Facility Development Plan

TxDOT North Tarrant Express Project, Segments 3A and 3B

Prepared by NTE Mobility Partners Segments 2-4, LLC
May 19, 2010

DISCLAIMER

This Facility Development Plan (the "FDP") has been prepared by NTE Mobility Partners Segments 2-4, LLC ("NTEMP2-4") for the purpose of initiating communications with TXDOT regarding the potential development of NTE Segments 3A & 3B, including the Interchange between I35W and I820 (the "Project") pursuant to a negotiated Facility Agreement. The information contained in this FDP represents NTEMP's best efforts to define generally NTEMP's approach for the development of the Project. If TXDOT generally agrees with the approach set forth in this FDP and in other parts of this Submission, NTEMP is prepared to work with TXDOT to begin the process of refining and finalizing the approach for the development of the Project and to begin the negotiation of the Facility Agreement, as such process is contemplated in the Comprehensive Development Agreement between TXDOT and NTEMP2-4, dated June 23, 2009 (as amended, the "CDA"). Nothing contained in this FDP shall commit and/or obligate NTEMP2-4 to any requirement or standard above those set forth in the CDA, nor shall this FDP in any way amend, revise, or otherwise change any of the terms set forth in the CDA. All of the information contained in this FDP is strictly confidential and any distribution or disclosure of such information, whether in whole or in part, by TXDOT to any person or entity without NTEMP2-4's prior written consent is strictly prohibited.

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1 Introduction

In January 2009, based on its superior ability to leverage public funds relative to competing proposals and its ability to more timely and effectively deliver the project, NTE Mobility Partners was awarded the right to deliver Segments 1 and 2W of the North Tarrant Express. As part of that same proposal, NTE Mobility Partners Segments 2-4 (NTEMP2-4) was also awarded the Master Development Plan (MDP) for the remaining segments of NTE. The NTE Master Development Plan is a 10-year agreement between TxDOT and the NTEMP2-4 to identify improvements to portions of IH 35W, SH 183 and IH 820 in northern and eastern Tarrant County. As envisioned, the plan is to describe current and future needs and solutions for General Purpose Lanes and tolled Managed Lanes designed to keep traffic moving at 50 mph. The agreement also called for identifying funding methods for the proposed improvements.

This submission is a product of NTEMP2-4's preliminary work pursuant to the MDP. After having spent more than a year studying the next most appropriate phase of the Project, NTEMP2-4 is proud to bring forward this innovative solution to a critical mobility need in Tarrant County. This submission describes the NTEMP2-4's plans to develop Segments 3A and 3B of the NTE together with improvements to the IH 35W/IH 820 Interchange.

NTEMP2-4 is composed of two equity members: Cintra, Concesiones de Infraestructuras de Transporte S.A. (Cintra) and Meridiam Infrastructure Finance (Meridiam). The Dallas Police and Fire Pension System (DFPPS) has also confirmed its interest in this new project by issuing a letter of intent to become an Equity Member at Financial Close. The Equity Members of NTEMP2-4 propose to form a new entity, tentatively named NTE Mobility Partners Segment 3 (NTEMP-3) to execute a Facility Agreement with TxDOT for the development of Segments 3A and 3B. Forward-looking statements regarding the development of these Segments under a Facility Agreement refer to "NTEMP-3" in the role of the developer.

2 Organizational and Contracting Structure

2.1 Contractual Arrangements and Contracting Parties

TxDOT and NTEMP2-4 will use a public-private partnership contracting structure for the Project involving, among other aspects of the contracting structure, the following:

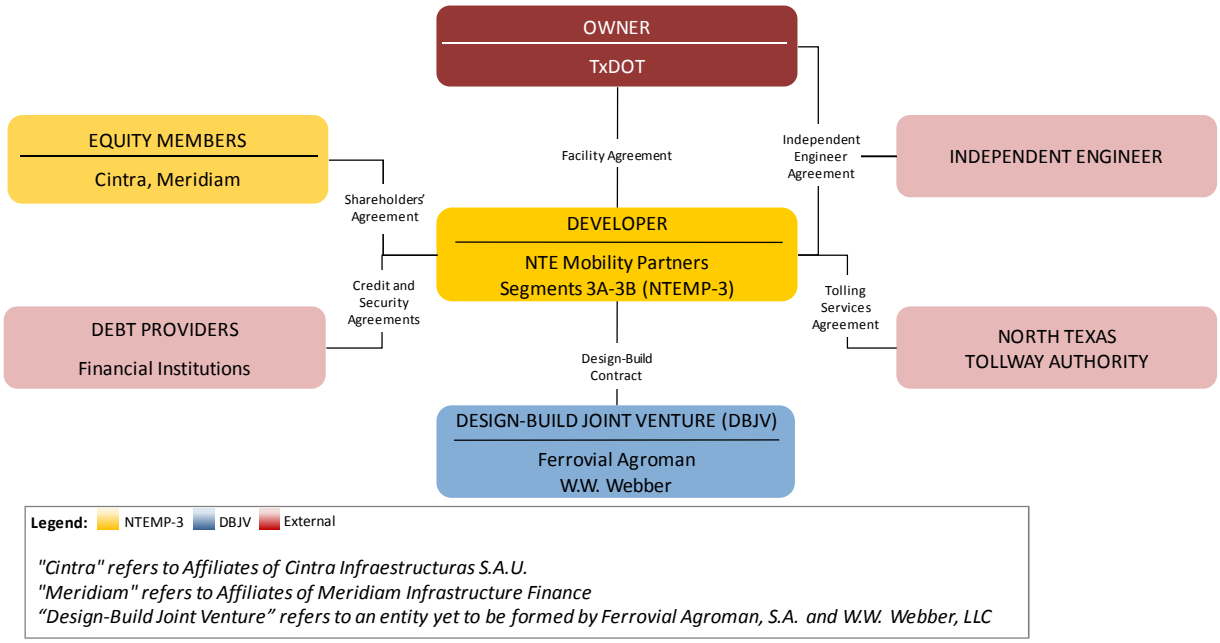
a. an executed Facility Agreement by and between TxDOT and NTEMP-3 with NTEMP-3 responsible for the design, construction, finance, operation and maintenance of the Project

b. NTEMP-3 subcontracting its design and construction obligations for the Project under the executed Facility Agreement (collectively, "Design and Construction Work") to an entity yet to be formed composed of Ferrovial Agromán, S.A., or an affiliate thereof, and W.W. Webber, LLC, (hereinafter referred to as the "Design-Build Joint Venture" or "DBJV") under the Design and Build Contract (as defined below)

c. funding arrangements comprising both debt financing and equity

Figure 1 shows the contracting arrangements between the different parties.

Figure 1: NTE Segments 3A-3B Project Contracting Structure



2.1.1 NTEMP-3 and Equity Members

The Equity Members that constituted the Developer for NTE Segments 1 and 2 will also be the shareholders for NTE Segments 3A

and 3B. Cintra, Meridiam and the DPFPS[1] will place equity in the project and will be represented on a Board of Directors proportionate to their equity commitments.

NTE Mobility Partners, Segments 3A-3B (NTEMP-3) is a Limited Liability Company yet to be formed with the sole purpose of undertaking all activities with respect to the ownership of the concessionaire interest in, use, possession, financing, construction, repairing, leasing, improvement, operation, tolling and to otherwise deal with the NTE Segments 3A and 3B Project and performance of all obligations under the Facility Agreement.

2.1.2 NTEMP-3 and TxDOT

Under the executed Facility Agreement, NTEMP-3 will (a) design, build, operate and maintain the Project for a period of 52 years from the execution of the Facility Agreement and (b) be entitled to collect tolls and other related revenues, fees, expenses and interest in accordance with the methodology set forth in the Facility Agreement, including the right to increase the foregoing (as applicable) in accordance with the executed Facility Agreement. The Facility Agreement will define the rights and responsibilities of NTEMP-3 and TxDOT, allocate risks between them and set out TxDOT's overall requirements with respect to the Project.

2.1.3 Design-Build Joint Venture and the Design-Build Contract

Design and construction work will be performed by the Design-Build Joint Venture (DBJV), an entity to be formed between affiliates of Ferrovial Agromán, S.A. and W.W. Webber, LLC. The two companies making up the DBJV are currently working as the design-build contractor for NTE Segments 1 and 2.

[1] At this time, Cintra and Meridiam have granted the Dallas Police and Fire Pension System (the "DPFPS") with an option to enter into the final consortium with up to 10% of the total equity required for this project; this is basically the same approach that was used during the negotiations for NTE Segments 1 and 2W that resulted in a successful financial close including the DPFPS on December 2009.

The DBJV and NTEMP-3 will enter into a turnkey design and build contract (the "Design-Build Contract") under which certain risks, obligations and liabilities under the executed Facility Agreement for the design and construction work will flow through to, and are to be borne or performed by the DBJV.

However, NTEMP-3 will remain ultimately responsible for risks, obligations, and liabilities under the executed Facility Agreement. The Design-Build Contract may pass along risks, obligations and liabilities to the extent agreed between those two parties, but nothing in the Design-Build Contract will release NTEMP-3 from its responsibilities to TxDOT under the executed Facility Agreement.

2.1.4 Debt Providers

The debt needed to finance the project will be provided by the U.S. Department of Transportation through the Transportation Infrastructure Finance and Innovation Act loan (“TIFIA Loan”) plus a combination of a multi-purpose bank loan facility (“Bank Debt”) and Private Activity Bonds (“PABs” or “Bond Debt”).

For more details about the specifics of the sources and conditions of the debt, please refer to the Financial Submission in Volume 2.

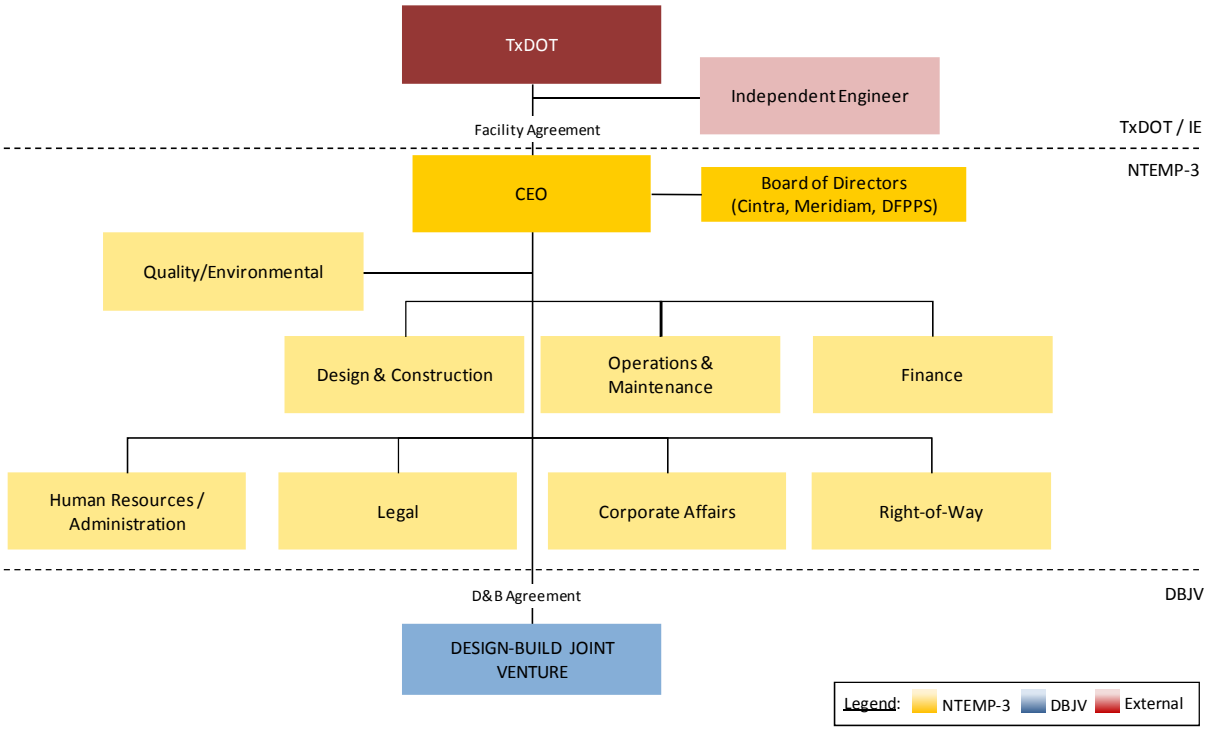
2.2 Development Organization

NTEMP-3 will establish a development organization for the Project that will ensure a fast, safe, and reliable transportation route serving large numbers of commuters and various industries and geographical markets. To achieve these goals, the organization’s management will be divided into the following nine areas of responsibility:

1. CEO
2. Quality/Environmental
3. Design and Construction (D&C)
4. Operations and Maintenance (O&M) – includes Information Systems
5. Finance
6. Human Resources and Administration
7. Legal
8. Corporate Affairs
9. Right-of-Way

The leader of each of these areas of responsibility will report directly to the CEO, as shown in Figure 2.

Figure 2: NTEMP-3 Organizational Chart – Management



This organization will be responsible for maintaining continuous, 24-hour-per-day, 365-day-per-year operations of the highest quality, consistent with the best toll road management practices and fulfilling the Terms and Conditions of the Facility Agreement.

The CEO will direct, coordinate, evaluate, and amend, when necessary, the responsibilities of NTEMP's sub-organizations. This organizational structure was designed to implement the project from its Effective Date to the End of Term and will include nine sub-organizations corresponding to each area of responsibility outlined above. The details of each sub-organization are detailed further below.

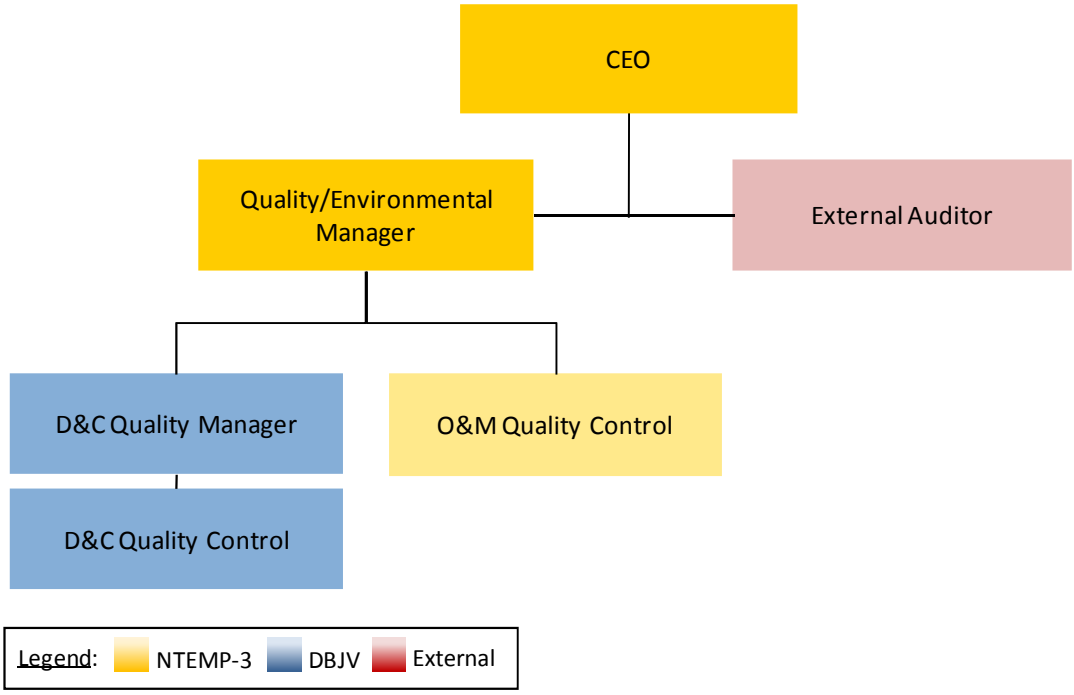
2.2.1 Quality/Environmental

Active throughout the duration of the project, this sub-organization will develop and enforce procedures, carry out audits and impose preventive and corrective action to ensure that all phases of the Project adhere to NTEMP-3's quality standards, legal standards and

the Facility Agreement. The Quality/Environmental sub-organization will implement environmental and quality management activities for O&M functions and oversee the DBJV's handling of environmental and quality management activities for design and construction work. Details of the types of activities provided by this organization are provided in Section 3.9 – Quality Management and Section 3.10 – Environmental Management.

As shown in Figure 3, NTEMP-3's Quality / Environmental Manager will lead this sub-organization. An external auditor will provide independent quality assurance to the Quality/Environmental sub-organization. The external auditor will monitor the performance of the Quality / Environmental Manager of NTEMP-3 and will not have a hierarchical relationship with him or her. The results of external audits will be reported directly to the CEO.

Figure 3: Sub-Organization Chart – Quality/Environmental



2.2.2 Design and Construction

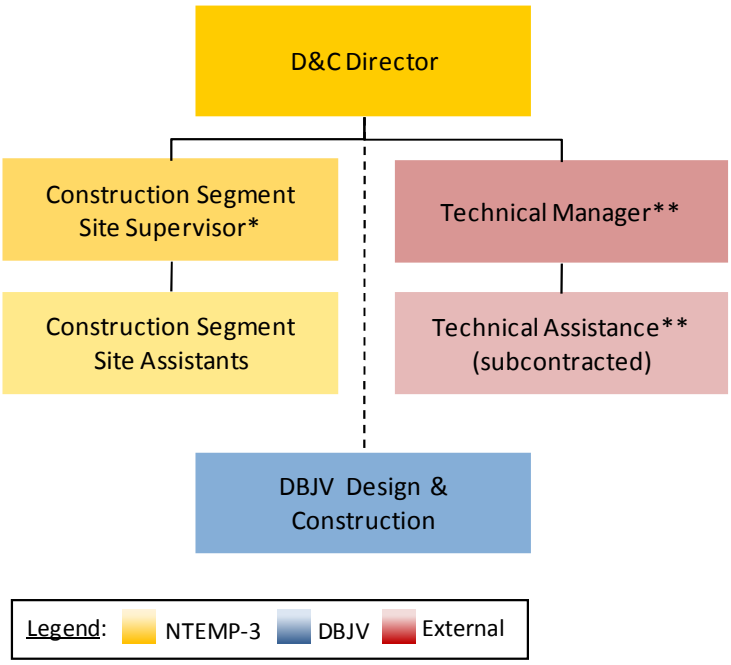
Active only during the design and construction period, this sub-organization ensures that the DBJV builds all segments of the Project

on schedule and in compliance with quality requirements. This sub organization will perform internal quality controls for the design and construction activities.

The D&C Director will oversee the performance of the DBJV, ensure adherence to NTEMP-3 quality standards, legal standards, and the Facility Agreement. As shown in Figure 4, the sub-organization defined to oversee the performance of the DBJV will consist of the following essential employees reporting to the D&C Director:

- Technical Manager (might be a Cintra/external engineering employee)
- Site Supervisor / Assistants
- Technical Assistance Group (subcontracted)

Figure 4: Sub-Organization Chart – Design and Construction



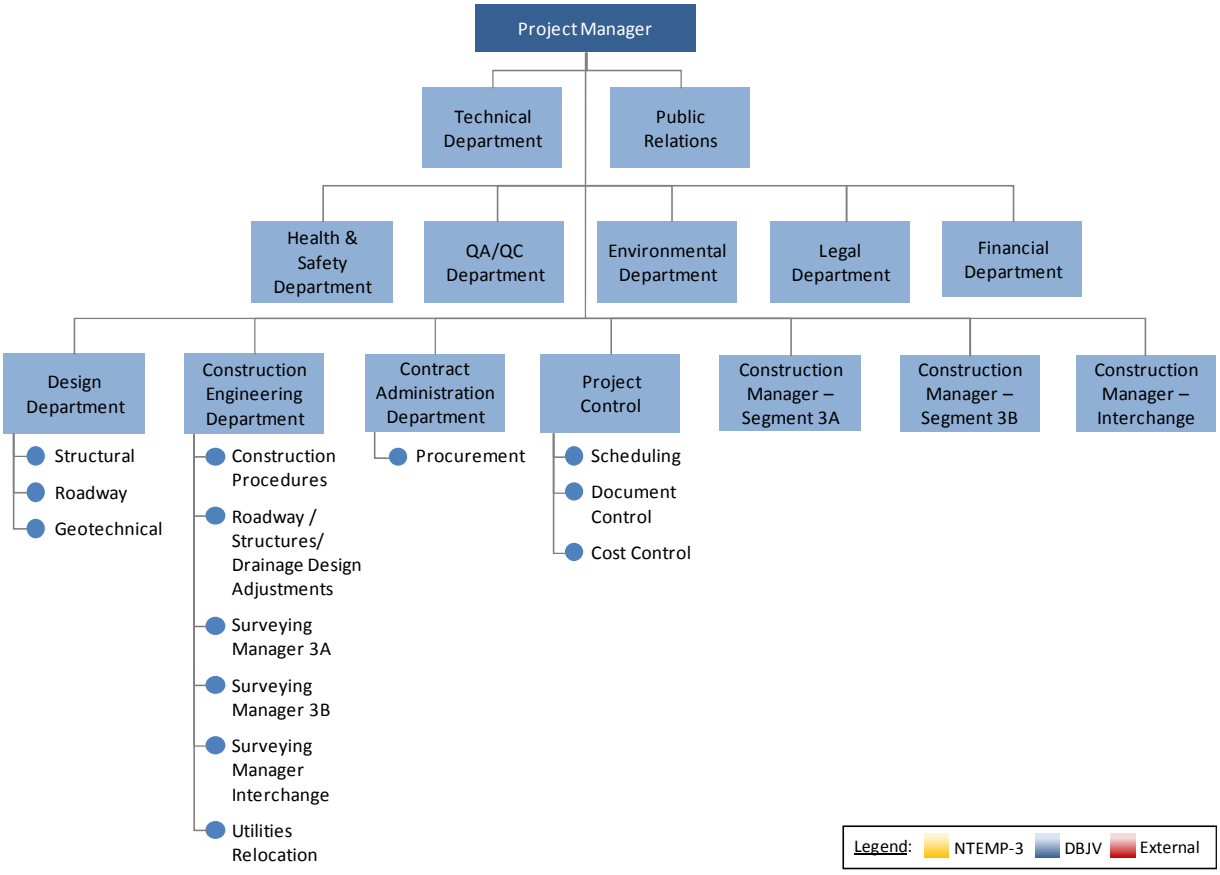
** Active only during the initial construction period*
*** Technical Manager and Technical Assistance Group may also be active during O&M and will report to the COO during the O&M period. (Renewal work).*

Figure 5 is a simplified depiction of the DBJV's design and construction organization. The General Manager of the DBJV will serve as the principal point of contact with NTEMP's D&C Director. The DBJV Design Manager will manage the work of the design consultants responsible for the Project's design and the Construction Manager will direct the work of the construction subcontractors.

Other functional managers for Quality, Project Controls, Environmental Compliance, Safety and Finance will support the design and construction process, working to ensure that the work meets the standards of the Facility Agreement and other standards and commitments and is completed safely, on time and within budget.

More information on the DBJV and its approach to design and construction of the Project is located in Section 4, Design-Build Technical Solutions.

Figure 5: DBJV Design and Construction Organization



2.2.3 Operations and Maintenance

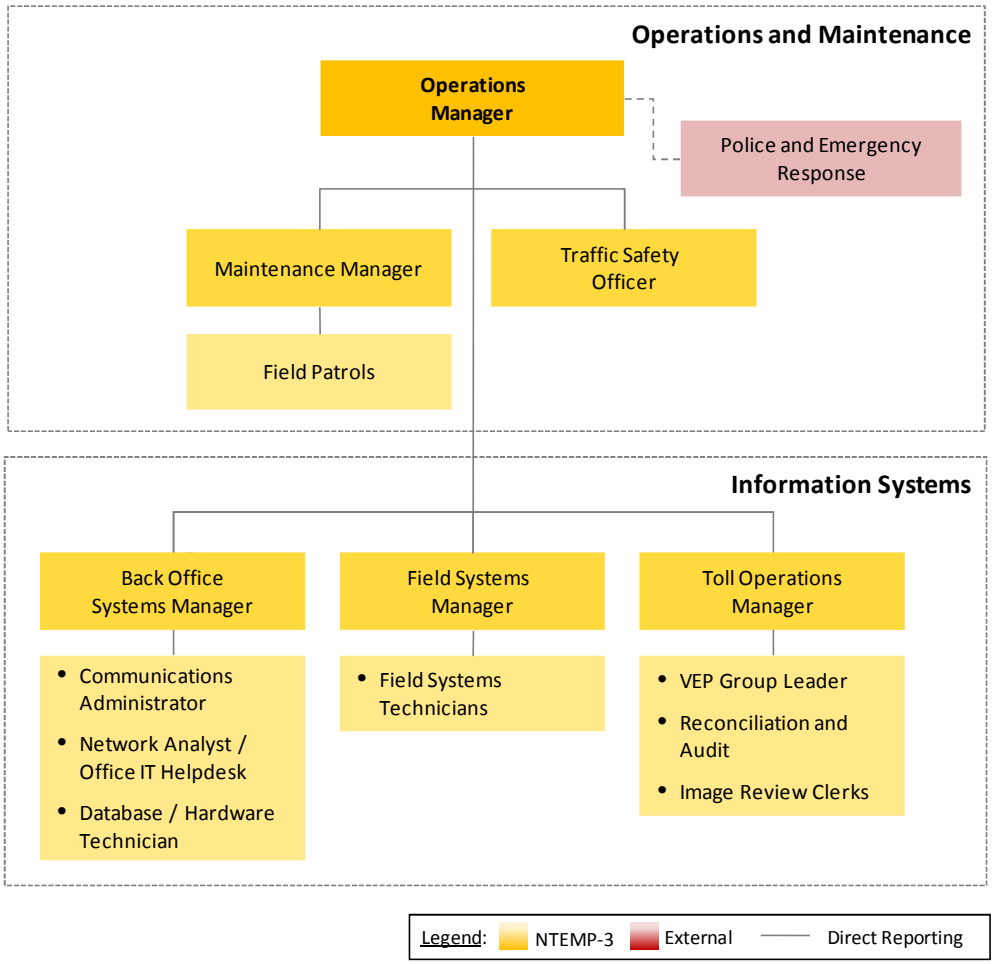
NTEMP-3 will establish an O&M sub-organization to operate and maintain a fast, safe and reliable transportation route serving millions of commuters and various industries and geographical markets. This sub-organization will be responsible for maintaining continuous 24/7 year-round operations, consistent with standard toll road management practices and the requirements of the Facility Agreement.

Figure 6 shows essential staff who will report to the Operations Manager.

- Traffic Safety Officer
- Maintenance Manager

- Back Office Systems Manager
- Field Systems Manager
- Toll Operations Manager

Figure 6: Sub-Organization Chart – Operations and Maintenance



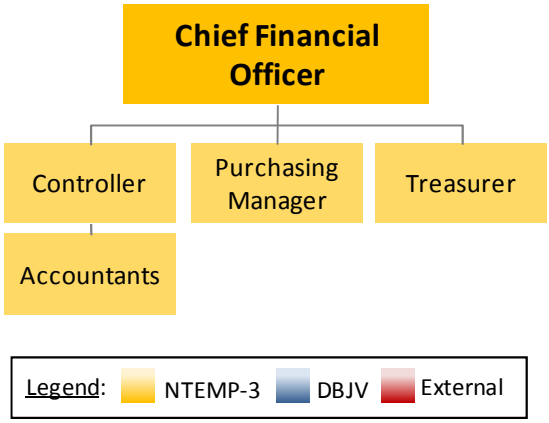
2.2.4 Finance

Active throughout the duration of the Project, the Finance sub-organization will be responsible for overall financial management and control of NTEMP-3, including controlling the finances of the concession, managing budgets and forecasts and ensuring that working capital and operating cash flow are optimized. As shown in

Figure 7, essential employees of the Finance sub-organization, reporting to the Chief Financial Officer (CFO) include:

- Controller
- Treasurer
- Purchasing Manager
- Accountants

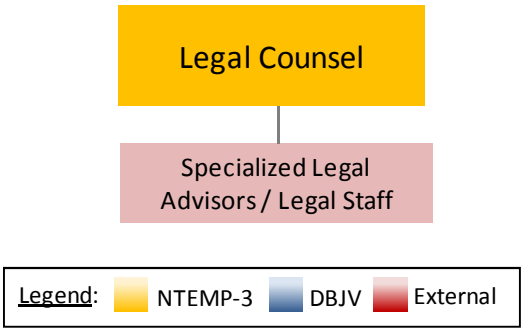
Figure 7: Sub-Organization Chart – Finance



2.2.5 Legal

The Legal sub-organization will advise NTEMP-3 management on all legal issues related to the Project. The Legal Counsel will liaise with management of all areas of responsibility to ensure legal compliance. As shown in Figure 8, NTEMP-3's Legal Counsel will be supported by subcontracted legal advisors and other legal support as needed.

Figure 8: Sub-Organization Chart – Legal

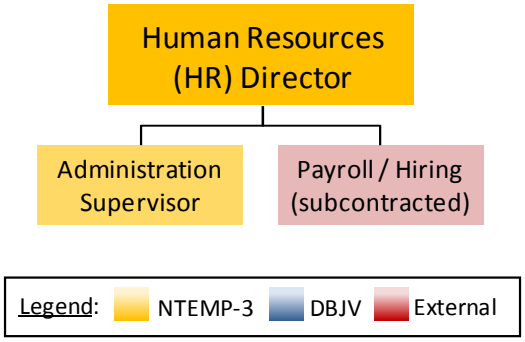


2.2.6 Human Resources and Administration

This sub-organization encompasses all regular support functions typical of any business, including benefits administration, recruiting, and training. This department will also oversee building administration and will provide administrative and clerical staff to support NTEMP-3's other sub-organizations. As shown in Figure 9, the Human Resources/Administration sub-organization will include the following personnel:

- Human Resources Director
- Administration Supervisor
- Payroll / Hiring (subcontracted)

Figure 9: Sub-Organization Chart – Human Resources and Administration

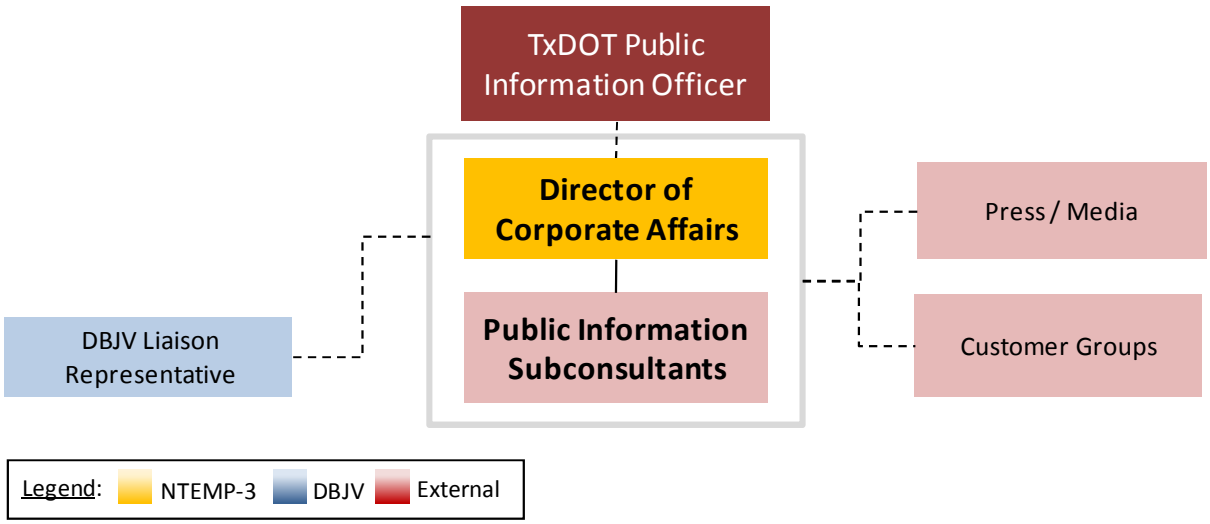


2.2.7 Corporate Affairs

The Corporate Affairs sub-organization will develop and implement a Public Information and Communications Plan for the Project, coordinate meetings with the public, liaise with all relevant

stakeholders and maintain communications materials such as the project website and informational collateral material. As shown in Figure 10, the Director of Corporate Affairs will lead this sub-organization, supported by subconsultants.

Figure 10: Sub-Organization Chart – Corporate Affairs

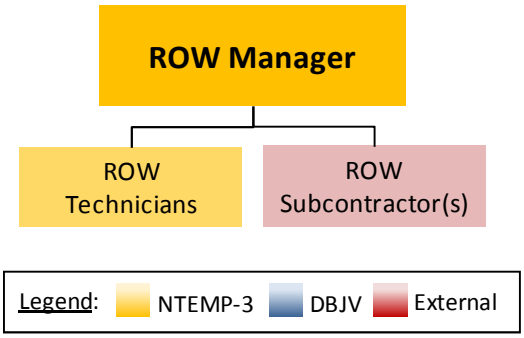


2.2.8 Right-of-Way (ROW)

This sub-organization will coordinate the ROW acquisition process, including surveying, budget estimates, appraisals, negotiations, relocation and condemnation support. As shown in Figure 11, the ROW Director will manage this sub-organization with the support of several ROW technicians.

ROW services will be carried out by several specialized ROW contractors coordinating directly with the ROW Director and his team.

Figure 11: Sub-Organization Chart – ROW



2.3 Third Party Contractors, Consultants and Advisors

In addition to the mix of international and U.S.-based companies making up the Developer and DBJV entities, NTEMP-3 will leverage the skills, experience and local knowledge of local subconsultants, subcontractors and suppliers for the Project.

At this phase of the procurement, neither NTEMP-3 nor the DBJV has finalized agreements with third party contractors, consultants or subcontractors. Although no agreements have been finalized, the parties are fully committed to working with local industry and are aware that knowledge of local geotechnical, environmental and social conditions is critical to the success of the Project.

The companies making up the DBJV have invited local companies to participate during the submission phase to familiarize themselves with the Project. The exchange of information with more than 80 local subcontractors and suppliers during the submission preparation, and garnering their feedback, has proven to be a valuable tool in optimizing the design, constructability, and the design-build price.

The DBJV has a philosophy of utilizing a mixture of self-performed work and subcontracted work to deliver projects in the most effective manner possible. Experience on multiple large design-build projects has left the DBJV with a well-developed expertise in effectively coordinating the tasks of a large group of subcontractors and a proven record of working collaboratively with local industry professionals and firms. This philosophy is illustrated by the SH 130 Segments 5 and 6 project, where the services of more than 100 subcontractors

and suppliers are being utilized. Similarly, the Ferrovial Agroman – W.W. Webber DBJV is implementing this philosophy in the early stages of the North Tarrant Express and IH 635 Managed Lanes projects.

Table 1 is an indicative list of major consultants, subcontractors and suppliers with which the DBJV has worked, or from which it has received pricing information, during the submission stage.

Table 1: DBJV Consultant, Subcontractor and Supplier Activity

Overall Design Subconsultant	Environmental Subconsultant	Demolition Subcontractor	Electrical Subcontractor	Precast Girder and Deck Panel Supplier	Sand and Aggregate Supplier
Structural Design Subconsultant	Utility Subconsultant	Reinforcing Steel Installation Subcontractor	Drainage Subcontractor	Readymix Concrete Supplier	Reinforcing Steel Supplier
Geotechnical Subconsultant	Drilled Shaft Subcontractor	Asphalt Paving Subcontractor	Retaining Wall Subcontractor	Structural Steel Supplier	Retaining Wall Panel and Coping Supplier

3 General Management Approach

3.1 Approach to Subcontracting

3.1.1 Subcontracting Plan

NTEMP-3 will prepare a subcontracting plan for the Facility Agreement. It will include subcontractor procurement and provisions required by TxDOT. NTEMP-3 is committed to complying with TxDOT's participation goals for DBEs (or HUBs), as detailed in Section 3.11.

3.1.2 Selecting Subcontractors

When the need for a subcontractor (subconsultant, advisor) is identified, NTEMP-3 will issue a Request for Proposals to solicit qualifications and pricing (where allowable) from potential subcontractors. The evaluation and selection of subcontractors and suppliers will be based on their qualifications, experience and ability to meet the contract requirements (e.g. safety, quality, schedule, and price). Procurement staff and the appropriate

sub-organizational managers will carry out evaluation and selection of potential subcontractors.

3.1.3 Subcontractor Quality Control

The extent and type of controls imposed on subcontractors will be dependent upon the type of service supplied, the impact of the subcontracted service on the quality of the final product, and, where applicable, the quality evaluations and records of previously demonstrated capability and performance.

Design Consultants: Design Consultants must supply a copy of their own quality management plans compatible with NTEMP-3's Design Quality Management Plan. Design Consultants will be responsible for performing their own Quality Control (QC) reviews prior to submitting design products to the DBJV. The DBJV will provide technical review of design products and periodic Quality Assurance (QA) audits of design consultants' activities. NTEMP-3, TxDOT and the Independent Engineer (IE) may also, at their discretion, perform audits of design consultants within the limitations of the Facility Agreement.

Construction Subcontractors: The DBJV construction team will monitor subcontractor performance on a regular basis while the work is being carried out on site. Section 3.9.2 provides more details on the types of monitoring and audits to be performed during construction. The DBJV will compile Subcontractor Evaluation Reports and retains performance data relating to safety, non-conformances, etc. This data will be analyzed and used for establishing reliable relationships and identifying needs for corrective action. NTEMP-3, TxDOT and the IE may also, at their discretion, perform QA audits of construction subcontractors' activities within the limitations of the Facility Agreement.

O&M Subcontractors: QC monitoring / inspection of subcontractor work for O&M functions will be carried out by the functional manager overseeing the work (Operations Manager, Maintenance Manager, etc.). QA audits will be carried out by the Quality/Environmental Manager. TxDOT, the IE and any other external auditor (on behalf of NTEMP-3) may also, at their discretion,

perform QA audits of O&M subcontractors' activities within the limitations of the Facility Agreement.

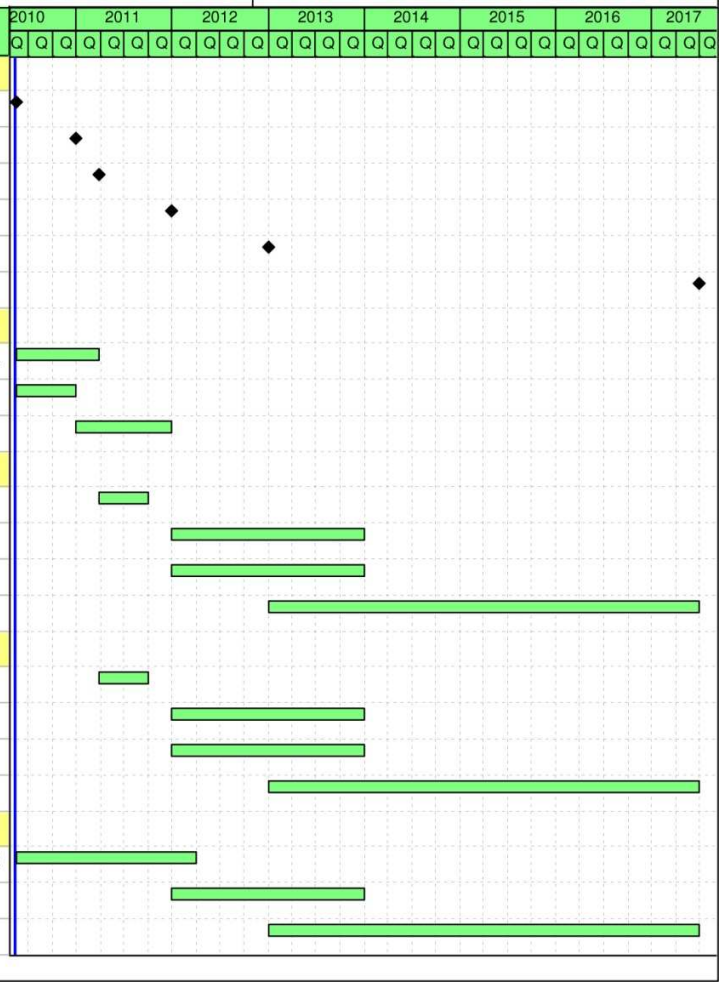
3.2 Facility Schedule

Figure 12 shows a conceptual schedule for the Project indicating the major milestones and timeframes for the major stages of the project through Service Commencement.

Figure 12: Conceptual Facility Schedule

NTE SEGMENTS 3A & 3B | **FIGURE 12** | **CONCEPTUAL FACILITY SCHEDULE**

Activity ID	Activity Name	Start	Finish
PROJECT MILESTONES		19-May-10	01-Jul-17
PM-01	Present Offer to TxDOT	19-May-10*	
PM-02	Facility Agreement Execution (NTP 1)	31-Dec-10	
PM-03	NEPA Approval	31-Mar-11	
PM-04	Financial Close (NTP 2)	31-Dec-11	
PM-05	Commencement of Construction	01-Jan-13	
PM-06	Service Commencement	01-Jul-17	
FACILITY IMPLEMENTATION		19-May-10	30-Dec-11
FI-NEPA	Continuation of NEPA Approval Process	19-May-10	30-Mar-11
FI-FIP	Facility Implementation Plan and Agreement	19-May-10	30-Dec-10
FI-FC	Financial Close and NTP 2 Activities	01-Jan-11	30-Dec-11
SEGMENT 3A		31-Mar-11	30-Jun-17
3A-DES-N	3A Conform Design to Final NEPA Approval	31-Mar-11	30-Sep-11
3A-DES	3A Design and Utility Coordination	01-Jan-12	31-Dec-13
3A-ROW	3A Right of Way Acquisition	01-Jan-12	31-Dec-13
3A-CON	3A Construction and Utility Relocation	01-Jan-13	30-Jun-17
SEGMENT 3B		31-Mar-11	30-Jun-17
3B-DES-N	3B Conform Design to Final NEPA Approval	31-Mar-11	30-Sep-11
3B-DES	3B Design & Utility Coordination	01-Jan-12	31-Dec-13
3B-ROW	3B Right-of-Way Acquisition	01-Jan-12	31-Dec-13
3B-CON	3B Construction and Utility Relocation	01-Jan-13	30-Jun-17
IH35W / IH820 INTERCHANGE		19-May-10	30-Jun-17
IC-ROW	IC Right-of-Way Acquisition (Concession CDA)	19-May-10	31-Mar-12
IC-DES	IC Design & Utility Coordination	31-Dec-11	31-Dec-13
IC-CON	IC Construction and Utility Relocation	01-Jan-13	30-Jun-17



The Facility Schedule will be the primary planning tool on the Project and should be designed to meet the needs of TxDOT, NTEMP-3 and the DBJV in an efficient manner. TxDOT's needs for the schedule include monitoring and reporting of progress, planning of oversight resources and calculation of earned value for payment of Public Funds. NTEMP-3 and the DBJV need the schedule to be a flexible and useful tool for planning the work.

One difficulty in preparing a schedule for a project like NTE Segments 3A and 3B is that the details needed to properly plan all aspects of the project are not all available at the beginning of the project. The design-build nature of the project and the lack of NEPA Approval prior to contract execution create a situation where the scope of the construction work is not defined to the extent required for detailed planning until NEPA Approval has been achieved and a significant portion of the design has been completed.

In an attempt to address the issues raised above, NTEMP-3 proposes to develop the detailed Facility Schedule in three distinct stages with progressively more detail as defined below. The basic concept is that detail will be added to the schedule as it both becomes available and is needed. The exact level of detail to be achieved and the submittal requirements for each stage will be defined during the development of the Facility Implementation Plan and Facility Agreement. In any case, it is anticipated that the use of and level of detail for any resource loading will only apply to the construction activities and will be determined by the DBJV as a tool for managing its resources.

Preliminary Facility Schedule (FS-1) – This version of the Facility Schedule will be prepared during the development of the Facility Implementation Plan and will be included in the Facility Agreement. FS-1 will establish the Work Breakdown Structure (WBS), Activity Codes, Activity ID coding structure and other parameters to be followed for all versions of the schedule in accordance with the requirements of the Facility Implementation Plan. FS-1 will be a high level preliminary schedule that will include activities for all major aspects of the Project, including ROW Acquisition, Facility Design, Permitting, Utility Coordination and Design, Utility Relocation, Construction, Operations and Maintenance covering the period of time from Facility Agreement execution through Service Commencement.

Pre-Construction Facility Schedule (FS-2) – This version of the schedule will be an evolution of the FS-1 schedule. In this version, the activities related to ROW Acquisition, Facility Design, Permitting, and Utility Coordination and Design will be developed to their final level of detail. It is anticipated that this schedule will be submitted within 90 days after either Facility Agreement execution or NEPA approval, whichever is later. It is not anticipated that FS-2 will be cost loaded or resource loaded. Upon approval, FS-2 will be updated monthly until FS-3 has been submitted and approved.

Construction Facility Schedule (FS-3) - This version of the schedule will be an evolution of FS-2. In this version, the activities related to Utility Relocations, Construction, and Operations and Maintenance will be developed to their final level of detail. It is anticipated that this schedule will be submitted no later than 90 days prior to the date for Commencement of Construction indicated in FS-2. Approval of this schedule will be a condition for Commencement of Construction. It is anticipated that only the Utility Relocation and Construction activities in FS-3 will be cost-loaded and only if required for payment of any Public Funds (if applicable). Following approval, FS-3 will be updated monthly through Service Commencement.

NTEMP2-4 and the members of the DBJV are confident that the approach outlined above provides an effective and efficient framework for the development of the Facility Schedule. By striking a proper balance between the needs of TxDOT, NTEMP-3 and the DBJV, this approach greatly improves the likelihood that the Facility Schedule will be a useful and valuable tool to all parties and not a burdensome requirement to be maintained as can sometimes be the case on such large and complex projects.

3.3 Communication and Coordination with TxDOT and the Independent Engineer

Project success depends on NTEMP-3's ability to work with TxDOT and the IE toward common goals. Our relationship with TxDOT will thrive on consistent, proactive and clear communications on Project issues and solutions. Overall involvement will be facilitated through project meetings, monthly reports, written updates, immediate notification on high-priority issues, a review process on public communications and collaboration with TxDOT in resolving complaints.

NTEMP-3 will determine high-priority issues and publications and review procedures in consultation with TxDOT.

3.3.1 Contact with Key Personnel

NTEMP's CEO and Director of Corporate Affairs will be the central points of contact with TxDOT regarding coordination and communication for the Project, although direct communications between the respective TxDOT and NTEMP-3 Key Personnel will also occur.

NTEMP-3 will provide TxDOT and the IE direct and mobile phone numbers and email addresses for all Key Personnel including the CEO, Operations Manager and all Project Directors, with the understanding that TxDOT and the IE require the ability to contact Key Personnel 24 hours per day, seven days per week.

If it becomes necessary to replace an individual in a Key Personnel position, NTEMP-3 will notify TxDOT in writing prior to the commencement of any Work by the proposed replacement so that TxDOT may review the qualifications and character of the individual and approve or disapprove use of the individual in such position.

3.3.2 Electronic Document Management System

NTEMP-3 will employ an Electronic Document Management System (EDMS) that is compatible with TxDOT's system. This will be the main source where staff will be able to find current information about processes and procedures relating to their areas of work. The system will be set up with user-friendly navigational tools such as index, contents and search features, so that this information may be easily found. Usage of the EDMS will be reviewed regularly and staff will be surveyed to ensure that it meets their requirements.

The EDMS will be used to store correspondence, meeting minutes, presentations from workshops, links to other related materials, all printed information and the results of commissioned reports, surveys and testing.

3.3.3 TxDOT or IE Requests for Information

TxDOT or the IE may issue Requests for Information (RFI) to seek additional information on an issue and NTEMP-3 will respond with 24 hours for basic request and 72 hours for request requiring more research, or as agreed to with TxDOT. This process will be formalized during partnering session with TxDOT and the IE.

3.3.4 Meetings with TxDOT and the Independent Engineer

The following types of meetings are envisioned between NTEMP-3, TxDOT and the IE.

- Periodic Design and Construction progress meetings – attendees will include TxDOT, NTEMP-3, the DBJV and the IE. Subcontractor representatives may also attend these meetings as necessary.
- NTEMP-3's representative will arrange other meetings as necessary on topics such as traffic control and public relations. Attendees at these meetings may include relevant governmental individuals and entities, facility users, public transportation operators, resident associations, public representatives, landowners and other interested parties.
- The secure Project Extranet site, to be designed within 90 days of NTP2, will enable team members and authorized third parties to access and store project data, progress meeting minutes, draft text and drawings. It will contain an e-mail list server to notify Project personnel of significant upcoming events and emergencies. The Extranet will also allow serve as a clearinghouse to request information from other team members. The Developer will post Project-related documents when available on the Project Extranet for review by TxDOT and other stakeholders.

3.4 Public Information and Communications Management

3.4.1 Organization

It is the role and responsibility of every member of the organization illustrated in Section 2.2 to communicate in an open and timely

fashion. Team members are responsible for passing on important and relevant information to the appropriate individuals within the organization, as well as receiving input and feedback from all stakeholders. Staff will be trained in and tested on procedures within the Communications Plan. Key personnel with specific responsibilities relating to the Communications Strategy are:

- CEO
- Operations Manager
- Director of Corporate Affairs

The Director of Corporate Affairs will lead the public information and communications operation and sub-consultants. This sub-organization will develop and implement the Public Information and Communications Plan, coordinate public meetings, liaise with all appropriate customer groups and stakeholders and maintain communications materials such as the Project website and printed collateral materials.

3.4.2 Preliminary Public Information and Communications Plan

The Public Information and Communications Plan (PICP) focuses on continuous outreach and collaboration. The PICP is flexible and responsive to the changing needs and conditions of the Project. NTEMP will remain mindful of the local environment and work with TxDOT to amend the PICP as required to adapt to yet-unknown circumstances, including public reaction to the impact of design, construction and operations, increasing information needs, changing legislation or revisions required to meet the findings of any audit or review.

The PICP identifies key personnel and assigns general areas of responsibility to these individuals in NTEMP-3. The plan describes how NTEMP-3 will interface with the public and media and coordinate with project stakeholders.

Personnel

The Public Information team is led by the Director of Corporate Affairs. This individual will handle making public statements and, additionally, will:

- Lead the production, implementation, audit, quality assurance/quality control and update of the Public Information and Communications Plan (PICP)
- Serve as a liaison with customer groups and stakeholders, including government authorities, interested parties, the public, and the media
- Arrange regular monthly or quarterly meetings with TxDOT, landowners, resident groups and other parties regarding ROW, traffic control, construction and other public relations matters
- Interact with affected Stakeholder/Customer Groups quarterly or as needed and represent the goals and objectives of the Project at associated public meetings and other formal and informal occasions
- Develop a first-hand understanding of public concerns and reactions regarding the Project and the Public Information Program, and incorporate that knowledge into improving the PICP
- Serve as a liaison with the person assigned to coordinate the initial response to any incident or emergency and any Governmental Entity that may have jurisdiction in an Emergency

In addition to the Director of Corporate Affairs, NTEMP-3 will appoint and be responsible for internal resources and sub-consultants as necessary to assist in preparation of meetings and communication with customer groups/stakeholders. By assigning multiple individuals to these important tasks, NTEMP-3 will ensure the public continuous access to individuals highly capable of responding to their communications and information needs.

Interfaces with Public, Media and Stakeholders/Customer Groups

Ongoing public information activities over the entire term of the agreement will include:

- Stakeholder, customer and media outreach
- Development and distribution of electronic and print collateral material
- Meetings, hearings and presentations for dialogue, input and feedback
- Emergency /crisis planning and implementation
- Lane closures
- Marketing and advertising

Liaison to Public

NTEMP is committed to fostering and maintaining positive community relations by hosting events that mark Project milestones and sponsoring special events for residents and the public. This will be done as deemed appropriate by TxDOT and NTEMP-3 by:

- Demonstrating to the customers, stakeholders and general public that the Project will be developed pursuant to a well executed program
- Notifying customers, stakeholders and the general public in advance of Project ROW acquisition, construction and operations of the project

NTEMP-3 will provide quality public communication throughout the life of the concession utilizing existing TxDOT resources and enhancing the effort with additional messaging and graphics as appropriate. This commitment includes use of a comprehensive website. Because there is no substitute for direct interaction, technology will accompany face-to-face interaction such as ongoing involvement of civic leaders, neighborhoods and NTE Project customers.

Media

NTEMP is committed to providing the media with immediate and ongoing access to timely and accurate information about the Project. TxDOT's Public Information Office and NTEMP's Corporate Affairs Office will enter appropriate local, state and national media into the Project database and will send these contacts a media kit that includes a press release announcing formation of the Public Information Office, plus daytime and after-hours contact information.

The Public Information Office and NTEMP's Corporate Affairs Office will serve as NTEMP-3's media liaison, facilitating media access to needed Project information. The PIO and Director of Corporate Affairs will send news releases concerning closures and detours to television, radio and print media for use during early morning newscasts, afternoon drive-time broadcasting and newspaper publication.

The Public Information Office and Corporate Affairs Office will proactively arrange interviews and editorial board meetings and suggest photo opportunities and story ideas that will keep the Project in a positive public light. NTEMP-3 will work collaboratively with TxDOT on media outreach and materials, as requested.

Stakeholder/Customer Groups

The NTEMP team will continue identifying interested and affected Stakeholder/Customer Groups and include them in a project database and use a variety of communication strategies to keep these stakeholders informed of activities, solicit their questions and concerns and resolve project-related issues in a proactive manner.

Stakeholder/Customer Groups will be more likely to support the Project if NTEMP-3 provides them with timely information, notifies them in advance of ROW, construction activities and possible impacts, alerts them to the effect on travel, offers alternative routes and provides an opportunity to communicate directly with appropriate Project staff. The PICP focuses on continuous communications and collaborative problem solving as a necessary component to keeping the Project on time and within budget.

Sample stakeholder/constituency groups will include, among others:

- The North Central Texas Council of Governments
- The Regional Transportation Council
- Dallas-Fort Worth Area Partners in Mobility
- The Tarrant Regional Transportation Coalition
- 35 W Coalition
- Corridor landowners and business owners
- Surrounding neighborhoods
- Potential NTE Project customers
- Chambers of Commerce
- Elected officials (federal, state, county, city)
- NTTA
- Local mass transit authorities (Forth Worth Transportation Authority, Trinity Railway Express, DART)
- DFW Airport
- BNSF Railroad
- Union Pacific Railroad
- Utility providers (AT&T, Oncor, Atmos, etc)

NTEMP-3 considers meetings with Customer/Stakeholder Groups to be a crucial part of a successful PICP. These meetings will take several forms; neighborhood-specific meetings, large community-wide gatherings, or smaller meetings with officials and special interest groups to discuss a certain topic. NTEMP-3 will adhere to TxDOT requirements regarding these meetings, such as prior notification and participation in support of TxDOT. NTEMP-3 will exceed expectations of a typical public meeting by providing high-quality displays and state-of-the-art visuals such as an animated “virtual tour” of the Project alignment. NTEMP-3 will be prepared to respond to issues raised at meetings and through other channels. Topics will include design and construction issues affecting adjacent residential areas and businesses, such as frontage road configuration and noise and retaining walls.

The following are some general communications principles that NTEMP-3 will employ in working with the public and other stakeholders:

- Speaking and writing in plain language that the general public can understand, avoiding the use of jargon and acronyms without first explaining their meanings
- Recognizing that people do not always absorb information completely at first hearing and giving them the opportunity to ask questions
- Being aware of our body language and how it might communicate to those to whom we are talking or listening
- Practicing active listening and maintaining eye contact when involved in face-to-face communication
- Feeling comfortable about telling people when we do not understand what they are saying or what they have written
- Being comfortable with challenging others and being challenged ourselves and welcoming feedback and constructive criticism
- Always try to put ourselves in the position of those with whom we are communicating

3.5 Cost Control

The DBJV's internal Project Controls Group, overseen by the Project Controls Manager, will be responsible for managing cost control, project accounting/reporting, planning, scheduling, estimating and document control. The Project Control Group will monitor the schedule and cost baselines to ensure compliance with the overall Project objectives and conduct forecasting, trending, change control and mitigation planning to ensure that ongoing activities comply with the baselines. To ensure the achievement of all schedule- and cost-related objectives, the DBJV will adopt the following control principles:

- Use coding structures that support project definition, execution and reporting requirements;
- Set aggressive schedule targets with appropriate float to meet the construction execution strategy;
- Define discrete packages of work with single-point responsibility;

- Clearly define interfaces between participants;
- Adopt a proactive style of cost awareness;
- Identify critical issues and mitigation plans;
- Identify opportunities save time and funds with out negatively impacting the Project; and
- Issue timely and concise status reports with emphasis on variances to plan.

Key Steps in the Project Control Process

Successful projects depend on adhering to a rigid project control process, which includes the following:

- **Plan**: Establish schedule and cost baselines in sufficient detail to account for the full definition of the Project scope, with acceptance and "buy-in" of all team members.
- **Measure**: Monitor progress on a regular basis, measuring the status against established schedule and cost baselines. Capture commitments and costs incurred and predict the cost and schedule through to project completion.
- **Report**: Report variances to schedule and cost baselines on a regular basis with potential impacts on the Project highlighted. Regular risk analysis to confirm the adequacy of contingencies and probability of meeting the schedule.
- **Mitigate**: Take corrective actions for adverse schedule and cost variations, focusing on significant deviations.

3.6 Safety

The success of the Project is dependent upon a sincere commitment by management and employees to achieve a safe work environment by identifying, eliminating and reducing the hazards that may result in personal injuries, occupational illness, equipment and property damage.

NTEMP-3 will develop a comprehensive Safety Plan for design, construction, operations and maintenance. The Safety Plan documents all procedures, requirements and training activities to ensure that the Project is developed and operated safely and in compliance with applicable laws, regulations and contractual requirements.

NTEMP-3 will administer the Safety Plan for O&M and the DBJV will administer the Safety Plan for construction. Should a safety-related incident arise involving the general public during the construction term, NTEMP-3 and DBJV management will work cooperatively to manage the incident and document and report the appropriate information. The controlling plan will be determined on the involvement of NTEMP or DBJV personnel in the incident.

3.6.1 Construction Safety

The DBJV Safety Manager will be responsible for administering the Safety Plan on behalf of the DBJV. Some of the main safety initiatives to be employed during construction include:

- Training / Meetings:
  - All employees and subcontractors who will work on the construction site must undergo Safety Orientation training before entering the site
  - Managers and supervisors must attend monthly Supervisors' Safety Meetings to discuss safety and health issues
  - Weekly 15-minute "Safety Toolbox" training sessions will be conducted with workers on the construction site to introduce or refresh knowledge of safety-related topics
  - Monthly job-wide safety meetings will include all onsite workers and will include discussion of a variety of safety-related topics
- Substance Abuse Plan:
  - The DBJV will require pre-employment and random drug tests for onsite workers
  - The DBJV reserves the right to conduct searches of anyone entering the job site for the purposes of enforcing the Substance Abuse Policy
  - Being impaired by alcohol or drugs while on the work site or parking lot will be cause for immediate removal from the site
- Safety Assessment Program
  - The Safety Manager will conduct weekly Safety Assessments, accompanied by a foreman or superintendent

  - Safety deficiencies will be documented and corrected within three days for minor deficiencies and immediately for deficiencies posing an immediate danger
  - Documentation will be retained and shared with the Construction Manager and General Manager
- Case Management
  - Procedures have been developed for first aid, emergency response, accident investigation and medical intervention
- Site Safety Rules
  - The Safety Plan includes general site safety rules and rules for many specific aspects and scenarios of construction work (i.e. scaffolds and ladders, confined space entry, tools, working around cranes and heavy equipment, etc.)
- Personal Protective Equipment (PPE)
  - The DBJV will provide PPE as required by the Occupational Health and Safety Administration (OSHA)
  - The Safety Plan provides requirements for PPE use and maintenance

3.6.2 O&M Safety

The NTEMP-3 Safety Manager will administer the Safety Plan on behalf of the Developer. The Safety Manager is responsible for promoting safety and health policies, procedures, and work practices and providing program direction to ensure that a safe, healthy, and secure work environment for employees and the public.

Some of the main safety initiatives to be employed during O&M include:

- Training / Meetings
  - New employee/subcontractor training
  - Weekly toolbox/water cooler safety meetings
  - Daily “safety nuggets” – consisting of 4-5 daily safety reminders delivered by the manager or foreman each morning in shop and field crew environments
  - Weekly managers’ safety review meeting

    - Monthly safety meetings for all employees/subcontractors
- Task-Specific Work Plans identifying potential safety concerns
- Inspections
    - Weekly safety inspections by designated individuals
    - Monthly safety inspections by Safety Manager
    - Quarterly safety inspections by ad hoc Safety Committees
- Safety incentives
    - Every job will have a project safety incentive program. The supervisors of each job will design a safety incentive program specifically for that job High scores on quarterly safety inspections will be rewarded with a Safety Breakfast
    - Managers are eligible for the NTEMP-3 Supervisor Safety Bonus based on his or her safety record and the hours they supervise
- Accident procedures, reporting and investigations
    - Includes procedures for responding to, reporting and documenting accidents and injuries
- Review and corrective action following safety incidents
    - Zero tolerance policy: employees who violate safety policies, procedures and programs should be given warnings. When one or more warnings are given for the same safety infraction or several warnings for unlike infractions, s/he will be given time off without pay. Time off in lieu of warning may be given if the safety policy is covered in toolbox meetings or other training sessions the employee has attended. The Safety Manager must have the final determination on this action in order to maintain consistency.
- Drug and Alcohol Abuse Policy (similar provisions to the DBJV's policy)
- Personal Protective Equipment (similar provisions to the DBJV's policy)
- Site Safety Rules

- The Safety Plan includes general site safety rules and rules for many specific aspects and scenarios of O&M work

3.7 Risk Management

3.7.1 Risk Identification

The Risk Matrix shown in Table 2 sets out a synopsis of principal risk areas, how they are commonly allocated, managed or eliminated in typical concession projects, and provides a brief explanation of potential consequences, likelihood and an indicative sensitivity analysis methodology. The Risk Registry is also annotated as to whether the particular risk is applicable prior to NTP2, following NTP2, or both before and after NTP2.

Table 2: Risk Identification

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
Design Risks					
After	Failure/ Inadequate design and/or non compliance with Design Standards and Criteria	Damage to works, delays, design, construction and/or O&M additional costs; penalties	Developer	Back-to-back contract with contractor; Design audit by an independent consultant; Professional indemnity cover	N/A
After	Overloaded design and engineering market capacity	Delays, additional costs.	Developer/ TxDOT	Rational sequencing and phasing of the facilities	N/A
After	Ability to meet established design milestones; Performance / efficiency shortfalls	Delay; increased costs; penalties; cancellation and costs	Developer	Back-to-back contract with contractor; Adequate quality management plan	Analysis with different process lengths
After	Owner directed changes and design reviews	Delays, additional costs.	Developer/ TxDOT	Adequate analysis prior to Facility Agreement	N/A
After	Changes in Design Standards and Criteria	Delays, additional costs.	Developer/ TxDOT	Compensation if changes occur after Execution of Facility Agreement	N/A
After	Non compliance with Design Standards and Criteria due to the use of inadequate Technology	Delays, additional costs.	Developer	Back-to-back contract with contractor; Audit by an independent consultant.	N/A
After	Geotechnical and other data inaccuracies (input/output)	Damage to works, delays, additional costs.	Developer	Back-to-back contract with contractor; Adequate quality management plan; Audit by an independent consultant	N/A
After	Design defects affecting constructability	Delays, additional costs	Developer	Back-to-back contract with contractor; Audit by an independent consultant	N/A
After	Latent defects in property following hand back – transfer of title	Damage and costs of reinstatement/repair Delay; penalties; inability to accept traffic; loss of revenue.	Developer	Back-to-back contract with contractor; Adequate quality management plan; Audit by an independent consultant	N/A
After	Failures; Non conforming work and defects discovered prior and post-Acceptance	Delays; additional costs; Total/partial Interruption in infrastructure service	Developer	Back-to-back contract with contractor; Construction oversight by an independent consultant; Insurance	Analysis of impact of different construction period lengths and different construction prices
After	Loss, destruction or damage to existing property, project facilities or construction plant and equipment; Theft	Debris removal, construction delay, additional costs, penalties	Developer	Back-to-back contract with contractor; Insurance, time extension	Analysis of impact of different construction period lengths and different construction prices
After	Differing Subsurface (Ground water level and contamination, geologic formations, etc) and Surface Conditions	Construction delay; additional costs	Developer	Back-to-back contract with contractor; Adequate quality control during design stage	Analysis of impact of different construction period lengths and different construction prices

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
After	Incorrect control survey data	Delays, additional costs	Developer	Back-to-back contract with contractor; Contractor's adequate quality control	Analysis of impact of different construction period lengths
After	Adequacy of construction access	Construction delay; additional costs	Developer	Back-to-back contract with contractor; Contractor's adequate construction planning and schedule	Analysis of impact of different construction period lengths
After	Early construction/Design changes affecting construction already underway	Construction delay; additional costs	Developer	Back-to-back contract with contractor; Contractor's adequate construction planning and schedule	Analysis of impact of different construction period lengths
After	Coordination with other projects and with adjacent property owners	Construction delay; additional costs	Developer	Back-to-back contract with contractor; Contractor's adequate management, construction planning and schedule	Analysis of impact of different construction period lengths
After	Lack of general maintenance during construction; maintenance of traffic requirements	Construction delay; additional costs	Developer	Back-to-back contract with contractor; Contractor adequate management, construction planning	N/A
After	Adverse weather	Construction delay; additional costs	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths and different construction prices
After	Identification, requirements, agreements and relocation of utilities	Construction delay; additional costs	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths and different construction prices
After	Contractual non-performance	Construction delay; additional costs	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths and different construction prices
After	Breach of site - Health and Safety	Injuries of workers; increased costs; delays	Developer	Back-to-back contract with contractor; Insurance	N/A
After	Breach of site - Security	Increased costs and delays	Developer	Back-to-back contract with contractor; Insurance	N/A
After	Quality and availability of Equipment, Materials and Labor	Construction delay; additional costs	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths and different construction prices
After	Quality and availability of Equipment, Materials and Labor	Construction delay; additional costs	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths and different construction prices
Political/ Legal Risks					
Before/ After	Change in law (including taxes)	Additional cost	TxDOT/ Developer	General changes in law are borne by the Developer. Discriminatory changes in law are likely borne by TxDOT. Compensation may be in the form of temporary relief from various obligations, time extension or compensation.	N/A
Before/ After	Change sales tax	Increased costs	TxDOT	Compensation	Analysis with different sales tax rates

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
Before/ After	Breach of existing legislation	Penalties, delay, consequential losses, additional costs, loss of revenue	Developer	Adequate legal advice; experienced management	N/A
Before/ After	Breach of obligations/ agreements by private sector	Penalties, suspension of payment, suspension of performance, application of sums to credit of retention account, termination and costs	Developer	Back-to-back contract with contractor; experienced management	N/A
Before/ After	Breach of obligations by public sector	Penalties/ suspension/ termination and costs	TxDOT	Compensation; rights to termination	N/A
Before/ After	Breach of third party intellectual property rights	Penalties, damages	Developer	Adequate legal advice	N/A
Before/ After	Force majeure (natural catastrophes, war, sabotage, terrorism)	Delay additional costs; Parties relieved from liabilities to the extent they are not able to perform their obligations under the agreement; termination; Cancellation; costs to date; damage/reinstatement/rectification costs	TxDOT	Typically borne by the public sector, the Developer is provided with adequate compensation; relief with respect to certain contractual obligations; time extension; rights to termination	N/A
After	Protestor action, Strikes/Labor disputes	Delay, additional costs, damage	TxDOT/ Developer	Compensation; time extension; rights to termination	N/A
After	Requisition/ seizure of project facilities by TxDOT	Termination; cost incurred	TxDOT	Compensation; time extension; rights to termination	N/A
Financial Risks					
After	Traffic projections are not realized	Loss of revenues	Developer	Investment grade traffic studies are prepared and audited by an independent specialist consultant to provide enough comfort to lenders	Analysis with different traffic assumptions
After	Toll evasion	Loss of revenue	TxDOT/ Developer	Prosecution of the vehicles that don't pay the toll fees. Enforcement by the State and its police force as well as barriers and ETC systems can also help mitigate these risks	Analysis carried out with different percentages of loss of the total toll revenue
Before / After	Competing Facilities built	Loss of revenue	TxDOT/ Developer	Clarity in concession agreements regarding what constitutes a competing Facility and measures to address in one is developed	Traffic and revenue forecasts defining competing facility scenarios
Before/ After	Connecting Facilities not built	Loss of revenues	TxDOT/ Developer	Coordination with local entities and realistic traffic and revenue forecasts considering competing facilities scenarios	Traffic and revenue forecasts defining connecting facility scenarios

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
Before/ After	Inflation	Increased costs	Developer	Fixed lump sum is part of Back-to-back contract with contractor. Operational costs are indexed being mostly covered through indexation of toll rates	Analysis carried out with different CPI Forecasts
Before	Interest rates (pre- financial close)	Increased costs	TxDOT/ Developer	Public sector typically bears this risk. Developers might also be able to take this risk depending on time period between bid submission and financial close	N/A
After	Interest rates (post financial close)	Increased costs	Developer	Hedging plan will be established in accordance with lenders' request. The Developer will conclude a fixed interest rate swap for all/part of the loan term. Alternatively the Developer can borrow the funds using fixed rate instruments.	Analysis carried out with different interest rates
Before/ After	Insufficient TIFIA Funds available	Increased costs of financing	Developer	Confirm and maintain interest on Capitol Hill for TIFIA funds needed for the NTE project	Analysis carried out with alternative financing structures
Before/ After	Capital Markets Appetite insufficient for issues	Increased costs of financing	Developer	During Facility analysis assessments of capital markets appetite for issues to be considered. Underwriter to share risk of full subscription. European bank debt financing options to also be considered	Analysis carried out with alternative financial structures and interest rates
After	Refinancing	Additional (or lower) cost of financing	Developer	For concessions under 40 years, sufficiently long term financing can be put in place to eliminate this risk although refinancing gains can also occur as project risks typically decrease after construction, the project may outperform expectations and there may be a general decrease in rates. For longer concession period, the private sector takes a view on long-term rates and the level of refinancing risk.	Analysis carried out with alternative financing structures to the extent this risk is not already mitigated
Before/ After	Insufficient PABs available or delays in introducing them	Additional cost of financing	Developer	Confirm and maintain interest on Capitol Hill for PABs funds needed for the NTE project.	Analysis carried out on alternative financing structures
Planning and Approvals Risks					
Before/ After	Procurement and performance of Federal, State Agencies and Local Agencies permits and approvals (environmental and others)	Delay, increase costs; penalties; Cancellation; costs to date	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths
After	Planning approval overturned	Delay, increase costs, penalties Cancellation; costs to date	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths
After	Planning approval not covering all works	Delay, increased costs; penalties; Cancellation; costs to date	Developer	Back-to-back contract with contractor	Analysis of impact of different construction period lengths
Operation and Maintenance					

Before/ After NTP2	Risk Description	Potential Consequences	Risk Allocation	Risk Mitigation Strategy	Risk Sensitivity Analysis
After	Operating performance	Penalties, additional costs	Developer	Operations manual that will describe the operating procedures to maintain the standard levels.	Analysis carried out with different operation costs.
After	Liability to users	User's claims.	Developer	Adequate customer service.	N/A
After	Collisions	Decreasing in level of service	Developer	Establishment of an emergency service operation procedure	N/A
After	Inadequate infrastructure maintenance	Decreasing in level of service. Close of infrastructure	Developer	Developer will establish an adequate maintenance procedure plan.	Analysis with different maintenance costs
After	Identification and establishment of Right of Way limits (utility easements, temporary construction easements)	Delays, increased costs	Developer	Adequate control during the design process	N/A
After	Injury, damage or financial loss caused by or arising from the project (other than injury to own employees)	Legal liability to pay claimants costs and expenses and own costs and expenses	Developer	Insurance should include legal liability/ contractual liability	N/A
After	Unavoidable loss, destruction or damage to third party property	Legal liability to pay claimant's costs and expenses	TxDOT/ Developer	Insurance should include legal liability/ contractual liability; time extension	N/A
After	Employees' injury, death, etc. sustained by other project participants/ staff	Legal liability to pay claimants costs and expenses and own costs and expenses	TxDOT/ Developer	Insurance	N/A
After	Employees' liabilities relating to breach of contract / wrongful dismissal / loss of earnings	Legal liability to pay claimant costs and expenses and own costs and expenses	Developer	Adequate management of human resources	N/A
After	Cost of procuring sub-contractors	Increased costs	Developer	Back-to-back contract with contractor; Quality Procedures	N/A

3.7.2 Risk Quantification

The quantification methodology applied is based on the multiplication of the following factors:

- Probability index or risk likelihood occurrence. It is determined in the risk matrix and it is based in the evaluator's expertise and judgment:
  - High (3) when its probability of occurrence ranges from 75% to 100%.
  - Medium (2) when its probability of occurrence ranges from 50% to 75%.
  - Low (1) when its probability of occurrence is below 50%.
- Determination of the risk potential impact. It is based on the evaluator's judgment and logic, quantified as follows:
  - High (3)
  - Medium (2)
  - Low (1)

As a general rule, due to higher uncertainty over requirements imposed by third parties and the inability to control third parties decisions, all risks dealing and related to third parties are often given a high impact rating. The impact is understood as negative impact either to the Developer or to TxDOT.

3.8 ROW Acquisition Management

NTEMP-3 has extensive experience in pre-acquisition, acquisition, relocation, and condemnation processes. NTEMP-3 will implement and optimize processes for all these acquisition activities, particularly with regard to the right-of-way project budget and schedule. NTEMP-3 will maintain logic-linked ROW Acquisition activities on a parcel-by-parcel basis as part of the Facility Schedule, including adequate time periods for TxDOT review and condemnation activities.

NTEMP-3 will utilize their empirical knowledge with in-house resources along with local industry right-of-way acquisition firms within the DFW Metroplex to implement and improve upon similar, proven right-of-way acquisition processes and successes on SH 130, Segments 5 and 6 and NTE Segments 1 and 2 for the Texas Department of Transportation. NTEMP-3 will provide sufficient personnel to achieve, in accordance with the Facility Schedule, the goals and milestones established for project environmental works, survey and mapping, ROW acquisition, relocation assistance, appraisals and appraisal review and condemnation.

NTEMP-3 has a step-by-step procedure for pre-acquisition, acquisition, relocation, and condemnation processes. During the process, NTEMP-3 will use strong professionals with years of experience in ROW acquisition and familiarity with TxDOT requirements.

NTEMP-3 will perform preliminary ROW acquisition work before Close of Finance to expedite the ROW acquisition process and to allow construction to begin according to the Project Schedule. NTEMP-3 will allocate sufficient funds from shareholder equity to fund these activities as required. Preliminary works may include reviewing:

- Preliminary ownership title reports;
- Title status and ownership and ability to convey title;
- Environmental Site Assessments; and
- Survey control and alignment.

The ROW team will maximize and efficiently manage resources and closely monitor the project schedule. NTEMP-3 will closely monitor work performed by ROW acquisition providers pushing for an expeditious process.

The ROW team will also looks for opportunities to accelerate the acquisition review process by having parcel surveys preapproved and appraisal reports reviewed prior to finalizing the acquisition package. Often the ROW acquisition process is linear, but NTEMP-3 will use resources to perform activities simultaneously where possible.

3.8.1 ROW Acquisition Procedures

NTEMP-3 will use the procedures described below for the principal activities during ROW Acquisition, directly undertaken or subcontracted.

1. Conduct site surveys to identify relocation needs.
2. Request, secure, and review preliminary ownership title policy reports or commitments from title insurance company and identify difficult title issues and parcel changes.
3. Review title ownership for clouds, liens, easements, on title or ability to convey title.
4. Review parcels created by ownership changes, partitions, sales, deaths, etc.
5. Review Environmental Site Assessment (ESA) findings.
6. Re-establish survey control and alignment.
7. Complete the Acquisition Package, which includes the Acquisition/Relocation Brochures.
8. Set up project parcel files.
9. Set up project status tracking and schedule.
10. Finalize the administrative procedures with TxDOT staff to process submissions under the technical requirements.
11. Develop/update the ROW Acquisition Plan.
12. Secure the preliminary ownership or title report from a State-approved title company.
13. Initiate the Right of Entry process and Introduction to Property Owners.
14. Establish a Project Office.
15. Establish Document Management in accordance to TxDOT requirements.

16. Prepare all Project ROW survey/mapping and prepare all Project ROW documents in accordance with applicable TxDOT Standards.
17. Perform Phase 1 Environmental Study.
18. Select and contract with one or more title companies approved by TxDOT.
19. Initiate a pre-appraisal contact, review property history with owner.
20. Prepare a formal appraisal report and/or a waiver valuation of each parcel.
21. Arrange for independent review of each formal appraisal by an approved TxDOT review appraiser.
22. Submit formal appraisal report to TxDOT for approval.
23. Submit a complete Acquisition Package for TxDOT's Acceptance and Approval.
24. Presents offer to purchase to the record owner or their representative by the ROW ASP.
25. Pursue and obtain Possession and Use Agreements (PUA.)
26. Conduct negotiations with property owner until acceptance or filing of lawsuit.
27. Prepare a separate negotiator contact report for each meeting or conversation with any person who has a compensable interest in each parcel and file each contact report in the parcel file.
28. Process payment and complete purchase.
29. Request a right of entry with possession.
30. Submit a final offer to purchase to the property owner if purchase agreement is not reached within 30 days after initial offer to purchase.
31. Begin process to condemn a parcel when necessary.
32. Acquire ROW through the condemnation process with the assistance of the Attorney General.
33. Provide relocation assistance in accordance to Texas law, TxDOT procedure and the Uniform Act.
34. Monitor relocation assistance activities.

35. Secure and photograph the buildings, improvements and fixtures on the Project ROW until they are disposed of or demolished.
36. Secure governmental approvals required for demolition and environmental surveys or test.
37. Pursue final judgment.
38. Secure title policy.
39. Retire the parcel file.

The parcel acquisition activities listed above will be completed in accordance with the technical requirements and TxDOT standard procedures for the ROW Acquisition process.

NTEMP will secure ROW value determination by the following methods:

- Method One: Traditional Process for a Real Estate Appraisal Report - Unknown Parcel Value. Requires a State Certified Appraiser and Approved Review Appraiser.
- Method Two: Traditional Process for a Short Form Real Estate Appraisal Report – Parcel Value less than $25,000.00, or more than $25,000.00 as approved by TxDOT. Requires a State Certified Appraiser and Approved Review Appraiser.
- Method Three: Donations or Settlements.

All appraisals shall utilize TxDOT Form ROWA-5 - Real Estate Appraisal Report unless otherwise authorized by the TxDOT Right of Way Manual or TxDOT Appraisal and Review Manual; however, all appraisals for condemnation proceedings shall utilize TxDOT Form ROW-A-5 - Real Estate Appraisal Report. All appraisers preparing and signing appraisals must be approved by TxDOT before performing any appraisals on the Facility. All fee appraisers or appraisal reviewers must be licensed and certified in Texas.

The quality of production of the ROW Acquisition will be maintained by a series of Project Task/Activity Checklists throughout the project. The appropriate checklist will be used on each parcel as applicable to the method of acquisition procedure or process used.

3.9 Quality Management

Effective quality management is the cornerstone of successful project delivery, and it depends upon incorporating best practices into everyday work in addition to pre-submittal reviews and periodic audits. Key NTEMP-3 members have decades of experience in delivering high quality design, construction and O&M services for highway/toll road projects. This experience has been incorporated into Quality Management Plans that establish standards and procedures for quality management throughout the Project. NTEMP-3 will develop a Design Quality Management Plan (DQMP), Construction Quality Management Plan (CQMP) and O&M Management Plan (OMP), which will comply with ISO 9001:2008. All of these Plans will be submitted to TxDOT for approval.

3.9.1 Design Quality Management

The goal of design quality management is to assure that design activities and products are complete, accurate and constructable within the requirements of the Facility Agreement and Good Industry Practice. The DQMP provides an organizational structure, roles and responsibilities, procedures and communication protocols for design quality management, which are summarized below.

Design of the Project will be performed by professionally qualified Design Consultants to be hired, overseen and controlled by the DBJV. Each Design Consultant must produce and follow a quality management plan compatible with the NTEMP-3 DQMP, which will be appended to the DQMP. Design Consultants will be responsible for performing their own Quality Assurance (QA) activities and Quality Control (QC) reviews prior to submitting design products to the DBJV. The types of reviews to be conducted by Design Consultants are shown in Table 3.

Table 3: Types of Design Quality Reviews

Type of Design Quality Review	Performed by	Activity	Responsibility
Internal checking	Design Task team members	Quality control (Design review)	Design Task Leader
Independent technical review	Senior staff outside design	Independent quality control	Design Consultant

Type of Design Quality Review	Performed by	Activity	Responsibility
	team	(Design review)	Manager
Internal review	Discipline Leaders	Design verification/ Validation	Design Consultant Manager
Quality Audit	Quality auditor	Quality Assurance	Design Consultant Quality Manager

The DBJV's Design Manager and Quality Manager will lead design quality oversight activities on behalf of the Design-Build Team, including reviewing products submitted by Design Consultants and performing periodic audits of the Design Consultants' QA/QC system and records. NTEMP-3's Quality and Environmental Manager will provide design quality oversight on behalf of the Developer. NTEMP-3, TxDOT and the IE may also, at their discretion, perform design quality audits within the limitations of the Facility Agreement.

The DQMP sets out procedures for implementing preventive or corrective action, should design quality audits or other observations result in findings of potential or actual non-conformities. The audit process encourages continuous improvement of design and QA/QC processes, resulting in greater efficiency and improved design products.

3.9.2 Construction Quality Management

The primary construction quality objectives are to complete the Project safely, within schedule and budget, and in accordance with the "Issued for Construction" (IFC) drawings, plans, and specifications, the Facility Agreement and environmental commitments.

Production of quality construction work is the responsibility of the entire organization, including subcontractors and suppliers, and especially the personnel actually doing the Construction Work.

Construction QC and QA activities will be carried out by both the DBJV and NTEMP-3, working in parallel. The QA and QC processes are distinct and are differentiated as follows:

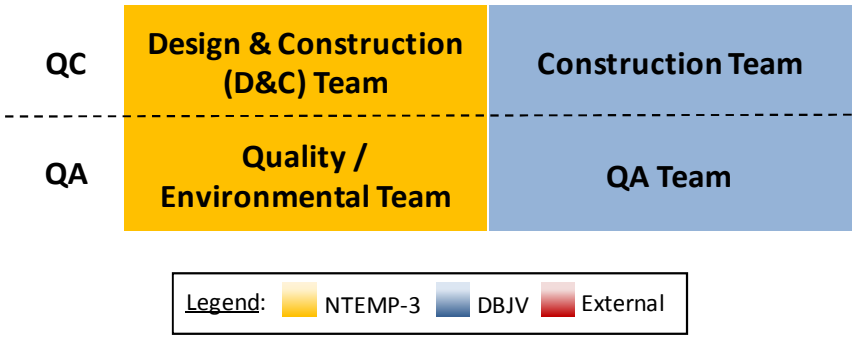
- QC refers to activities associated with creation of deliverables – verifying that products are complete and correct and carrying out testing and inspection
- QA refers to the process used to create the deliverables or products and includes items and activities such as process checklists and audits

Construction QC will be performed by the DBJV Construction Team, which is responsible for the production of the work, and includes the DBJV Construction Manager, superintendents, project engineers, production managers, and segment managers. NTEMP-3's Design and Construction Director will lead construction QC oversight activities on behalf of the Developer.

QA activities will be carried out by the DBJV's Quality Assurance Team, which is independent from the construction process and works under the direction of the DBJV Design and Construction Quality Manager. NTEMP-3's Quality and Environmental Manager will lead construction QA activities on behalf of the Developer.

These activities combined will provide a constant audit of the DBJV's construction work and processes. This division of responsibilities between NTEMP-3 and the DBJV is illustrated in Figure 13.

Figure 13: Construction QC and QA Responsibilities by Organization



The CQMP and the DBJV's Process Procedures Manual contain detailed procedures for construction quality management. The principal construction quality management activities for which the DBJV partners have developed procedures are summarized in Table 4.

Table 4: Construction Quality Management Activities in CQMP

Activity	Tasks and Topics
Document and Data Control	▪ Use of Electronic Document Management System ▪ Approval, distribution and incorporation of design changes ▪ Managing changes to IFC documents ▪ Managing changes to the CQMP
Integration of CEPP with Construction Activities	▪ Use of EPIC sheets ▪ Training, meetings and communication
Purchasing	▪ Evaluation of subcontractors and suppliers ▪ Purchasing process ▪ Verification of purchased product ▪ Handling, storage, packaging, preservation and delivery
Material Handling	▪ Identifying and maintaining inventory of purchased products ▪ Ensuring traceability of materials used on Project locations
Inspection and Testing	▪ Specifications and standards ▪ Individuals responsible for inspection and testing ▪ Control of inspection, measuring and test equipment ▪ Test observation and reporting ▪ Identification of "hold points" ▪ Control of non-conforming product
Examination and Audit of Construction Work	▪ Internal audits ▪ External audits ▪ Observation of construction work ▪ Review of procedures and work instructions ▪ Evaluation of workmanship ▪ Evaluation of effectiveness of controls ▪ Discussions with construction crews and superintendents ▪ Documentation of inspections and audits ▪ Preventive/corrective action ▪ Opportunities for continuous improvement

3.9.3 Operations and Maintenance Quality Management

The operation and the maintenance of a toll road are two different but complementary activities with the same primary goal: ensure a safe and satisfactory driving experience for our customers. NTEMP-3 believes in this holistic approach and will perform these activities through a combined O&M organizational structure. NTEMP-3 will develop a combined O&M Management Plan and accompanying detailed procedures that provide the direction, processes and procedures for promoting quality in O&M activities. This 0&M Management Plan will be submitted to TxDOT for approval.

NTEMP-3's principal goals for O&M quality are as follows:

- Provide a smooth transition in maintenance responsibilities from TxDOT while minimizing any potential disruptions to users.
- Ensure continuous and safe operation of the Facility.
- Promote continuous full compliance with NTEMP-3's obligations and Performance Requirements under the Facility Agreement,
- Define a maintenance strategy that maximizes the serviceability of the Facility during the construction stage.

NTEMP-3's Quality/Environmental Manager, Operations Manager and Maintenance Manager will work cooperatively to administer quality management for O&M functions. An external auditor will monitor and assess the effective functioning of the Quality System through audits.

The Quality/Environmental Manager will revise and maintain procedures for quality management of O&M activities and manage implementation of QA procedures during maintenance activities. The Quality/Environmental Manager will ensure that nonconformance with product requirements is identified, recorded, communicated to the affected manager and ultimately corrected.

The Operations Manager will oversee the performance of QC activities such as maintenance inspections, records control and resolution of Non-Conformities. The Maintenance Manager will perform and delegate QC maintenance inspections according to the Maintenance Inspection Plan, document findings of inspections and implement preventive and corrective action.

An external auditor will carry out audits to identify underperforming areas and determine causes of deficiencies and corrective/preventive actions required. The findings of these audits will be reported to the Board of Directors.

Some of the main O&M functions that are subject to quality management include:

- Maintenance activities (routine and preventive)
- Renewal work
- Traffic control
- Emergency response
- Purchasing / material handling
- Control of suppliers / subcontractors
- Ensuring performance of maintenance equipment (trucks, street sweepers, etc.)
- Ensuring performance of IT equipment
- Integration of CEPP in O&M activities
- Minimizing impacts on neighboring facilities
- Enforcement of overloaded/oversized vehicles
- Responding to comments from Facility users

Key quality management activities for O&M include:

- QC maintenance inspections (general, detailed and specialist): Performed by maintenance manager or specialized inspectors as detailed in the Maintenance Inspection Plan
- QA Audits:
    - Internal audits of O&M functions will be performed by NTEMP-3's Quality/Environmental Manager;

  - External audits of O&M functions will be performed by an independent auditor not employed by NTEMP-3 ;
  - QA audits of subcontractors' activities will be performed by the Quality/Environmental Manager
  - Non-Conformities identified during audits will be documented in Audit Reports
- Non-Conformity Reports: to be produced for Non-Conformities identified during maintenance inspections, audits and/or routine observations
- Preventive Action Reports / Corrective Action Reports: these reports track the resolution and prevention of Non-Conformities
- Document management and records control
- Measurement of customer satisfaction through surveys and collection of data resulting from users' comments and complaints

3.10 Environmental Management

Protection of the environment during the course of work on the Project is an important priority for NTEMP-3. To that end, the inclusion of the entire team in training early in the construction phase will provide a strong foundation for successful completion of the process. Below is a discussion of NTEMP-3's involvement in the environmental process, from the pre-development stage through O&M.

3.10.1 Roles and Responsibilities in NEPA Process

TxDOT is currently preparing Environmental Assessments (EAs) for Segments 3A and 3B according to the requirements of the National Environmental Policy Act (NEPA). Decision documents are expected in early 2011, according to ongoing discussions with TxDOT during the development of the Master Development Plan for Segments 2-4.

NTEMP-3 will manage compliance with environmental mitigation commitments identified in the NEPA process through use of a Comprehensive Environmental Protection Program. TxDOT will retain oversight to ensure that these commitments are implemented properly.

3.10.2 Environmental and Other Major Governmental Approvals to be Obtained Prior to and after Close of Finance

NTEMP2-4 acknowledges that TxDOT is in the process of negotiating Environmental and Governmental Approvals in connection with the development of the Project. TxDOT-Provided Approvals will be based on the Project schematic of the preferred alternative as presented in pending Environmental Approvals.

Additional Governmental Approvals will be required to enable the Work to proceed, for which NTEMP-3 will prepare documentation so that TxDOT may, where specified, make the necessary submittals to the relevant Governmental Entity. Section 4.2 of TxDOT's Programmatic Technical Provisions for Comprehensive Development Agreements sets forth Developers' obligations to prepare documentation and take other action(s) to support TxDOT regarding Environmental Approvals as well as the actions to be taken by TxDOT.

NTEMP-3 shall be responsible for ensuring compliance with the conditions and schedules set forth in the amendment of any TxDOT-Provided Approvals. The level of support from TxDOT, if any, will be in the sole discretion of TxDOT.

3.10.3 Mitigating, Eliminating or Reducing Environmental Risks

NTEMP-3 will utilize a Comprehensive Environmental Protection Program (CEPP) to establish the approach, requirements and processes for eliminating, reducing, and, as a last resort, mitigating environmental risks during construction, operations and maintenance. The CEPP will take into account project-specific contractual requirements and environmental commitments, and will contain the components shown in Table 5.

Table 5: Components of Comprehensive Environmental Protection Program

Component	Description

Component	Description
Environmental Management System (EMS)	An overarching system by which NTEMP-3 and the DBJV will carry forward environmental commitments and other environmental requirements, with the goal of improved environmental performance throughout the Term of the Agreement. The EMS will be used to track ongoing issues, identify environmental compliances and non-compliances and identify actions necessary for correcting any instances of non-compliance.
Environmental Protection Training Plan (EPTP)	Establishes a program of effective environmental protection training for non-administrative personnel, with the goal of minimizing or avoiding impacts to sensitive resources within the Project area.
Hazardous Materials Management Plan (HMMP)	Sets out procedures for the safe handling, storage, treatment and/or disposal of Hazardous Materials during performance of the Work; includes procedures for responding to Hazardous Material spills.
Communication Plan (CP)	Describes the communication hierarchy and preferred methods for information distribution related to compliance with the CEPP, in both routine and emergency situations.
Recycling Plan (RP)	Details NTEMP-3's and the DBJV's commitment to recycling, waste minimization and, where possible, use of "green" products during all aspects of work.
Environmental Compliance and Mitigation Plan (ECMP)	Compiles environmental compliance and mitigation requirements into one comprehensive document. Establishes compliance strategies and procedures to be employed to avoid or minimize impacts on human health and the environment.
Construction Monitoring Plan (CMP)	Establishes specific processes for environmental monitoring including operational monitoring procedures, reporting procedures, contact procedures and contact personnel for environmental responses, and incident mitigation.

Component	Description
Pollution Prevention (P2) Plan	To be prepared only if NTEMP-3 or the DBJV were to be classified as either a large quantity generator or small quantity generator of hazardous waste, or a conditionally exempt small quantity generator under the Texas Waste Reduction Policy Act (WRPA) of 1991 (30 TAC 335). A P2 Plan records a facility's toxic substance use, emissions and waste from current work practices; outlines potential pollution prevention opportunities and provides performance goals.

3.10.4 Environmental Team Organization

NTEMP-3's Quality/Environmental Manager will control environmental performance for Operations and Maintenance functions, with support from qualified personnel or consultants as needed. The Quality / Environmental Manager will also oversee the performance of the DBJV's Environmental Team, which is detailed below.

To control environmental performance for Design-Build functions, the DBJV will establish an Environmental Team. The Environmental Compliance Manager will lead the Environmental Team and implement the CEPP, in coordination with NTEMP-3's Quality / Environmental Manager. In addition to the Environmental Compliance Manager, the Environmental Team will include the following key positions:

- Environmental Training Staff: develop, schedule and conduct environmental awareness and environmental compliance training, in accordance with the EPTP.
- Environmental Compliance Inspectors: conduct onsite environmental monitoring, prepare documentation, report violations or non-compliance with environmental laws, rules, regulations or commitments and recommend corrective action.
- Water Quality Specialist: provides expertise in permitting delineation, storm water pollution prevention, and the protection of groundwater quality and jurisdictional waters.

- Hazardous Materials Manager: implements the HMMP in coordination with the Environmental Compliance Manager and Safety Manager, including oversight of hazardous materials training, verification of employee certifications and response, reporting and documentation of any incidents involving hazardous materials.
- Cultural Resources Management Personnel (archaeologists, historians, etc.): to be appointed if needed due to discovery of unexpected paleontological or historical resources or if renewal activities are extensive enough to require assessment of cultural resource impacts.
- Natural Resource Biologist: to be appointed if needed due to unexpected discovery of wildlife habitat, the Natural Resource Biologist provides expertise in monitoring impacts on wildlife and the natural environment.

3.10.5 Adherence to Applicable Laws, Rules, Regulations and Commitments

The Project-specific ECMP is the primary tool through which adherence to applicable environmental laws, rules, regulations and commitments is managed. This document compiles the requirements of each applicable regulation as well as the Developer's obligations under the various permits and other Environmental Approvals obtained for the Project. Applicable laws, rules and areas of concern include, but are not limited to:

- Clean Water Act, Sections 404 and 401: Waters and Wetlands of the United States
- Clean Water Act, Section 402: Texas Pollutant Discharge Elimination System (TPDES)
- TxDOT's agreements with the Texas Parks and Wildlife Department on State Listed Species and Unregulated Habitat
- Endangered Species Act and Fish and Wildlife Coordination Act

- Item 103, Disposal of Wells, from TxDOT Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges
- National Historic Preservation Act
- Antiquities Code of Texas
- TxDOT's agreements with Governmental Entities regarding performance of public involvement activities

The ECMP also outlines procedures for the use of Environmental Permits, Issues, and Commitments (EPIC) sheets as cover sheets for construction plans. EPIC sheets convey information to the construction contractor regarding all site-specific environmental constraints and storm water pollution prevention plan provisions, with reference to baseline stationing, where applicable. The EPIC sheets will contain permit requirements and specific instructions on procedures for areas within or immediately adjacent to environmentally sensitive areas. The EPIC sheets will contain notes relating to the various environmental disciplines presenting constraints to Project Development, including wildlife habitat/vegetation, hazardous materials, water quality, air quality, traffic noise, jurisdictional waters of the U.S. and wetlands, residential and recreational areas.

3.11 DBE / HUB / Small Business Inclusion, Mentoring and Job Training

Inclusion of small and local businesses as Subcontractors benefits the Project through the personalized, specialized services and local knowledge and relationships that these businesses offer. By offering small businesses experience, mentorship and training in the unique aspects of design-build construction and public-private partnership project delivery, NTEMP hopes to deepen local knowledge and create opportunities for the future.

NTEMP is committed to meeting or exceeding TxDOT's participation goals for the Project. Inclusion, mentoring and training of DBEs and/or HUBs and other small businesses will be managed through a DBE Performance Plan and Training/Small Business Mentoring Program.

3.11.1 DBE Utilization and Training

NTEMP-3 and DBJV management will identify the activities that are the best candidates for subcontracting and the activities to be performed by their own workforces based on best value assessments of each work activity and labor resource.

Once the activities to be subcontracted have been determined, NTEMP-3 will locate and/or solicit DBE/HUB/SBE companies through a variety of methods. Some methods that have been identified include:

- Owner-provided subcontractor listings
- Texas Unified Certification Program (TUCP) directory
- Procurement Marketing and Access Network (PRO-Net) of the Small Business Administration
- NTEMP-3's internal vendor database
- Regional directories of building and construction vendors
- MBE Contractor Directory maintained by the Associated General Contractors of America
- Office of Small and Disadvantaged Businesses Utilization Specialist
- Trade and professional associations
- Other national directories, databases and publications

3.11.2 DBE and Small Business Mentorship

NTEMP-3 has established a Small Business Mentor-Protégé Program that aims to provide effective mentoring to DBEs/SBEs/HUBs that have been selected as subcontractors for the Project.

Potential Protégé firms must submit a program application to NTEMP-3 to be included in the program and must sign a commitment agreement once accepted in to the program. NTEMP-3 will endeavor to include at least five businesses in the program at any one time.

Each Protégé firm will be assigned a Mentor, who will meet with Protégé firms during regularly scheduled meetings and will work individually with them as needed to achieve Program goals. Protégé

firms will be introduced to key NTEMP-3 staff and to TxDOT's Project staff and other networking opportunities will be provided. NTEMP-3 will also publish Developer Bulletins that identify the firms participating in the Mentor-Protégé Program to increase awareness of the program.

The Program will focus on on-the-job training through meetings, discussions and one-on-one training opportunities. Meeting topics may include:

- Planning strategies
- Schedules and scheduling
- Subcontractor interface coordination
- Creating cost budgets and measuring costs
- Measuring cash flow and profitability
- Understanding the role of bonds and insurance
- Clarifications to contract documents
- Human resources
- Project safety
- Quality reviews

3.11.3 Individual Job Training Program

In addition to the Mentor-Protégé program, NTEMP-3 will provide several types of on-the-job training to employees and subcontractors, with the purpose of building skills, ensuring quality, improving safety and protecting the environment. Types of on-the-job training to be provided may include, but are not limited to:

- Safety training for employees and subcontractors who will work on the job site (prior to entering jobsite for the first time and periodically during work)
- Environmental protection training for employees and subcontractors who will work on the job site, as specified in the EPTP
- Training or retraining on specific aspects of work as part of preventive or corrective action following observation of an actual or potential non-conformity

- Quality management training, for design, construction and/or O&M, as needed depending upon an individual's level of participation in the quality management system
- Traffic control, incident management and defect identification training for field patrol staff (O&M)
- Presentation / facilitation training for individuals who will represent NTEMP-3 at meetings with the public
- Software/hardware training, as needed

4 Design-Build Technical Solutions

4.1 Cost Estimation

The DBJV has followed a standardized estimating process in developing the design-build price that has been used by its lead member on scores of large design-build project proposals for over 30 years. This process has been adapted to the NTE Segments 3A and 3B project to take advantage of the abilities and strengths of the DBJV partners and is described below.

During the development of the Facility Implementation Plan and Facility Agreement, the same estimating team that prepared the design-build price for this submission will continue to be involved in the project. This will assure consistency for any required adjustments to the design-build price until the execution of the Facility Agreement. To assure a smooth transition after execution, the entire estimate will be thoroughly reviewed with the appropriate personnel on the DBJV team who will assume the responsibility for future cost estimating needs..

4.1.1 Redundancy

In general, the estimating process is one of systematically agreeing on each step of the estimate between the joint venture partners as the information becomes available. Each partner reviews each component of the estimate in detail, assuring that no one part of the estimate is the responsibility of only one person or one company. This redundancy throughout the process greatly reduces the risk of mistakes or of overlooking key items while also assuring that each

partner is aware of all parts of the estimate and takes full responsibility for the final price.

4.1.2 Direct Cost

The main components of the direct cost are labor rates, equipment rates, material prices, subcontract prices and the bill of quantities.

Labor and Equipment Rates: The DBJV has agreed on the labor classes, labor rates and equipment rates to be used in the estimate. The labor and equipment rates are based on the rates currently in use on other projects in the DFW area. For NTE Segments 3A and 3B, the DBJV has also agreed to use labor rates based on a 50-hour workweek to account for the overtime that will be needed to meet the schedule for construction. Appropriate factors have been considered for equipment usage, fuel consumption, maintenance, and parts and wear items. From this data, hourly equipment rates have been calculated for use during the detailed estimating phase.

Material and Subcontract Pricing: Early in the estimating process, a categorized list of potential suppliers and subcontractors (collectively vendors) was created by the DBJV. During the development of the preliminary design and the bill of quantities, the list was updated to include all items and quantities that would need to be priced in each category as well as the assumptions and conditions that the vendors should consider in their pricing. One main assumption was that all of the vendors should base their prices on current 2010 pricing with no escalation beyond December 31, 2010. This assures that all prices are compared on the same basis and allows the DBJV to determine separately how much escalation to include in the indirect costs.

The DBJV contacted the vendors and prepared bid packages that were sent out to the vendors as the design information became available. Throughout the process, the DBJV maintained communication with both suppliers and subcontractors to assure that they had a good understanding of the project and the pricing requirements. The DBJV has received pricing input from more than 80

suppliers and subcontractors in preparing their price for the NTE Segments 3A and 3B project.

Bill of Quantities (BOQ): The BOQ is a detailed list of direct cost line items organized by categories of work with the quantities broken down into detailed work elements such as frontage roads, general purpose lanes and managed lanes for roadway items and each bridge for the structures. The items and quantities were developed during the preliminary design by the engineering firm performing the design with oversight by the Ferrovial Agroman technical department. Numerous meetings have been held throughout the process with the engineering firm, geotechnical consultants and DBJV partners to review and discuss the BOQ and the design approach.

The design assumptions, calculations and quantities prepared by the engineering firm have also been rigorously reviewed and checked for errors by the DBJV and have been adjusted as needed to create the Final BOQ. The detailed estimate for the NTE Segments 3A and 3B project has been based on this Final BOQ.

4.1.3 Indirect Cost

The main categories of the indirect cost are management costs, design and engineering, insurance, payment and performance security, escalation, contingencies and markup.

Management Costs: This category includes mobilization, demobilization, project management personnel, furnished office space and expenses. Also included in this category are items for safety equipment and personnel as well as quality control and testing. Estimates are prepared for each of these items based on the anticipated needs of the project.

Design and Engineering: This category includes primarily the cost of hiring outside consultants for the following items: design, geotechnical engineering, environmental compliance, utility relocation coordination and surveying.

Insurance, Payment and Performance Security: These costs are fairly self-explanatory and have been based on the anticipated requirements of the Facility Agreement.

Escalation: The purpose of the escalation line item is to account for inflation in the prices of labor, equipment, materials and subcontracted work during the construction period. The escalation amount for the project has been calculated after an analysis of historical inflation, recent trends in construction costs, and anticipated economic effects on construction prices during the project.

Contingency (Risk Pricing): The purpose of the contingency line item is to account for both known and unknown risks undertaken by the contractor that cannot be easily mitigated in other ways. In order to determine the appropriate amount of contingency to include in the price, the entire risk profile has been analyzed based on the anticipated contractual framework of both the Design-Build Contract and the Facility Agreement.

Markup: The percentage used for this item is in line with typical rates for a large lump sum design-build project and was determined and agreed to by the upper management of the DBJV partners.

4.1.4 Bid Closing Process

The bid closing occurred as a two-step process. The first step consisted of an internal quality control review of the estimate by the estimating team, wherein specific metrics were checked to assure that the major components of the estimate were within acceptable historical ranges for similar projects.

The second step in the closing process occurred as a joint session between the DBJV partners. During this session, the DBJV estimating teams and their management reviewed and discussed the cost estimate in detail and adjustments were made until both partners agreed on the total direct cost. The indirect cost estimate was similarly reviewed by a smaller group of higher-level management from the two partners.

This rigorous bid review and closing was the culmination of a robust estimating process that contains the risk and produces a solid bid consistent with market pricing.

4.2 Developing and Delivering Facility Design

The NTEMP-3 organizational structure capitalizes on the design-build process through continuous communication between the designers, constructors and team personnel. The design and construction staff will interface during the development of the project's schedule, design reviews and discussion of construction phasing and sequencing. Highlights of NTEMP-3's design-build approach include:

Design Management. Within the framework of NTEMP-3's organization, the Design Manager will lead a team dedicated to producing quality results while meeting schedule, quality and budget expectations.

Design Coordination. The design organization is a matrix structure, with design discipline managers interacting with the design production teams that report to the Design Manager. For instance, environmental mitigation measures, defined by the environmental documents, will be incorporated into the design criteria.

Communication. The design-build process is meeting-intensive. Weekly team meetings will be held to review schedules, establish priorities, and discuss interdisciplinary and constructability issues.

Setting Consultants' Expectations. Each design consultant will provide services to satisfy specific technical requirements. The scope of services for each of the consultants will be clearly defined in each of the respective contract agreements and managed/coordinated by the Design Manager. Each subconsultant's performance, procedures and design submittals will be subject to the same project and quality requirements as the rest of the design team.

Project Control. NTEMP-3 will implement a proven project control system to manage the development of all construction packages, and to schedule and control the work.

Design Quality. Design quality control will be an integral part of the design management process. Design quality assurance will be through NTEMP-3's Corporate Quality Manager.

Lessons Learned. Advance planning will be performed to define each construction package. Part of this effort is applying value-added lessons that have been learned in the past and bringing to bear experience that will avoid problems during design and construction.

4.2.1 Integration of Key Issues

ROW – The ROW acquisition process will be critical to overall project schedule. The ROW Acquisition Manager will work to ensure acquisition of key parcels to avoid delays in project schedule.

Environmental Permitting - The Environmental Compliance Manager will track and monitor environmental permit requirements and environmental commitments.

Utilities – The Utility Manager lead utility relocation efforts and coordination among other disciplines, ensuring close coordination and effective communication between the utility coordination team and design staff, which will enable the utility coordination team to notify the utility companies in advance of design or schedule changes.

Community Relations – The Director of Corporate Affairs will work with the DBJV during design to ensure that public involvement activities are closely coordinated with the project's technical findings, so that solutions are satisfying and viable.

The NTEMP-3 project office will house the design-build management team, the design and construction team, and representatives of the TxDOT Project Team. Collocation has been an important element of the NTEMP team members' successful approach in similar design-build projects.

NTEMP-3 intends to perform design management work in the project office. However, the majority of the design will be performed in offsite locations and will be of the same type and scope of work that takes place in the project office. Examples of specialized or specific off-site involvement could be discussion of design concepts, plans, or details, peer consultations, independent design reviews, calculation checks, and written document contributions or reviews.

4.2.2 Integration of Design Elements

The design input requirements and design output requirements will be clearly defined in the NTEMP-3 design management plan that will be developed prior to commencing the detailed design activities. The application of this plan will ensure compliance with the TxDOT design requirements, and ensure that all investigations, reports, calculations, plans and specifications are prepared in accordance with accepted design and engineering practices in Texas and the NTE contract documents.

Each team member will use common project-wide reference, logging, filing and naming conventions. Drafting procedures will be developed for project-wide use to allow for electronic interchange of drawings between disciplines, thereby cutting down on paperwork and conflicting revisions. Design elements will be broken down into design section, category, unit, package or component levels corresponding as closely as possible with construction operations. These can be reviewed and constructed independently, with due consideration for the interface with other project elements.

The discipline design managers will be responsible for ensuring that other design staff members and subconsultants within the specialty discipline staff are familiar with design management procedures and project quality control requirements. For any design performed outside the project office, the discipline design managers will make visits as necessary to review and coordinate design production. The design submittals will undergo extensive design quality reviews before submittal to TxDOT.

4.2.3 Interface with Design, Construction, Maintenance, TxDOT and Federal Organizations

Coordination meetings will be held to coordinate and determine the status of design package production. The participants will review the status and progress of the development of plans and specifications for each construction package. Meeting minutes will be developed, forwarded to the participants and filed in the project's document control system. The Corporate Quality Manager will conduct a formal

review presentation to TxDOT. The formal review presentation will be held following the IE and TxDOT's review and comment of the mandatory submittals.

The primary interface between TxDOT's team and the design team will be through the design discipline managers. TxDOT staff and consultants, the design team and the construction staff will interface during the design phase in the development of the project's schedule, constructability reviews, construction phasing and sequencing, and design reviews. The construction staff will provide constructability reviews of the preliminary designs for each of the design packages.

The design team's previous design-build experience on similar projects will expedite the design process and ensure the project is designed according to the working schedule and quality standards. In particular, the team's successful design-build experience with TxDOT on SH 130, Segments 5 and 6 will significantly streamline design startup, development and approval process.

4.3 Constructing the Facility

The DBJV's philosophy for managing construction will be first to ensure the safety and convenience of the traveling public and construction personnel; second, to maintain mobility and minimize disruptions to users and adjacent facilities; and third, to provide project improvements of high-quality design and construction in an expedited manner, allowing the facility to open to customers as soon as possible.

During the submission stage, the DBJV has identified critical project development activities and advanced those activities to allow the team to begin work immediately upon award of the contract. The design-build nature of the NTE Segments 3A and 3B Project results in the integration of the design and construction such that the treatment of one activity is specifically considered for its impact on all activities. By following a fast-track approach, it is anticipated that design, ROW acquisition, utility relocations and initial construction activities will all overlap. With this strategy, a significant portion of the proposed work can be completed within the existing ROW, while the new ROW is being acquired and the utilities are relocated. This approach will be supported by the extensive planning and preliminary work performed during the submission stage.

4.3.1 Integrating Design with Construction

Ferrovial Agroman and W.W. Webber will serve as the Design-Build Contractor during construction. To achieve the proposed aggressive schedule, construction must overlap with design. The DBJV's experience on similar projects has shown that close communication between field and design work and a true partnership with TxDOT become key elements of a successful project by encouraging creativity and innovative ideas and emphasizing the importance of high quality design that works in the field. The organizational structure of the DBJV takes advantage of the design-build process through continuous communication.

4.3.2 Dividing and Controlling Work

To minimize the duration of the construction work and utilize resources in an efficient manner, the work will be divided into functional and geographic segments. Segment Managers and construction teams will be assigned to each segment allowing work to proceed in multiple locations simultaneously. Regular meetings between the Segment Managers and the Design-Build management team will be the primary means to disseminate information and control their efforts. The relationship between all departments within the DBJV is set out in the organizational chart, provided in Section 2.2.

4.4 Managing Staged Construction and Traffic Management

NTEMP-3 and the DBJV are well aware of the existing traffic congestion on IH 35W and the major connecting facilities included in the Project as well as the complexity of reconstructing and tying into these existing highways. The overall objectives of the proposed construction staging and traffic management design will be to provide for the safe and expeditious flow of traffic through the project area, while addressing the safety of the construction and inspection forces, maintaining access to adjacent property and protecting the environment.

The traffic control plans will be developed to safely route traffic at a controlled speed near or around construction areas with geometrics and traffic control devices as nearly as possible comparable to those for normal operating situations, while providing room for efficient construction work. The intent of the traffic control plan is to produce as minimal an effect on traffic operations as

possible, by minimizing the frequency of, and time consumed by, impediments to normal traffic flow. In addition to minimizing disruption to the traveling public, the plan will also be prepared with the intention of minimizing disruption to residents and businesses located within project area of influence.

The personnel responsible for management of staged construction will follow a strict policy for coordination meetings with O&M personnel. Other procedures to be implemented in pursuing successful staged construction include:

- displaying notifications of upcoming construction on the Project website;
- notifying local radio, television and newspaper outlets and local authorities of upcoming construction;
- marking construction work areas with advance warning signage and protecting work areas with concrete traffic control barriers and crash cushions.
- designing lane widths and roadway geometries to minimize abrupt changes in traffic patterns;
- maintaining adequate lighting in and around construction work areas;
- performing maintenance activities during off-peak traffic times to avoid disruption to the traveling public; and
- handling any maintenance work that is considered a hazard and requires prompt attention in the most beneficial way without compromising safety or causing disruptions for the traveling public.

4.4.1 Coordination with Ongoing O&M Activities

The members of NTEMP-3 have proven experience in reconstruction and widening of facilities under very heavy traffic volumes, as demonstrated in the widenings and upgrades successfully carried out on the 407 ETR in Toronto, the Indiana Toll Road and the Chicago Skyway. NTEMP understands that there are two key elements of success in this regard: a close follow-up of all construction related activities by both the O&M and the construction management teams, and demanding standards for traffic diversions and impacts, which not only comply with but also exceed current standards.

4.4.2 Construction Phasing

The construction staging has been developed with the final configuration in mind. Phases are envisioned for the staging work as briefly described below.

- Temporary ramps will be constructed in the locations where necessary to compensate for the ramp closures in other locations. Temporary ramp construction will be staged when crossing the construction zone.
- Temporary walls and shoring will be used where necessary.
- Temporary barrier walls will be installed where necessary to separate opposing directions of traffic and to separate the traffic from obstacles and the construction zones.
- Traffic control will be developed based on the Design Speed of 55 MPH on Interstate and State Limited access Highways, (45 MPH being the absolute Minimum at major alignment transitions) as per RFI 21 (Volume 4 Attachment 9)
- Lane Widths during construction shall be a minimum of 11’, and 10’ lanes in limited circumstances as per RFI 21 (Volume 4 Attachment 9)
- 1’ Shoulders are allowed as per RFI per RFI 21 (Volume 4 Attachment 9)
- The contractor will use the same traffic control requirements as the IH-635 Managed Lanes Project with respect to the closure of ramps during construction of the project. The contractor will be allowed to close entrance and exit ramps barring that no two consecutive entrance or exits can be closed at the same time.

NTEMP-3 will sequence construction to maintain access to adjacent property. Proposed frontage roads are constructed in Stage 1. Proposed frontage roads can be phase constructed, maintaining access to adjacent property. Once the proposed frontage roads are in place, access to property will remain during construction.

The premise for the construction sequencing and traffic control plan for the NTEMP-3 Project will be, first and foremost, to ensure the safety and convenience of the traveling public and the construction personnel; second, to minimize disruptions to adjacent businesses; and third, in the most efficient manner possible, to construct the project in a timely manner, and allow the expeditious opening of the facility. These goals will be met by providing a logical, detailed plan that is in conformance with Good Industry Practice and follows the requirements of the Texas Manual on Uniform Traffic Control Devices (TMUTCD) and by phasing the construction to minimize interruptions to traffic.

Since there are few residential areas adjacent to this project, it is anticipated that a significant portion of the work will be performed at night both to accelerate the schedule and to minimize the inefficiencies and safety issues of adding construction traffic to the already high traffic volumes in the area. The number of detours in close proximity to residential areas will be minimized. Lane closures and traffic switches will be scheduled during off-peak hours, when at all possible.

4.5 Roadway

The bases for this submission are TxDOT's schematics developed for environmental approval dated Aug 5, 2009 for Segment 3A, and July 28 2009 for Segment 3B.

NTE Segment 3B, as defined by TxDOT, consists of the IH 35W segment from the interface with Segment 1 (north section of the IH 820/IH 35W Interchange) to the interchange with US 81/US 287 (approximately 3.3 miles). NTE Segment 3A, as defined by TxDOT, consists of IH 35W from the interface with Segment 1 (south part of the IH 820/IH 35W Interchange) to the IH 30 interchange (approximately 6.5 miles). Through the CDA for the Master Development Plan for Segments 2-4, TxDOT has made an improvement to the Project by extending the Managed Lanes further south and providing connectors to and from Spur 280, thereby utilizing the existing connections from Spur 280 to IH 30, which is a major corridor connecting Dallas and Fort Worth. The configuration of Segment

3B has been optimized to take advantage of the existing frontage roads on Basswood Boulevard.

The Proposer has developed an interim solution for NTE segments 3A and 3B. The general concept of the interim construction is to provide two Managed Lanes per direction, maintain the current capacity of the General Purpose Lanes, and maintain the existing capacity on the Frontage Roads (See schematics for Segments 3A and 3B in Volume 4). As part of the project optimization, and to reduce the subsidy required from TxDOT, the Proposer developed a design for the Interim Segment 3A that will utilize the existing infrastructure on the interchanges of IH 35W with SH 121 and Spur 280 as much as possible. The end result is an interim construction that will be compatible with the Ultimate extension of the Managed Lanes further south of SH 121, and that will preserve the existing connections to and from the above stated major intersections.

In order for the Proposer to utilize the exiting SH 121 interchange infrastructure, the interim design will transition the IH 35W horizontal and vertical alignments to the existing infrastructure just north of the Interchange. The Proposer reviewed the entire ultimate schematics to ensure the compatibility of the interim and ultimate configuratons (except on interim Segment 3A south of the Trinity River as stated above). Below is a general description of the project limits for NTE segments 3A and 3B:

Segment 3A:

North Limit – Two tolled Managed Lanes in each direction, three General Purpose Lanes in each direction and two frontage road lanes in each direction (northernmost limit of frontage road construction is at Meacham Blvd) beginning construction close Meacham Blvd at Sta 666+50.

South Limit – Three northbound and four southbound General Purpose Lanes and one tolled Managed Lane in each direction on IH 35W approximate Sta 929+00. On Spur 280, one tolled Managed Lane in each direction ending construction at approximate Sta 945+00.

Segment 3B:

North Limit – One tolled Managed Lane in each direction, two general Purpose Lanes in each direction and two northbound frontage roads starting construction at North Tarrant Parkway at approximate Sta 1405+00.

South Limit – Two tolled Managed Lanes in each direction, two frontage roads in each direction, four northbound and three southbound General Purpose Lanes ending construction southerly of Western Center Blvd at Sta 581+00.

West Limit – One tolled Managed Lane in each direction, two General Purpose Lanes in each direction and two southbound frontage roads starting construction at US 287 at approximate Sta 466+50.

4.5.1 Geometric Requirements

The Proposer has developed the design of Segments 3A and 3B within the constraints of the North Tarrant Express MDP CDA Geometric Design Criteria (Volume 4, Attachment 1) including the Notes of Geometric Deviations within the same document, along with all the RFIs submitted to TxDOT during the Master Development Plan work for this Segment. The design speeds for the Ultimate NTE Segment 3A and 3B are shown in Table 6.

Table 6: Design Speeds for Ultimate Configuration

Roadway	Design Speed (MPH)
Segment 3A	
General Purpose Lanes (Beg until Sta 932+00)	70
General Purpose Lanes (Sta 932+00 – South End)	55
Managed Lanes (Beg until Sta 932+00)	
Managed Lanes (Sta 932+00 – South End)	55
Frontage Roads	40
Ramps/Collectors	50
Cross (City Street)	35
Loop Ramps	25
Segment 3B	
General Purpose Lanes	70
Managed Lanes	70

Roadway	Design Speed (MPH)
Frontage Roads	40
Ramps/Collectors	50
Cross (City Street)	35

The deviations granted by TxDOT for the design of Segments 3A and 3B that are applicable on the Interim configuration (within the document North Tarrant Express MDP CDA Geometric Design Criteria on Volume 4 Attachment 1) are shown in Table 7.

Table 7: Design Deviations for Segments 3A-3B Interim Configuration

Description of Deviation	Note Depicting Deviation in NTE MDP CDA Geometric Design Criteria
Segment 3A	
Curve 35WML-4 shall comply with an SD of 60 MPH	Note 12
Spur 280 shall be designed with a design speed of 35 MPH	Note 18
5% Max Grade on ramp connecting IH 35W SB to Northside Drive	Note 3B and 3C
5% Max Grade on ramp connecting SH 183 to IH 35W SB	Note 3F
5% Max Grade on ramp connecting IH35W ML SB to Spur 280 SB	Note 3.J
5% Max Grade on ramp connecting IH 35W ML NB to IH 35W GP	Note 3K
5% Max Grade on ramp connecting IH 35W GP SB to IH35W ML SB	Note 3L
Ramp Connecting Spur 280 NB to IH 35W ML NB	Note 3M
Segment 3B	
Curve 35S-287-2 Shall Comply with a design Speed of 40 MPH	Note 19

The North Tarrant Express MDP CDA Geometric Design Criteria Notes 2-11, and 13-18 depict geometric design deviations for the alignments that will still be outstanding In order to build the remainder of the ultimate NTE Segment 3A and 3B.

Due to the fact that Segment 3A will utilize the existing infrastructure on the interchanges of IH 35W with SH 121 and Spur 280, the General Purpose Lanes south of the Trinity River will have to be rebuilt whenever the ultimate interchange of IH 35W and SH 121 is constructed. The design optimization required some design considerations resulting from Requests for Information resolved during Master Development Plan work, as shown in Table 8.

Table 8: Design Considerations Based on RFIs from MDP Process

Description	RFI Allowing Design Deficiencies
Distance between Existing Ramps TRTA-GPSI and GPSI-121 is less than 1500'.	RFI 31 (Volume 4 Attachment 3)
Distance between Existing Ramps BELK-GPNI and GPNI-TRTA is less than 1500'.	RFI 31 (Volume 4 Attachment 3)
Ramps TRTA-GPSI, GPSI-121, BELK-GPNI GPNI-TRTA should attempt to achieve the highest attainable design speed as the required design speed of 50 MPH will not be achieved for the above temporary Ramps	RFI 31 (Volume 4 Attachment 3)
Design of Interim IH35W GPL South of IH35W Centerline Station 898+50 shall meet a Design speed of 55 MPH.	RFI 30 (Volume 4 Attachment 2)
Existing Horizontal Alignment E35N280 can have radii that meets 20 MPH design Speed.	RFI 35 (Volume 4 Attachment 4)
7% Max vertical Grade on Existing Alignment E35N280.	RFI 28 (Volume 4 Attachment 5)
Existing Cypress Street Alignment Curve Cypress -1 can have a radius of 75 ft (Meets 15 MPH Design Speed).	RFI 34 (Volume 4 Attachment 6)

Other RFIs that have clarified design criteria having a direct effect on Interim Construction are shown in Table 9.

Table 9: RFIs Clarifying Design Criteria

Description of RFI	RFI Depicting Clarification
Segment 3B Managed Lanes between Station 1538+00 to 1581+00 Ultimate configuration will have two General Purpose Lanes and one Auxiliary Lane per direction. This RFI clarifying the lane configuration allows having 4 ft inside shoulder instead of 10 ft.	RFI 26 (Volume 4 Attachment 7)
Segment 3A Managed Lanes between Station 707+00 to 722+98 on TxDOT's schematics for Environmental approval the Ultimate configuration will have two General Purpose Lanes and one Auxiliary Lane per direction. This RFI clarifying the lane configuration allows having 4 ft inside shoulder instead of 10 ft.	RFI 29 (Volume 4 Attachment 8)

The North Tarrant Express MDP CDA Geometric Design Criteria (Volume 4 Attachment 1) also lists the requirements for vertical alignments, stopping sight distance, horizontal and vertical clearances, roadway classification, cross sectional elements, and design vehicles for turns.

4.5.2 Horizontal Alignment Refinements

The Proposer has conducted a thorough review of the TxDOT-provided schematic drawings. In general it was found that the curve geometry and superelevation values complied with the TxDOT Design Manual requirements but that the horizontal alignment needs to be refined in a few locations to meet the design speed criteria, for traffic control purposes and to aid in bridge design. The refinements generally consist of increasing the radii of the curves to increase stopping sight distance (SSD) to comply with the required design speed. On both Segments 3A and 3B, some northbound and southbound General Purpose Lanes alignment curve radii have been increased to approximately 4,200 feet to meet a 70 mph design speed with a given middle ordinate (M). Several ramps have increased alignment curve radii up to 1,600 feet or 2,100 feet depending on the M distance and to meet a 50 mph design speed criteria.

4.5.3 Vertical Alignment Refinements

The Proposer has refined the TxDOT-provided schematic to reduce grades on the roadways complying with the requirements of the North Tarrant Express MDP CDA Geometric Design Criteria. On both Segments 3A and 3B, the vertical alignments on several portions of the General Purpose and Managed Lanes have been adjusted to a 3% or 4% maximum grade depending on the area of the Project. Some ramps and direct connectors havebeen to a 4% maximum grade with the exceptions detailed in Note 3 of the NTE MDP CDA Geometric Design Criteria. Several profiles, generally frontage roads and cross streets, have been adjusted to comply with the 0.35% minimum grade.

4.5.4 Typical Sections

The Proposer has reviewed the typical sections available on TxDOT's schematics for compliance with the NTE MDP CDA Geometric Design Criteria and has revised them using the following criteria:

- The lane and shoulder widths will conform to the North Tarrant Express MDP CDA Geometric Design Criteria.
- At several ramps, the shoulder widths will be "flipped" to meet the required SSD as allowed by Note 2 of the NTE MDP CDA Geometric Design Criteria.
- Potential obstructions in the clear zones will be removed to the extent possible. Any encroachments in the clear zone will be protected by MBGF or by concrete barrier with TxDOT-approved crash attenuators where required.
- Side slopes will be designed at 6:1 maximum in clear zones (when rail not required) and 3:1 maximum outside of clear zones.
- This submission is based on the assumption that the geometric requirements for the Managed Lane declaration areas shall match the typical sections and layout located in Volume 4 under the typical sections roll. The declaration areas will only be located on the entrance ramps to the Managed

Lanes. The declaration area shoulders at the declaration gantry will be one foot on both sides.

4.5.5 Pavement Design

The Proposer will use a flexible pavement type consisting of Stone Matrix Asphalt (SMA) for the upper wearing course layer and HMAC, flexible base and lime-treated subgrade (LTS) or similar subgrade improvement treatment. Typical engineering values for these materials in Texas were utilized during thickness design. Additional lime treatment will be needed at some locations to reduce PVR values to standard levels. In addition to the information provided by TxDOT, our team conducted a series of PVR analysis.

Pavement designs were conducted using the 1993 AASHTO pavement design methodology as allowed by the TxDOT Pavement Design Guide Section 5 for an initial design life of 20 years.

The pavement subgrade was characterized by means of FWD Back calculation and derived from other index properties to arrive at a resilient modulus (Mr) consistent with the type of underlying and available soil encountered along the project for fills and cut sections. Plasticity potential of the soils will be limited to acceptable thresholds. Sulfate contents will be studied carefully during the detailed design to ensure that the adequate subgrade treatment is provided.

4.6 Drainage

As stated in Section 1.2.1 of the CDA for Segments 2-4 (Book 1), the drainage design requirements for Segments 3A and 3B are contained solely within Chapter 12 of Book 3 of the CDA Documents (Programmatic Technical Provisions). Segment 3A contains four cross drainage structures within its interim construction limits (including the IH35W crossing over the Trinity River), with a combined contributing drainage area of 2,201 square miles. Two of these structures having a contributing area of more than 200 acres. Segment 3B contains five cross drainage structures within its interim construction limits with a combined contributing drainage area of 24 square miles. Two of these

structures having a contributing area of more than 200 acres. Tables 10 and 11 list the cross drainage structures and their locations.

Table 10: Drainage Area by Crossing Seg 3A

Crossing Name	Drainage Area (acres)	Station / Roadway
Tributary of Little Fossil Creek	272	692+30 / IH 35W
Unnamed	61	12+75 / SH 183
Tributary of Trinity River	149	834+52/ IH 35W
Trinity River	1,408,000	850+00 / IH 35W

Table 11: Drainage Area by Crossing Seg 3B

Crossing Name	Drainage Area (acres)	Station / Roadway
Unnamed	83	1429+75 / IH 35W
BFC-2	1,167	1463+60 / IH 35W
Big Fossil Creek	13,586	1535+00/ IH 35W
Unnamed	39	1548+53 / IH 35W
Unnamed	63	1560+31/ IH 35W

The drainage crossings, as proposed on the plans, were designed with no roadway overtopping for the required drainage design frequency (per Table 12-1 of Book 3). NTEMP-3 will preserve the existing drainage patterns whenever possible, and will design all drainage systems to accommodate the ultimate development of the drainage areas.

Please note that this submission is based on the assumption that the contractor will follow the same vertical alignment across the Trinity River as the one outlined on the schematics prepared by TxDOT dated August 5, 2009 (including placing columns and the south abutments on the existing levee itself).

The proposed drainage systems will have a combination of open ditch drainage near interchanges and closed storm sewer elsewhere. Storm sewer trunk lines are proposed under the frontage roads or under the Managed Lanes and General Purpose lanes. Minimums stated in Book 3, Chapter 12 have been taken into account for this preliminary design.

A detention pond is proposed on Segment 3A near the sag point at Station 785+00. The drainage system draining this sag point will drain into an open channel that is undersized south of Warwick Avenue. The proposed detention pond will reduce the proposed drainage discharge to meet existing flows by matching the peak discharge for both conditions. Final volumes and detention structure sizes will be determined during the detailed design phase.

4.7 Bridges and Surface Structures

The overall approach of the design team with respect to structures delivery and compliance with the requirements set forth in Book 3, will be as follows:

1. Adherence to standard design protocols.
2. Cooperative approach to constructability and schedule. Early coordination with construction engineers to decide jointly on materials and technology to enhance consistency and plan production efficiency.
3. Schedule optimization with early design and construction of bridge elements according to the Management of Traffic (MOT).
4. Reduced traffic disruption by laying out structures so that existing pavement is impacted minimally during construction.
5. Early ROW acquisition and permitting as well as coordination with railroads and other utility owners, to achieve satisfactory and timely completion of structures.

4.7.1 Bridge Layout

The geometry of the bridges will conform to the geometrical requirements of the roadway being carried and its functional classification as set forth in Book 3, and the MDP CDA Geometric Design Criteria that have been developed between TxDOT and NTEMP2-4 through Requests for Information and Clarification during execution of the Initial Scope of Work for Segments 2-4. Bridge widths will conform to the requirements stated above. No bike paths are included.

Clear Zone Requirements have been taken into account for column placement transversely. Bridge structure clearances will conform to the requirements of the MDP CDA Geometric Design Criteria, and Book 3.

4.7.2 Railroad Crossings

Segment 3A has four different locations where IH 35W crosses over a railroad. Vertical and horizontal clearances will conform to the MDP CDA Geometric Design Criteria, and Book 3.

4.7.3 Stream Crossings

According to Book 3, structures over streams and rivers will be designed for the 50-year design frequency. For proposed structures within floodplains, the structure will be hydraulically equal to or better than the one being replaced.

4.7.4 Structures Typology

Bridges within Segments 3A and 3B will be constructed using TxDOT conventional design and construction methodologies and materials. The superstructure will be either TxDOT standard TX-girders, steel plate girders, or AASHTO-type beams. The concrete girder spans will be optimized, with most of the spans supported by the concrete girders. The concrete deck will be standard in thickness. The steel girders will be detailed in accordance with the "Preferred Practices for Steel Bridge Design" document produced by TxDOT and the Texas Quality Steel Council. All bridges will be designed according to the requirements of Book 3, Section 13.2.2.

At bridge abutments, concrete riprap will be used to protect header slopes at bridge ends. Concrete approach slabs will be used on all bridges to cover the area behind the abutment backwall where good compaction of embankment is difficult to achieve.

Standard TxDOT bridge bents will be utilized. These bents have been shown to be durable and will meet the required residual life requirements stated in Book 3. Use of steel superstructure will be as minimal as possible. Straddle bents will be, for the most part, either reinforced or post-tensioned concrete.

4.7.5 Use of Existing Bridge Structures

As part of its proposed optimization of the Project, NTEMP2-4 has developed an alternative that will preserve the existing Basswood

Bridge over IH 35W by slightly modifying the alignment of the IH 35W centerline. The submission submitted to TxDOT is based on the assumption that the developer will not be required to reinforce the existing bridge in order for it to comply with the same structural loading requirements as the remaining proposed Bridges. The Basswood bridge underpass will have to be replaced whenever the ultimate General Purpose Lanes are constructed.

4.7.6 Meeting Handback Requirements of the Technical Provisions

The primary location where corrosion is a problem is in bridge decks. All reinforcing steel in cast-in-place bridge decks will be epoxy-coated rebar. The use of prestressed beams and deck panels will pose a very limited possibility for crack generation. Weathering steel will be specified to reduce maintenance requirements.

The number of bridge deck joints will be held to a minimum, within good design practices. Simple spans will be tied together with continuous bridge decks. The TxDOT standard sealed joint detail SEJ-A will be used on all prestressed girder and steel plate girder units. For smaller spans, consideration will be given to armor joints with silicone seal.

Stream crossing structures will be checked for inundation at the 100-year flood frequency and measures will be taken such as beam hold-down, shear keys and brackets to ensure the bridge withstands the event with no loss of structural integrity.

4.8 Tolling and ITS

The Tolling Plan is included as Appendix 2A.

4.9 Signing, Delineation, Pavement Markings, Signalization and Lighting

The Proposer used the TxDOT-provided information that was available on the schematics for environmental approval as a starting point in developing the proposed interim and ultimate guide signing schematics. Minor modifications were made in sign placement to the TxDOT-provided information to accommodate the interim construction and the transitions tying to existing facilities.

Sign structures such as overhead sign bridges (OSB) and cantilever overhead sign supports (COSS) will be constructed using the latest TXDOT standards and practices.

Small signs will be placed per TxDOT standard practice and the latest revision of the TMUTCD. Small signs are not shown in the proposed schematic but will be defined during the final design phase by applying the proposed striping layout.

4.9.1 Approach to Striping, Signalization and Lighting

The proposed striping will be designed in accordance with the requirements of the TMUTCD. In meeting Book 3 and other applicable requirements, median noses for all raised median islands and inside edges of exclusive left-turn lanes will be striped.

Based on the project limits stated in Section 4.5 of this submission Document, The proposed new signal work will take place at two Intersections on Segment 3A, and three intersections on Segment 3B. To accommodate pedestrian crossings, all new signalized intersections will provide pedestrian signal heads. In addition, pedestrian pole signals and push buttons will be provided to facilitate roadway crossing at major intersections.

The roadway lighting for Segment 3A will primarily consist of continuous high-pressure sodium lighting complying with the standard TxDOT requirements.

4.10 Aesthetic Design

This Project involves a major reconstruction of a more than 10 miles of the IH 35W, a major interstate corridor through Tarrant County. NTEMP-3 believes that this presents an unprecedented opportunity to both improve the look and feel of the area, and to present the local flavor of the Fort Worth and Tarrant Country area to the many people traveling along IH 35W from both near and far. NTEMP-3 is committed to working with TxDOT on the Aesthetic design of the project to turn this opportunity into a reality and for this purpose has included a significant Aesthetic Allowance in this proposal to be used to pay for aesthetic design and aesthetic elements. The aesthetic design of the Project is anticipated to follow the Aesthetic principles outlined below:

- Incorporate local input and regional context into the aesthetic design.
- Minimize impact on the existing natural environment to the extent possible and blend aesthetic elements seamlessly with the existing landscape and nature of the region.
- Simplify and standardize the design of all bridges and other structures using simple geometric shapes for continuity along the entire length of the project.
- Use consistent graphics, signage and lighting elements along the entire length of the project.
- Fully integrate all aesthetic elements into the overall landscape and roadway design.
- Use native-area and/or naturalized plant materials that exhibit good drought tolerance.
- Aesthetics treatments to the vertical surfaces of retaining walls and noise/sound walls where the surface is visible from the roadway or adjacent houses.
- Special attention will be given to the aesthetic design at major intersections, cross streets, and approaches to toll collection points.
- Utilize trees from local vendors and hire local landscaping subcontractors to help stimulate the local economy.

4.10.1 Coordination with TxDOT on Design Guidelines and Aesthetic Details

Before developing the initial concepts for review with TxDOT, NTEMP-3 would propose an initial kickoff meeting to review concepts and design elements that have been successful on similar projects and to identify community issues that could be addressed early in the design process. With this information, the design team would be able to develop aesthetic concepts that address the community and TxDOT's requirements, thus allowing public presentations to go forward with greater efficiency.

4.10.2 Coordination with Adjacent Governmental Entities, Neighborhood Input and Public Meetings

To ensure that the nature and character of the surrounding neighborhoods is "celebrated" or reflected in the aesthetic solutions

of this project, design meetings will be held with affected neighborhood groups to gather design ideas. Several of these meetings will also include design "charrettes" with the neighborhood representatives, along with extensive fact-finding. These design charrettes will include both sketches and "image boards" with photos that show pieces of elements reflecting an aesthetic solution that makes clear the personality and direction of the design solution. This collaborative process will result in a project that has been embraced by the community.

4.11 Utility Adjustments

During the development of this submission and as part of the MDP process, a local firm was hired to perform a Level B Subsurface Utility Engineering (SUE) investigation and to perform a detailed study of the utility adjustment requirements for the Project. This work included a detailed conflict analysis, the identification of all known conflicts between the proposed facility and existing utilities. Then a preliminary utility relocation concept plan was prepared to provide a graphical representation of where each existing utility that is in conflict could potentially be rerouted. Input was gathered from utility owners and all information was included in a detailed utility matrix cross-referenced to the concept plan drawings. Quantities measured from the drawings were included in the matrix and a cost estimate for the utility adjustments was prepared based on these quantities.

The NTE Project, Segments 3A and 3B will be wider than the existing roadway configuration, requiring additional ROW in many areas of the Project. Utilities that now run parallel to the alignment occupy areas that will fall under the wider footprint of the Project. All of these utilities will have to be relocated during the first stages of construction. In addition, there are many utilities that currently parallel existing cross roads and in other areas that will need to be relocated.

After execution of the Facility Agreement, additional meetings will be held with each utility owner to negotiate the Utility Adjustment Agreements and finalize all of the utility assemblies following the requirements of the Facility Agreement and the priorities established in the Facility Schedule. Additional SUE work will also be performed prior to and during the Utility Design including Level A

verification of sizes, materials and elevation where such information is deemed to be of importance.

It is anticipated that a mix of both "Developer-Managed" and "Owner-Managed" Utility Adjustment Agreements will be negotiated with the utility owners. Some of the Developer-Managed work may be self-performed by the DBJV with the remainder being performed by local subcontractors specializing in utility relocations. During the course of the Project, special attention will be paid to coordinating and minimizing outages and shutdowns to lessen the impact on utility customers. Effort will also be devoted to locating and protecting existing utilities to remain in place.

5 Operations and Maintenance Management and Technical Solutions

NTEMP-3 will retain responsibility for O&M of the Facility. During the first stages of the Project, NTEMP-3 may subcontract certain activities associated with the O&M of the Facility to an external specialized provider. The O&M sub-organization, described in detail in Section 2.2.3, will be comprised of competent in-house individuals supported by a pool of local subcontractors specialized in maintenance of highways. NTEMP-3 can draw from a large base of local and national subcontractors for certain specialty maintenance activities. The O&M sub-organization will remain functional from prior to the Service Commencement Date through the end of Term.

5.1 Preliminary Operations Management Plan

5.1.1 Meeting Operations Obligations as Described in the Technical Provisions

The Operations Manager will finalize and submit the Operations Management Plan to TxDOT prior to NTP2. Elements of the Operations Management Plan will include:

- condition preservation and inspection;
- response to emergencies, hazardous weather, breakdowns, accidents, and incidents; and
- operations of ITS systems management.

After service commencement, NTEMP-3 will rely on a two-part structure to achieve the operational objectives: the O&M sub-

organization supported by an integrated roadway IT system. The following initiatives will be put in place:

Traffic Safety and Corridor Preservation

- Implementation of the Traffic Safety Officer role, a position fully devoted to ensuring uninterrupted monitoring of the facility, defining and enforcing internal O&M traffic control procedures and frequently reporting facility condition and incidents. The Traffic Safety Officer will be available 24 hours per day, seven days a week
- Training of field patrol staff in health and safety, traffic control, incident management, identification of defects and routine maintenance
- Implementation of a year-round, 24-hour Traffic Management Center (TMC) and field patrol crews to continuously monitor weather, debris presence, road surface and corridor conditions though the use of ITS tools (MVD, CCTV, 911, radios, RWIS/Weather Services)
- Documentation of highway conditions through the Highway Conditions Report
- Documentation of incidents through Incident Reports

Incident Management

NTEMP-3 will formulate an Incident Management Plan as part of the Facility Management Plan, in compliance with Facility Agreement. Its main objectives are:

- ensure the safety of the roadway user;
- minimize the impact of incidents on the traveling public;
- provide information to TxDOT management for further transmission to road users and officials; and
- restore the network to normal conditions as quickly as possible.

NTEMP-3 will manage emergency planning under the authority of the Operations Manager and Traffic Safety Officer, who will oversee development and continuous improvement of the Incident Management Plan. Prior to SCD, the Operations Manager will hold a

partnering session with authorities and emergency service personnel from the appropriate State and local agencies. This session will establish roles and responsibilities, communications protocols, requirements for report creation, distribution and documentation and a chain of command for each type of incident or emergency. Based on these outcomes, the Traffic Safety Officer will prepare standard operating procedures to supplement the Incident Management Plan.

5.2 Maintenance Management Plan

5.2.1 Meeting Maintenance Obligations as Described in the Technical Provisions

The Operations Manager will finalize and submit the Maintenance Management Plan to TxDOT prior to NTP2. The O&M sub-organization and local Subcontractors specializing in construction and maintenance of highways will address specialized maintenance needs during the term of the Facility Agreement.

NTEMP-3 will maintain Segments 3A and 3B to provide a safe and reliable transportation system for its users while also ensuring its maintenance as a long-term capital asset. NTEMP-3 will use a performance-based approach, supported by a comprehensive Facility inspections plan, to maintain the Facility's features, components and elements. Such an approach will guarantee efficient allocation of in-house resources to effectively address routine and preventive, reactive response and long-term maintenance needs, ensuring continuous operation of a safe and reliable Facility according to good industry standards. This approach will guarantee that, upon Handback, the State of Texas will take control of a well-maintained asset that will retain its long-term value. The primary objectives of NTEMP-3's approach to maintenance are as follows:

- routinely and closely monitor the performance of the Facility in order to respond promptly to emergencies and imminent maintenance needs;

- maintain the Facility's features, elements, components and systems effectively and efficiently to meet the Performance Requirements established by the Performance and Measurement Table Baseline in the Facility Agreement;
- ensure continuous, serviceable and safe operation of the Facility, minimizing delay and inconvenience to the road user; and
- develop a long-term maintenance plan to maximize asset serviceability and guarantee satisfactory achievement of the Handback Requirements established by the Facility Agreement.

Through the Maintenance Management Plan, NTEMP-3 will implement the following programs to achieve maintenance objectives:

- Roadway Inspection and Testing Program: inspection and testing to provide accurate conditions reports of the Facility and aid in NTEMP-3's programming and implementation of response to defects or renewal work;
- Preventive Roadway Maintenance Program: maintenance activities to preserve the condition and slow the deterioration rate of the Facility;
- Routine Roadway Maintenance Program: maintenance activities for the daily remedy and repair of Facility elements;
- Renewal Roadway Maintenance Program: maintenance activities designed to reconstruct, renew, restore, rehabilitate or replace facility elements to improve their residual life or satisfy new technical requirements; and
- Handback Maintenance Program: inspections and maintenance activities directed to meet and exceed Handback Requirements established by the Facility Agreement.

NTEMP-3 will deliver the Maintenance Management Plan prior to NTP2 and update it at least annually. The process and procedures of the Maintenance Management Plan will comply with legislation in force and good industry practices.

5.2.2 Maintaining the Facility over the Term of the Agreement

Each major maintenance item will have a schedule of inspection, routine maintenance and preventative maintenance with corresponding procedures. The frequency of maintenance is based on achieving the Performance Requirements established in the Facility Agreement.

NTEMP-3 will utilize the following resources to support the maintenance programs:

- O&M sub-organization with trained in-house engineers and maintenance crews;
- Field patrollers to assist with lane closures and visual inspections;
- TMC to oversee, coordinate, support and control field maintenance work;
- information management tools to manage records of inspection and maintenance activities;
- vehicles, machinery and equipment as listed in Section 5.6.4.

The Maintenance Manager will coordinate day-to-day roadway O&M activities, and will assist the Operations Manager to:

- finalize and submit the Maintenance Management Plan;
- coordinate transition of maintenance responsibilities from TxDOT to the NTEMP-3 concession;
- hire and train personnel to be part of maintenance crews;
- engage and monitor local companies to support specialized maintenance activities; and
- define the Renewal Work to improve condition of existing facility sections.

As part of the performance-based approach to maintenance, NTEMP2-4 will inspect and monitor the different elements of the Facility, prepare periodic maintenance plans and arrange for in-house personnel or Subcontractors to carry out certain maintenance activities. The periodic maintenance plan carried out by NTEMP2-4

will comply with the provisions related to Renewal Work and Renewal Work Schedule as stated in the Facility Agreement.

Given the history of maintenance contracting in Texas, NTEMP-3 can draw from a large base of subcontractors for certain specialty maintenance activities

5.2.3 Systems Maintenance and Renewal Work

Contracts with systems integrators will include extended guarantees that will include quick response times along with the obligation to provide continuous training for NTEMP-3 systems maintenance personnel. NTEMP-3 systems maintenance personnel will work independently from systems integrators following an appropriate learning period.

The Field Systems Manager will supervise the IT field maintenance technicians, which will allow for coordination of repair and inspection activities with other maintenance personnel, and will help to balance personnel needs in case of unexpected peaks. This manager will also coordinate with the Back Office manager with regards to the additional in-house crew that will maintain the applications and hardware housed in the TMC, including the ITS, TCS and Back Office servers and related components.

5.3 O&M Approach and Transition to Service Commencement Date (SCD)

5.3.1 Transition to Operations

The Transition Plan for this project will include processes and procedures to address the main issues pertinent to transition of operations, with a key objective of eliminating inconvenience to the roadway user.

Prior to SCD, the Operations Manager will review operations plans with the Design and Construction Team to coordinate traffic flow. The Operations Manager will review the proposed traffic management strategy in accordance with the Traffic Management Plan to ensure that construction impacts on existing traffic are minimal. The Director

of Corporate Affairs will ensure that users are informed of construction progress and ways to request more information.

The Director of Corporate Affairs will define the communication strategy regarding transition to SCD. NTEMP-3 will announce the start of its operations, including tolling and related services, at least 30 days prior to SCD, using multiple media, including signs along the Facility.

5.3.2 Approach to Interfacing with TxDOT, NTTA and Others

Please see Sections 3.3.3 and 3.3.4 for a detailed discussion of NTEMP-3 approach to interfacing with TxDOT, contractors, consultants, other governmental authorities, adjacent landowners, road operators and NTTA.

5.3.3 Interface with Stakeholders

Prior to transition to SCD, a partnering session will take place between NTEMP-3 personnel, TxDOT and its consultants where technical information and contact information will be exchanged, communication escalation ladders established and potential maintenance problems and proposed solutions identified. These meetings will be conducted at the senior management level between equivalently situated personnel managing the operations of adjacent roads.

5.4 Roadway Operations

5.4.1 Detecting and Responding to Incidents

Incident notification, dispatch, management and reporting are carried out through the full-time Emergency Response Line and Traffic Management Center (TMC), utilizing CCTV access and communications with Field Patrols and emergency services providers (911) to maintain an incident log.

In case of an accident, NTEMP-3 personnel will make themselves available to the Emergency Responders and will assist with the traffic management and debris pickup.

Prior to the commissioning of the Project TMC, a set of standard operational procedures will be developed and included in the Facility Management Plan to detail detection and response procedures for all foreseeable events within the Incident Management Plan.

Field patrols will manage the operational-level incident response in coordination with the TMC. In the event of an incident, the field patrols will implement the appropriate traffic management provisions including:

- alerting the police when the highway is either blocked or emergencies/accidents are present; and give them the location, length of section affected, preferred alternate route, visibility, number of stranded vehicles and additional equipment required or suggested; and
- coordinating incident and emergency responses closely with the regional partnerships.

The Tactical level of management will provide overall response management. The Maintenance Manager determines resource allocation priorities, obtains further resources as required, and plans and coordinates timeframes for undertaking tasks. The Maintenance Manager will take appropriate risk reduction measures to ensure that the response conforms to the health and safety requirements laid out in the NTEMP-3 Safety Plan.

In exceptional circumstances, NTEMP-3 may find it necessary to implement a strategic level of management. Incidents can place considerable demands on the resources of the responding organizations, with consequent disruption in day-to-day activities. It will also be necessary to ensure fulfillment of ordinary operational requirements elsewhere. Such matters require attention by senior management.

From an ITS perspective, the TMC central software will have the capability of guiding the operator through the entire process of responding to an incident, including suggesting the steps to be taken according to data from similar previous incidents. Additionally, the

system will have the ability to log and archive incidents as they occur, including the steps taken in response to the incident. NTEMP-3 will update existing incident data every time a new incident is resolved and will use this information to enhance the future response methodology suggested to operators.

5.4.2 Interfacing with Emergency Services

The first responder will contact emergency services via the TMC if not already on scene. Depending on the incident, operators will notify Field Patrols and/or additional emergency first responders to assist in the response.

A team will be set up to manage the incident from a strategic point of view, and to communicate with the media, in coordination with TxDOT. They will act to manage the flow of information to and from the incident, along with information concurrently available through the TMC, updated throughout by the Field Patrol.

5.4.3 Managing Traffic and ITS Operations

From SCD, NTEMP-3 will monitor and manage traffic from the TMC. NTEMP-3 anticipates staffing the TMC with a team of supervisor and traffic operators working in shifts. TMC Operators staff will report to the Traffic Safety Officer and will have the following basic functions:

- monitoring traffic conditions
- coordinating actions in case of abnormal conditions or incidents (traffic accidents, special events, weather hazards); and
- coordinating traffic control to assist field maintenance crews.

The TMC will provide a secondary source of event detection. The operators will monitor the CCTV camera images. The images will cycle through all cameras on the network, initially set to seven seconds, so that operators will easily detect any unusual traffic conditions. In addition, field patrollers may also detect events at the field level. Officers who witness an incident or see evidence of a recent incident will notify the operators at the TMC. The TMC will also coordinate

calls received from the 911 dispatcher, for situation whenever a driver detects the incident and call the Emergency Responders.

The Field Systems Manager will supervise all field maintenance technicians. This will allow for coordination of repair and inspection activities between both teams, balancing personnel needs in case of unexpected peaks.

An additional in-house crew will maintain the applications and hardware housed in the Back Office System including the ITS and TCS servers and all other Back Office System components. The anticipated crew will include database administrators, Graphical User Interface (GUI) technicians and hardware technicians, all reporting to the Back Office System Manager.

5.4.4 Analyzing Accidents and Implementing Safety Improvements

The system software will provide extensive data collection and event logging, including incidents, DMS messages and traffic data, to support accident analysis and reporting.

5.4.5 Protection of the Environment Including Dealing with Spillages and Contamination

NTEMP-3 will execute its duties in a manner aligned with protecting the environment, including the fulfillment of current legal and project environmental requirements. The Quality / Environmental Manager will be responsible for ensuring that environmental compliance during operations. NTEMP-3 will achieve this objective by:

- complying with all applicable local, state, and federal environmental regulations;
- achieving all environmental commitments set forth in TxDOT-provided approvals and environmental approvals;
- educating and training all Project personnel to:
    - recognize the overall importance of environmental issues to achieve successful construction of the Project,
    - appreciate the Project's environmental sensitivities,

  - recognize environmentally sensitive resources that may be encountered during work activities,
  - avoid or take appropriate action to minimize environmental impact from work activities and
  - understand the required actions, practices, and procedures regarding regulated resources;
- conveying a commitment to the Project's environmental quality to all employees; and
- conveying a commitment to zero tolerance for violations.

Applying the above principles will ensure that the Project follows the principles of sustainable development and that the natural environment, natural resources, local communities and economic development are considered and protected.

5.5 Managed Lanes Tolling Operations

5.5.1 Description of Operations

The toll collection system will be an Electronic Toll Collection System (ETCS) that generates accurate toll transactions from either Transponder or video transactions for all vehicles traveling through the toll segments. Tolls will be based on vehicle classification. Tolling points on ramps and mainline will not be designed or equipped to accept cash. The ETCS hardware and software utilized in each Toll Zone will be generally the same for each location, but configured to meet site-specific conditions such as the number of lanes and shoulders.

The ETCS will be modular with an open architecture, composed of commercially available hardware components, so that as new technologies emerge and improved components come to market, they can be easily integrated into the system. The ETCS will be designed with redundant components to minimize the risks of lost revenues due to system degradations or malfunctions. The ETCS will be interoperable with all transponders issued by tolling authorities sanctioned by TxDOT. The ETCS Host will be connected to and will

interface with the NTTA Customer Service Center (CSC) Host in accordance with the Interface Control Document.

5.5.2 Limits of Proposed Toll Segments

The limits of the proposed Toll Segments are defined below:

Toll Segment 3A begins at Sta. 942+00 along IH 35W north of Luella St. and ends at the center point of the IH 35W/IH 820 Sta 615+00. It also includes the two Managed Toll Lane Connectors with SH 280. Toll Segment 3A is 6.2 miles in length.

The maximum length charged for the use of Segment 3A will be 6.2 miles, based on this configuration.

Toll Segment 3B begins at the center point of the IH 35W/IH 820 Sta 615+00 and ends at Sta. 1405+00 along IH 35W. Toll Segment 3B is four miles in length and includes the two Managed Lanes Connectors with SH 81.

The maximum length charged for the use of Segment 2W will be 4 Mi based on this configuration

5.5.3 Toll Gantry Locations

The locations of the proposed Toll Gantries and Declaration Zones are shown in Table 3.1 of the Tolling Plan included in this submission.

5.5.4 Toll Sign and Advance Toll Information Sign Locations

The ETCS will have Advanced Dynamic Toll Rate Signs (ADTRS) that will be located in advance of all Toll Zones entrances to provide drivers with enough time to decide whether or not to use the Managed Lanes. All ADTRS will be integrated into the ETCS to display the current applicable Toll Rates in effect for the use of a segment of the Managed Lanes traveling through the nearest Toll Zone.

5.5.5 Declaration Zone Locations

There will be a declaration zone for HOV users to self declare at all entry points to the system.

For an HOVs to receive the discounted toll rate, they must declare themselves as HOVs by using an HOV declaration lane and having a valid transponder account. Each Toll Zone will have two lanes with one lane identified as an HOV Declaration lane.

Please see Volume 4 for proposer´s schematics showing locations of declaration areas. The Geometric Requirements for the Managed Lane Declaration Areas shall match the typical section and layout located on the Proposal Plans under the Typical Sections Roll

5.5.6 Enforcement Zone Locations

The ETCS will be capable of assigning vehicles with two or more human occupants a discounted toll during peak periods of traffic in accordance with the current Toll Polices, Vehicle Classifications and Toll Rates in effect at the time of the transaction. This discount will be a percentage applied to the appropriate Transactions by the ETCS Host Servers before the Transaction is sent to the NTTA CSC Host Server for processing.

Each Toll Segment will have an Enforcement Zone comprised of a full shoulder wide enough for an enforcement vehicle to safely park and observe traffic.

Enforcement will ensure that customers are correctly using the system to receive the discounted toll rate, enforcement will be done by the Texas Department of Public Safety (DPS) manned patrols and visual observation.

Please see Volume 4 for proposer´s schematics showing locations of declaration areas. The Geometric Requirements for the Manage Lane Declaration Areas shall match the typical section and layout located on the Proposal Plans under the Typical Sections Roll.

5.5.7 Monitoring Performance of the Managed Lanes

Radar Traffic Management Sensors (RTMSs) will monitor and record near real-time speeds and traffic volumes in both the managed and free lanes. RTMS data will be integrated into the ETCS. Using the data

from the RTMSs and transaction data from the toll zones, the ETCS Host will prepare and submit all required reports to TxDOT and the IE.

5.5.8 Determining Toll Rates

Dynamic Pricing: Congestion pricing will be implemented, whereby the tolls on the Managed Lanes will be changed dynamically, based on average traffic speed. The ITS RTMS detectors will be integrated into the ETCS and the ETCS will use average speeds in the tolled and General Purpose Lanes to automatically adjust the tolls based on established parameters. The Toll rate calculation process is described in detail in the Tolling Plan provided with this submission.

5.5.9 Tolling Regulation

Tolls are charged on the Managed Lanes, which are divided into the Toll Segments. The Toll Segments are measured between defined points and NTEMP-3 sets the toll rate for each Segment and direction according to the demand parameters and following the requirements of Exhibit 4. The Toll rate calculation process is described in detail in the Tolling Plan provided with this submission

5.6 Routine Maintenance

5.6.1 Maintenance Yards and Building

Maintenance Yards will be located near the Project in a location that will allow maintenance vehicles to access the Project quickly and safely, with minimal disruption to traffic.

The Maintenance Building will house O&M personnel. It will provide necessary storage for equipment, materials and vehicles.

5.6.2 Administration Building

The Administration Building will house the executive, administrative and technical personnel as well as the customer service/public information functions. This building may co-locate certain personnel, satisfying the terms specified in the Facility Agreement Technical Requirements. In addition, the Traffic Management Center, described below, could also be located in this building.

5.6.3 Traffic Management Center

The TMC may be located in the Administrative Building. The TMC will consist of two areas: the control room, housing the operations staff, workstations, and equipment necessary to perform the daily operations of the TMC; and the equipment room, housing the equipment necessary for the ITS and TCS components. Both the control room and the equipment room will contain specialized equipment to perform their necessary functions.

5.6.4 Sweeping, Cleaning and Removal of Objects

The Maintenance Manager will supervise Maintenance Crews performing most of the routine roadway cleanup and preventive maintenance tasks. The type of work to be performed includes litter pickup and disposal, sweeping and cleaning, removal of debris, roadkill, abandoned vehicles and graffiti and removal of roadside drainage obstructions. The Maintenance Manager will schedule recurring preventive activities and will organize shifts to ensure that a crew is always ready to respond to events that require immediate action such as roadway obstructions. Specific clean-up provisions include general sweeping, cleaning and removal of debris, abandoned vehicles and graffiti.

5.6.5 Managing Traffic During Maintenance Work

Safety, minimization of traffic delays and maintenance of an optimal level of service on Segments 3A and 3B and related facilities will be primary considerations during planning and execution of all types of maintenance, repair and renewal work, utility adjustment and inspections. When possible NTEMP-3 will use existing TMUTCD traffic control plans.

NTEMP-3 will carry out maintenance work during off-peak hours. In case of subcontracting specialized activities, each aspect of the work must be assessed at the planning stage to establish that the quality of work produced by a Subcontractor can meet the required specifications under off-peak hours working conditions.

Routine maintenance activities will be combined and undertaken within a single lane closure or mobile lane closure whenever possible, and considered for off-peak hours working. Planned or routine tasks can often be undertaken to take advantage of traffic management provided for other parallel activities.

5.6.6 Inspection, Testing and Repairs

Inspection and testing regimes will be implemented to identify and classify defects on the various major items, including pavement, drainage, structures, barriers, guardrails, fences, and electrical systems.

NTEMP-3 will monitor conditions through a series of inspection processes including regular Field Patrol inspections and detailed inspections performed by specialized firms. Inspectors will classify defects depending on their potential impacts to roadway user safety.

5.6.7 Maintaining Accurate As-Built, Inspection and Maintenance Records

In accordance with NTEMP-3 Quality Management Plan, the Maintenance Manager will be responsible for keeping accurate as-built records and maintenance-related records. All maintenance–related records will be stored in the Electronic Data Management System (EDMS).

5.7 Renewal Work

5.7.1 Programming Renewal Work

Proposed inspection procedures and defect management processes include defect clustering and developing reactive maintenance through experienced asset management to ensure the most appropriate and cost-effective intervention levels, driving a robust program of renewal maintenance. The Technical Manager will be responsible for defining the work to be accomplished on an annual basis. The Technical Manager will also keep track of a five-year Renewal Work Plan.

NTEMP-3 anticipates the following renewals for the following major asset groups:

- pavement, bridges and main structures; and
- other road assets, such as road markings, barriers, fencing, drainage, road signs and lighting

in order to fulfill their useful life and the Handback requirements.

Technology-based assets follow very particular patterns regarding their useful life, which mainly depends on the amount of software vs. hardware that they have. NTEMP-3 has estimated guidelines for intervals between major upgrades or renewals of the system by taking into account the advice of our vendors and advisors, plus the Proposer's own toll road experience. The expected major interventions for the ITS and Toll Collection Systems will take place every ten years or as required to guarantee adequate performance.

5.7.2 Meeting TxDOT Handback Requirements

All maintenance and renewal activities will be programmed with the goal of meeting or exceeding Residual Life at Handback Requirements prior to reversion of the Facility to TxDOT. The Renewal Work Schedule will be adjusted annually according to the results of inspections and audits by NTEMP2-4, TxDOT and the IE.