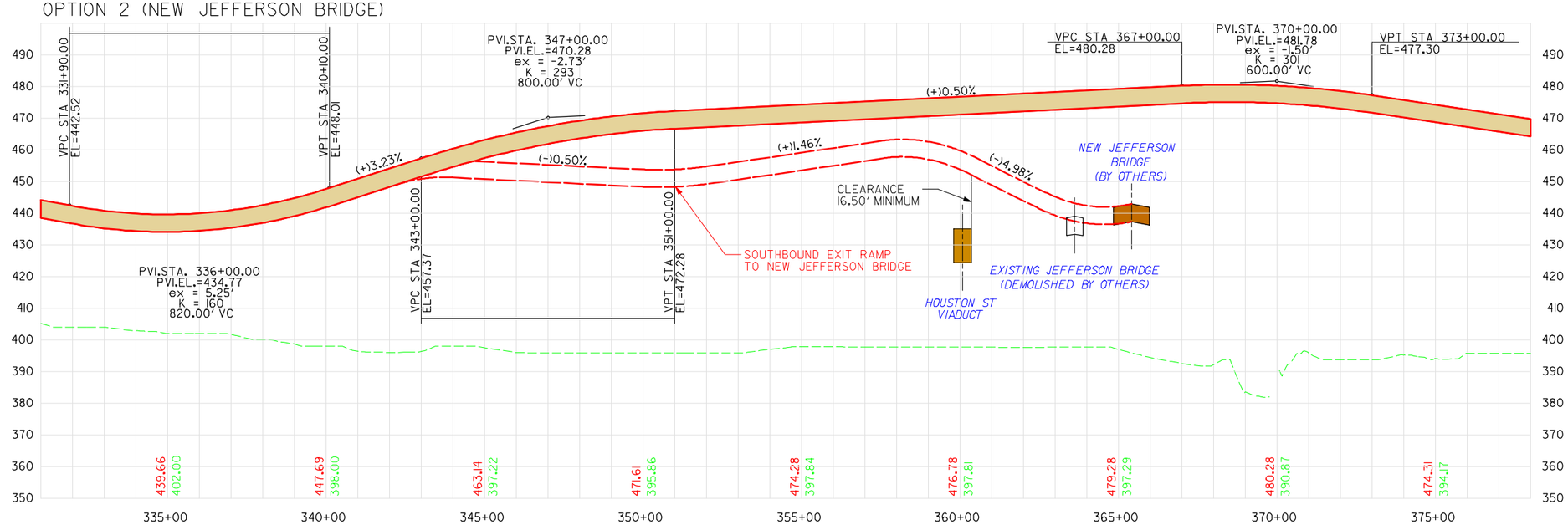


OPTION 2 (NEW JEFFERSON BRIDGE)



OPTION 1
-ORIGINAL-

OPTION 2
-NEW JEFFERSON BRIDGE-

EXHIBIT 2A-1-6 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL
BLVD (ELEVATED)

HOUSTON ST VIADUCT

NTTA
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Scale: H 1" = 400' V 1"=40'

Project No.:	17826
Issued:	February 16, 2010
Drawn By:	JDP
Checked By:	MGC
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Sheet Number

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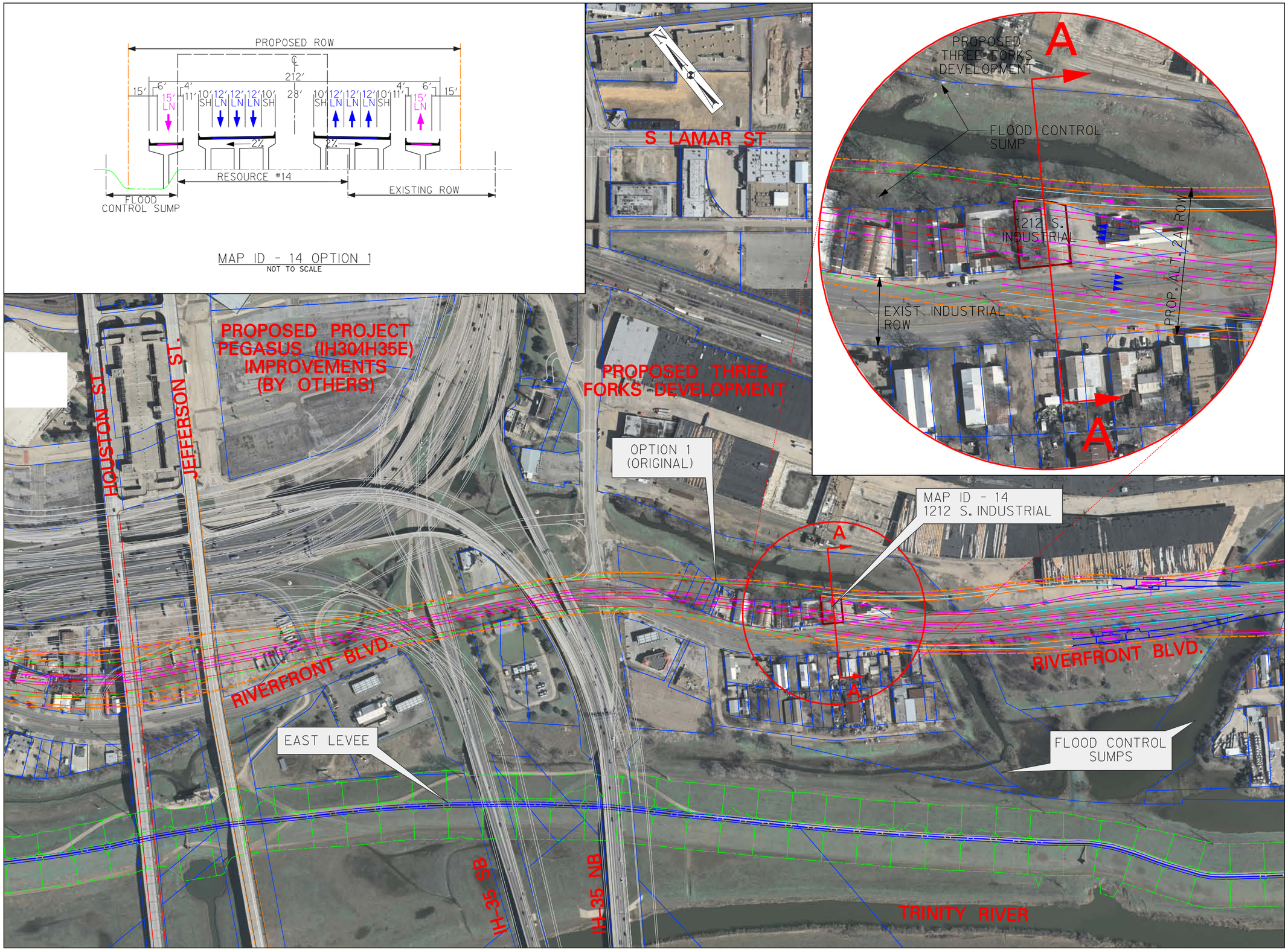
MAP ID - 14 OPTION 1
NOT TO SCALE



OPTION 1
-ORIGINAL-

EXHIBIT 2A-1-7 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL BLVD (ELEVATED)

1212 S. INDUSTRIAL BLVD

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

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Scale: 1" = 400'

Project No.: 17826
Issued: February 16, 2010
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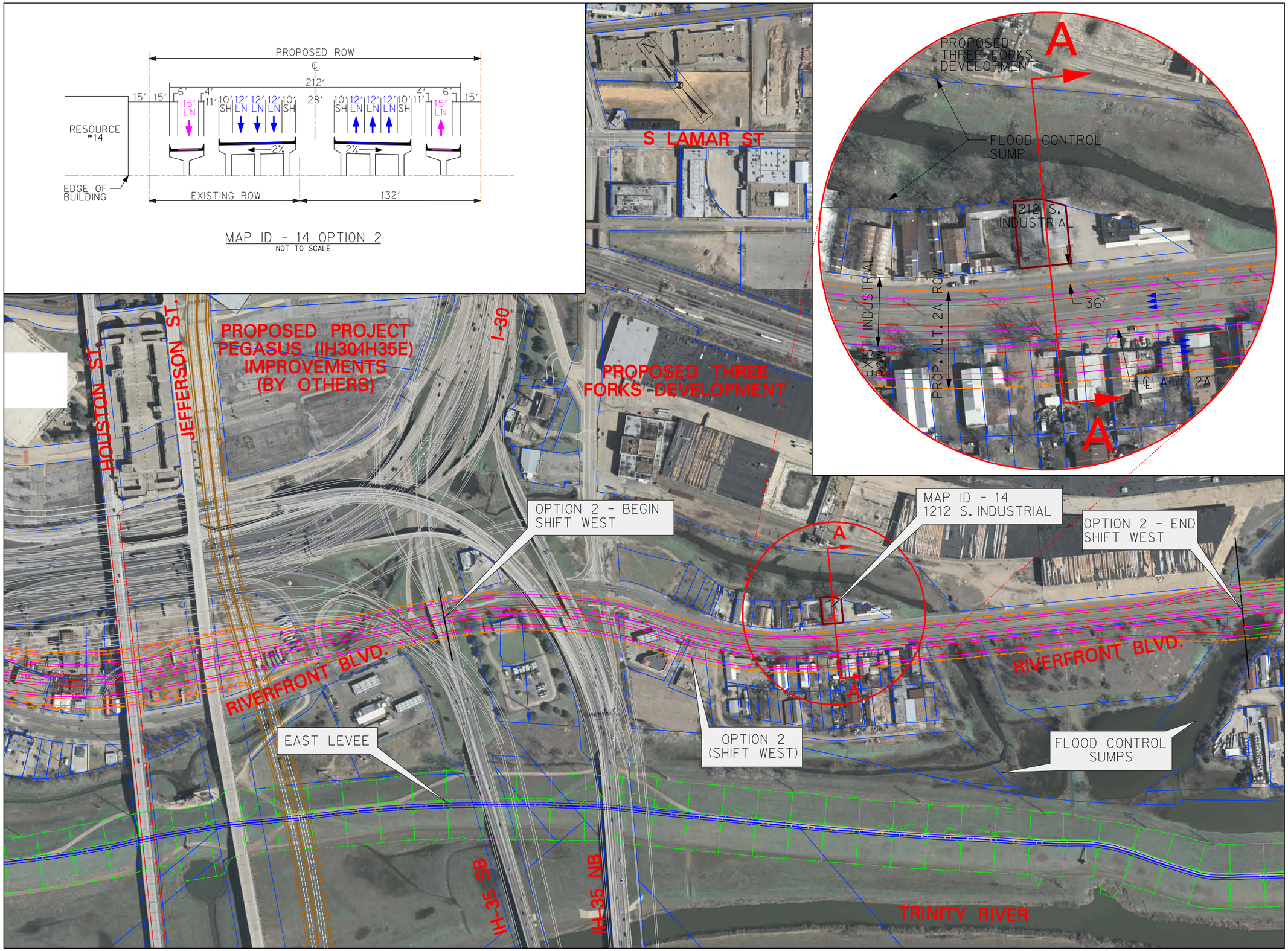

OPTION 2
-SHIFT WEST-

EXHIBIT 2A-1-8 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL BLVD (ELEVATED)

1212 S. INDUSTRIAL BLVD

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

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Scale: 1" = 400'

Project No.: 17826
Issued: February 16, 2010
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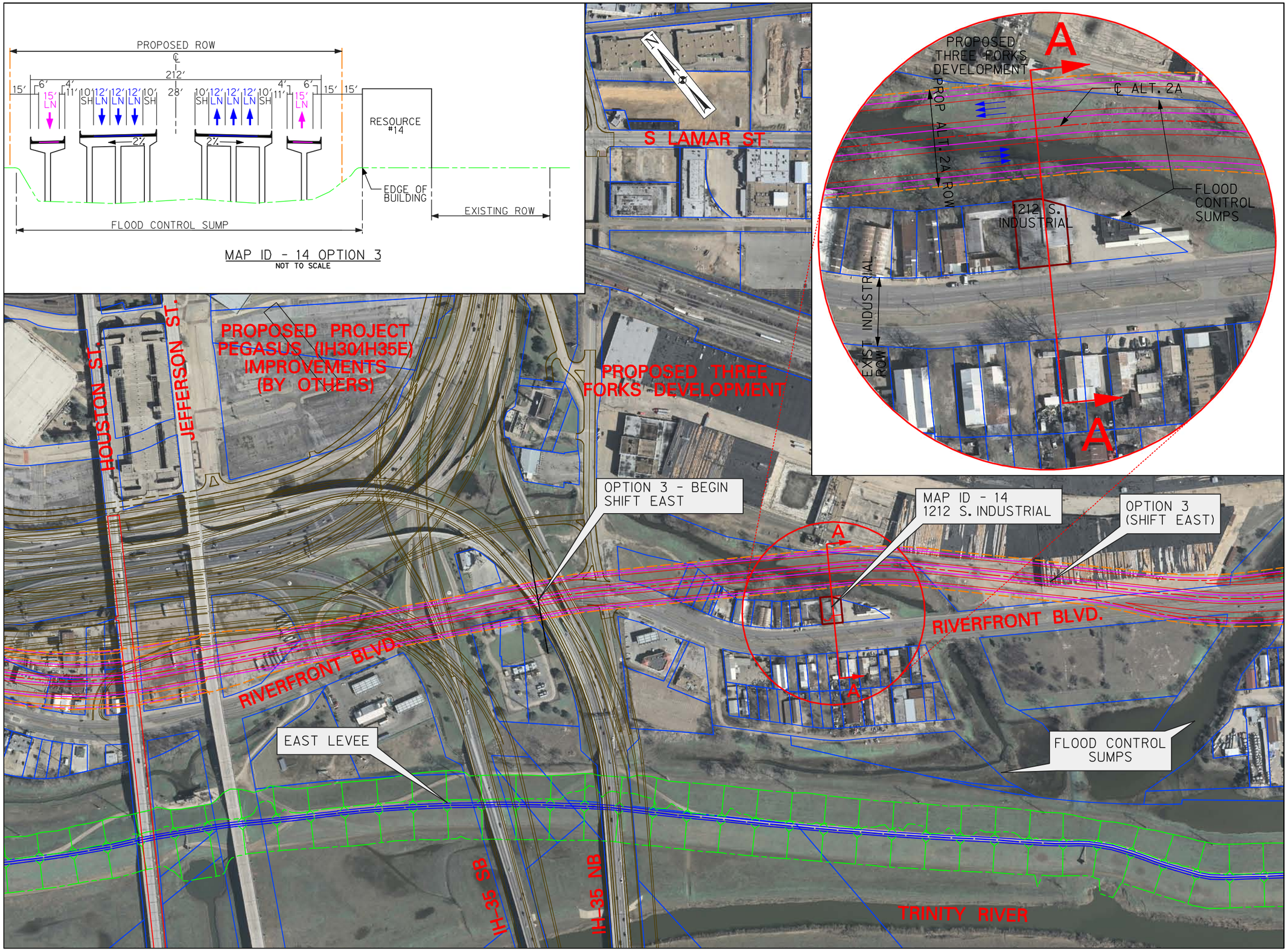
MAP ID - 14 OPTION 3
NOT TO SCALE



OPTION 3
-SHIFT EAST-

EXHIBIT 2A-1-9 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL BLVD (ELEVATED)

1212 S. INDUSTRIAL BLVD

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

TRINITY PARKWAY
ENVIRONMENTAL IMPACT STATEMENT

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Scale: 1" = 400'

Project No.:	17826
Issued:	February 16, 2010
Drawn By:	JDP
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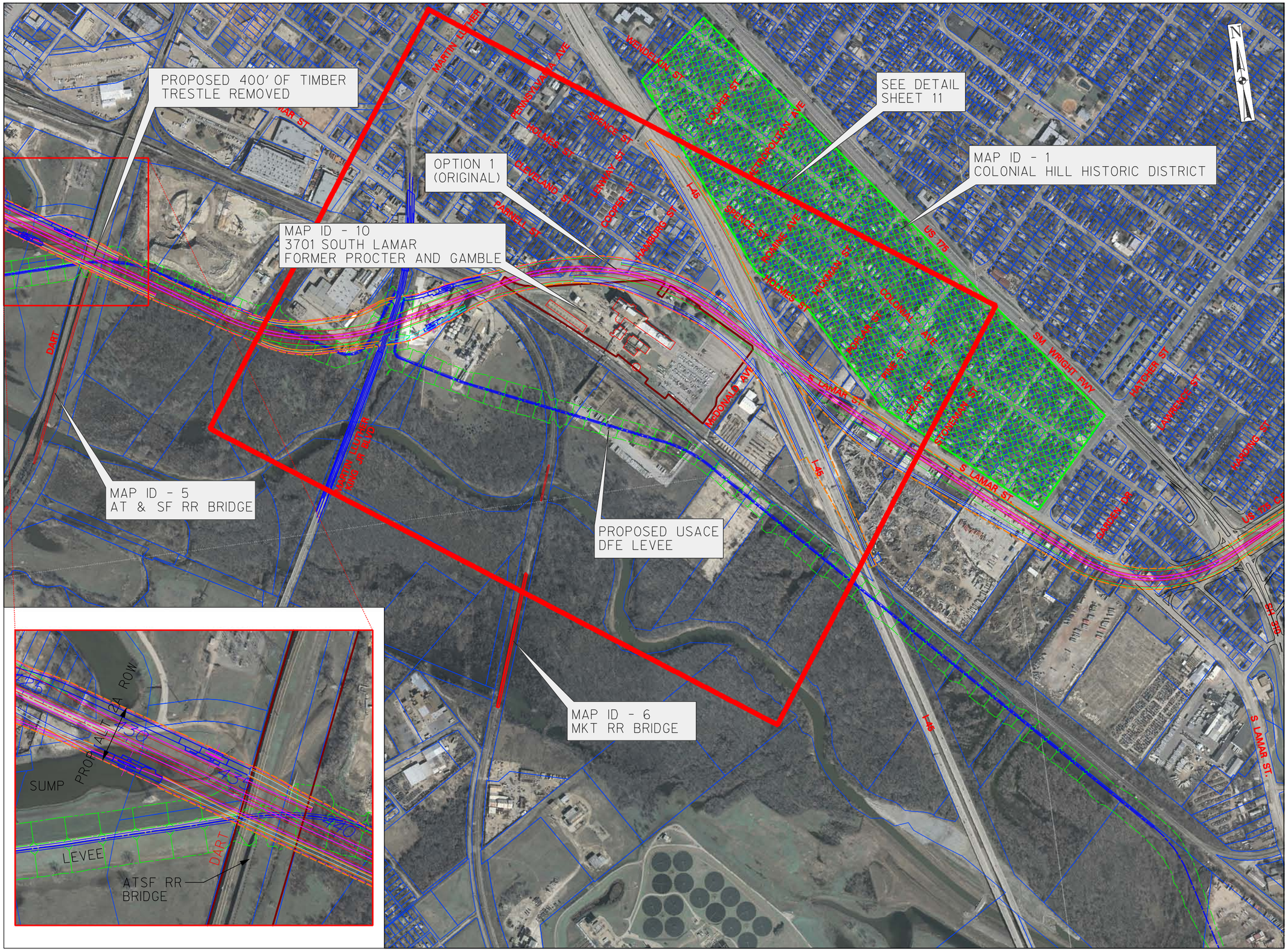

OPTION 1
-ORIGINAL-

EXHIBIT 2A-1-10 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL BLVD (ELEVATED)

ATSF RR BRIDGE,
3701 SOUTH LAMAR AND
COLONIAL HILL HISTORIC DISTRICT

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

TRINITY PARKWAY
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HALFF ASSOCIATES FIRM REGISTRATION NUMBER: 312

Scale: 1" = 800'

Project No.:	17826
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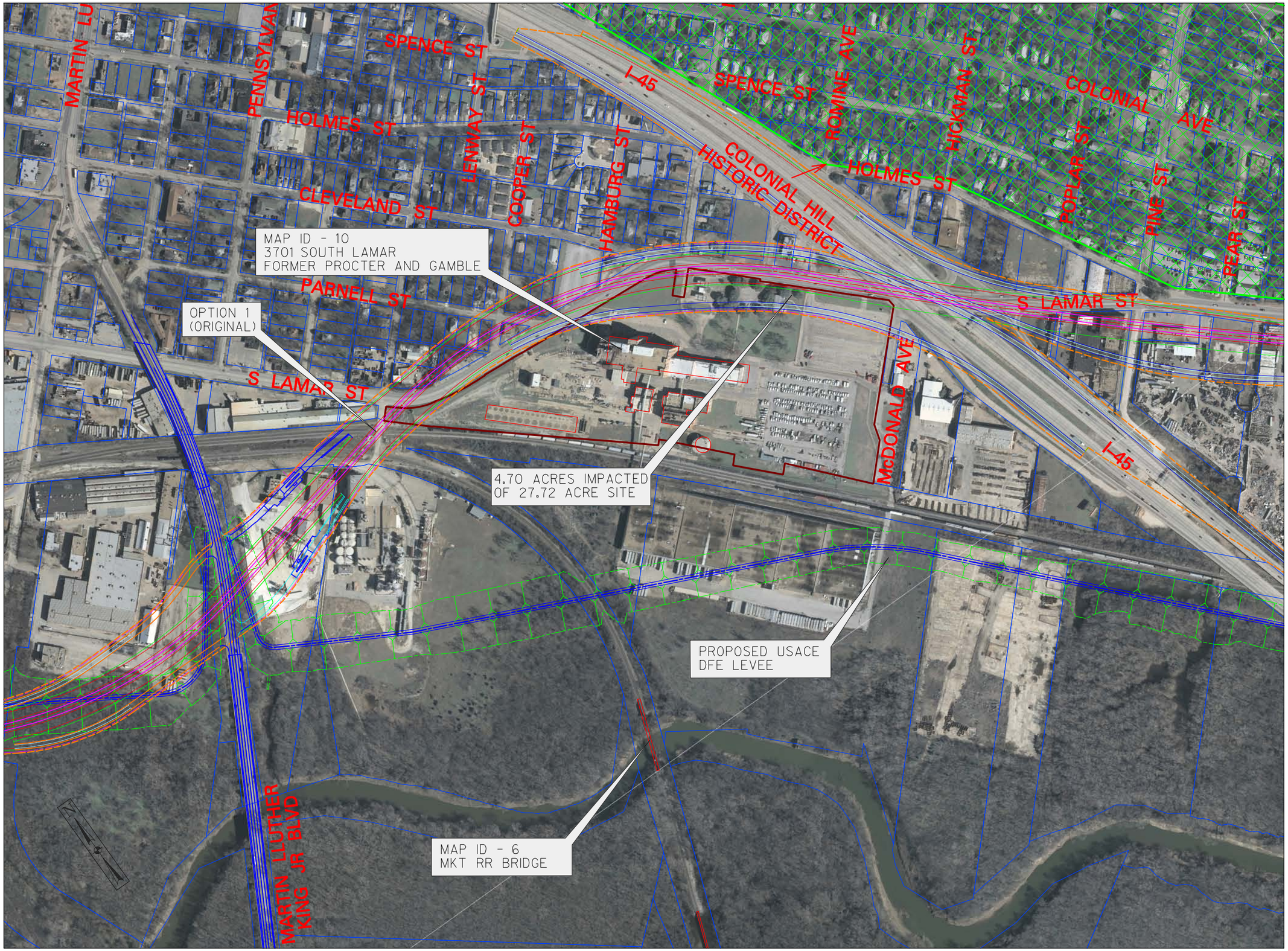

OPTION 1
-ORIGINAL-

EXHIBIT 2A-1-11 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL
BLVD (ELEVATED)

3701 SOUTH LAMAR AND
COLONIAL HILL HISTORIC
DISTRICT

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

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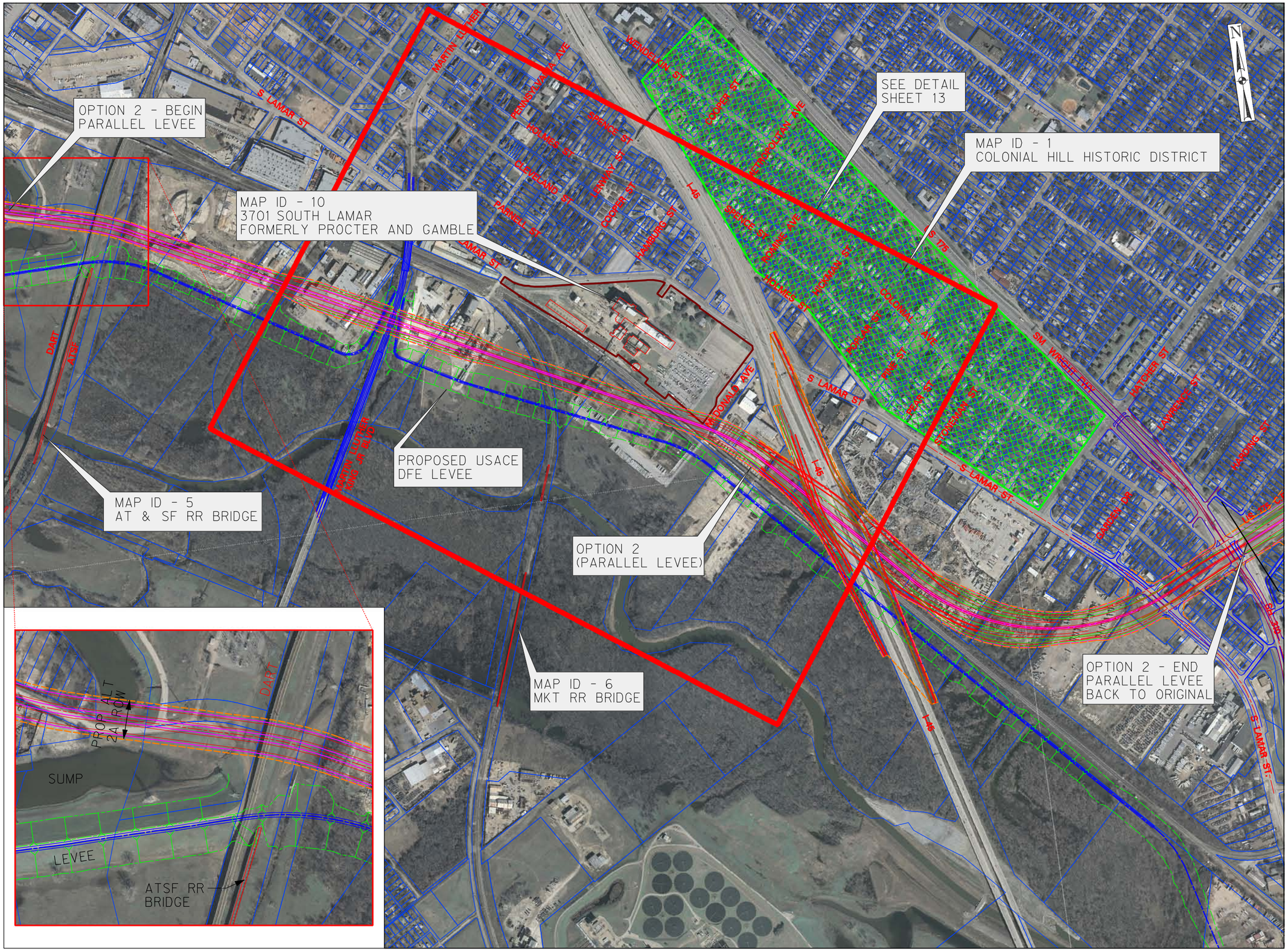
2/17/2010 10:10:21 AM sh1137 TxDot I:\17000s\17826\CADD\4(f) Avoidance\Alt2A - 1-11.dgn

OPTION 2
-PARALLEL LEVEE-

EXHIBIT 2A-1-12 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL BLVD (ELEVATED)

ATSF RR BRIDGE,
3701 SOUTH LAMAR AND
COLONIAL HILL HISTORIC DISTRICT



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Scale: 1" = 800'

Project No.:	17826
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OPTION 2
-PARALLEL LEVEE-

EXHIBIT 2A-1-13 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL
BLVD (ELEVATED)

3701 SOUTH LAMAR AND
COLONIAL HILL HISTORIC
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Scale: 1" = 400'

Project No.: 17826

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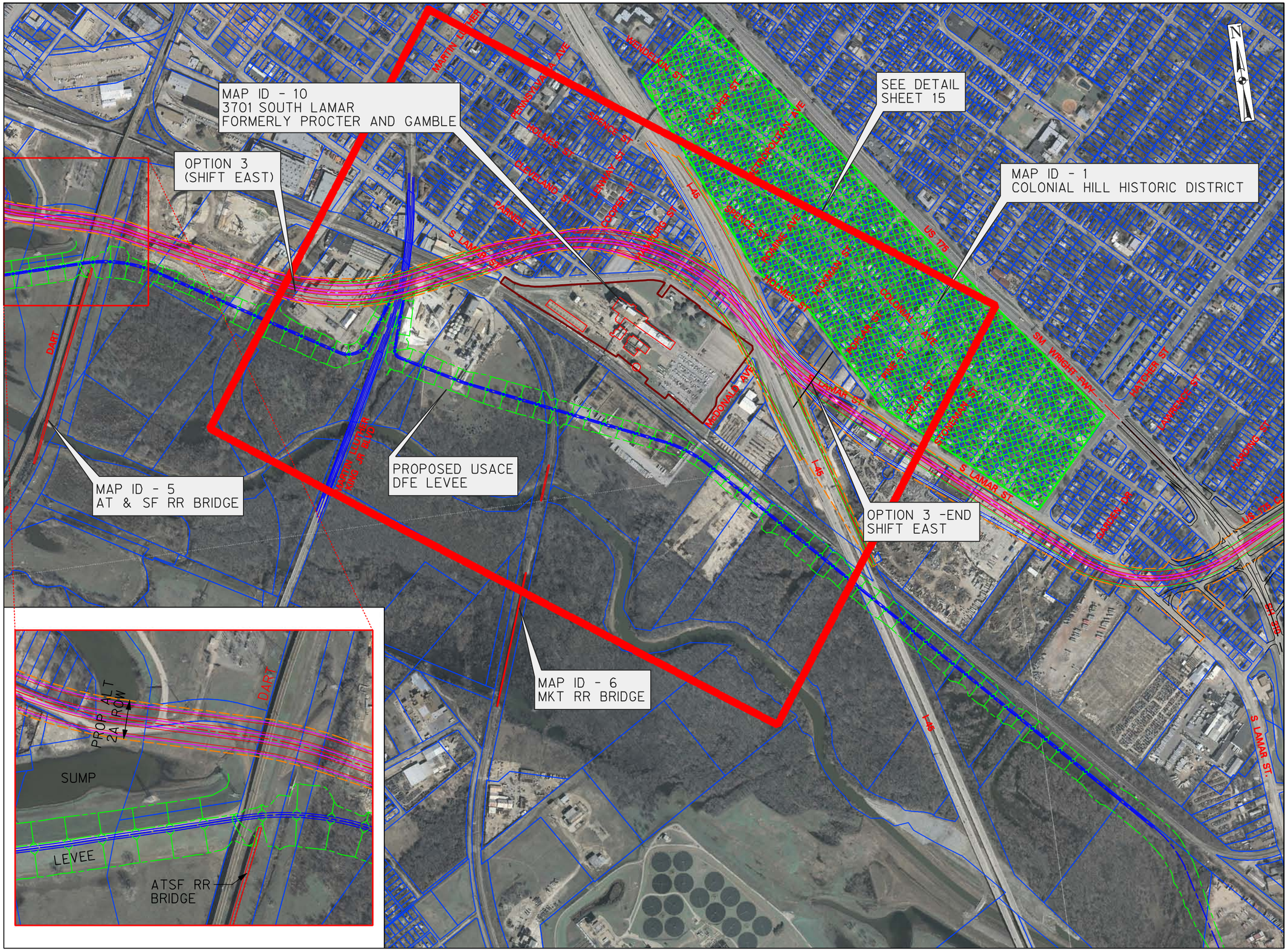

OPTION 3
-SHIFT EAST-

EXHIBIT 2A-1-14 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL
BLVD (ELEVATED)

ATSF RR BRIDGE,
3701 SOUTH LAMAR AND
COLONIAL HILL HISTORIC
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Scale: 1" = 800'

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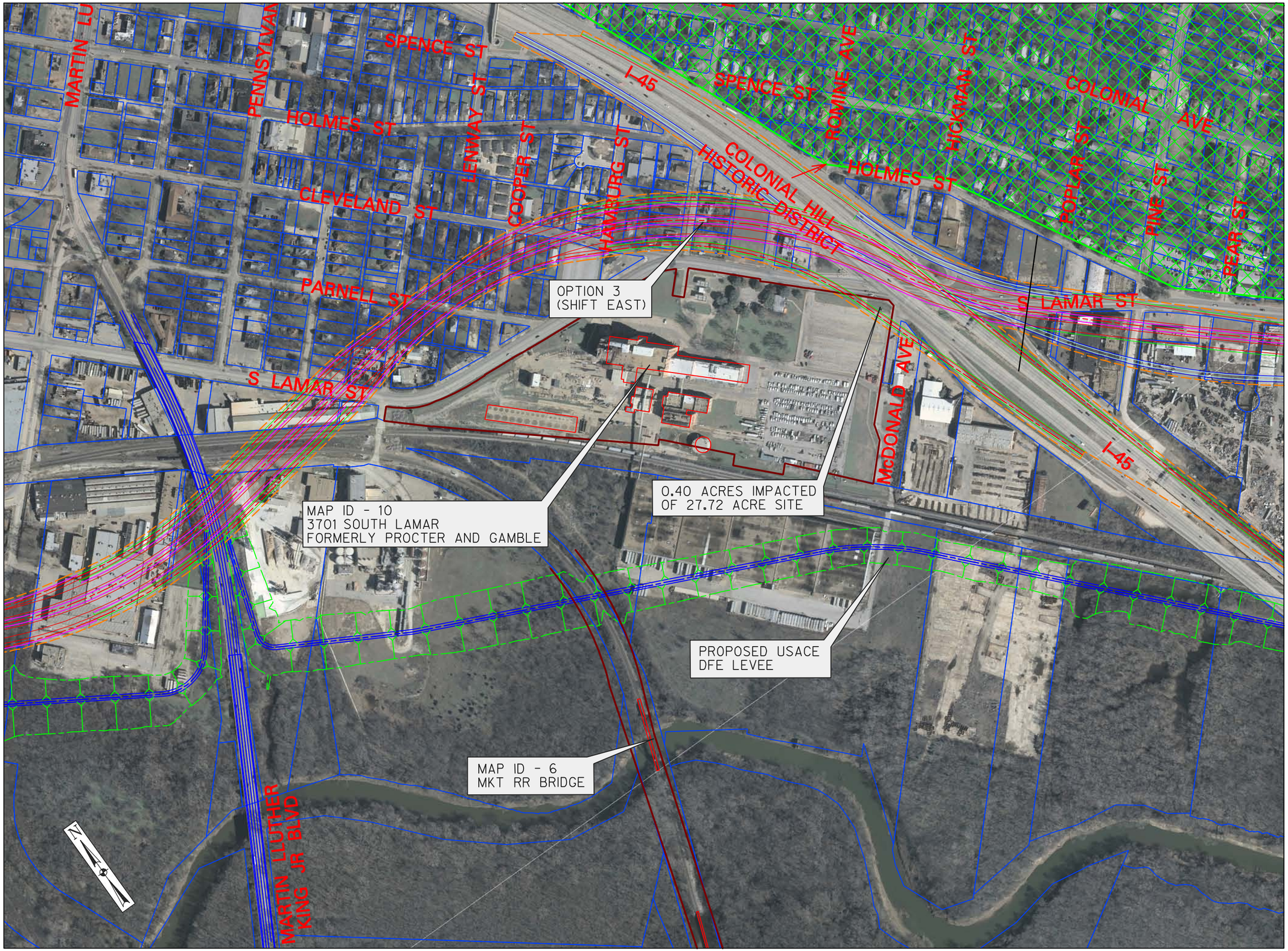

OPTION 3
-SHIFT EAST-

EXHIBIT 2A-1-15 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2A - INDUSTRIAL
BLVD (ELEVATED)

3701 SOUTH LAMAR AND
COLONIAL HILL HISTORIC
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Scale: 1" = 400'

Project No.: 17826
Issued: February 16, 2010
Drawn By: JDP
Checked By: MGC
Sheet Title

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Sheet Number

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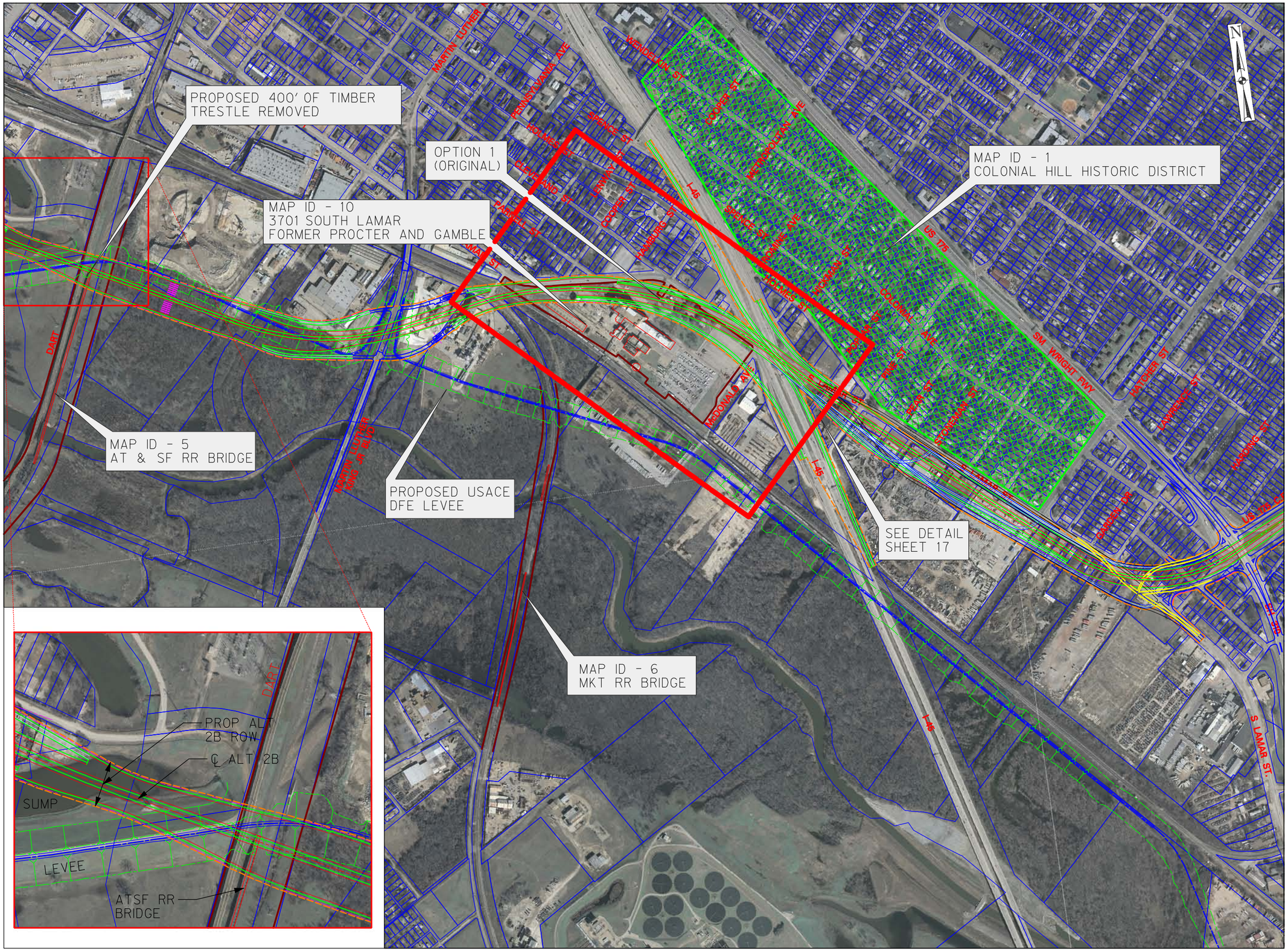

OPTION 1
ORIGINAL

EXHIBIT 2B-2-16 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2B - INDUSTRIAL BLVD (AT GRADE)

ATSF RR BRIDGE,
3701 SOUTH LAMAR AND
COLONIAL HILL HISTORIC DISTRICT

NTTA
NORTH TEXAS TOLLWAY AUTHORITY

TRINITY PARKWAY
ENVIRONMENTAL IMPACT STATEMENT

PRELIMINARY

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MATTHEW G. CRAIG	69910
NAME	P.E. NO.
JONATHAN D. PYLANT	102339
NAME	P.E. NO.
DATE	2/16/2010

HALFF ASSOCIATES FIRM REGISTRATION NUMBER: 312

Scale: 1" = 800'

Project No.:	17826
Issued:	February 16, 2010
Drawn By:	JDP
Checked By:	MGC
Sheet Title	
ALT 2B - 2-16	
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OPTION 1
-ORIGINAL-

EXHIBIT 2B-2-17 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2B - INDUSTRIAL
BLVD (AT GRADE)

3701 SOUTH LAMAR AND
COLONIAL HILL HISTORIC
DISTRICT

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HALFF ASSOCIATES FIRM REGISTRATION NUMBER: 312

Scale: 1" = 400'

Project No.: 17826
Issued: February 16, 2010
Drawn By: JDP
Checked By: MGC
Sheet Title

ALT 2B - 2-17

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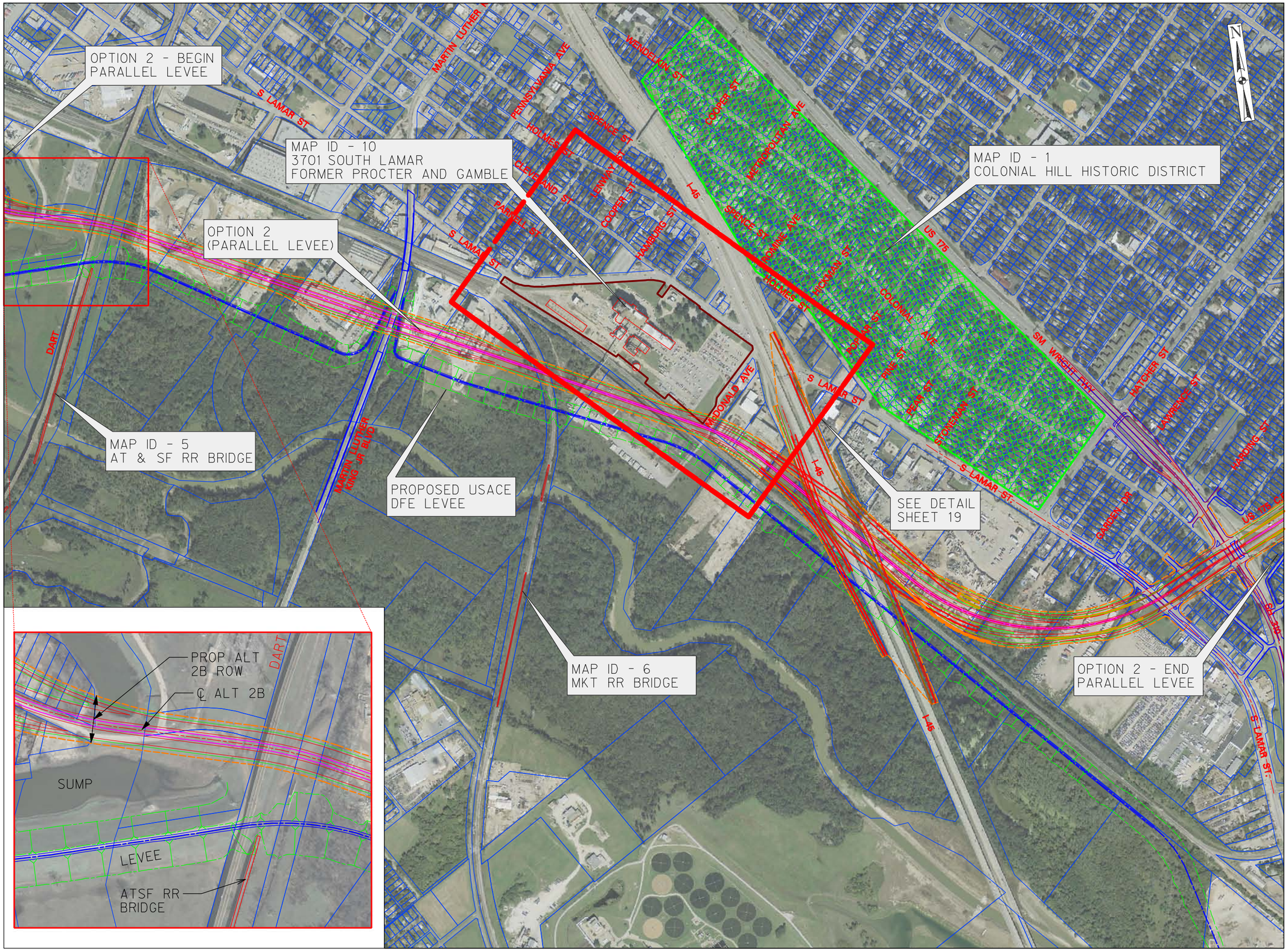

OPTION 2
PARALLEL LEVEE

EXHIBIT 2B-2-18 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2B - INDUSTRIAL
BLVD (AT GRADE)

ATSF RR BRIDGE,
3701 SOUTH LAMAR AND
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Scale: 1" = 800'

Project No.:	17826
Issued:	February 16, 2010
Drawn By:	JDP
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OPTION 2
-PARALLEL LEVEE-

EXHIBIT 2B-2-19 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2B - INDUSTRIAL
BLVD (AT GRADE)

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Drawn By: JDP
Checked By: MGC
Sheet Title

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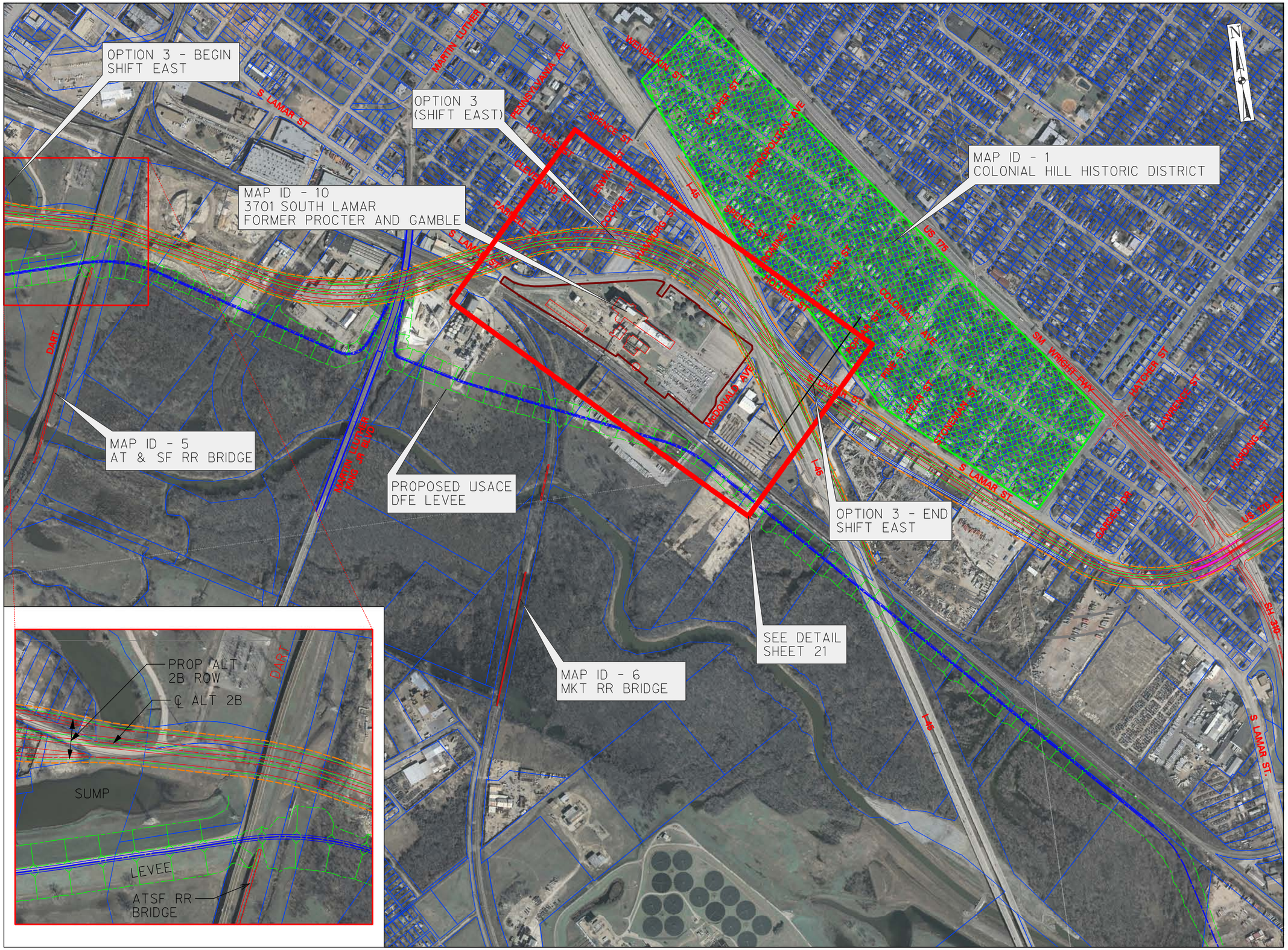
OPTION 3
-SHIFT EAST-

EXHIBIT 2B-2-20 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2B - INDUSTRIAL
BLVD (AT GRADE)

ATSF RR BRIDGE,
3701 SOUTH LAMAR AND
COLONIAL HILL HISTORIC
DISTRICT



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Scale: 1" = 800'

Project No.:	17826
Issued:	February 16, 2010
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Sheet Title	
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Sheet Number	

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OPTION 3
-SHIFT EAST-

EXHIBIT 2B-2-21 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 2B - INDUSTRIAL BLVD (AT GRADE)

3701 SOUTH LAMAR AND COLONIAL HILL HISTORIC DISTRICT

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Scale: 1" = 400'

Project No.:	17826
Issued:	February 16, 2010
Drawn By:	JDP
Checked By:	MGC
Sheet Title	ALT 2B - 2-21
Sheet Number	21 of 41

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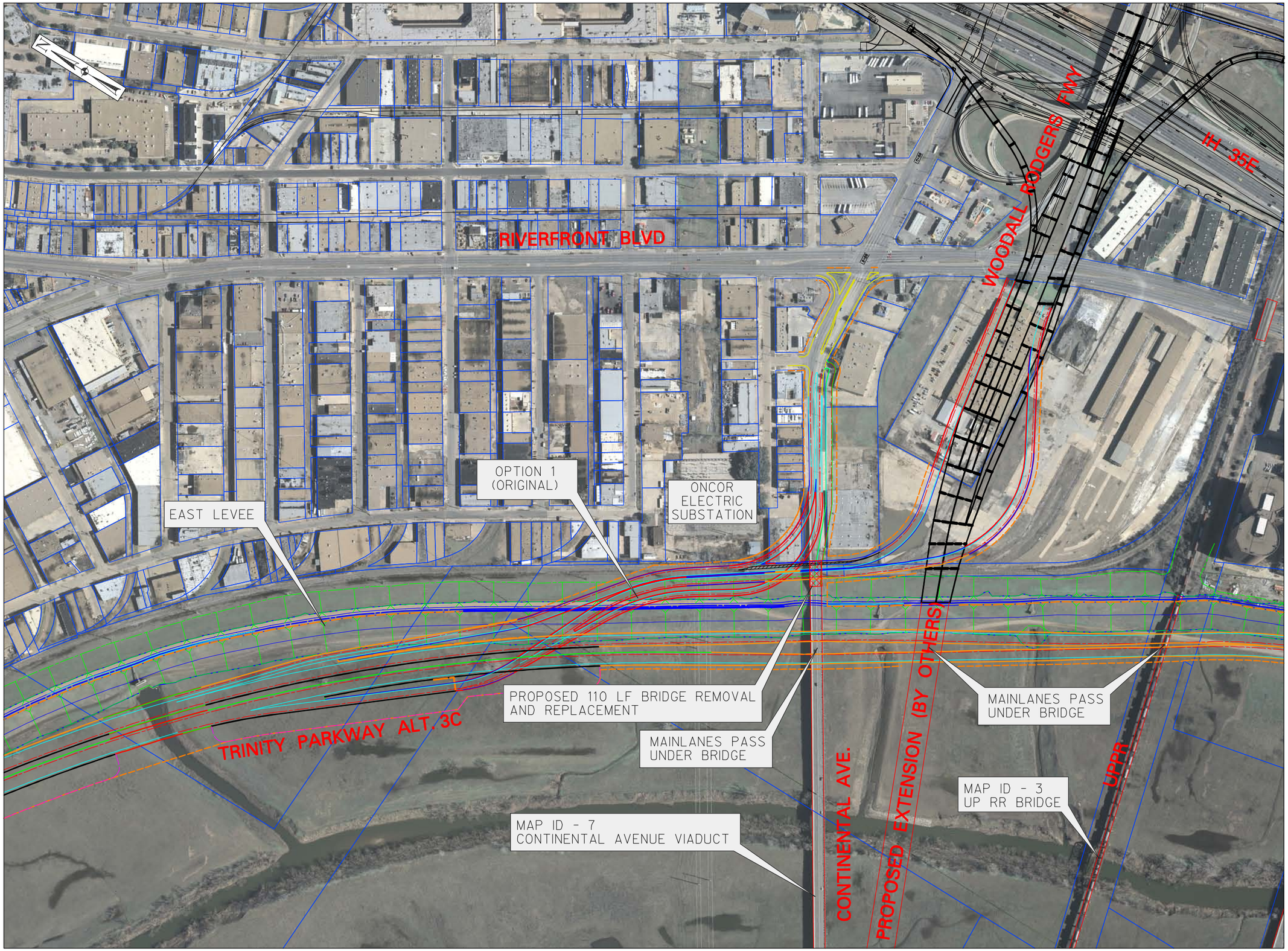

OPTION 1
-ORIGINAL-

EXHIBIT 3C-3-22 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 3C - COMBINED ALT
RIVERSIDE OF LEVEE

CONTINENTAL AVENUE
VIADUCT

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Scale: 1" = 400'

Project No.:	17826
Issued:	February 16, 2010
Drawn By:	JDP
Checked By:	MGC
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Sheet Number	

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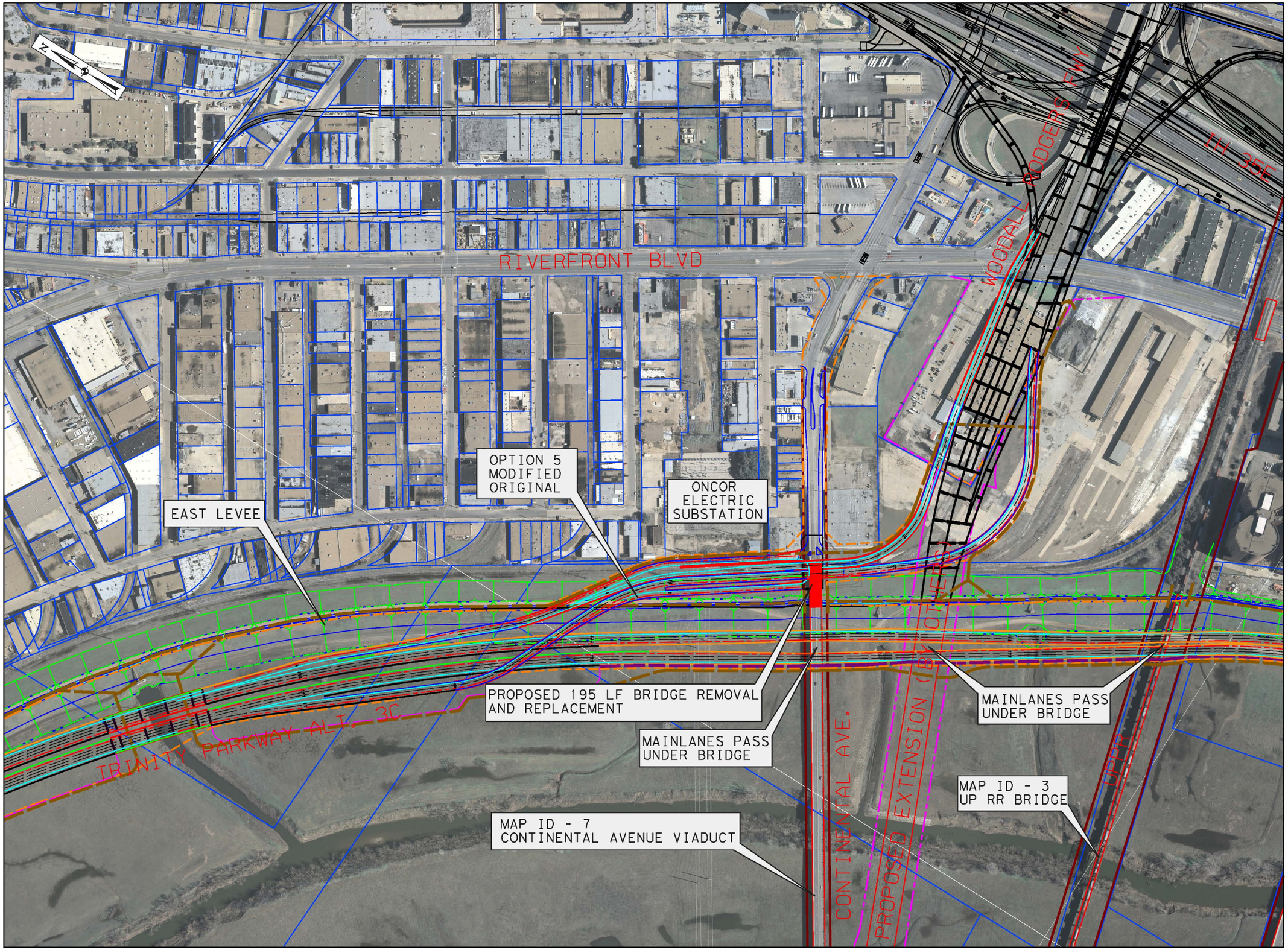

OPTION 5
-MODIFIED ORIGINAL-
EXHIBIT 3C-3-22B -

4(f) AVOIDANCE ALT
ALT. 3C-COMBINED ALT
RIVERSIDE OF LEVEE

CONTINENTAL AVENUE
VIADUCT

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Scale: 1" = 400'

Project No.:	17826
Issued:	Dec. 16, 2010
Drawn By:	JDP
Checked By:	MGC
Sheet Title	ALT 3C - 3-22B

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Sheet Number

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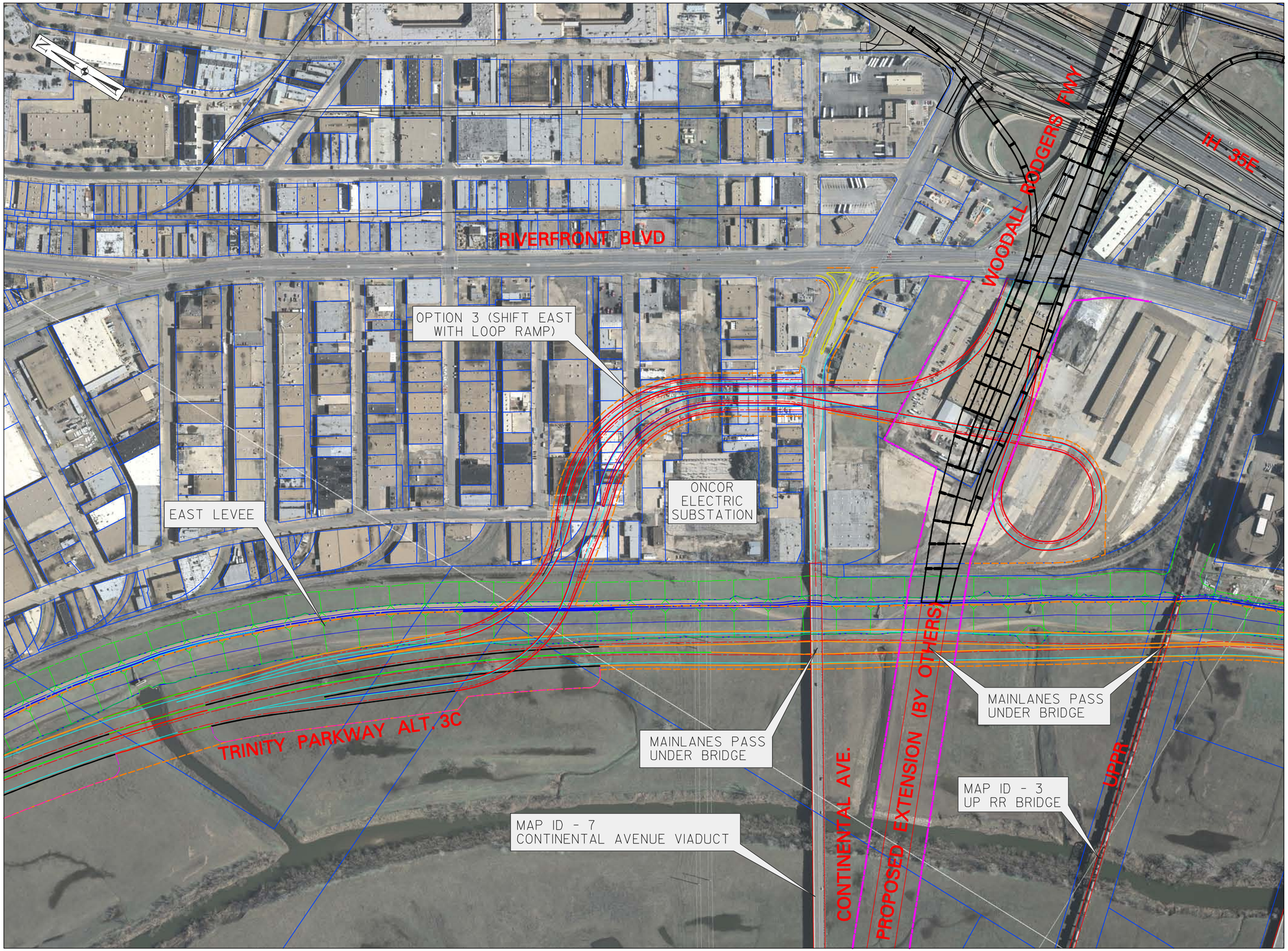

OPTION 2
-SHIFT EAST WITH LOOP RAMP-

EXHIBIT 3C-3-23 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 3C - COMBINED ALT
RIVERSIDE OF LEVEE

CONTINENTAL AVENUE VIADUCT

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Scale: 1" = 400'

Project No.: 17826
Issued: February 16, 2010
Drawn By: JDP
Checked By: MGC
Sheet Title

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Sheet Number

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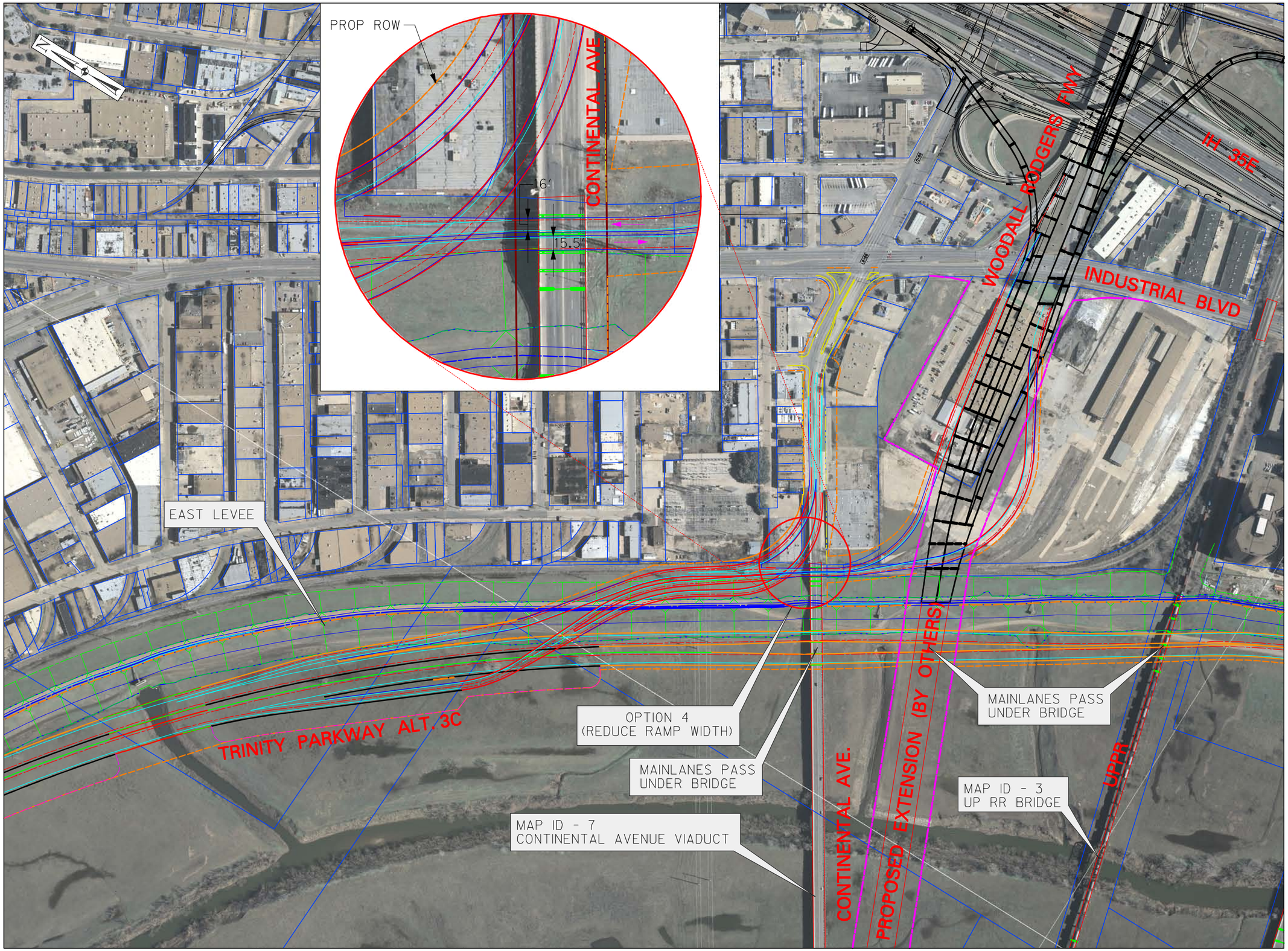

OPTION 3
-REDUCE RAMP WIDTH-

EXHIBIT 3C-3-24 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 3C - COMBINED ALT
RIVERSIDE OF LEVEE

CONTINENTAL AVENUE
VIADUCT

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DATE	2/16/2010

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Scale: 1" = 400'

Project No.:	17826
Issued:	February 16, 2010
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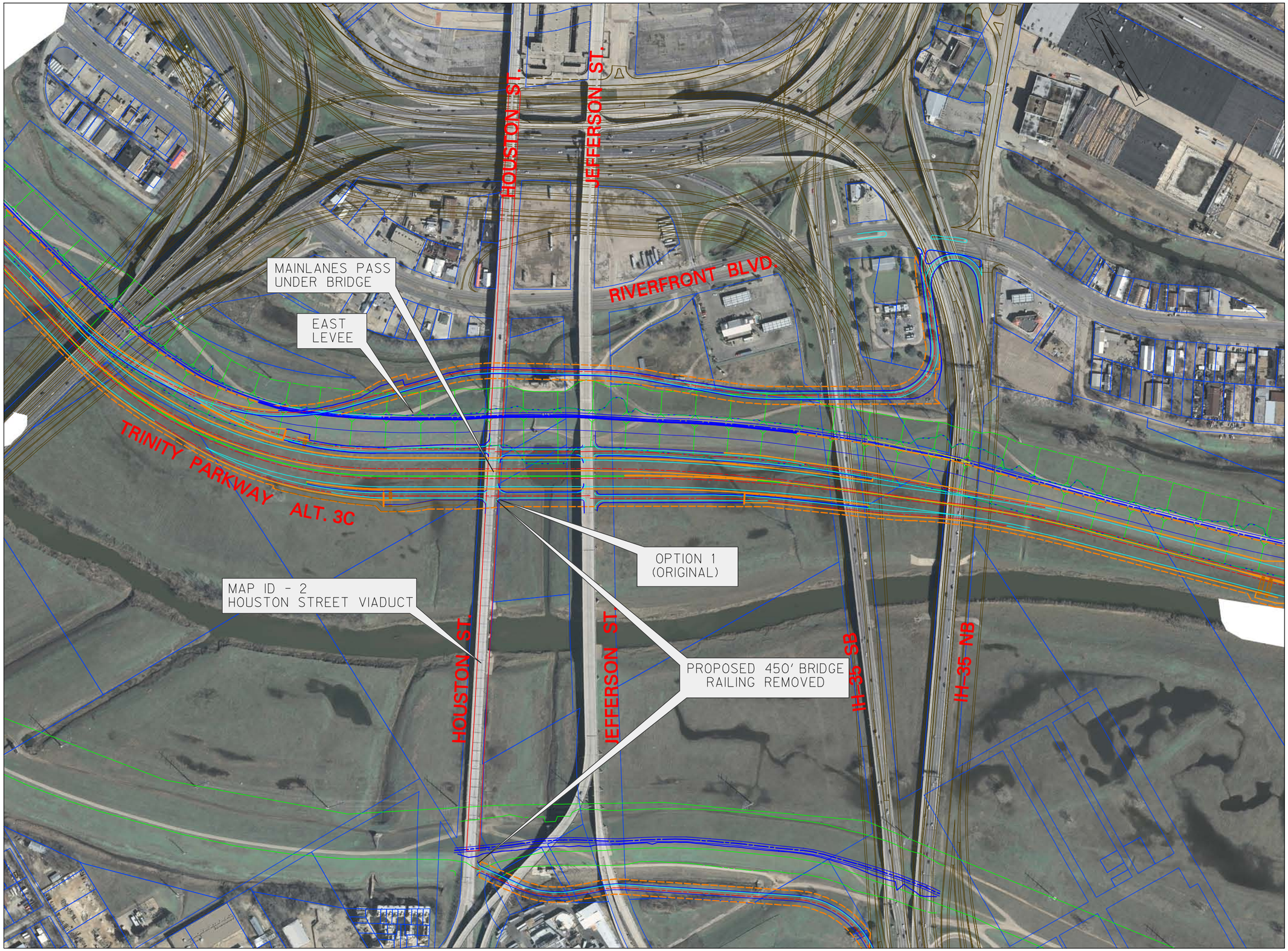

OPTION 1
-ORIGINAL-

EXHIBIT 3C-3-25 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 3C - COMBINED ALT
RIVERSIDE OF LEVEE

HOUSTON ST VIADUCT

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DATE	2/16/2010

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Scale: 1" = 400'

Project No.: 17826
Issued: February 16, 2010
Drawn By: JDP
Checked By: MGC
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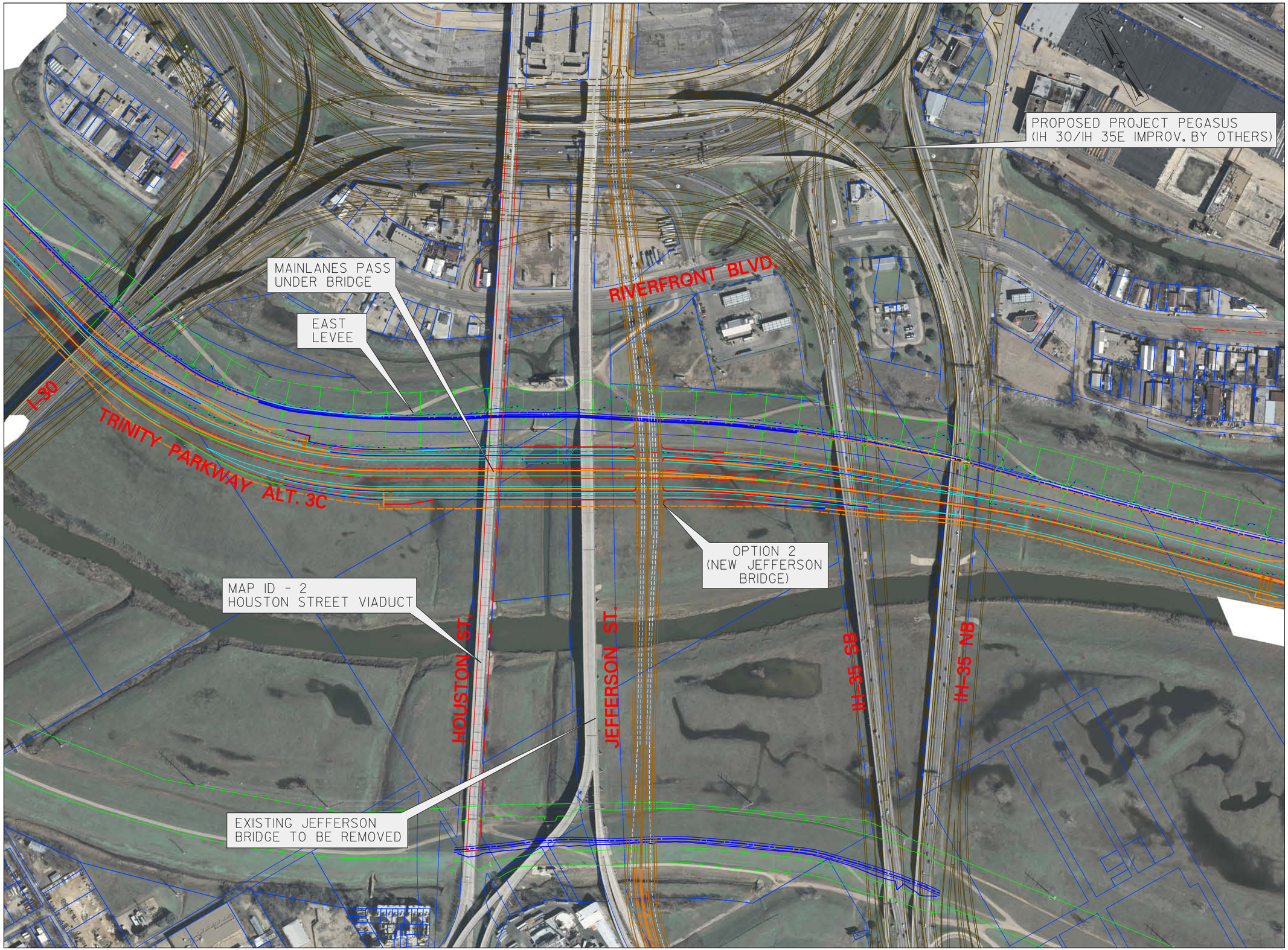

OPTION 2
-NEW JEFFERSON BRIDGE-

EXHIBIT 3C-3-26 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 3C - COMBINED ALT
RIVERSIDE OF LEVEE

HOUSTON ST VIADUCT

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Scale: 1" = 400'

Project No.:	17826
Issued:	February 16, 2010
Drawn By:	JDP
Checked By:	MGC
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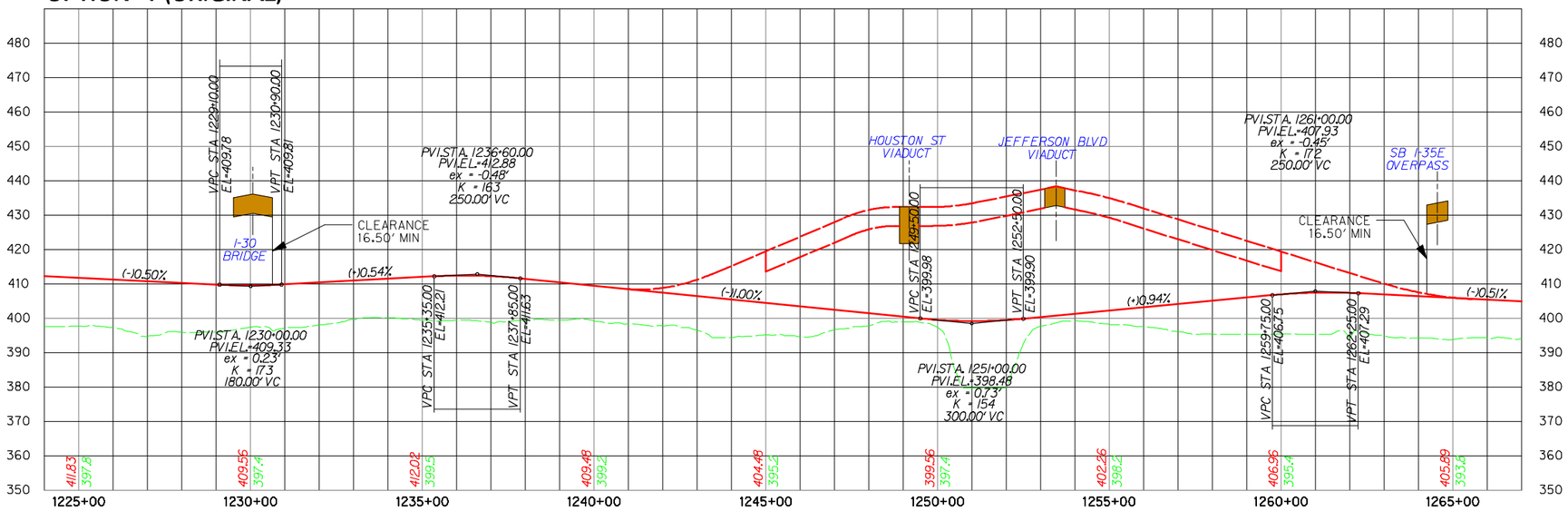
OPTION 1
-ORIGINAL-

OPTION 2
-NEW JEFFERSON BRIDGE-

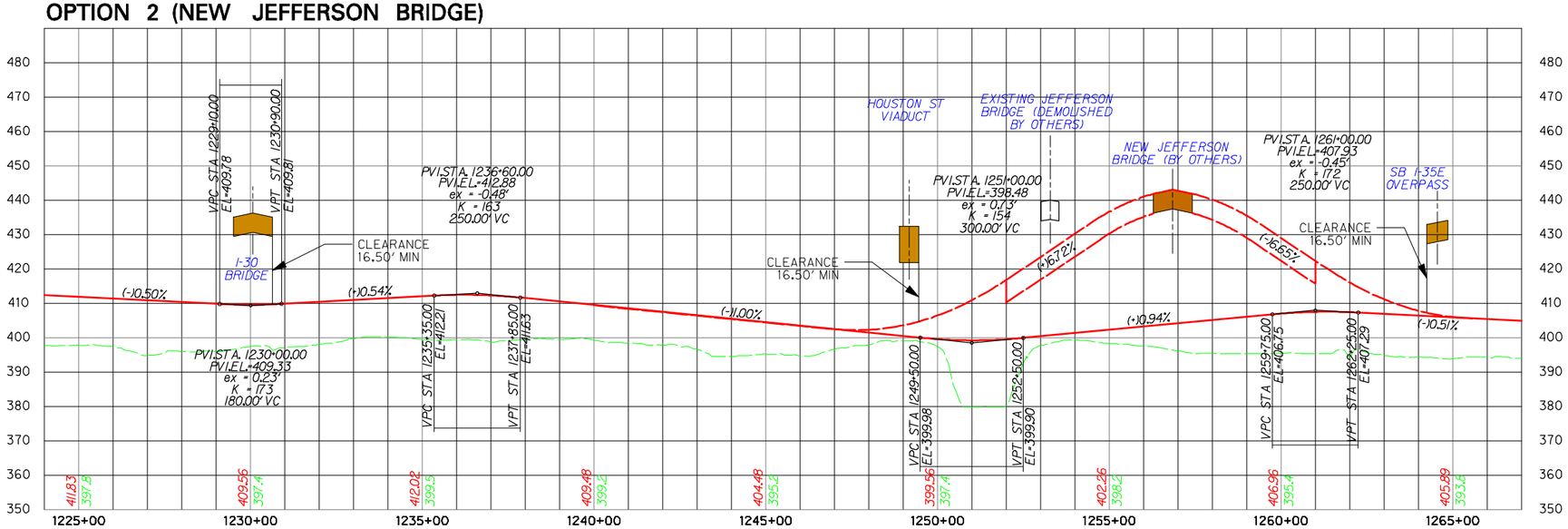
EXHIBIT 3C-3-27 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 3C

HOUSTON ST VIADUCT

OPTION 1 (ORIGINAL)



OPTION 2 (NEW JEFFERSON BRIDGE)



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Scale: H 1" = 400' V 1"=40'

Project No.:	17826
Issued:	February 16, 2010
Drawn By:	JDP
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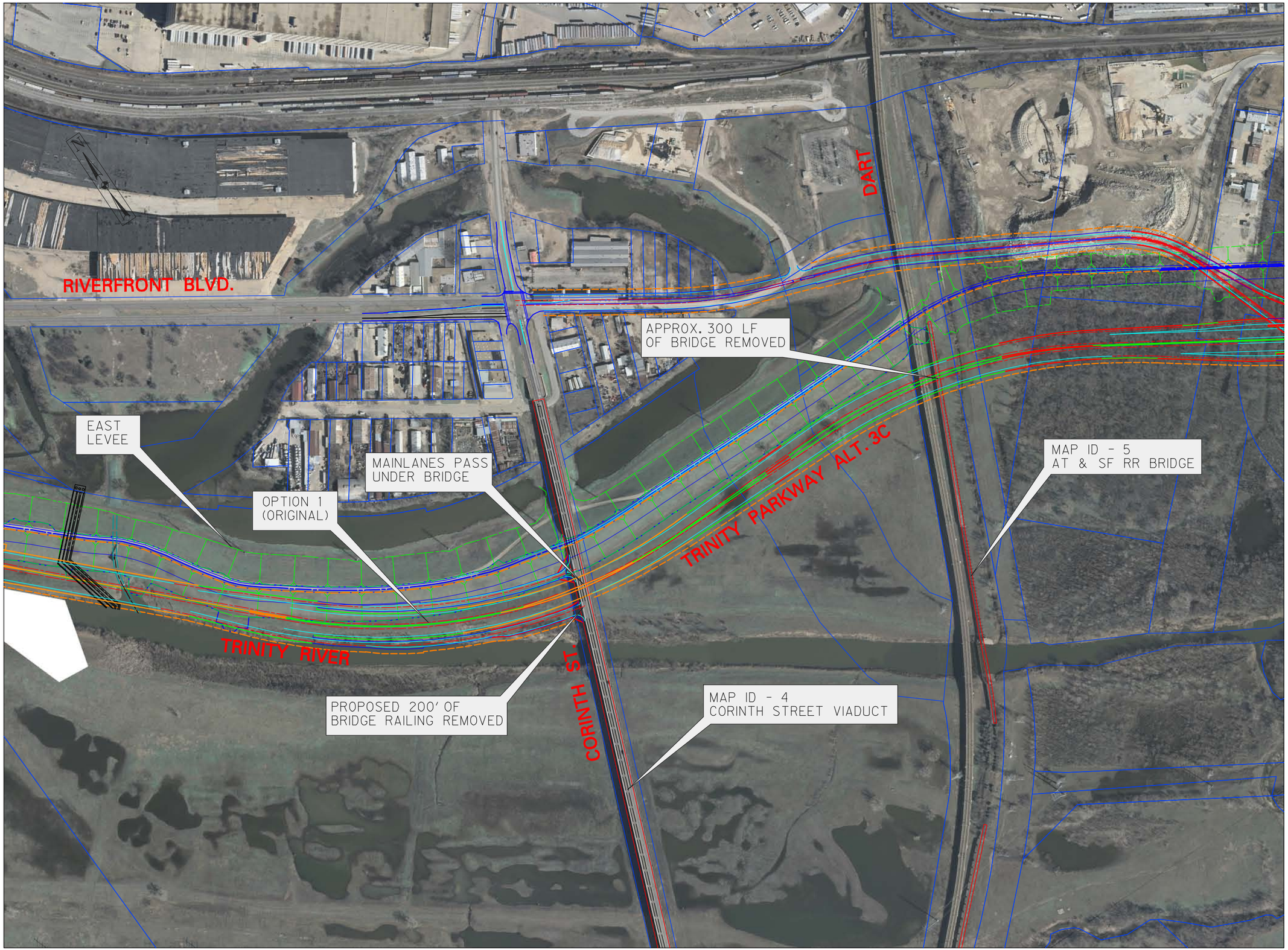

OPTION 1
-ORIGINAL-

EXHIBIT 3C-3-28 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 3C - COMBINED ALT
RIVERSIDE OF LEVEE

CORINTH ST VIADUCT
AND ATSF RR BRIDGE

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Scale: 1" = 400'

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Sheet Number

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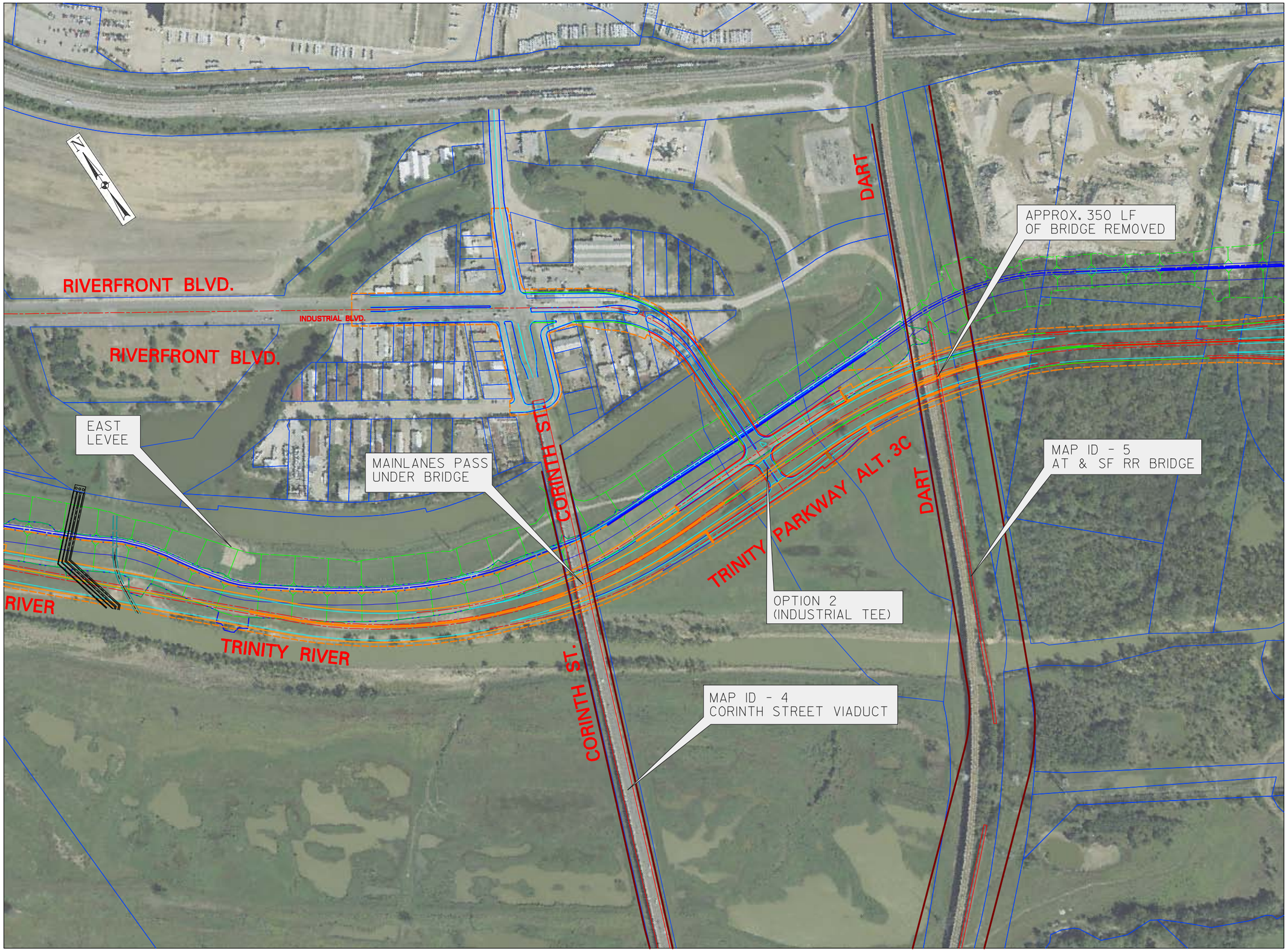

OPTION 2
-INDUSTRIAL TEE-

EXHIBIT 3C-3-29 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 3C - COMBINED ALT
RIVERSIDE OF LEVEE

CORINTH ST VIADUCT
AND ATSF RR BRIDGE

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Scale: 1" = 400'

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Issued: February 16, 2010
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ALT 3C - 3-29

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Sheet Number

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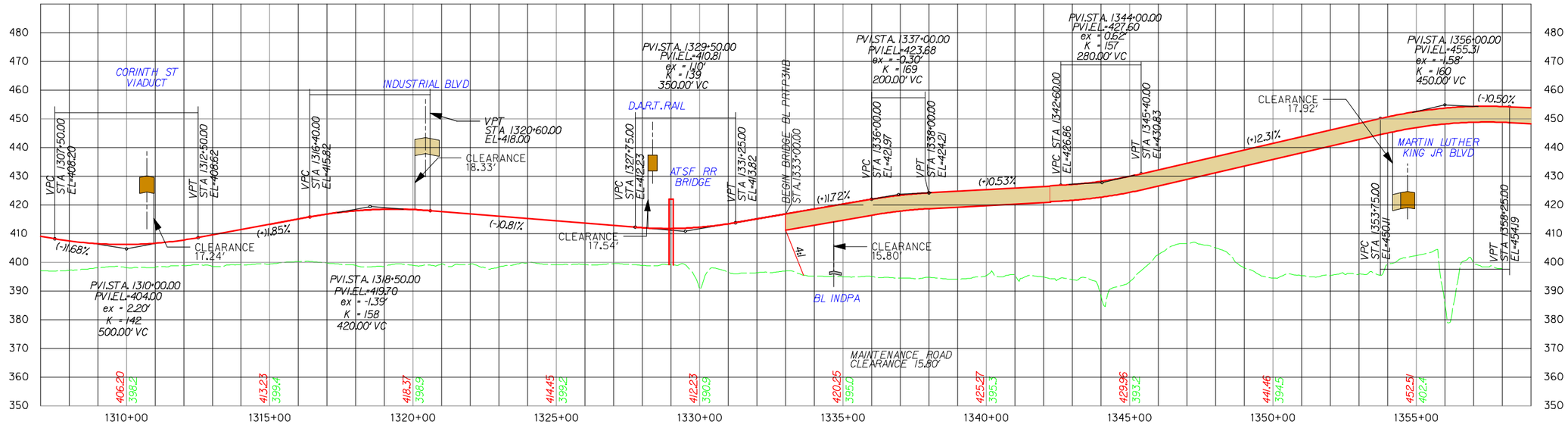
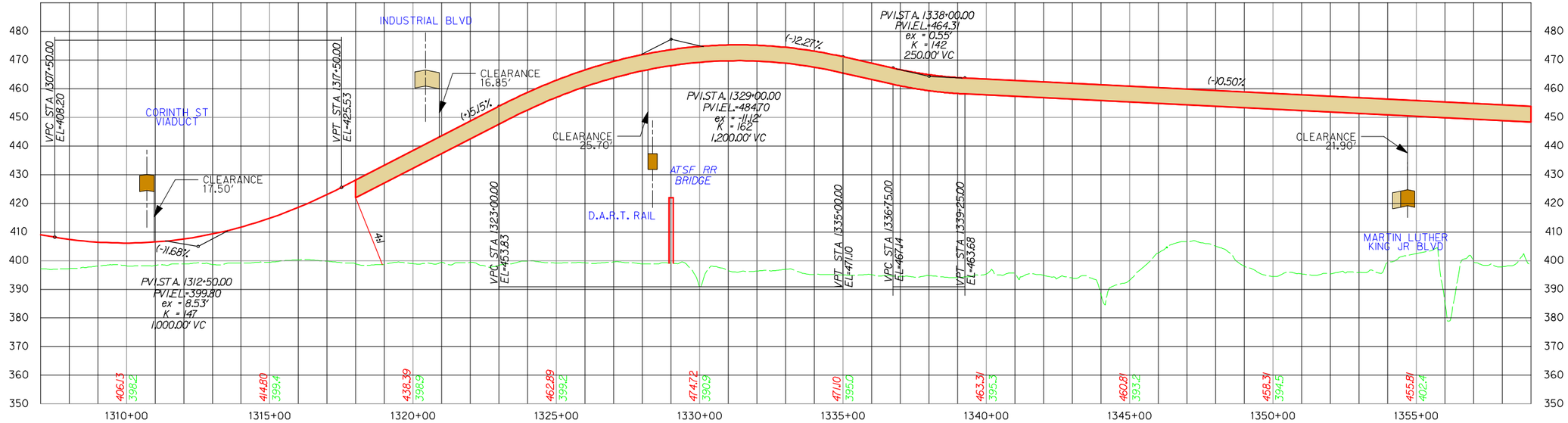


MAIN LANE PROFILE – OPTION 2 (UP AND OVER DART AND ATSF RR BRIDGE)



OPTION 1
-ORIGINAL-

OPTION 2
-OVER ATSF RR BRIDGE-

EXHIBIT 3C-3-30-4(f)
AVOIDANCE ALTERNATIVES
ALT. 3C

ATSF RR BRIDGE

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DATE	2/16/2010

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OPTION 2
-OVER ATSF RR BRIDGE-

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ALT. 3C-4B

ATSF RR BRIDGE

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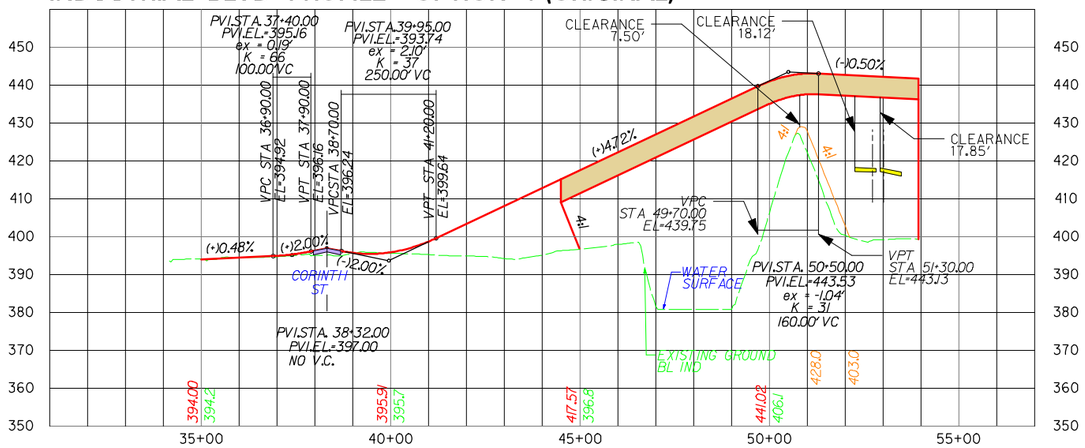

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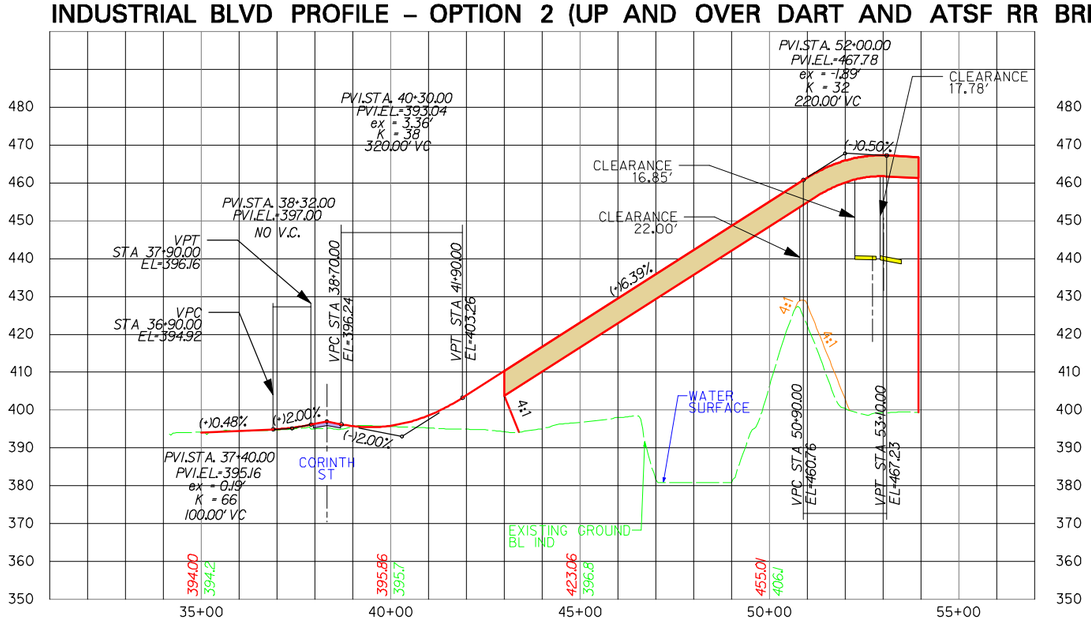

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TRINITY PARKWAY
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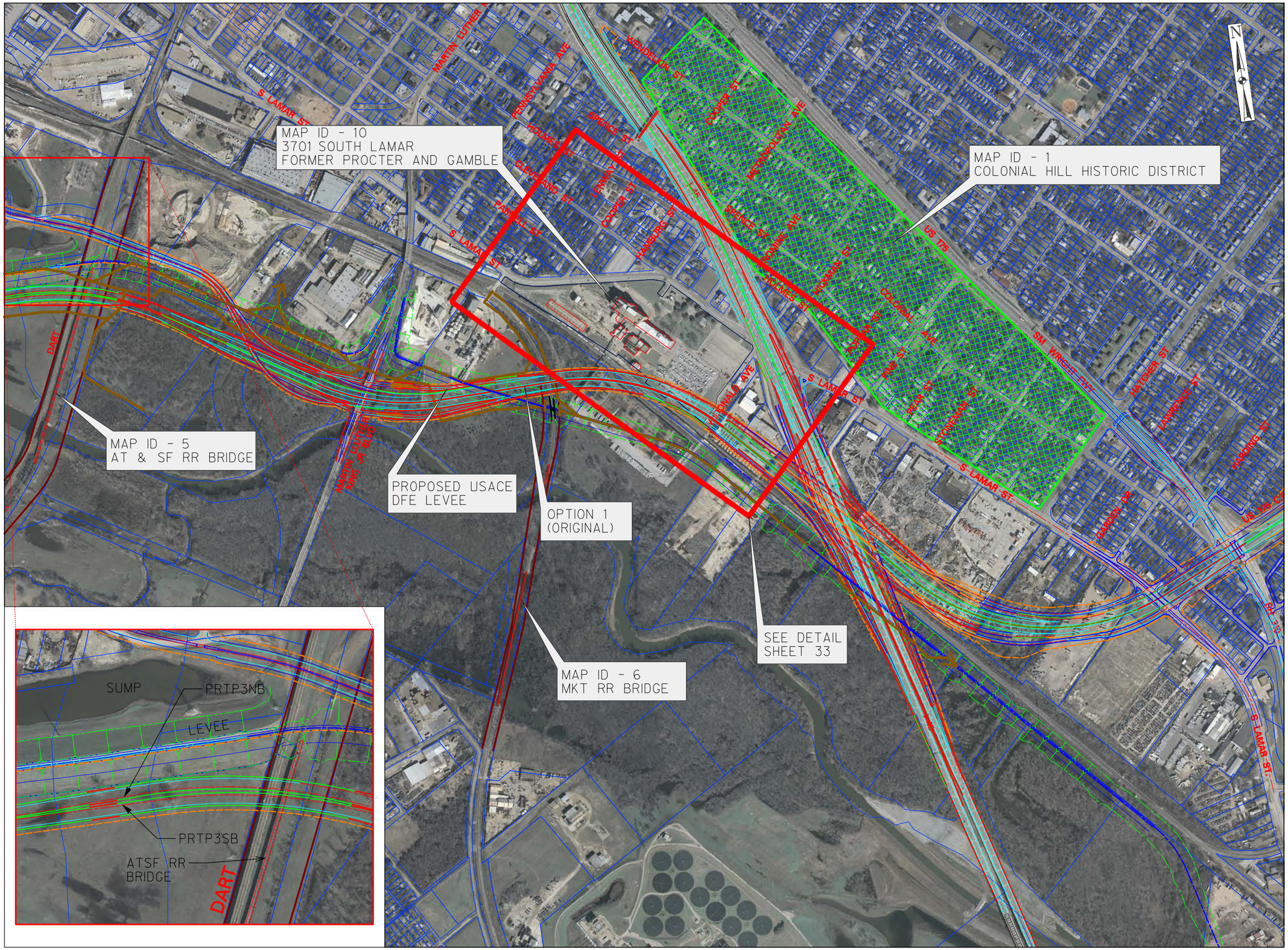

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AVOIDANCE ALTERNATIVES
ALT. 3C - COMBINED ALT
RIVERSIDE OF LEVEE

ATSF RR BRIDGE,
3701 SOUTH LAMAR AND
COLONIAL HILL HISTORIC
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EXHIBIT 3C-3-33 - 4(f)
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ALT. 3C - COMBINED ALT
RIVERSIDE OF LEVEE

3701 SOUTH LAMAR AND
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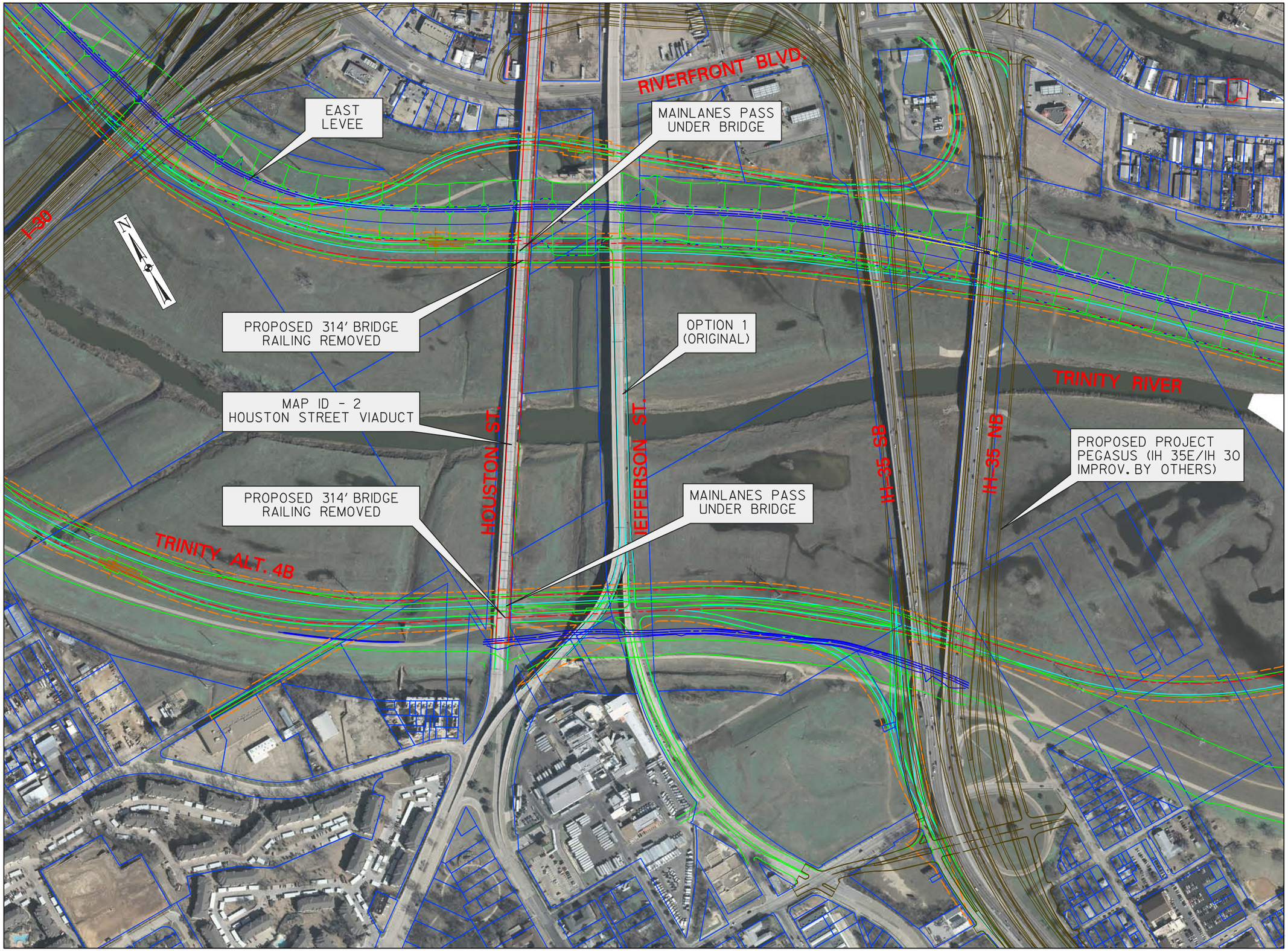

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ALT. 4B - SPLIT
PARKWAY RIVERSIDE

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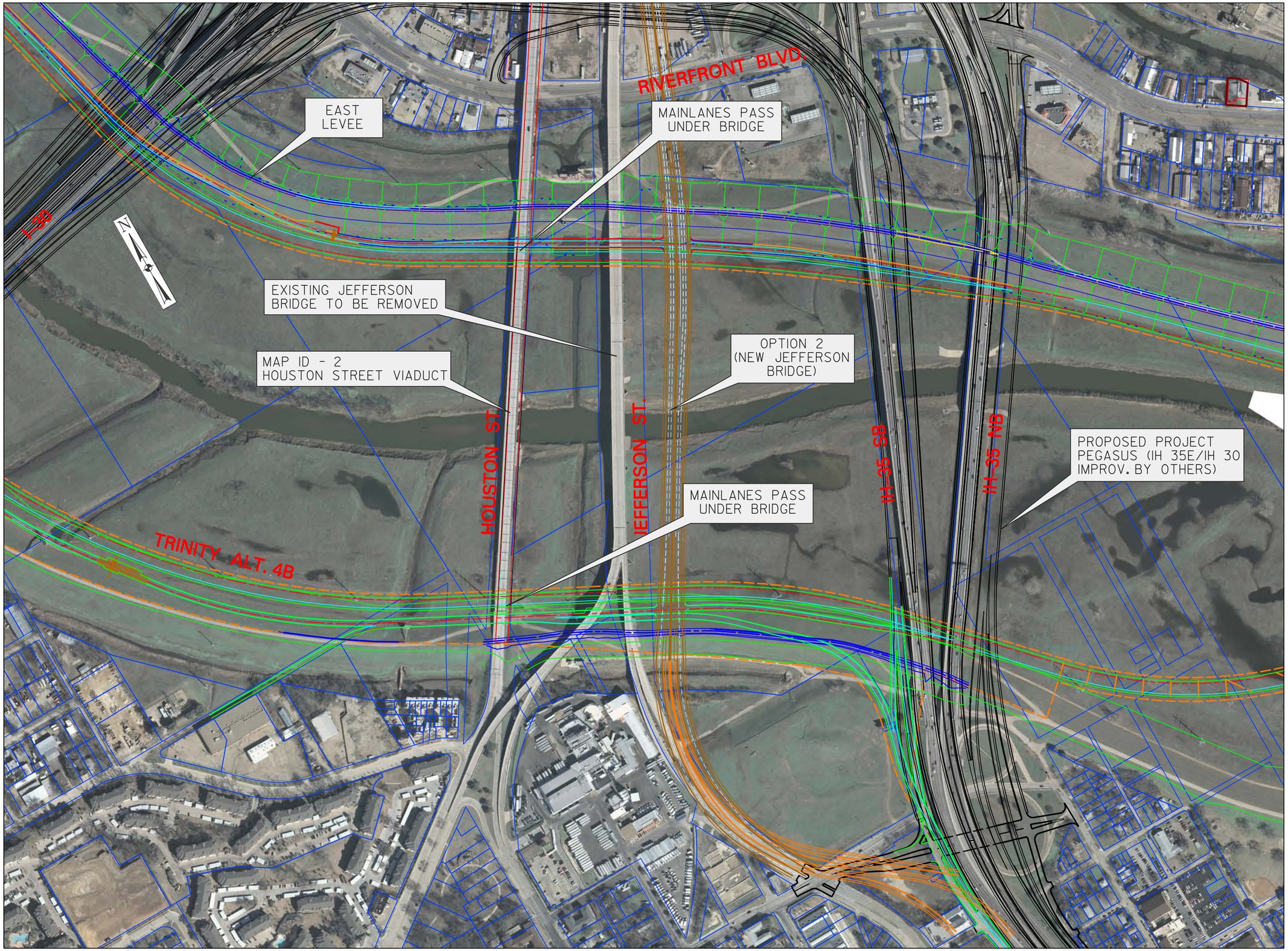

OPTION 2
-NEW JEFFERSON BRIDGE-

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AVOIDANCE ALTERNATIVES
ALT. 4B - SPLIT
PARKWAY RIVERSIDE

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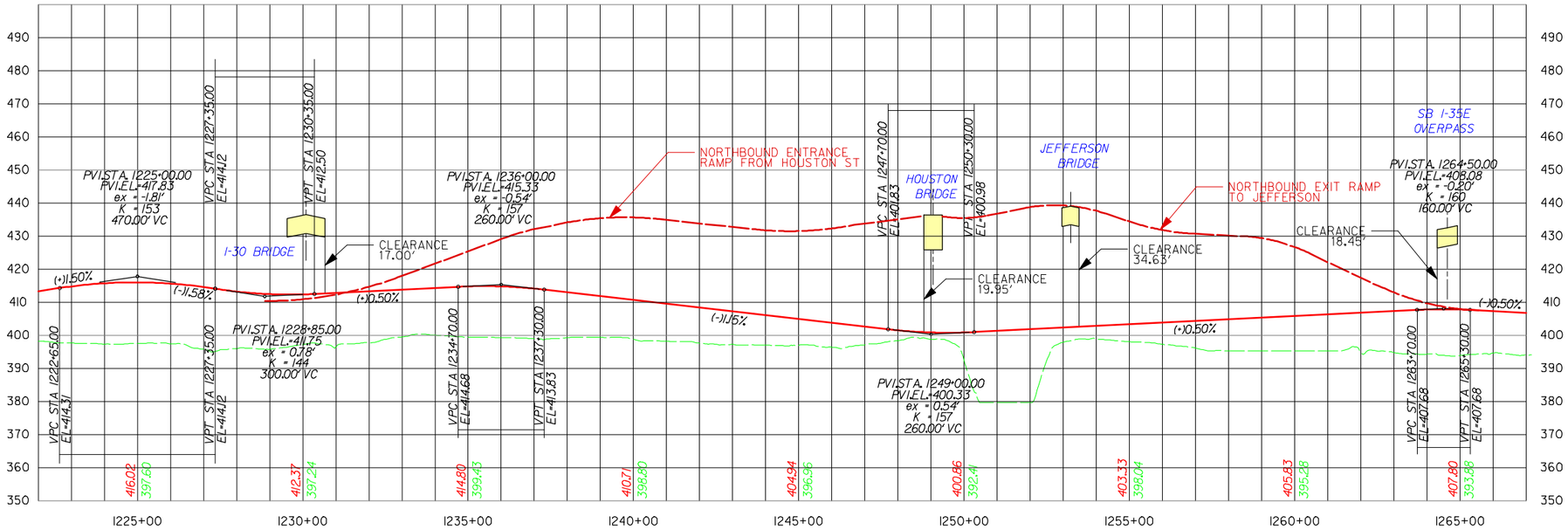

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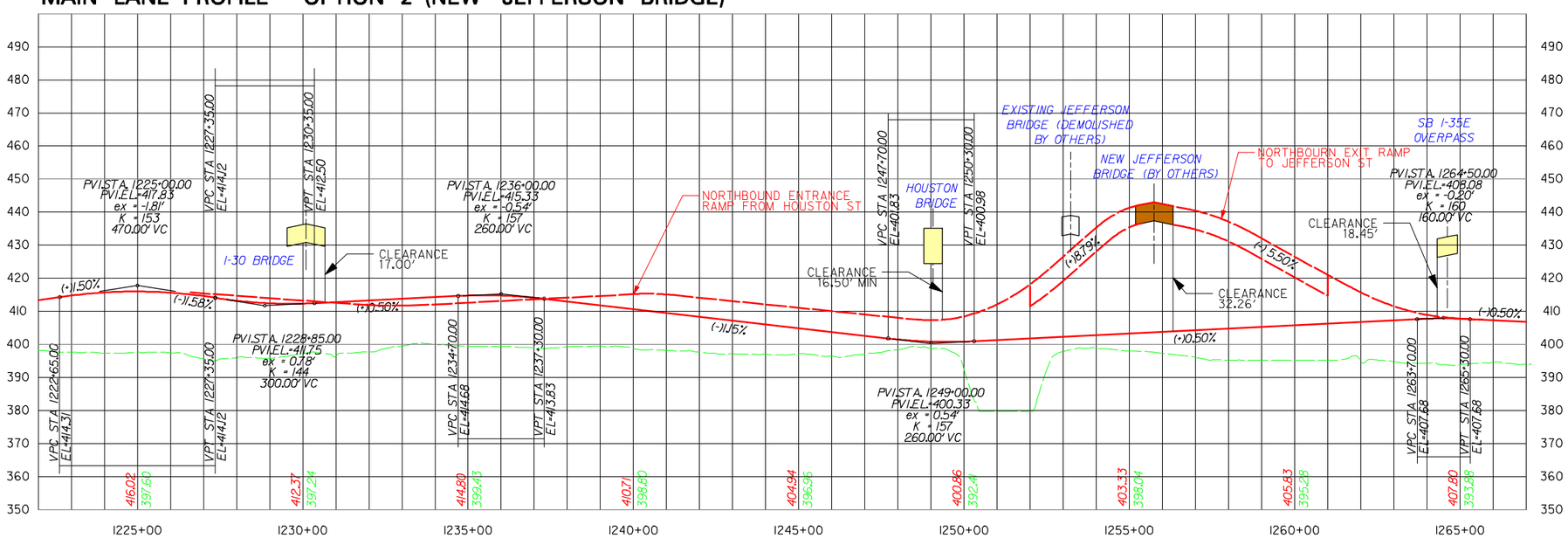

OPTION 1
-ORIGINAL-

OPTION 2
-NEW JEFFERSON BRIDGE-

EXHIBIT 4B-4-36 - 4(f)
AVOIDANCE ALTERNATIVES
ALT. 4B

HOUSTON ST VIADUCT
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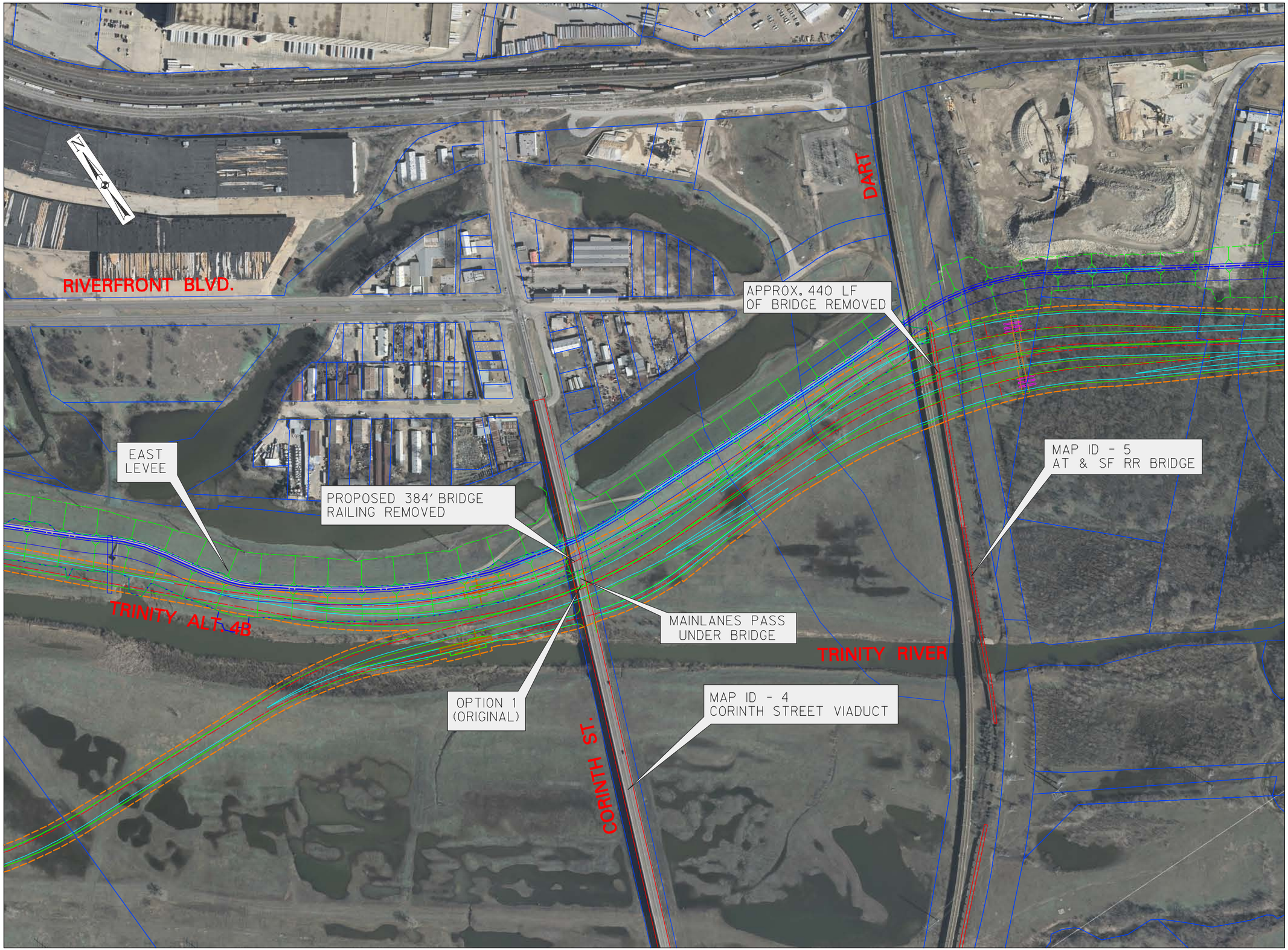

OPTION 1
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EXHIBIT 4B-4-37 - 4(f)
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PARKWAY RIVERSIDE

CORINTH ST AND
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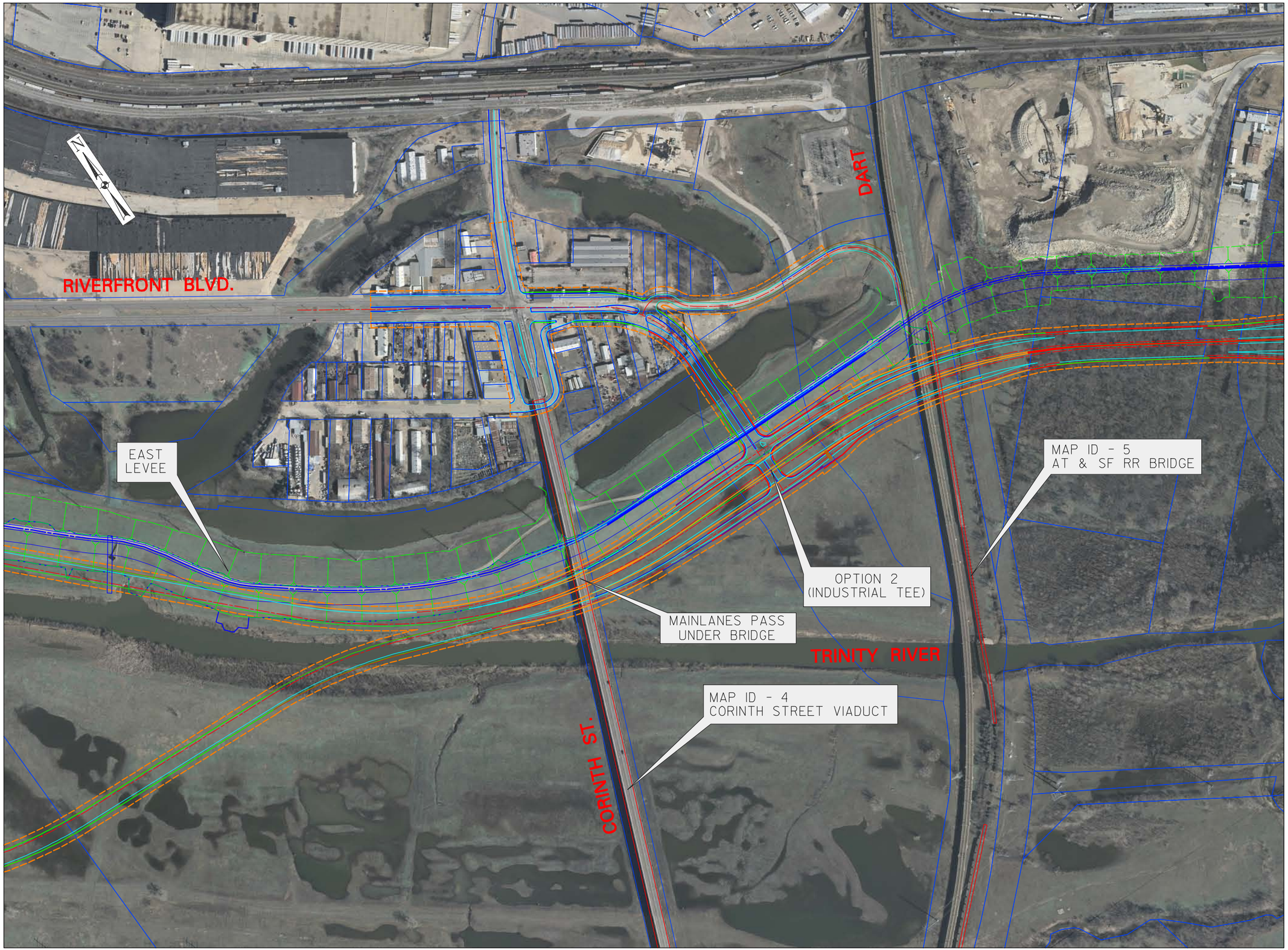

OPTION 2
-INDUSTRIAL TEE-

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PARKWAY RIVERSIDE

CORINTH ST VIADUCT

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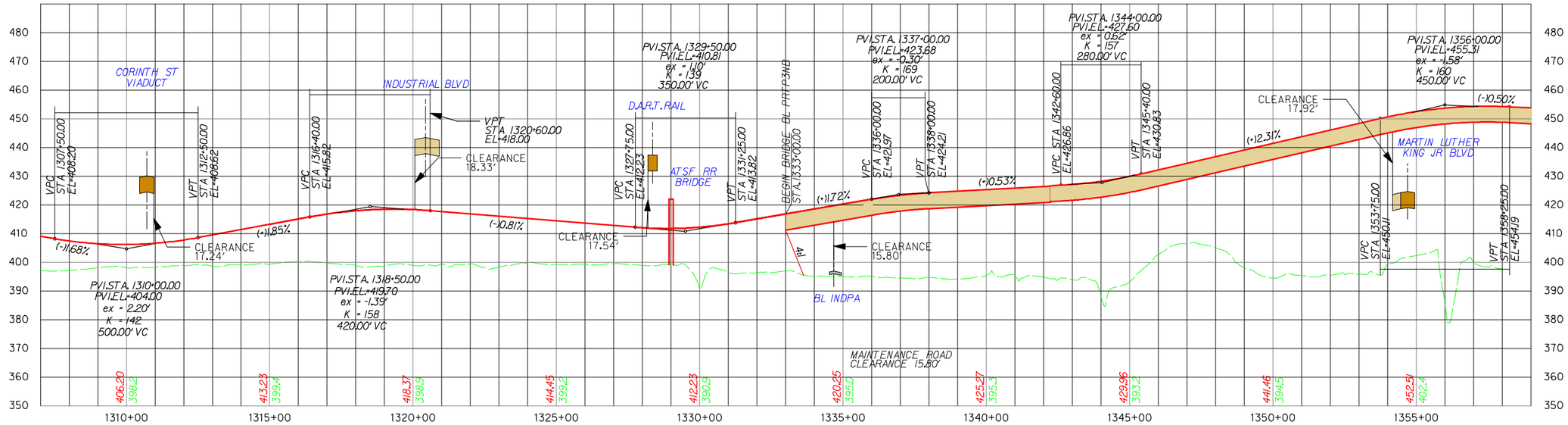

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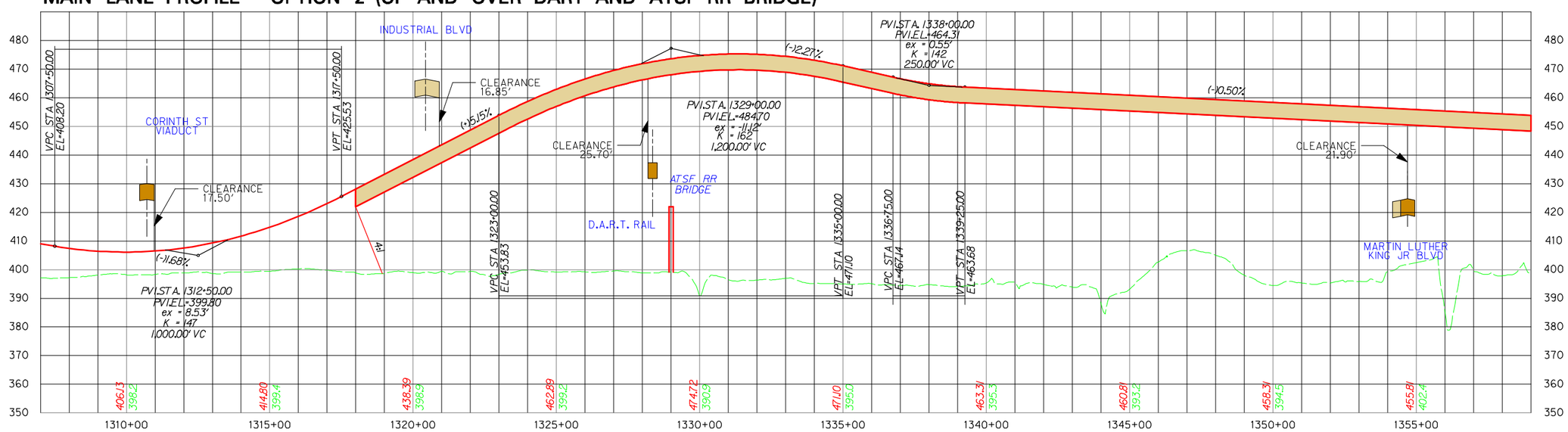

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OPTION 2
-OVER ATSF RR BRIDGE-

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AVOIDANCE ALTERNATIVES
ALT. 4B

ATSF RR BRIDGE

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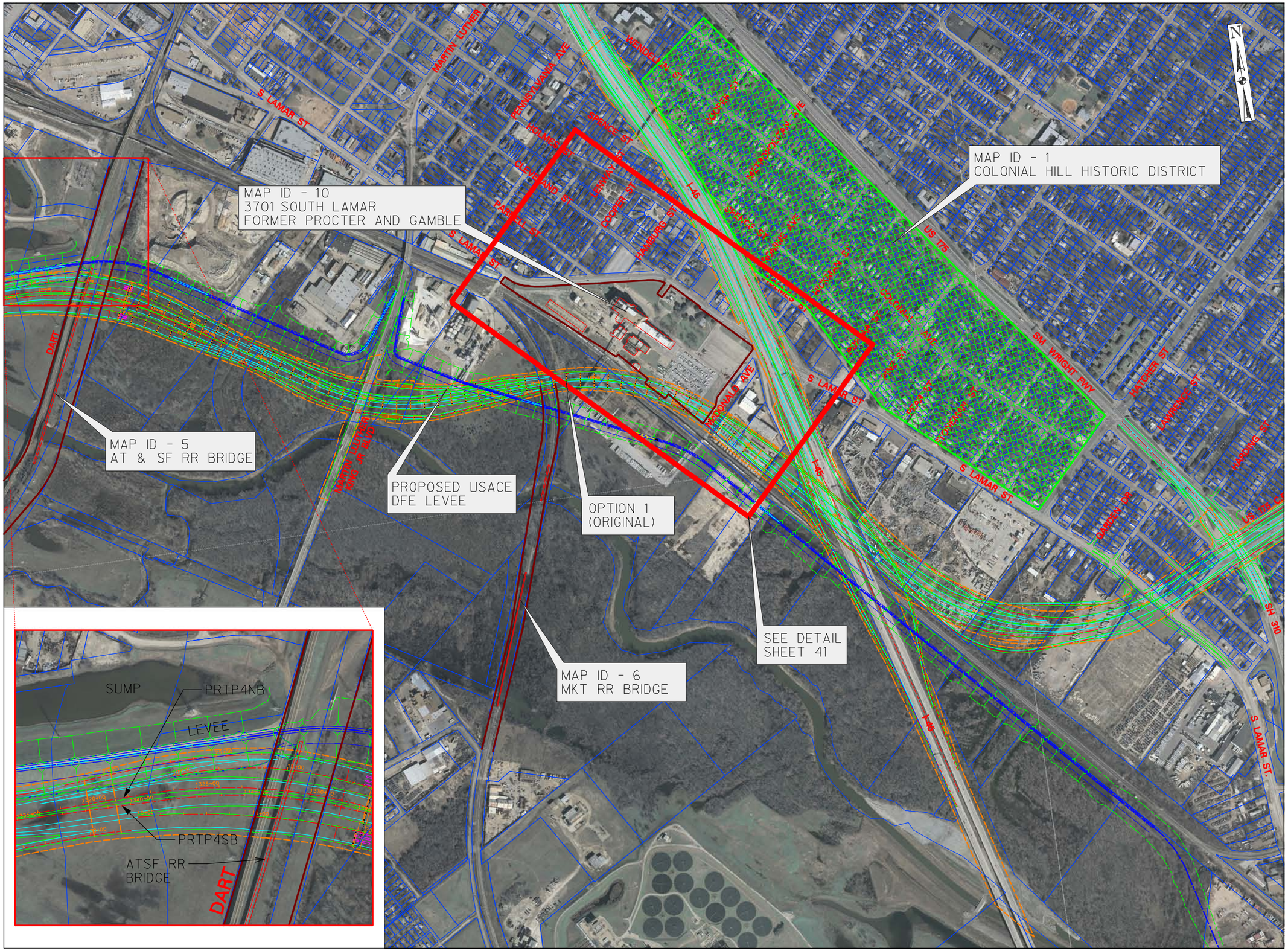

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PARKWAY RIVERSIDE

ATSF RR BRIDGE,
3701 SOUTH LAMAR AND
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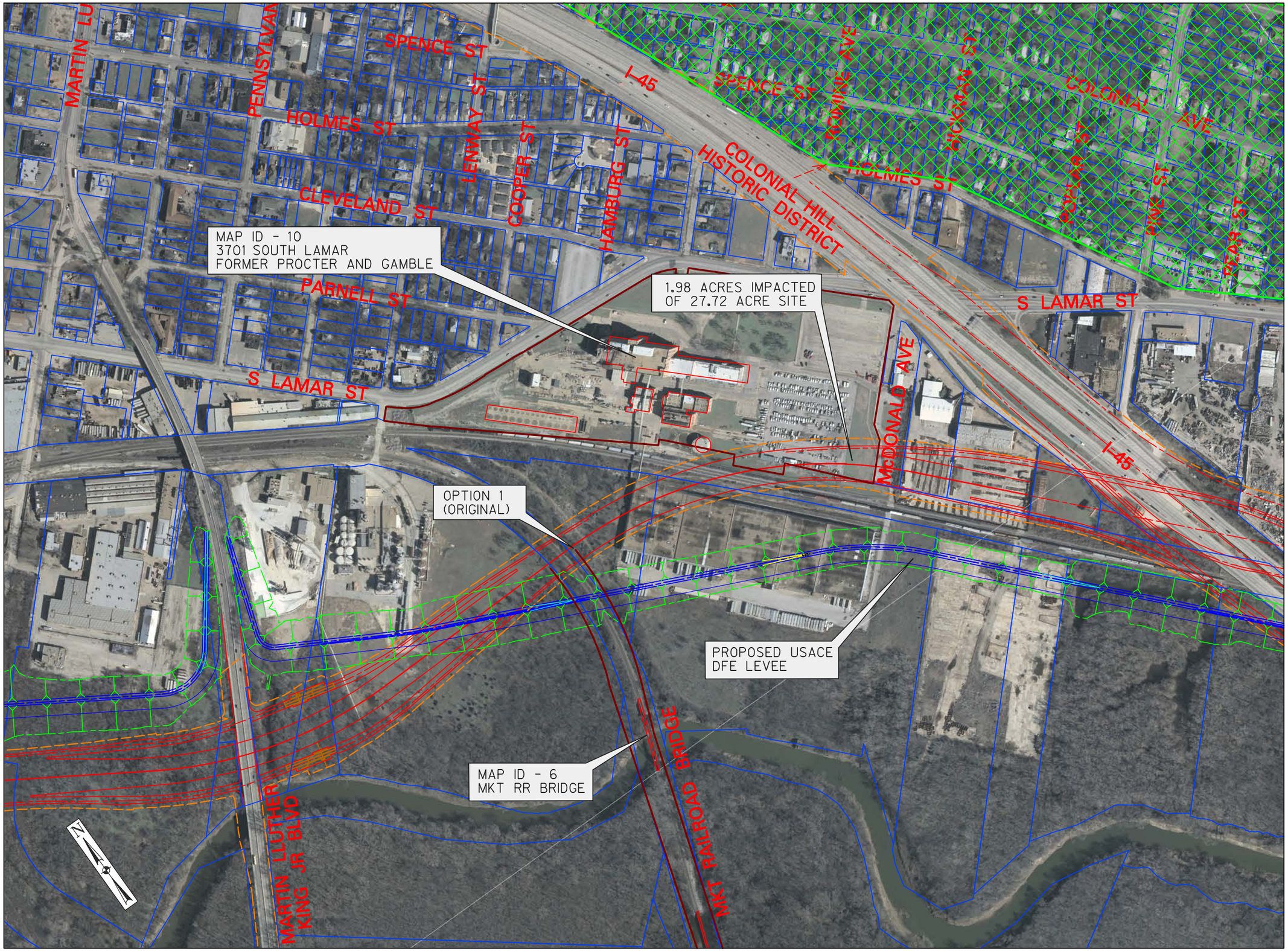

OPTION 1
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EXHIBIT 4B-4-41 - 4(f)
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ALT. 4B - SPLIT
PARKWAY RIVERSIDE

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ALT 4B - 4-41

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APPENDIX F

Additional Technical Discussion of Hydrologic/Hydraulic Attributes of Alternatives 3C and 4B

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APPENDIX F
ADDITIONAL TECHNICAL DISCUSSION OF HYDROLOGIC/HYDRAULIC ATTRIBUTES OF ALTERNATIVES 3C AND 4B

Further Discussion of Hydrologic/Hydraulic Attributes of Alternatives 3C and 4B, including Inundation Sequence and Repair Costs for a Flood in Excess of the 100-Year Design Event
September, 2011

F-1 INTRODUCTION

This Appendix is intended to provide information gathered from the February 2009 Supplemental Draft Environmental Impact Statement (SDEIS), this Limited Scope Supplemental (LSS) to the SDEIS, and other sources on the hydrologic and hydraulic attributes of Trinity Parkway Alternatives 3C and 4B, including inundation effects and repair costs in the event these alternatives were subject to a flood in excess of the 100-Year Design Event. The larger floods to be considered include the "Standard Project Flood" (SPF) which is approximately an 800-year event in the Dallas Floodway, and is used by the U.S. Army Corps of Engineers (USACE) to set levee top elevations.

The attributes of the various Trinity Parkway Build Alternatives are described in the SDEIS **Chapter 2**, and the consequences of a Dallas Floodway event in excess of a 100-year event are discussed in **SDEIS Sections 2.4.6** through **2.4.9**, and **SDEIS Appendix K-3** (Draft Emergency Action Plan). Alternatives 3C and 4B would each have approximately 6.2 miles or approximately 70% of their total lengths located on a raised embankment riverside of the levees within the Dallas Floodway. Within the Floodway, the road surface would typically be set above the 100-year water surface elevation. As described in the **LSS Section 2.3.4**, in segments where the road is depressed below the 100-year level, flood separation walls and pump stations would be added to maintain 100-year flood protection. **SDEIS Section 2.4.7** provides additional details on the flood separation walls, including a conceptual design for a pump station (**SDEIS Plate 2-12**).

The 100-year flood protection standard is commensurate with the designs of other roadways on the North Texas Tollway Authority (NTTA) system, and meets or exceeds the Federal Highway Administration (FHWA) design standards. In regard to the landside Alternatives 2A and 2B, whereas it would be true that a flood in excess of the 100-year Event in the Dallas Floodway would not affect these alternatives (assuming the east levee did not breach), they would nevertheless be affected by greater than 100-year

floods on the landside of the levees in the area that relies on the adjacent sump systems. Note the elevated main lanes of Alternative 2A (Irving/Riverfront [Industrial] Boulevard - Elevated) may not be as affected by such a flood as the main lanes of Alternative 2B (Irving/Riverfront [Industrial] Boulevard – At-Grade), but the ramps and service roads of Alternative 2A would still be affected.

Based on the results of hydraulic modeling performed to date and the proposed design of the roadway, potential damages from events in excess of the 100-year flood do not appear to be a substantial differentiating factor between the Build Alternatives in the practicability discussion in **LSS Chapter 4**. All the Build Alternatives are designed to meet the published standards for major highways. Additionally, the alternatives within the Dallas Floodway, with their large embankments and established vegetation would be resilient enough to withstand major damages from such (unlikely) flooding. As shown in the draft Emergency Action Plan (**SDEIS Appendix K-3**,) these roadways are intended to be shut down in an orderly way prior to impending flooding. Further, expected "damages" would mostly comprise clean up costs (i.e. clearing of silt, accumulated debris, etc.). Major road failures are not anticipated, even if the design flood level is exceeded.

Notwithstanding the above statement, the cost of flood damages and road closure for an event exceeding the 100-year event is disclosed in **SDEIS Section 6.6** and **LSS Sections 4.1.6.2** and **4.1.7.2**. This analysis accounts for the cost of clean up and restoration, plus the loss of tolls during an anticipated down time, which assumes no substantial physical damage to the road; only accumulation of silt and debris. This topic is further discussed in **Section F-2** below, along with the possibility of increased damages and downtime in the event the road pavement is physically damaged by localized, unforeseen flow concentrations.

The following sections are intended to provide more information on the topic of greater than 100-year flood inundation of the Trinity Parkway alternatives in the Dallas Floodway (Alternatives 3C and 4B) for public consideration.

F-2 DURATION OF SPF INUNDATION

In **SDEIS Section 6.6** and **LSS Sections 4.1.6.2** and **4.1.7.2**, the out-of-service time for an SPF inundating Alternatives 3C and 4B is estimated as five days, comprising pre-event closure, inundation, pump out of flooded low points, and cleanup. To further document this finding, the following data has been compiled for the Commerce Street Gage (located approximately midpoint of the Trinity Parkway Project) using the hydrographs for the SPF (~800-year) and the 100-Year Flood on the Trinity River in Dallas:

Commerce Gage Datum = 368.02 feet (NGVD29)

Top of Bank = 402.00 feet (Hydrologic Engineering Center (HEC) River Analysis System (RAS) model) (Gage Level ~40 feet)

Approximate Discharge to reach top of bank = 16,400 cubic feet per second (cfs) (i.e. "Flood Stage")

100-year Discharge = 119,800 cfs

SPF Discharge = 277,000 cfs

The following durations are taken from the USACE SPF hydrograph (HEC-1) for the Trinity River:

- 22 hours (approximately) between out of banks to 100-year discharge;
- 13 hours (approximately) between 100-year peak and SPF peak;
- 17 hours (approximately) between SPF peak and falling back to 100-year; and
- 92+ hours (approximately) between 100-year discharge and falling back to top of banks (note HEC-1 model execution stops before flow returns to within banks of the Trinity River).

Therefore, if Alternatives 3C and 4B were subject to an SPF event:

(i) The timing is such that overtopping of the road would not be a "flash" flood event but would have approximately 22 hours warning time from Flood Stage to the time of 100-year inundation. This period would be closely observed by NTTA and city staff in accordance with the draft Emergency Action Plan (**SDEIS Appendix K-3**) and an orderly shutdown of the road would be implemented at the appropriate time.

(ii) Based on the **SDEIS Section 6.6** analysis, it is expected "damages" in the event of road inundation would mostly comprise clean up costs… clearing of silt, accumulated debris, etc. Large scale road failures are not anticipated if the design flood level is exceeded. Loss of life is not anticipated because the road would be barricaded, and police would be on-site.

(iii) The duration of inundation of the road would be approximately 30 hours for an SPF event. Unless there was unexpected structural damage, the inundation and cleanup is estimated in **SDEIS Section 6.6** as lasting five days before return to service. The **SDEIS Section 6.6** analysis estimates a total cost of restoration of the Combined Parkway (Alternative 3C) as $4.0 million comprised of $2.8 million in cleanup and landscape repairs, and $1.2 million of lost tolls during five days of downtime. The cleanup cost is detailed in this section, and was provided by NTTA operations and maintenance staff. The similar cost for the Split Parkway (Alternative 4B) is estimated as $6.4 million. These estimates result in an annualized cost of restoration and downtime in the $40,000 to $64,000 range (considering the 100+ year probability).

(iv) The inflow and outflow of water as a flood event rises and falls is a concern in the design of any road that may be inundated. Flow concentrations may cause high velocities in some areas, which, if not planned for, could result in localized failures and needed repairs. This issue would need to be addressed carefully in design of a Dallas Floodway Alternative to anticipate and appropriately address any potential problem areas through armoring or other means. For instance, as addressed in **SDEIS Section 2.4.7**, the flood separation walls at depressed segments along Alternatives 3C and 4B *"would be designed to allow a managed inflow of water, suitably protected from erosion and other hazards of the inflow."* To address "unforeseen damages," the sponsors have agreed to consider a contingency amount ($2.0 million) to cover additional repairs, such as pavement failures, due to unforeseen damages by an SPF. The sponsors have also agreed to add an additional ten days of downtime beyond the originally-assumed five days (resulting in an additional $2.4 million of lost tolls) to affect repairs. These assumptions would increase the total downtime and restoration costs for Alternative 3C to $8.4 million, compared to $4.0 million in bullet (iii) above, giving an annualized cost of $84,000. Similarly, the total cost for Alternative 4B would increase to $10.8 million, or $108,000 annualized cost. Assuming the relatively short period of closure (15 full days total assuming pavement damage), and accounting for the very low probability (100+ year event), closures due to high floods do not appear to rise to the level of threatening the practicability of Alternatives 3C and 4B. **LSS Sections 4.1.6.2** and **4.1.7.2** cover the topic of 100+ year flood inundation, including the extra allowance for unforeseen damages.

In the event a Trinity Parkway alternative in the Dallas Floodway (Alternative 3C or 4B) is selected, the draft Emergency Action Plan (**SDEIS Appendix K-3**) would need to be reviewed and approved by the City of Dallas, NTTA, TxDOT, the FHWA, and USACE prior to final approval of construction by the USACE.

F-3 FLOW VELOCITIES AND POSSIBLE SCOUR DURING AN SPF EVENT

SDEIS Section 6.6 provides a general statement about the velocities over a Dallas Floodway Build Alternative in the event of an SPF. To supplement the SDEIS information and answer any question as to whether the smoother roughness values of the paved lanes adjacent to the riverside toe of the levee may increase local velocities that could contribute to toe scouring and failure of the levees, velocities have been tabulated based on the available HEC-RAS modeling for the SPF over the 6.2 miles that Alternatives 3C and 4B are located in the Dallas Floodway. Velocities have been averaged by section in three zones: (i) Levee face (exposed face of improved levee above the road embankments), (ii) Roadside swale area (the grassed drainage area generally between the levee toe at the embankment and the edge

of road shoulder), and (iii) Paved area (the outer Trinity Parkway lanes and shoulder). Data tables are included at the end of this Appendix (see **Tables F-1 and F-2**). A summary follows:

Alternative 3C (Combined Parkway Further Modified)

- In the levee face area, velocities generally range from 1.0 to 3.7 feet per second (fps) in the segment from the Atchison Topeka & Santa Fe (AT&SF) Railroad Bridge (downstream end of Trinity Parkway) to Continental Avenue (the only exceedance is a 6.8 fps reported velocity under the AT&SF Railroad Bridge). Upstream of Continental Avenue to the Trinity Parkway exit point from the Dallas Floodway, the velocities fall into the 0.4 to 1.5 fps range.
- In the roadside swale area, velocities generally range from 1.0 to 5.8 fps from the AT&SF Railroad Bridge to Continental Avenue (with the 2-3 fps range most frequent). Upstream of Continental Avenue, the velocities fall into the 0.5 to 2.0 fps range. (Again, the model reports 7.4 fps under the AT&SF Railroad Bridge).
- Within the paved area, velocities generally range from 2.0 to 8.0 fps, with some velocity spikes under bridges (15.5 fps under AT&SF Railroad Bridge, 10.3 fps under Corinth Street, 10.1 fps at Jefferson Street, 8.9 fps at Houston Street).

Alternative 4B (Split Parkway Modified) – East Side Lanes (Northbound)

- In the levee face area, velocities generally range from 0.5 to 3.5 fps in the segment from the AT&SF Railroad Bridge (downstream end of Trinity Parkway) to the Trinity Parkway exit point from the Dallas Floodway. (The only exceedance is a 7.4 fps reported velocity under the Houston Street Bridge.)
- In the roadside swale area, velocities generally range from 1.0 to 5.0 fps from AT&SF Railroad Bridge to Continental Avenue (with the 2.0-3.5 fps range most frequent). Upstream of Continental Avenue, the velocities fall into the 0.5 to 2.5 fps range. (The model reports two exceedances of this range: 6.3 fps under the Corinth Street Bridge, and 8.2 fps under the Houston Street Bridge.)
- Over the paved area, velocities generally range from 2.0 to 8.0 fps, with some velocity spikes under bridges (16.3 fps under AT&SF Railroad Bridge, 10.4 fps under Corinth Street, 8.9 fps under IH-35E, 10.1 fps at Jefferson Street, 10.3 fps at Commerce.)

Alternative 4B (Split Parkway Modified) – West Side Lanes (Southbound)

- The west side lanes of Alternative 4B show similar velocities as the east side lanes. The exception is a segment north of Commerce Street, which shows velocities in the 6.0 to 8.0 fps range within the levee face and roadside swale areas. This may be due to a bulge in the levee at this point (encroaching towards the river). This segment (~500 ft) may need to be armored.

Velocities less than 6.0 fps are generally considered acceptable for withstanding erosion, assuming established grass and short term inundations. The velocities reported are therefore not considered to be erosive over the grassed roadside swale areas nor on the faces of the levees above the road embankment level. There may be a need for further design analysis and possibly local armoring in some of the higher velocity bridge underpasses discussed previously in this Appendix. These should be addressed (in cooperation with the USACE) in future design if a Dallas Floodway build alternative is selected. The erosion issue is not considered to be a differentiating factor in the practicability analysis.

F-4 EARTHWORKS BALANCE AND FLOODWAY CONVEYANCE EFFECTS

The Trinity Parkway build alternatives in the Dallas Floodway (Alternatives 3C and 4B) are proposed to be constructed using borrow material from within the floodway, creating an earthworks balance. The resulting road embankments, floodway excavations, and related features have been modeled in detail to assure no loss of conveyance (see **SDEIS Section 4.13** Floodplain Impacts, along with modeling output data in **SDEIS Appendix F**). As evidenced by the administrative record and **SDEIS Appendix F**, the modeling work has been extensively coordinated with the USACE to date, and would be expected to be coordinated further if a Dallas Floodway alternative progresses to preparation of construction documents. If a Dallas Floodway alternative is selected for Trinity Parkway, all construction plans for work within the Dallas Floodway would be subject to a USACE Section 408 approval process.

Alternatives 3C and 4B within the Dallas Floodway are intended to comply with the USACE 1988 Record of Decision (ROD) Criteria for the Trinity River in Dallas, and the subsequent/related Trinity River Corridor Development Certificate (CDC) process managed by the North Central Texas Council of Governments (NCTCOG). Based on the hydraulic work to date, the modeling shows that the Trinity Parkway would not reduce conveyance, jeopardize existing features, or increase risks to levees. LSS **Chapter 3** is intended to demonstrate compatibility of the Trinity Parkway alternatives with the pending USACE Levee Remediation Plan for the Trinity River Floodway in Dallas.

The subject of fill material for the roadway embankments and borrow sites in the Dallas Floodway is covered in **LSS Sections 4.1.6.4** (Logistics for Alternative 3C) and **4.1.7.4** (Logistics for Alternative 4B). **SDEIS Appendix K-2** (Geotechnical Workgroup Documentation) also includes further technical information and discussion on the topic. The assumed borrow sites are primarily lake excavations proposed by the City of Dallas in its Balanced Vision Plan for the Dallas Floodway (see **SDEIS Section 1.11.4**). The subject of fill settlement is a construction issue, and is assumed included in the cost estimates and scheduling for the Trinity Parkway alternatives. For instance, the Alternative 3C and 4B schedules in the LSS sections cited above allow 18 months for establishment of embankments. This would allow some pre-settlement of the fills, and implementation of other settlement control measures

which might be included in the detailed design. The issue of settlement of fill embankments was recognized in preliminary geotechnical investigations for the Trinity Parkway project done in 2008. Measures for mitigation of the settlement were identified in this work. The cost estimates for all four Build Alternatives include construction of wick drains and a drainage layer to address potential settlement of embankments.

F-5 BRIDGE PIER PENETRATIONS

This section provides an updated discussion on the subject of bridge pier penetrations at locations where Alternatives 3C and 4B would overpass the levees, focusing on whether these piers drilled into the levees might cause discontinuities and stresses, or possibly local pier scour holes in the levees. Other reinforcement measures considered in addition to or in lieu of concrete diaphragm walls (see **LSS Section 3.4**) are also discussed below.

Trinity Parkway bridge foundations are proposed to be established using reinforced concrete drill shafts. In favorable ground conditions, drill shafts are poured against the native soil; in less favorable conditions (e.g. high water table, sandy soil), these may have steel casings into which the reinforced concrete is placed. To date, the focus of USACE interest regarding pier construction in the areas of the levees has been not so much on concerns about temporarily "stressing" the levee, but on the interface between the clay levee soil and the concrete pier. There has been concern that desiccation cracking may occur along this surface, possibly leading to a flow path for seepage down the vertical face of the shaft.

There are multiple existing bridge crossings along the Dallas Floodway, all of which involve pier penetrations through the levee down to the underlying shale formation (approximately 50 feet to 100 feet deep below the base of levee). These foundations have been subject to considerable interest from the USACE in recent years, notably in the December 2007 *Periodic Inspection Report No. 9, Dallas Floodway, Trinity River, Dallas County, Texas*, (see **LSS Section 3.1**) which found multiple "unacceptable" ratings in the Dallas Levees, including 18 existing bridges listed with pier encroachments.

The diaphragm walls proposed to address levee penetrations from bridge piers at crossings for Alternatives 3C and 4B are described in **LSS Section 2.3.4** and shown in the plan view in the schematic plans (**LSS Plates 2-4A/B** and **2-5A/B**). The walls are further described in **SDEIS Section 2.3.9**, which deals with 2006 consultation with the USACE. The walls are approximately 300 feet to 1,400 feet long depending on the site, and cost on the order of $1 million for each 100 feet length of wall. These walls are considered a kind of worst case solution to the pier penetration issue. The walls would totally cut off seepage down to bedrock in the affected areas, and would also be designed to withstand floodwater loads in the event large parts of the levee were washed away. Another possible solution considered

during coordination with the USACE was implementing bridges that could free-span over the entire levee plus 50 foot clearance either side (see **SDEIS Appendix K-2, Memorandum 3.1**). The free span idea is considered impractical because of spans in excess of 500 feet.

Regarding future design development in the event a Trinity Parkway alternative in the Dallas Floodway is selected, as stated in **LSS Sections 4.1.6.13** and **4.1.7.13**, there is a possibility a different solution to the pier penetration/seepage concerns may be developed as the USACE further studies the condition (at existing or other proposed bridges) and develops possible solutions within the framework of its Levee Remediation Plan for the Dallas Floodway. USACE has approved pier penetrations at the Margaret Hunt Hill Bridge levee crossings (under construction in 2011) and at the proposed Sylvan Avenue Bridge scheduled to begin construction in early 2012. For these projects, bridge columns located immediately landside of the levees included sand and concrete filter collars as redundant treatments to mitigate potential under-seepage along the interface between the concrete drilled shaft and adjacent clay soils. These levee crossings have also been reinforced with landside berms and French drains at the landside toe. If these kinds of solutions can be applied at the Trinity Parkway levee crossings, it is expected costs would be reduced from the costs for the diaphragm walls assumed in the LSS and SDEIS.

Regarding bridge scour, the information previously presented in **F-3** provides additional details regarding flow velocities. The flow conditions (even under the SPF) are not considered to be erosive at the bridge pier locations within the levee face or roadside swale areas. In the event a localized transition or condition might cause a bridge scour concern, these areas can be armored. For instance, the proposed Sylvan Avenue Bridge includes concrete paving on the levee slopes as a mitigation measure to prevent scour.

[END OF APPENDIX F EXCEPT FOR TABLES]

TABLE F-1. RIVER FLOW VELOCITIES FOR TRINITY PARKWAY ALTERNATIVE 3C UNDER THE SPF EVENT VELOCITIES AVERAGED OVER THE LEVEE FACE, ROADSIDE SWALE AND PAVED AREA

Location	River Station	Levee Face	Roadside Swale	Paved Area
	108128	3.00	2.47	3.64
	108276	2.67	2.80	5.83
AT&SF Bridge	108287	6.87 (*)	7.37 (*)	15.51 (*)
	108298	2.27	2.86	6.02 (*)
	108348	2.00	1.97	4.75
Dallas Area Rapid Transit (DART) Bridge	108364	2.14	2.11	4.25
	108380	1.97	1.94	4.70
	108530	1.80	2.42	4.15
	108698	1.45	1.51	3.42
	108866	1.26	1.26	2.95
	109035	1.20	1.44	2.35
	109246	1.71	1.56	3.29
	109458	2.02	1.90	3.17
	109670	2.27	2.25	5.84
	109882	2.66	4.48	7.09 (*)
	109957	2.56	2.64	5.27
Corinth Street	109983	3.69	4.85	10.3 (*)
	110009	2.69	3.53	7.51 (*)
	110086	0.63	0.41	0.63
	110214	0.73	0.54	1.00
	110342	0.79	0.66	1.50
	110470	0.84	0.76	1.69
	110626	0.93	0.92	1.58
	110783	0.91	1.30	2.64
	110929	1.11	1.19	2.99
	111076	0.89	1.23	2.68
	111223	0.12	0.28	N/A
	111400		Road not flooded	
	111577		Road not flooded	
	111754	N/A	0.15	N/A
	111940			
	112127			
	112314			
	112473	1.15	0.85	1.48
	112633	1.09	0.92	2.42
	112783	1.13	1.31	2.65
	112883	1.18	1.14	2.52
	112933	1.29	1.23	2.36
	113089	1.37	1.32	2.53
	113247	1.47	1.38	2.80
	113405	1.51	1.62	4.03
	113563	1.49	1.58	4.28
	113726	1.70	2.64	5.20
	113890	2.28	2.37	5.32
	114054	2.45	3.58	7.05 (*)
	114116	2.46	2.60	4.85
IH-35E Northbound (NB)/Cadiz	114149.5	3.83	4.04	7.05 (*)
	114183	2.60	2.69	5.11
	114243	2.49	2.64	4.80
	114457	2.42	2.41	6.00 (*)
	114510	2.36	2.48	4.91
IH-35E Southbound (SB)	114541	2.26	2.45	5.79
	114572	2.13	2.94	6.12 (*)
	114641	2.24	2.28	5.17

TABLE F-1. RIVER FLOW VELOCITIES FOR TRINITY PARKWAY ALTERNATIVE 3C UNDER THE SPF EVENT VELOCITIES AVERAGED OVER THE LEVEE FACE, ROADSIDE SWALE AND PAVED AREA

Location	River Station	Levee Face	Roadside Swale	Paved Area
IH-35E SB (Cont.)	114773	2.56	4.24	7.75 (*)
	114905	2.69	3.53	8.06 (*)
	115038	2.68	2.85	7.32 (*)
	115236	2.49	4.22	8.12 (*)
	115434	2.52	2.45	5.50
	115633	3.01	2.69	5.96
	115705	3.07	3.30	8.88 (*)
Jefferson Boulevard	115734.5	1.42	5.70	10.11 (*)
	115764	3.04	5.04	8.94 (*)
	115937	2.99	5.01	8.63 (*)
	116111	3.17	3.33	8.88 (*)
	116185	2.95	2.96	8.85 (*)
Houston Street	116214	6.23 (*)	3.42	5.96
	116243	2.97	2.67	8.51 (*)
	116314	2.99	4.43	8.7 (*)
	116464	2.78	4.79	8.32 (*)
	116615	2.89	3.06	7.78 (*)
	116766	3.36	3.56	8.28 (*)
	116942	3.50	3.29	8.82 (*)
	117118	3.32	5.82	9.73 (*)
	117294	N/A	N/A	N/A
	117403	N/A	N/A	N/A
	117572	2.18	3.80	7.80 (*)
	117672	2.18	2.77	5.07
	117801	2.43	4.04	6.96 (*)
	117920	2.13	2.60	5.07
	118000	2.03	2.60	6.14 (*)
	118075	2.36	2.23	4.78
	118283	2.23	2.38	3.78
	118381	2.28	2.53	3.96
	118533	2.46	2.72	6.67 (*)
	118611	2.68	2.76	3.94
IH-30	118657	2.31	1.64	8.02 (*)
	118703	2.70	2.81	5.86
	118782	2.33	4.29	6.37 (*)
	118966	2.54	2.85	6.76 (*)
	119150	2.28	2.53	4.18
	119334	2.51	2.53	4.98
	119518	2.59	2.60	6.21 (*)
	119686	2.68	2.77	4.43
	119855	2.76	2.84	4.37
	120023	2.78	3.07	4.80
	120192	2.90	3.19	4.77
	120337	2.53	2.64	5.80
	120483	2.54	2.72	6.13 (*)
	120629	2.49	2.60	5.68
	120693	2.42	2.49	4.49
Commerce Street	120729	4.77	2.68	9.04 (*)
	120765	2.35	2.41	4.45
	120831	2.03	2.39	4.60
	121002	1.94	3.23	6.65 (*)
	121174	1.88	2.22	4.83
	121345	1.97	3.59	6.5 (*)
	121517	2.40	2.64	4.52

TABLE F-1. RIVER FLOW VELOCITIES FOR TRINITY PARKWAY ALTERNATIVE 3C UNDER THE SPF EVENT VELOCITIES AVERAGED OVER THE LEVEE FACE, ROADSIDE SWALE AND PAVED AREA

Location	River Station	Levee Face	Roadside Swale	Paved Area
Commerce Street (Cont.)	121607	2.22	2.69	6.21 (*)
Union Pacific Railroad (UPRR) Bridge	121623	2.59	2.80	8.05 (*)
	121639	2.53	2.71	5.26
	121723	2.56	3.14	7.23 (*)
	121884	2.61	3.51	7.17 (*)
	122045	2.40	2.63	5.54
	122206	2.02	2.84	6.56 (*)
	122390	2.49	3.15	6.61 (*)
	122438	2.44	2.58	5.81
Woodall Rodgers	122500	2.63	1.86	6.39 (*)
	122562	2.47	2.60	5.69
	122760	2.37	2.64	5.38
	122834	2.37	2.99	7.44 (*)
Continental Avenue	122860	3.92	4.54	9.88 (*)
	122886	2.74	2.82	6.69 (*)
	122961	2.74	2.82	4.95
	123161	2.72	3.20	7.43 (*)
	123341	2.57	2.68	5.60
	123441	2.28	2.40	4.58
	123511	1.85	2.23	4.40
	123661	1.78	1.87	3.51
	123861	1.00	0.87	1.85
	124052	0.49	0.71	N/A
	124243	0.48	0.10	N/A
	124434	0.44	0.23	N/A
	124626	0.31	0.41	N/A
	124841	0.43	0.72	N/A
	125056	0.47	0.29	N/A
	125272	0.52	0.58	N/A
	125487			
	125703	0.36	0.62	N/A
	125884	0.36	0.69	N/A
	126065	0.40	0.71	0.97
	126246	0.35	0.37	N/A
	126428	0.47	0.66	N/A
	126609	0.32	0.67	0.41
	126791	0.48	1.14	1.96
	126973	0.52	0.69	2.17
	127155	N/A	0.19	N/A
	127352	N/A	N/A	N/A
	127549	N/A	N/A	N/A
	127746	N/A	N/A	N/A
Sylvan Avenue West	127762.5	N/A	N/A	N/A
	127779	N/A	N/A	N/A
	127994	N/A	N/A	N/A
Sylvan Avenue	128010.5	N/A	N/A	N/A
	128027	N/A	N/A	N/A
	128158	N/A	N/A	N/A
	128290	N/A	N/A	N/A
	128323	N/A	N/A	N/A
	128538	N/A	N/A	N/A
	128727	N/A	N/A	N/A
	128916	N/A	N/A	N/A
	129105	N/A	0.18	N/A

TABLE F-1. RIVER FLOW VELOCITIES FOR TRINITY PARKWAY ALTERNATIVE 3C UNDER THE SPF EVENT VELOCITIES AVERAGED OVER THE LEVEE FACE, ROADSIDE SWALE AND PAVED AREA

Location	River Station	Levee Face	Roadside Swale	Paved Area
Sylvan Avenue (Cont.)	129284	0.50	1.00	1.78
	129463	0.87	1.53	2.97
	129642	1.07	1.50	3.46
	129822	1.50	2.00	3.97
	129999	1.72	1.65	3.58
	130176	1.81	1.34	3.09
	130354	1.54	1.27	2.85
	130531	1.62	1.72	2.61
	130709	1.83	2.23	3.55
	130926	1.51	1.87	2.42
	131144	1.54	1.84	3.04
	131361	1.55	1.66	2.59
	131579	1.33	1.52	2.79
	131788	1.43	1.55	3.52
	131998	1.41	1.66	2.60
	132207	1.38	1.58	2.16
	132417	1.24	1.39	1.62
	132627	1.10	1.35	2.64
	132849	1.14	1.35	2.68
	133071	0.42	1.12	0.54

Notes: (*) denotes velocity > 6.0 feet/second.

TABLE F-2. RIVER FLOW VELOCITIES FOR TRINITY PARKWAY ALTERNATIVE 4B UNDER THE SPF EVENT VELOCITIES AVERAGED OVER THE LEVEE FACE, ROADSIDE SWALE AND PAVED AREA

Location		North Bound			South Bound		
	River Station	Levee Face	Roadside Swale	Paved Area	Levee Face	Roadside Swale	Paved Area
	108128	n/a	5.8	5.07			
	108276	0.66	1.85	6.34 (*)			
AT&SF Bridge	108287	1.69	4.78	16.33 (*)			
	108298	0.48	1.8	6.37 (*)			
	108348	1.81	2.16	5.99			
DART	108364	1.95	2.34	5.26			
	108380	1.78	2.11	5.75			
	108530	0.99	2.68	4.9			
	108698	0.41	0.41	2.57			
	108866	0.18	0.18	2.41			
	109035	n/a	0.11	1.96			
	109246	1.04	1.05	2.9			
	109458	0.89	1.15	1.14			
	109670	0.73	0.96	1.38			
	109882	0.48	0.78	0.93			
	109957	2.61	4.36	7.14 (*)			
Corinth Street	109983	3.8	6.34 (*)	10.37 (*)			
	110009	2.6	2.68	5.95			
	110086	0.76	0.76	0.69			
	110214	0.84	0.85	1.18			
	110342	0.86	0.9	1.58			
	110470	0.35	0.55	1.72			
	110626	0.21	0.38	1.69			
	110783	0.55	0.68	1.3			
	110929	0.64	0.89	2.2			
	111076	0.89	1.18	2.32			
	111223	0.14	0.27	0.28			
	111400	n/a	n/a	n/a			
	111577	n/a	n/a	n/a			
	111754	n/a	n/a	n/a			
	111940						
	112127						
	112314						
	112473	0.94	0.93	2.11			
	112633	1.06	1.09	2.27			
	112783	1.08	1.08	1.89			
	112883	1.11	1.79	2.85			
	112933	1.05	1.17	2.58			
	113089	1.13	1.3	2.73			
	113247	1.36	1.37	3.22			
	113405	1.47	1.51	3.78			
	113563	1.33	2.83	4.36	0.69	2.14	4.78
	113726	1.8	2.55	5.23	1.59	3.12	5.79
	113890	2.25	4.35	6.56 (*)	4.26	7.11 (*)	6.8 (*)
	114054	2.54	2.73	7.21 (*)	2.46	3.48	7.11 (*)
	114116	2.59	2.69	5.35	2.62	3.7	7.23 (*)
IH-35E NB/Cadiz	114149.5	3.97	4.43	8.89 (*)	3.74	6.18 (*)	10.27 (*)
	114183	2.33	2.8	5.62	2.83	4.03	7.4 (*)
	114243	2.59	2.79	6.92 (*)	2.57	3	5.69
	114457	2.35	2.65	6.47 (*)	2.5	2.9	5.79
	114510	2.29	2.57	6.3 (*)	2.4	2.78	5.89
IH-35E SB	114541	1.85	2.72	4.95	2.75	2.85	10.4 (*)
	114572	2.27	2.49	6.38 (*)	2.38	2.92	6.75 (*)

TABLE F-2. RIVER FLOW VELOCITIES FOR TRINITY PARKWAY ALTERNATIVE 4B UNDER THE SPF EVENT VELOCITIES AVERAGED OVER THE LEVEE FACE, ROADSIDE SWALE AND PAVED AREA

Location		North Bound			South Bound		
	River Station	Levee Face	Roadside Swale	Paved Area	Levee Face	Roadside Swale	Paved Area
IH-35E SB (Cont.)	114641	2.32	2.42	4.44	2.94	2.94	7.95 (*)
	114773	3.04	1.63	6.99 (*)	5.33	5.33	5.33
	114905	2.98	1.64	7.34 (*)	1.68	1.68	5.13
	115038	2.69	2.64	8.11 (*)	1.27	2.06	4.39
	115236	2.25	2.36	6.34 (*)	1.22	1.62	3.45
	115434	3.01	3.16	6.79 (*)	0.94	0.94	2.12
	115633	3.15	2.61	6.89 (*)	2.98	3.3	6.46 (*)
	115705	3.2	3.39	6.72 (*)	3.09	3.31	6.44 (*)
Jefferson Boulevard	115734.5	2.2	2.24	8.03 (*)	2.17	4.08	5.53
	115764	3.23	3.42	6.6 (*)	1.63	2.04	6.4 (*)
	115937	3.2	2.63	6.45 (*)	1.35	1.8	6.47 (*)
	116111	3.3	2.73	6.74 (*)	1.97	1.99	6.58 (*)
	116185	3.09	3.39	6.42 (*)	3	3.13	6.43 (*)
Houston Street	116214	7.35 (*)	8.18 (*)	5.06	3.2	2.46	9.2 (*)
	116243	3.14	3.2	6.21 (*)	2.86	2.97	6.2 (*)
	116314	3.02	2.7	5.51	1.62	1.02	5.57
	116464	2.76	2.5	5.45	1.02	1.02	3.2
	116615	2.75	2.58	5.42	0.99	0.99	2.33
	116766	3.17	3.57	6.03 (*)	0.64	0.93	2.56
	116942	3.33	3.67	6.31 (*)	0.13	0.36	1.14
	117118	3.47	3.04	6.46 (*)	n/a	n/a	n/a
	117294	n/a	n/a	n/a	1.62	1.62	2.87
	117403	n/a	n/a	n/a	5.8	5.8	5.8
	117572	2.33	2.49	5.4	1.47	1.47	5.68
	117672	2.06	2.45	5.11	1.6	1.6	4.47
	117801	2.22	2.65	4.94	1.77	1.77	2.81
	117920	2.31	1.54	4.88	1.37	1.37	2.74
	118000	1.25	2.8	4.75	1.48	2.47	3.48
	118075	2.72	0.78	4.89	1.59	1.99	5.35
	118283	2.37	2.51	4.3	2.07	2.07	4.3
	118381	2.44	2.61	4.65	2.07	3.41	6.72 (*)
	118533	2.49	2.66	5.52	2.35	2.5	5.42
	118611	2.46	2.66	5.45	2.22	2.59	6.68 (*)
IH-30	118657	1.96	2.12	6.95 (*)	2.99	4.15	6.47 (*)
	118703	2.52	2.82	5.25	2.08	2.62	6.55 (*)
	118782	2.53	2.88	4.61	2.59	2.68	6.76 (*)
	118966	2.69	2.83	5.8	2.57	2.7	6.54 (*)
	119150	2.35	2.56	5.03	2.34	3.2	7.37 (*)
	119334	2.23	2.62	5.4	2.42	3.19	7.25 (*)
	119518	2.65	2.65	5.45	2.3	2.89	6.7 (*)
	119686	2.71	2.71	5.52	2.22	2.5	6.51 (*)
	119855	2.82	2.82	4.08	1.4	2.4	4.35
	120023	2.76	3.21	4.35	1.47	2.46	4.42
	120192	2.23	3.66	6.59 (*)	2.36	3.88	7.05 (*)
	120337	2.2	3.52	6.37 (*)	2.5	2.57	4.61
	120483	2.18	3.63	6.58 (*)	3.61	3.61	7.85 (*)
	120629	2.12	3.46	6.54 (*)	5.91	5.91	5.91
	120693	2.13	3.02	6.41 (*)	2.84	2.84	8.34 (*)
Commerce Street	120729	3.6	5.38	10.25 (*)	5.53	5.53	7.14 (*)
	120765	2.01	3.05	6.29 (*)	2.84	2.84	8.43 (*)
	120831	2.02	3.68	6.21 (*)	5.57	5.57	8.52 (*)
	121002	2.33	2.33	6.11 (*)	6.67 (*)	6.67 (*)	6.67 (*)
	121174	2.45	2.45	6.47 (*)	8.36 (*)	8.31 (*)	7.87 (*)

TABLE F-2. RIVER FLOW VELOCITIES FOR TRINITY PARKWAY ALTERNATIVE 4B UNDER THE SPF EVENT VELOCITIES AVERAGED OVER THE LEVEE FACE, ROADSIDE SWALE AND PAVED AREA

Location		North Bound			South Bound		
	River Station	Levee Face	Roadside Swale	Paved Area	Levee Face	Roadside Swale	Paved Area
Commerce Street (Cont.)	121345	1.96	1.96	4.89	7.6 (*)	8.18 (*)	7.67 (*)
	121517	2.22	2.22	7.28 (*)	2.83	7.72 (*)	7.31 (*)
	121607	1.74	3.22	4.77	2.76	7.87 (*)	7.35 (*)
UPRR	121623	2.36	3.72	5.55	3.48	6.65 (*)	9.76 (*)
	121639	2.03	2.03	4.13	2.5	4.19	7.79 (*)
	121723	1.71	1.71	4.06	2.55	3.56	7.61 (*)
	121884	0.48	0.48	1.28	2.7	2.81	7.67 (*)
	122045	n/a	n/a	n/a	2.6	2.98	7.33 (*)
	122206	2.21	3.82	5.95	2.22	2.67	6.61 (*)
	122390	2.19	2.55	4.44	2.3	2.66	6.83 (*)
	122438	2.19	2.54	4.38	2.48	2.48	5.16
Woodall Rodgers	122500	2.33	2.75	4.58	2.62	2.62	3.23
	122562	2.19	2.59	4.77	2.25	2.25	4.46
	122760	2.06	2.7	5.12	1.38	1.55	3.06
	122834	2.22	2.85	5.18	0.68	1.05	1.96
Continental Avenue	122860	3.37	3.4	8.32 (*)	3.08	4.18	5.41
	122886	2.85	2.85	4.97	2.79	2.33	4.91
	122961	2.25	2.85	5.13	2.8	1.62	6.06 (*)
	123161	1.96	2.79	5.23	2.31	2.31	5.2
	123341	2.32	2.68	4.32	2.42	2.42	5.76
	123441	2.21	2.48	3.82	1.58	2.3	5.48
	123511	2.17	2.35	3.58	1.42	2.14	5.27
	123661	1.91	2.06	2.75	1.61	1.61	3.65
	123861	0.98	1.64	1.51	0.63	0.87	2.14
	124052	0.66	1.05	0.92	n/a	n/a	n/a
	124243	0.57	0.73	0.33	0.72	0.72	1.7
	124434	0.72	0.41	1.07	1.04	1.47	3.57
	124626	0.63	0.9	n/a	1.16	1.4	2.9
	124841	0.67	0.81	n/a	1.02	2.2	3.32
	125056	0.69	0.88	n/a	1.32	1.32	2.46
	125272	0.84	1.05	0.74	1.31	1.31	2.46
	125487				0.87	1.19	3.08
	125703	0.51	0.69	n/a	0.72	1.12	2.74
	125884	0.71	0.98	0.83	0.88	1.29	1.99
	126065	0.9	1.2	1.03	1.19	1.36	2.17
	126246	0.84	1.13	0.75	1.13	1.68	3.35
	126428	0.71	0.87	n/a			
	126609	0.63	0.8	0.88			
	126791	0.76	0.76	1.56			
	126973	0.7	0.7	1.72	0.94	0.68	n/a
	127155	0.33	0.41	n/a	0.9	0.81	n/a
	127352	n/a	n/a	n/a	0.38	0.38	n/a
	127549	n/a	n/a	n/a	n/a	n/a	n/a
	127746	n/a	n/a	n/a	0.79	0.79	1.44
	127779	n/a	n/a	n/a	n/a	n/a	n/a
	127994	n/a	n/a	n/a	n/a	n/a	n/a
Sylvan - Channel	128010.5	n/a	n/a	n/a	n/a	n/a	n/a
	128027	n/a	n/a	n/a	n/a	n/a	n/a
	128158	n/a	n/a	n/a	n/a	n/a	n/a
	128290	n/a	n/a	n/a	0.28	0.28	n/a
	128323	n/a	n/a	n/a	0.79	0.79	0.79
	128538	n/a	n/a	n/a	1.21	1.21	2.63
	128727	n/a	n/a	n/a	1.18	3.88	3.65

TABLE F-2. RIVER FLOW VELOCITIES FOR TRINITY PARKWAY ALTERNATIVE 4B UNDER THE SPF EVENT VELOCITIES AVERAGED OVER THE LEVEE FACE, ROADSIDE SWALE AND PAVED AREA

Location		North Bound			South Bound		
	River Station	Levee Face	Roadside Swale	Paved Area	Levee Face	Roadside Swale	Paved Area
Sylvan – Channel (Cont.)	128916	0.59	0.89	n/a	0.89	1.12	2.8
	129105	0.95	1.66	3.05	0.82	1.01	2.25
	129284	0.96	1.41	2.91	1.18	1.18	2.63
	129463	1.12	1.81	3.66	1.13	1.36	3.06
	129642	1.06	1.73	2.26	1.02	1.25	2.71
	129822	1.09	2.25	3.92	0.85	1.07	1.85
	129999	1.32	2.39	3.85	0.74	1.59	2.85
	130176	1.43	2.19	3.29	0.88	1.78	3.09
	130354	1.27	2.23	2.16	1.22	1.72	3.58
	130531	1.46	2.25	2.63	1.09	2.15	3.82
	130709	1.98	2.18	2.94	0.96	1.96	3.34
	130926	1.24	2.07	2.96	0.79	1.83	2.75
	131144	1.26	1.98	3.29	0.89	1.95	3
	131361	1.25	1.8	2.24	0.91	1.6	3.84
	131579	1.07	1.59	2.32	0.87	1.6	3.7
	131788	1.19	1.6	3.12	0.79	1.24	3.21
	131998	1.1	1.96	3.7	0.73	1.01	2.01
	132207	1.1	1.73	3.31	0.82	2.03	3.17
	132417	1.1	1.67	2.71	1.36	1.36	3.35
	132627	1.08	1.65	2.79	1.27	1.72	3.46
	132849	1.07	1.85	2.67	0.96	1.31	2.92
	133071	1.06	1.72	2.35	1.19	1.47	3.15
	133293				0.96	1.34	3.01
	133515				1.01	1.57	3.14
	133738				1.18	2.2	3.43
	133929				1.32	1.32	3.08
	134121				1.35	1.35	2.88
	134313				0	1.15	2.63
	134505				0.61	0.67	n/a
	134697				0.19	0.19	n/a
	134780				1.07	1.35	3.5
Hampton/Inwood	134837.5				1.17	1.64	3.69
	134895				1	1.27	3.41
	134952				0.63	0.75	2.4
	135141				0.54	0.54	n/a
	135330				0.6	0.6	n/a
	135520				0.68	0.42	n/a
	135709				0.66	0.66	n/a

Notes: (*) denotes velocity > 6.0 feet/second.