Texas Department of Transportation

Texas Turnpike Authority

TECHNICAL PROVISIONS for

Facility AGREEMENT

BOOK 2

North Tarrant Express Project

Segments 3A and 3B Facility

TABLE OF CONTENTS

PREFACE

TxDOT's *Programmatic Comprehensive Development Agreement Book 3* (for Concession Projects), dated 12/05/07, as amended by the provisions noted in Book 2 herein, will be applicable to this Agreement.

Unless otherwise noted in the Agreement, the term "Project" as referenced in Book 3 shall mean "Facility".

Unless otherwise noted in the Agreement, items referred to as being submitted with the Proposal will have been submitted as of the Effective Date.

1 GENERAL

Incorporate Sections 1.1, 1.2, 1.3, and 1.4 as follows:

1.1 Project Scope

The North Tarrant Express (NTE) Project is being developed to include the Facility that is the subject of the Facility Agreement (FA) of which this Book 2 forms a part.

The objectives of developing the Facility are to introduce Highway improvements that will relieve traffic congestion, improve local and regional mobility, promote economic activity and reduce levels of environmental pollution.

This Facility comprises the IH 35W corridor from a point just north of the North Tarrant Parkway to and including the IH 35W/IH 820 interchange and then south of this interchange along the IH 35W corridor to Luella Street in the City of Fort Worth, Texas.

1.1.1 Mandatory Scope

At a minimum, Developer is required to (1) design, construct, finance, operate and maintain the Segment 3A Facility Segment, (2) design, procure, install and test the ITS and tolling infrastructure equipment including tolling signs and tolling and communications equipment, cabling and connections associated with the ITS for the (i) Segment 3A Facility Segment and (ii) as set forth in Table 1-1 for the Segment 3B Facility Segment, and (3) upon TxDOT Substantial Completion of the TxDOT Works, to operate and maintain the Segment 3B Facility Segment. This scope of work forms the Mandatory Scope which Developer shall design, construct, operate and maintain in accordance with these Technical Provisions. The construction limits for the Segment 3A Facility Segment and the Segment 3B Facility Segment are set forth in Section 1.2.1 and Section 1.2.2 of the Technical Provisions, respectively.

Table 1-1: Developer's Responsibilities for ITS & Tolling Infrastructure for the Segment 3B Facility Segment

DESCRIPTION OF ACTIVITIES	DEVELOPER
Project Documentation and Design	
Technical Detail Design Documentation*	X
Civil Work	
Field Equipment Support Structure for Tolling**	X
ITS and Tolling Field Equipment Wiring and Installation	X
ITS and Tolling Field Equipment Cabinets	X

Power generator to service the field equipment shelters at the Tolling Sites	X
Uninterruptible Power System (UPS)	X
Civil work related to environmental investigation and/or mitigations for any work other than the TxDOT Works	X
ITS (Equipment Provided by Developer)	
Network Communication including hardware and software	X
Network Communication Fiber Optic Cables	X
Closed Circuit Television (CCTV) System including hardware and software	X
ITS RFID Reader (Traffic Counter for Origin and Destination data collection)	X
Microwave Vehicle Detectors (MVD) including hardware and software	X
Road Weather Information Subsystem (RWIS) including hardware and software	X
Changeable Message Signs (CMS) including hardware and software	X
Lane Control Signals (LCS) including hardware and software	X
Tolling (Equipment Provided by Developer - ITS Related)	
Electronic Toll Collection System (ETCS) Tolling Equipment including hardware and software	X
DESCRIPTION OF ACTIVITIES	**DEVELOPER**
Tolling (Equipment Provided by Developer - ITS Related) (con't.)	
ETCS Toll Zone Controllers including hardware and software	X
Signs (Equipment Provided by Developer- ITS Related)	
Managed Lanes Signs including hardware and software	X

*Technical Design Documentation comprises Developer's final design drawings, specifications, and quantities for ITS and tolling equipment.

**Developer shall provide and install all ancillary structures needed to install the ITS and tolling equipment on the gantries provided by TxDOT.

Developer shall ensure that the Work will accommodate and be compatible with the Approved NEPA Schematics unless otherwise in accordance with the FA Documents and as described below.

The General Purpose Lanes south of station 862+20, including structures, as depicted on the Mandatory Scope Schematic may have to be demolished in order to build the Ultimate Configuration. Construction of any transitions to other segments in the NTE project or other non-Project connecting facilities that occur outside the limits shown on the Mandatory Scope Schematic shall be included as part of the Mandatory Scope.

Regarding the Mandatory Scope General Purpose Lanes between the following stations, the existing pavement shall remain in place; however Developer shall mill and overlay the wearing course prior to

Service Commencement:

- Northbound GPL: between station 882+00 and station 904+00
- Southbound GPL: between station 881+00 and station 912+00

The Mandatory Scope is not compatible with the Ultimate Configuration at the following locations:

- IH-35W SB GPL: station 862+20 to station 959+40
- IH-35W NB GPL: station 862+20 to station 959+40
- IH-35W SB to IH-820 WB GPL DC: station 31+00 to beginning of ramp
- IH-820 EB to IH-35W SB GPL DC: station 10+00 to station 32+00
- SPUR 280 WB to IH-35W NB ML DC 280-35NBML: station 927+50 to station 934+00

At a minimum, Developer shall be responsible for completing the Mandatory Scope for the Facility which comprises elements consistent with the Basic Configuration and generally consists of:

- improvements to the IH 35W/IH 820 Interchange;
- construction of managed toll lanes along IH 35W;
- reconstruction and realignment of the existing General Purpose Lanes and Frontage Roads on IH 35W;
- the maintenance and operation of the said improvements and existing infrastructure for the Segment 3A Facility Segment and, upon TxDOT Substantial Completion, the Segment 3B Facility Segment;
- the installation of ITS and tolling infrastructure equipment;
- the establishment of Managed Lane tolling operations; and
- the performance of Utility Adjustments as set forth in Section 6 of the Technical Provisions.

Developer shall manage, plan, execute, and control all aspects of the Work. Developer shall coordinate its activities with Governmental Entities and other Persons that are directly or indirectly impacted by the Work in accordance with Section 11.1 of the FA including, but not limited to coordinating, on a monthly basis, the Mandatory Scope design and construction transition with the TxDOT Works and work at the IH-35W/IH-820 interchange being developed by NTEMP Segments 1-2W. Developer shall coordinate and work collaboratively with TxDOT on the design, installation and testing of the ITS and tolling infrastructure equipment for the Segment 3B Facility Segment.

1.1.2 TxDOT Works

The design, development and construction of the TxDOT Works, which are elements of the Segment 3B Facility Segment, will be undertaken by TxDOT and include all work with the exception of the design,

procurement, installation and testing of the ITS and tolling infrastructure including tolling signs and tolling and communications equipment, cabling and connections associated with the ITS of the Segment 3B Facility Segment. All civil work associated with the ITS and tolling infrastructure in the Segment 3B Facility Segment is included in the TxDOT Works. Refer to Exhibit 26 of the FA for information regarding the TxDOT Works.

Developer is required to coordinate and work collaboratively with TxDOT in accordance with Section 11.1 of the FA so that TxDOT may undertake certain work related to landscaping including vegetative land cover and aesthetic features and completion of Punch List items, if any, on the Segment 3B Facility Segment as required following TxDOT Substantial Completion. TxDOT Substantial Completion shall not be dependent on the completion of Work to be performed by Developer on the Segment 3B Facility Segment.

1.1.3 Coordination at Interface

Developer shall locate, configure and design the portion of the Segment 3A Facility Segment including its transition to the TxDOT Works so that the Segment 3A Facility Segment is compatible and integrated with the TxDOT Works and provides a smooth, safe transition of traffic (and other infrastructure) to and from each Facility Segment, which includes but is not limited to design, environmental requirements, ROW acquisition, utility adjustments, geotechnical investigation, land surveying, earthworks, pavement construction, drainage, construction of Highway structures, landscaping, pavement marking, signing, lighting and traffic control. Refer to Section 11.1.1 of the FA for further requirements regarding coordination.

1.1.4 Capacity Improvements

Developer shall undertake implementation of Capacity Improvements to the extent set forth in Exhibit 16 of the FA. Developer shall cooperate with, work collaboratively with and not interfere with TxDOT whenever TxDOT designs and constructs Capacity Improvements.

1.1.5 Ultimate Configuration

The Mandatory Scope, TxDOT Works and the 3A Ultimate Capacity Improvement, the 3B Ultimate Capacity Improvement and the Additional Ultimate Capacity Improvements together form the Ultimate Configuration. The Mandatory Scope shall be consistent with the functionality of the Basic Configuration as set forth in the Approved NEPA Schematics.

The Mandatory Scope and any Capacity Improvement undertaken by Developer will include, but are not limited to:

- the design and construction of roadway, drainage, structures, landscaping, signing, lighting and traffic signals within the IH 35W corridor and at the IH 35W/IH 820 interchange including, General Purpose Lanes, managed toll lanes, Frontage Roads, and cross streets;
- the design and installation of Intelligent Transportation Systems (ITS) meeting the requirements of the North Texas Regional ITS Architecture and TxDOT/Fort Worth Traffic Management Center in the Transvision Building in accordance with Section 17 of the Technical Provisions;
- the development and implementation of a Maintenance Management Plan, including Handback Requirements, to be utilized from the opening of any section of the Facility to traffic until the end of the Term in accordance with Section 19 of the Technical Provisions;
- the design and installation of an open-road electronic toll collection system as necessary to allow collection of tolls from users of the Facility in accordance with the requirements of Section 21 of the Technical Provisions; and
- the development and implementation of an Operations Management Plan to be utilized from the opening of any section of the Facility to traffic until the end of the Term in accordance with Section 22 of the Technical Provisions.

Developer shall design the Mandatory Scope to minimize sections of the Mandatory Scope that will become redundant to meet the requirements of the future Ultimate Configuration unless in accordance otherwise with the FA Documents. Developer's design shall provide for a feasible transition from the Mandatory Scope to the Ultimate Configuration unless in accordance otherwise with the FA Documents. Prior to construction of the Mandatory Scope, Developer shall provide to TxDOT a schematic level design showing the transition from the Mandatory Scope to the Ultimate Configuration. Such design shall include a draft sequence of construction plan, a preliminary traffic control plan, horizontal and vertical alignments, wall locations, cross-sections, and bridge layouts in accordance with TxDOT's *Project Development Process Manual*, Chapter 2, Section 4 - Preliminary Schematics, paragraph 2360 – Develop Typical Sections. For providing such schematic level design, Developer is not required to perform or prepare for any public involvement activities, prepare minute orders, coordinate with railroad companies, government entities or third parties, or give consideration to landscape and aesthetic requirements.

1.2 Facility Limits

1.2.1 Limits of Work for the Segment 3A Facility Segment

The approximate limits of the Work for the Segment 3A Facility Segment are as shown in Exhibit 2-A to

the FA –Mandatory Scope Schematics.

1.2.2 Limits of Work for the Segment 3B Facility Segment

The limits of the work for the Segment 3B Facility Segment are as shown in Attachment A to Exhibit 26 of the FA .

1.2.3 Limits of Work for 3A Ultimate Capacity Improvement, 3B Ultimate Capacity Improvement, and Additional Ultimate Capacity Improvement

The 3A Ultimate Capacity Improvement, the 3B Ultimate Capacity Improvement and the Additional Ultimate Capacity Improvements together with the Mandatory Scope Schematic and the TxDOT Works form the Ultimate Configuration and shall include, but shall not be limited to, the construction components described below and as shown in the Approved NEPA Schematics.

The 3A Ultimate Capacity Improvement generally includes additional General Purpose Lanes and associated auxiliary lanes along northbound and southbound IH-35W from Station 590+00 to Station 959+40 and additional General Purpose Lanes and associated auxiliary lanes along eastbound and westbound IH-820 from Station 603+67 to Station 696+00.

The 3B Ultimate Capacity Improvement includes the additional General Purpose Lanes and associated auxiliary lanes along northbound and southbound IH-35W from Station 1401+00 to Station 1590+00.

The Additional Ultimate Capacity Improvements generally include all other improvements shown on the Approved NEPA Schematics which are not included in the 3A Ultimate Capacity Improvement or the 3B Ultimate Capacity Improvement as described above. Temporary roadways built as part of the Mandatory Scope may require removal to allow construction of the Ultimate Configuration.

Where the Mandatory Scope is not compatible with the Ultimate Configuration at the following locations and at such time any or all of the 3A Ultimate Capacity Improvement, the 3B Ultimate Capacity Improvement or the Additional Capacity Improvement are constructed, the following shall notes shall apply:

a. Specifically, for the segment of IH-35W SB GPL from station 862+20 to station 959+40 and the segment of IH-35W NB GPL from station 862+20 to station 959+40, construction of all lanes is required for meeting the requirements of the 3A Ultimate Capacity Improvement. Temporary roadways built as part of the Mandatory scope in these areas will require removal to allow for

construction of the Ultimate Configuration due to new alignment.

b. Specifically, for the segment of IH-35W SB to IH-820 WB GPL DC from station 31+00 to the beginning of ramp, construction of all lanes to the beginning of the ramp is required for meeting the requirements of the Additional Ultimate Capacity Improvements.
c. Specifically, for the segment IH-820 EB to IH-35W SB GPL DC from station 10+00 to station 32+00, construction of 3 lanes is required for meeting the requirements of the Additional Ultimate Capacity Improvements.
d. Specifically, for the segment Spur 280 WB to IH-35W NB ML DC 280-35NBML from station 927+50 to station 934+00, removal of the temporary connector is required to allow construction of the Ultimate Configuration due to new alignment.

1.2.4 Other Considerations

Developer acknowledges that certain components of the Work, including certain signing, pavement marking, Intelligent Transportation System components, tolling infrastructure, buildings and enclosed facilities, necessary for operating the Facility, will be located outside the Facility limits.

Developer shall determine the full scope of the Facility through thorough examination of the FA Documents and the Approved NEPA Schematics. Developer's examination of the Approved NEPA Schematics will not increase the scope of Work beyond the Mandatory Scope outlined in Section 1.2.1 and Section 1.2.2 and will expressly exclude any works of the 3A Ultimate Capacity Improvement, 3B Ultimate Capacity Improvement and Additional Ultimate Capacity Improvements under Section 1.2.3.

1.3 DB Phase Requirements

All Developer Design Work and Construction Work shall be in compliance with the Technical Provisions and Good Industry Practice.

Developer shall coordinate with TxDOT and adjacent Governmental Entities and other third parties as appropriate to determine the design criteria, standards, and specifications of those components of the Work which Developer will construct but which are maintained by others as specified in the Facility Agreement. For components of the Work which impact the infrastructure of any Governmental Entity or third party entity, Developer's design shall conform to the design requirements of such entity.

1.4 Operations and Maintenance (O&M) Work Requirements

Developer shall operate and maintain the Facility in accordance with the FA Documents. Responsibilities for operating and maintaining the Facility are set forth in Table 1-7 below:

Table 1-7: O&M Responsibilities

TIMING	Frontage Roads[1]	General Purpose Lanes[1]	Managed Lanes[1]
Segment 3A Facility Segment (including O&M for Existing Improvements)			
From NTP2 for the balance of the Term of the Facility Agreement	Developer	Developer	Developer
Segment 3B Facility Segment (including O&M for Existing Improvements)			
During construction of TxDOT Works	TxDOT	TxDOT	TxDOT
From TxDOT Substantial Completion for the balance of the Term of the Facility Agreement	Developer	Developer	Developer
GP Capacity Improvements			
From start of construction of Capacity Improvements for the balance of the Term of the Facility Agreement	NA	Developer	NA
To be determined upon			

Note:
1. This includes all associated structures and elements of the Facility

Developer is not responsible for operations and maintenance of roadways beyond the longitudinal limit of the Work determined by the end of transitions from the Mandatory Scope or the Ultimate Configuration, as applicable, to existing roadways and as shown in Attachment 1-1 – NTE Limits of Maintenance.

2 PROJECT MANAGEMENT

Replace the third paragraph of Section 2 of Book 3 with the following:

A listing of documents to be included in the Facility Management Plan is contained in Attachment 2-1 of the Technical Provisions, Facility Management Plan Contents, which also indicates when each document must be submitted to TxDOT.

2.1 Administrative Requirements

Replace Section 2.1.1 through Section 2.1.1.2.3 of Book 3 with the following:

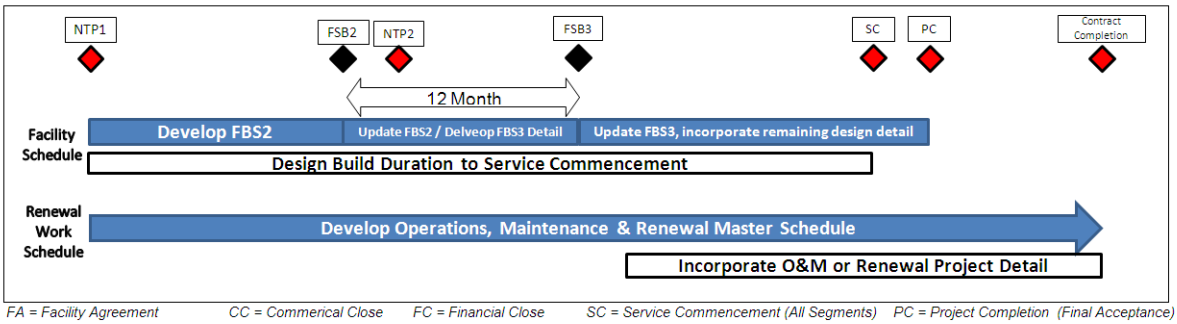
2.1.1 General Schedule Requirements

The project schedules shall define the timeframe for completion of the Work and achievement of contract milestones and be used to monitor progress and denote changes that occur during design, construction, operations and maintenance as well as, if applicable, serving to determine the amount due to Developer for a progress payment.

The scheduling software employed by Developer shall be compatible with the current and any future scheduling software employed by TxDOT (currently Primavera 6.2). Compatible shall mean that the Developer-provided electronic file version of a schedule may be loaded or imported by TxDOT using TxDOT's scheduling software with no modifications, preparation, or adjustments to do so.

Developer shall manage and execute the Work using schedules developed for management and execution of the DB Phase, the Facility Baseline Schedule (FBS) and for activity related to operations, maintenance and Renewal Work, the Renewal Work Schedule.

Figure 1 – Program Schedule Timeline



The FBS will be developed in stages beginning with the FBS-1 (Preliminary Baseline Schedule). At each stage of FBS development, a new version will be created with more detail. Developer shall submit the Facility Baseline Schedule (FBS-2) to TxDOT for review and approval prior to the issuance NTP2.

TxDOT will review the Facility Baseline Schedule (FBS-2) and provide comment within 30 calendar days of submission. In the event that TxDOT does not accept the Facility Baseline Schedule, Developer shall revise and resubmit it with changes clearly identified. TxDOT will review each resubmission of the Facility Baseline Schedule within 21 calendar days of receipt of the resubmission. Approval of the Facility Baseline Schedule (FBS-2) shall be a condition of NTP2 issuance.

Developer shall submit an electronic version of the schedule in its native format for each submittal along with the project schedule narrative.

Before commencement of any scheduled construction Activity, Developer shall obtain TxDOT approval of the Facility Baseline Schedule (FBS). Developer shall progress and update the FBS through schedule updates until a subsequent version of the FBS is approved by TxDOT.

Developer is solely responsible for planning and executing the Work and TxDOT's approval of the FBS does not:

- Imply approval of any construction methods or relieve Developer's responsibility to provide sufficient materials, equipment, and labor to guarantee completion of the Project in accordance with the FA Documents.
- Attest to the validity of assumptions, activities, relationships, sequences or any other aspect of the FBS.

Failure of Developer to include any element of the Work required by the FA Documents in the approved FBS does not relieve Developer of the responsibility to perform such Work.

2.1.2 Facility Baseline Schedule

The FBS shall be developed and implemented in the following stages.

a) FBS-1: Preliminary Baseline Schedule submitted prior to execution of the FA.
b) FBS-2: Developer shall use the Preliminary Baseline Schedule (FBS-1) as a foundation to prepare the FBS-2. Developer shall submit the Facility Baseline Schedule (FBS-2) to TxDOT for review and approval. FBS-2 shall reflect the intended execution plan meeting all schedule requirements. Activity quantities related to Schedule of Value costs shall be based upon the Developer's proposed design. The data date for FBS-2 shall be the date of NTP1. The approved FBS-2 shall be progressed and updated monthly until a subsequent version (FBS-2+) is approved.
c) FBS-3: Inclusion of final design Elements will be incorporated into the FBS-2 schedule updates as release for construction (RFC) plans are completed. FBS-3 will be submitted to TxDOT on or before twelve (12) months after NTP2 and shall reflect all final design elements to date, final quantity assessment for each scheduled construction activity, the updated plan and completed

Schedule of Values reflecting final design. Developer shall update FBS-3 monthly until a subsequent revision (FBS-3+) is approved or the Service Commencement Date, whichever is earlier.

The approved FBS or current approved revised FBS shall remain in force until a subsequent FBS or revised FBS is approved by TxDOT

Developer shall include a separate narrative report with the FBS which describes the general sequence of design and construction, the proposed Critical Path and all Milestone Schedule Deadlines.

Developer shall submit the FBS in accordance with the Work Breakdown Structure (WBS), the minimum requirements of which are included in Attachment 2-2 of the Technical Provisions, Work Breakdown Structure Requirements, which is cost loaded in accordance with Table 2-1, to TxDOT for review and approval. Each Schedule Activity shall be mapped to one of the WBS levels. Each segment of the Work shall be to the same level of detail. As a minimum, Developer shall utilize the organizational structure included in Attachment 2-3 of the Technical Provisions, Organizational Structure for Cost Reporting, for reporting Facility costs.

Table 2-1: Schedule Level of Detail Requirements

Discipline	Detail	FBS-1	FBS-2	FBS-3
Right-of-Way Acquisition	WBS Level	4	All levels	All levels
	Cost Loading	No	Yes	Yes
	Resource Loading	No	No	No
	Maximum duration of Schedule Activity	No maximum	20 Days[1]	20 Days[1]
Preconstruction Submittals & Permitting	WBS Level	4	All levels	All levels
	Cost Loading	No	No	No
	Resource Loading	No	No	No
	Maximum duration of Schedule Activity	No maximum	20 Days[1]	20 Days[1]
Utility Coordination	WBS Level	4	All levels	All levels
	Cost Loading	No	No	No
	Resource Loading	No	No	No
	Maximum duration of Schedule Activity	No maximum	20 Days[1]	20 Days[1]
Design	WBS Level	4	All levels	All levels
	Cost Loading	No	Yes	Yes
	Resource Loading	No	No	No
	Maximum duration of Schedule Activity	No maximum	20 Days[1]	20 Days[1]
Utility Relocation	WBS Level	5	5	All levels
	Cost Loading	Yes	Yes	Yes
	Resource Loading	No	No	No
	Maximum duration of Schedule Activity	No maximum	No maximum	20 Days[1]
Construction	WBS Level	7	8	All levels
	Cost Loading	Yes	Yes	Yes
	Resource Loading	No	No	No
	Maximum duration of Schedule Activity	No maximum	20 Days[1]	20 Days[1]

[1] Unless otherwise approved by TxDOT

2.1.3 Facility Baseline Schedule Requirements

2.1.3.1 Facility Baseline Schedule Overview

Developer shall define a complete and logical plan that can realistically be accomplished for executing the Work. The FBS shall:

a. Reflect the proposed approach to accomplish the Work
b. Include all major activities of Work required by the FA Documents and also include activities for property acquisitions, Utility Adjustments, permit acquisitions, and interfaces with other projects

and Governmental Entities.

c. Indicate the sequence of performing each major activity and the logical dependencies and inter-relationships among the activities and shall provide a sufficient number of activities to assure adequate planning to allow monitoring and evaluation of progress and, if applicable, payments.

d. Include a listing of all submittals and submittal activity durations including specific durations for TxDOT review and/or approval of Developer's submittals.

2.1.3.2 Facility Baseline Schedule Coding

Developer shall utilize an activity coding structure for the FBS that allows project activities to be sorted by type of work and location of work, or as mutually agreed to by Developer and TxDOT. Each activity shall be assigned an activity code for each Work Element to indicate the type of work related to the activity. Activity codes shall be Global Code values and shall be as indicated in Table 2-2 below.

Table 2-2: "Type of Work" Code Values

Code Value	Description
AGGREGATE	Granular Base
CLEAR&GRUB	Clear & Grub, Removal
DEMO	Building demolition, other
DESIGN	Design, studies, RFC package deliverables
DRAINAGE	Pipe, Box Culvert, Headwall
EXCAVATION	Cut, fill, excavate
FLATWORK	Curb, gutter, sidewalks
LANDSCAPE	Topsoil, mulch, seeding
MOT	Maintenance of Traffic
PAVING	Concrete, Asphalt, etc.
PROCURE	Procurement of materials
ROW	Right-of-Way
SIGNALS	Signals, foundations, poles
SIGNING	Signing - Permanent
STRIPING	Striping - Permanent
SUBSTRUCTURE	Foundation, Columns, Bent, Piles, Abutments (bridge)
SUPERSTRUCTURE	Girders, Deck, Approach Slabs, Parapet, Polymer Overlay (bridge)
SURCHARGE	Consolidation & Settlement Times
TRAIL	Trails - Pedestrian & Bike
UTILITY-COMM	Utility Communication
UTILITY-GAS	Utility Gas
UTILITY-POWER	Utility Power
UTILITY-WATER	Utility Water/Irrigation/Sewer
UTILITY - OTHER	Other Miscellaneous Utilities
WALLS	Noise, MSE, Retaining
NA	Not Applicable – Not on Mainline, Misc, LOE, etc. (Misc. programmatic activities not categorized by Type of Work code)

2.1.3.3 Work Breakdown Structure

The FBS shall be organized consistent with the WBS. Developer may add WBS elements and/or levels to those presented in Attachment 2-2 with TxDOT's written approval. Developer shall further develop and detail the initial WBS in accordance with its specific Schedule Activities and retain the ability to summarize to at least the same level as shown in Attachment 2-2 or as approved by TxDOT. Developer shall assign the WBS structure consistently and uniformly among all similar activity types and shall develop the WBS with clearly identifiable linkage to the Schedule of Values and Schedule Activities.

2.1.3.4 Calendars

Developer shall define calendars as follows:

a. TxDOT holidays are non-work days.
b. Project calendar descriptions shall begin with a unique project identifier.
c. The application of "Standard" Primavera calendars is not acceptable.
d. Potential non-work weather days are identified and included in each calendar's work month.
e. Adequately represent non-work days associated with limitations (such as paving seasons, utility shutdown seasons, landscaping seasons, etc.)
f. A 7-day calendar to be utilized for cure, settlement, and other activities as appropriate is included.
g. Project calendars are assigned consistently among similar activity types.

2.1.3.5 Milestones / Constraints

Each Milestone Schedule Deadline shall be separately identified, conform to the scheduling requirements set forth in the Milestone Schedule, and be assigned a "finish no later than" constraint date. Developer shall include additional milestones in the FBS to define significant events such as NTPs, Substantial Completion, Service Commencement, start and finish of major segments/areas/regions of work, major traffic changes and coordination points with outside entities such as Utilities.

The FBS shall not contain any constrained activities, other than contract milestones, without TxDOT approval. Utilization of constraints following the FBS-2 approval will be allowed with TxDOT's approval.

2.1.3.6 Activities

Developer shall describe activities with a unique and logical activity description to easily identify the specific activity so that the scope of work is identifiable and progress on each activity can be measured. Each activity description shall indicate its associated scope and location of work such as type of work, bridge number, station to station locations, side of highway, pipe number, etc. and shall include a verb in

the activity description to indicate the action undertaken such as install, place, fabricate, etc. Schedule Activities shall be created so that the Work is broken down into similar manageable work Elements with greater detail added as the schedule progresses from FBS-1 to FBS-3 (for example, bridges shall be broken down minimally into foundations, substructure, superstructure, and deck for FBS-3.)

Developer shall define the duration of each activity and shall limit the maximum duration according to Table 2-1 unless otherwise approved by TxDOT. Exceptions could include non-work type activities such as mobilization, design, fabrication, settlement durations, curing and long lead procurement items. The duration for each activity shall be the time required to complete the Work based on the quantity of Work divided by reasonably anticipated production rates when applicable. Separate activities for cure time, major inspection points requiring preparation, submittal periods, environmental approvals and other time consuming activities shall be included.

Developer shall clearly identify the relationships and logic that tie activities together. Each activity is to have at least one predecessor and one successor activity, except for the NTP and the project Final Acceptance milestones. Unnecessary relationships or excessive ties to end milestones shall be avoided.

2.1.3.7 Miscellaneous

In developing schedules, Developer shall use schedule software settings similar to Primavera schedule software settings, if not using Primavera, as follows:

a. *Critical activities shall be defined as Longest Path* schedule option setting in lieu of *Total Float Less Than or Equal To x*.
b. *Retained Logic* schedule option setting to calculate the Critical Path and controlling activities in the FBS and subsequent schedule updates.
c. Critical Path shall be highlighted in red on all schedules to distinguish critical Schedule Activities from other Schedule Activities and Float shown for all Schedule Activities.
d. *Leveling Resources* schedule option shall only be used with prior notification to and concurrence of schedule update procedures by TxDOT.

Developer shall cost-load the FBS as follows:

a. Provide a sufficient number of activities so that the budget of any one activity does not exceed $1,500,000.00 in the FBS-3 schedule, unless otherwise approved by TxDOT.
b. Allocate the total dollar amount that represents all of the Work that is reimbursable under Federal Law by the Public Funds Amount (if any) throughout the Payment Activities in the FBS. Such allocation shall not artificially inflate, imbalance, or front-load line items.
c. Developer's indirect costs such as project management, administration, contingencies, site

cleanup and maintenance and-security costs related to design-build costs shall be prorated through all Payment Activities.

d. Projected operations and maintenance costs are non-reimbursable and shall not be cost-loaded.

Developer shall revise the cost loading during the course of the Work in Facility Status Schedule Updates if it becomes necessary to add, combine, eliminate, or modify Payment Activities or Schedule Activities to reflect modifications to the Work due to an executed Change Order. Change Orders as approved by TxDOT shall be added into the schedule with appropriate activities, resources, and units/budget to represent the modified scope of work. A WBS level for each executed Change Order shall be added under the "Change Modification" level of the cost breakdown structure, Table 2 of Attachment 2-3. All costs, if applicable, shall be mapped to the Change Order WBS level accordingly.

If applicable, revisions to the FBS and consequent realignment of funds between Payment Activities shall be requested by Developer through a Change Request, Compensation or Relief Event Notices. The total cost in the schedule shall match the total Facility cost inclusive of all approved Change Orders. As activities are added or split out in the course of revising a schedule update, units/budget for those activities shall also be re-allocated to represent the appropriate quantity to accomplish the Work within the activity duration.

All executed Change Orders shall be incorporated into the originally planned execution of the Work. Developer shall submit to TxDOT a revised FBS within 14 days after each Change Order is executed.

2.1.3.8 Float

Developer shall not sequester total project float through manipulating calendars, extending activities durations or any other such methodology. Float suppression techniques, negative float, and Schedule Activity durations, logic ties, and/or sequences deemed unreasonable by TxDOT shall not be used. Float shall not be considered as time for the exclusive use of or benefit of either TxDOT or Developer but shall be considered as a jointly owned, expiring resource available to the Project. Float shall not be used to the financial detriment of either party. Any schedule, including the FBS and all updates thereto, showing an early Service Commencement Date shall show the time between the scheduled Service Commencement Date and the applicable Milestone Schedule Deadline as the "Total Float" of the Project.

2.1.3.9 Schedule of Values

Concurrent with the submission of FBS-2, Developer shall submit to TxDOT a complete Schedule of Values for all Payment Activities for TxDOT's approval. TxDOT's approval of the Schedule of Values shall be a condition of NTP2. If applicable, no payment by TxDOT from the Public Funds Amount will be made until the Schedule of Values is approved by TxDOT.

Pertaining to the presentation of the Schedule of Values:

a. Payment Activities shall be organized and grouped according to Table 2 of Attachment 2-3. There can be one or more Payment Activities for each of the lowest (terminal) organizational structure elements. For example, earthwork (organizational level III) could have one Payment Activity or multiple Payment Activities that roll up costs to the organizational structure Level III element.
b. Each Payment Activity from the FBS shall contain a unique identification number, the activity description, the quantity, the applicable unit, the unit price and scheduled cost value.

The Schedule of Values shall contain separate activities for temporary roads for access, off-site access roads, project clean-up as well as planned maintenance, as applicable, to capture budgeted costs. Developer's project management, administration, QA/QC, contingencies and any allowance for inflation, profit and financing, as well as site security shall be prorated through all Payment Activities so that the sum of all the Schedule of Values line items equals the total Facility cost.

If it becomes necessary to add, combine, eliminate or modify any Payment Activities due to changes in the Work, a revised Schedule of Values as derived from a revised FBS shall be submitted within 14 days after the respective Change Orderis executed, the Relief Event or Compensation Event occurs, or a TxDOT Directive Letter is issued. TxDOT will review the submittal and within 21 days of submission, return it to Developer as approved or returned for resubmission within 7 days from the date of receipt by Developer. Developer shall repeat the submittal process until receiving TxDOT approval of the submittal.

2.1.3.10 Facility Baseline Schedule Narrative

Developer shall provide a schedule narrative with the FBS-2 schedule and subsequent FBS submittals as follows:

a. Describe the construction philosophy supporting the work plan and approach to the Work outlined in the FBS.
b. Describe the approach used to apply relationships between activities, such as physical or chronological relationships between work activities, sequencing due to crew or equipment resources, or timing of work based on limitations (such as ROW, environmental, utilities, etc.).
c. Describe any limited resources, potential conflicts, or other salient items that may affect the schedule and how they may be resolved.
d. Describe the Critical Path and identify challenges that may arise associated with the Critical Path.
e. Describe adverse weather sources and calculations used for assumptions in determining potential non-work weather days.

f. Describe activity coding structures and how they will be used.
g. Provide a list of planned resources describing crews, crew size, major equipment, and production rates. Only planned resources available to Developer shall be included in the work force listing.
h. Provide a list of applicable activities and justification for usage of:
    - Activities with durations exceeding 20 days
    - Constraints
    - Unusual calendars
    - Assumptions and calculations for non-work weather days added to calendars
    - Lag

Along with the schedule narrative, Developer shall include layouts generated from the scheduling software (PDF file) to illustrate the following:

- Developer's approach to work (based on WBS or other applicable coding) including, at a minimum, columns for activity id, activity name, start, finish, original duration, remaining duration, total float, longest path, budgeted cost, and Gantt chart
- Longest Path layout
- Other layouts or reports as agreed upon with the TxDOT

2.1.3.11 Facility Baseline Schedule Submission

Developer shall establish a sequential numbering system for schedule submittals and associated reports to allow easy identification of FBSs, schedule updates and re-submissions. All schedules, charts and diagrams shall display the project title, the data date and a legend indicating the various symbols used and their meanings. Developer shall provide the following for each schedule submittal:

a. One electronic copy in native software of the schedule
b. One electronic copy in pdf format of the narrative report
c. One electronic copy in pdf format of layouts as generated from the scheduling software

TxDOT will review the schedule submittal and within 30 days of submission, return it to Developer as approved, approved with comments to be addressed in the following schedule update, or returned for resubmission within 20 days from the date of receipt by Developer. Developer shall repeat the submittal process until receiving TxDOT approval of the submittal.

2.1.4 Facility Status Schedule Updates

2.1.4.1 Facility Status Schedule Update Requirements

Developer shall provide schedule updates that comply with all FBS requirements. Data dates for schedule updates shall be the day after the progress period closes. No changes in activity durations, calendar

assignments, logic ties, or constraints will be allowed without TxDOT's written approval. Developer shall show actual progress for each activity in the schedule updates such as:

a. Actual start and finish dates for completed activities
b. Actual start dates, physical percent complete and remaining duration for activities in progress
c. Projected sequences of activities for future work
d. Revised relationships and durations for unfinished activities, if warranted
e. A well-defined Critical Path

For each schedule update, Developer shall ensure that:

a. Planned budget values match total Facility cost or revised total Facility cost inclusive of all authorized Change Orders.
b. All planning changes, adjustments, or revisions in sequencing and timing of the remaining Work are accurately represented.

If Work is performed out of sequence, Developer is required to implement logic changes consistent with the retained logic method of scheduling to allow the out-of-sequence Work to proceed.

Through schedule updates, Developer may demonstrate proposed modifications to planned Work that require adding or deleting activities, changing activity descriptions, or revising activity durations or logic that are consistent with the following requirements:

a. No changes are to disrupt the integrity or comparative relationship between current and previously approved FBSs or schedule updates.
b. An activity ID can only be used once (i.e., do not delete an activity then create a new activity at a later date utilizing the same activity ID).
c. Activity descriptions may be revised for clarification, but are not to be altered to represent a different scope than originally intended. For example, an earthwork activity may be further defined by adding station limits but the description cannot be changed to concrete paving with related logic ties.
d. If changes impacting the Critical Path result in an extension of the Substantial Completion date, beyond contractual limits, Developer shall provide a narrative of the changes in logic driving the stipulated longest path and the justification for the CPM change. Additionally, the narrative shall indicate Developer's plan to mitigate the negative float and re-align the CPM schedule within the contract requirements.
e. Cost loaded activities shall not be deleted from the FBS in order to retain the integrity of target (Baseline) schedule analysis. Rather, activities to be deleted shall be deleted or shall be progressed to 100% and relationship logic modified or deleted accordingly.

f. Progress irrelevant (to be deleted) activities with actual start and finish dates reflective of the modified update period:
    a. Add "DELETED ACTIVITY" in the activity description.
    b. Remove driving relationship ties from the subject activity in order to eliminate it from the CPM model.
    c. Budgeted costs assigned to the deleted activity shall be removed and re-distributed to fragneted detailed activities or similar "Type of Work" activities.
    d. A WBS level shall be created for "DELETED ACTIVITIES" and assigned to the deleted activity to maintain good housekeeping practices.

2.1.4.2 Facility Status Schedule Update Narrative

Developer shall provide a narrative with each schedule update submittal which addresses each of the following:

a. Description of the Work performed during the progress period. Describe progress for each segment/section and the Faciltiy as a whole, including all phases of Work and interim milestones organized and reported by the defined WBS.
b. Provide a summary of QA/QC issues that can potentially affect the CPM model.
c. Explanation of deviations between the Work planned and the Work performed for the period.
d. Description of the Work to be accomplished during the next period.
e. Description of the current Critical Path of the project, explaining any changes since the previous update as well as potential issues and proposed resolutions.
f. Explanation of significant changes to the schedule since the previous update.
    - Provide the reason or justification for the changes, and
    - Describe any resulting affects or impacts to the project schedule. Particular focus should be on any changes that affect critical or near-Critical Paths.
    - Explain changes to:
        - Calendar
        - Activity unit/budget allocations
        - Planned resource (crew) allocations that deviate from the baseline work plan
        - Critical Path
g. Identification of requested and/or required TxDOT or Independent Engineer actions, if applicable, for the next month.
h. Status on pending items applicable to the schedule such as:
    - Permits, easements, agreements
    - Contract changes or time adjustments

- Relief Events or Compensation Events that were executed during the period from the submission of the previous month's progress report to the submission of the current progress report
- Time Impact Analyses

i. Current and anticipated problems or delays including:
   - Listing of current/anticipated problems and/or delays with cause and effect on work, milestones and completion dates. A summary of the resolutions (status) to the problems and/or delays listed above (resolved, ongoing or anticipated).
   - Developer's plans on how to mitigate or resolve ongoing and/or anticipated problem and/or delays.
   - Identification of action TxDOT needs to take and required timeline for actions to be taken, to avoid or mitigate the problem.

A discussion of problems or delay in the schedule update narrative does not relieve Developer of complying with contractual requirements regarding notification and documentation of claims.

If any actual dates are changed or corrected in any following month, Developer shall submit a separate narrative with the schedule update providing an explanation of the change.

Along with the schedule update narrative, Developer shall include layouts generated from the scheduling software, in pdf format, to illustrate the following:

a. Layout to demonstrate Developer's approach and progress of work based on WBS or other applicable coding. At a minimum include columns for activity id, activity name, start, finish, original duration, remaining duration, total float, budgeted cost, and Gantt chart. The Gantt chart shall contain current planned bars and baseline / target bars that represent the previous period's progress forecast.
b. Longest Path layout organized by WBS and sorted by early start.
c. A 90-day look ahead Gantt chart showing all upcoming Submittals from Developer and approvals required by TxDOT or other Governmental Entities.
d. A 90-day look ahead Gantt chart grouped by WBS and sorted by early start date.
e. Graphical report which compares Developer's actual monthly progress to the previous months planned progress, organized by WBS
f. A 90-day look ahead Gantt chart of Design document submittals for the forthcoming period
g. Monthly expenditure projections and cash expenditure curves by WBS or as requested by TxDOT, if applicable
h. Other layouts or reports as agreed upon or requested by TxDOT.

Progress payment requests, if applicable, shall accompany the schedule update narrative.

In addition to the schedule update narrative, Developer shall provide a separate report on the Milestone Schedule Deadlines showing the schedule dates for the immediate prior month and the current month. For variances greater than 30 Days, Developer shall include a narrative to explain why the dates have changed.

2.1.4.3 Facility Status Schedule Update Submission

Developer shall submit to TxDOT the schedule update, narrative and agreed upon layouts or reports each month during the life of the DB Phase beginning with the first full month after NTP2. Developer shall provide the following for each schedule update submittal:

a. One electronic copy in native software of the schedule file
b. one electronic copy in pdf format of narrative report
c. one electronic copy in pdf format of, agreed upon, layouts/reports as generated from the scheduling software
d. The project narrative as described in section 2.1.4.2 above.

TxDOT will review schedule updates for consistency with Developer's WBS and the currently approved FBS and for conformance with the FA Documents. TxDOT will return the schedule updates to Developer as approved, approved with comments to be addressed in the following schedule update, or not approved with comments to be incorporated for resubmission within 14 days of receipt by Developer. The submittal process shall be repeated until receiving TxDOT approval of the submittal.

2.1.5 As-Built Schedule

Upon completion of the Punch List, Developer shall submit the schedule update identified as the "as-built schedule". The as-built schedule shall reflect the exact manner in which the Work up to each Final Acceptance and described by the FA Documents was actually performed including start and completion dates, Schedule Activities, actual durations, sequences and logic.

2.1.6 Time Impact Analysis

Developer shall submit to TxDOT a written time impact analysis (TIA) in each of the following situations:

a. As part of a Relief Request or Compensation Event Notice based on a delay as set forth in FA Documents.
b. If the Developer has claim for delay. Developer shall submit a separate TIA for each delay event.

TxDOT may request, at any time, a TIA demonstrating impact or potential impact to the schedule resulting from claimed delays or Change Orders which are being negotiated between TxDOT and Developer. If TxDOT requests a TIA, Developer shall submit the requested TIA within 15 Days of receiving the request. TxDOT will return the TIA to Developer as approved or not approved with comments to be incorporated for resubmission within 7 days of receipt by Developer. The submittal process shall be repeated until receiving TxDOT approval of the submittal.

Submission of a TIA does not relieve Developer of complying with all contractual requirements regarding notification and documentation of potential Change Orders and Change Orders.

Time extensions will only be considered if:

a. The delay event is demonstrated to affect the controlling operation on the Critical Path. Changes that do not affect the Critical Path will not be considered as the basis for a time adjustment.
b. The total float is absorbed and the scheduled completion date is delayed one or more working days because of the change or impact.

Each TIA submitted by Developer shall consist of the following steps or elements:

a. Establish the status of the Facility before the impact by using the most recent schedule update that has the closest data date prior to the event for TIA, or as adjusted by mutual agreement.
b. Identify the impact event, estimate duration of the impact, determine appropriate logic, and insert the impact activity or fragnet of activities into the schedule. Progress the schedule.
c. Demonstrate any resulting affects from the impact through layouts generated from the scheduling software. Filter activities to show added or modified activities and activities impacted from changes. Note any other changes made to the schedule including modifications to the calendars or constraints.
d. If the current schedule update is revised subsequent to submittal of a time impact analysis but prior to its acceptance, Developer shall promptly indicate, in writing, to TxDOT the need for any modification to its time impact analysis.

Developer shall submit the following with each TIA Submittal:

a. A narrative report which:
   - Identifies the schedule update(s) used for analysis.
   - Describes the procedures used to analyze schedule impacts, including:
     - Additions, deletions, or modification to activities and or fragnets
     - Modifications to the calendars or constraints
     - Modifications to relationships

- Describes the impact or potential impact by comparing Work prior to the impact and Work affected or predicted to be affected after the impact.
- Describe mitigation efforts taken to date.
- Describe potential resolutions to mitigate or avoid impact.

b. Schedule layouts in pdf file format. Filter activities to clearly show impacted activities and affects to the Critical Path. Multiple layouts may be required to adequately demonstrate the impact to the Critical Path. At a minimum, provide a layout demonstrating associated activities prior to the impact and a layout demonstrating associated activities after the impact is inserted and the schedule is progressed.

c. One electronic copy in native software of the impacted FBS

d. Other information or documentation pertinent to the analysis.

Incorporation of TIA activities into the current schedule update submittal requires TxDOT approval.

2.1.7 Recovery Schedule

If the Service Commencement deadline milestone reflects a delivery date thirty (30) days in the aggregate or that number of days in the aggregate equal to five percent of the days remaining until Final Acceptance beyond the contract requirement for two consecutive status update periods, the next schedule update shall include a recovery schedule demonstrating the proposed plan to regain lost schedule progress and to achieve Final Acceptance of the last Facility segment by the specified date.

If the FBS-3+ schedule performance index values of the Facility Construction scope falls below 0.65 with negative trending for 4 consecutive update periods, TxDOT has the option of requiring the Developer to resource load construction activities and perform a resource analysis of the required work force to support the work plan. Project resources shall be assessed for a period of 12 months following notification from TxDOT to provide such analysis and should comprise of construction related activities. Planned resources shall be incorporated into the FBS per the following requirements:

a. Provide a list of crews with associated labor and equipment resources to TxDOT with the schedule submittal.

b. Define crews as a Labor Resource Type and assign to appropriate activities.

c. Provide TxDOT with a definition, the composition of and production rate for each crew type.

d. Do not include any costs for labor resources and do not calculate cost from units (price/unit =$0.00).

e. The “quantity” assigned to each activity shall represent the estimated efforts in place for the Schedule Activity value.

2.1.8 Operations, Maintenance and Renewal Schedule (Renewal Work Schedule)

Developer shall assemble a separate CPM schedule to coordinate, manage and construct maintenance activities and Renewal Work. The Renewal Work Schedule shall be sufficiently detailed to indicate the timing of periodic maintenance activities, rehabilitation activities and other Renewal Work, planned Capacity Improvements, and planned Upgrades, and shall be consistent with the requirements contained in Sections 19 (Maintenance) and 22 (Operations).

During periods of major maintenance, Renewal Work, or Capacity Improvements, the Renewal Work Schedule Updates shall be submitted monthly from no later than 90 Days prior to the commencement of any major maintenance, Renewal Work, or Capacity Improvement and ending at Final Acceptance of the Work of any major maintenance, Renewal Work or Capacity Improvement.

The Renewal Work Schedule shall be developed utilizing the WBS and conform to the Facility Baseline Schedule requirement or as approved by TxDOT

A Renewal Work Schedule narrative shall accompany any schedule submittal describing the schedule update. The narrative shall meet the requirements of the Facility Status Schedule Update Narrative.

The Renewal Work Schedule shall be updated as planned projects are identified and defined. Renewal Work Schedule updates are required on an annual basis.

2.1.9 Document Management

Replace Section 2.1.2 of Book 3 with the following:

Developer shall establish and maintain an electronic document management system (EDMS) to store, catalog, and retrieve all Facility Agreement documents using the applicable control section job (CSJ) numbers. Unless otherwise directed by TxDOT, record retention shall comply with the requirements of the *Texas State Records Retention Schedule*, and all record documents shall be provided to TxDOT at the time of the expiration or earlier termination of the FA.

Unless otherwise directed by TxDOT, Patron Confidential Information obtained by Developer shall meet the requirements of Attachment 2-4 of Book 2, Toll Operations Document Retention Schedule.

Maintenance records shall utilize the same format as TxDOT utilizes for its statewide asset inventory and condition assessments and shall be capable of being integrated into TxDOT's maintenance management systems.

Construction quality acceptance test results shall be automatically transmitted to TxDOT's I2MS system using TxDOT's extensible markup language (XML) web service. A sample is shown in Attachment 2-5

of Book 2, I2MS Test Form Fields. Developer shall coordinate with TxDOT to obtain the most current version prior to commencing construction quality acceptance testing. The technician responsible for conducting the construction quality assurance tests and his/her supervisor shall sign to verify completeness and accuracy of the daily test reports and the results of the daily tests shall be provided to TxDOT and the Independent Engineer within 48-hours after test completion.

2.2 Quality Management Plan

No additional requirements.

2.2.1 General Requirements

No additional requirements.

2.2.2 Quality Terminology

No additional requirements.

2.2.3 Quality Management Organization

No additional requirements.

2.2.4 Quality Policy

No additional requirements.

2.2.5 Inspection and Testing

No additional requirements.

2.2.6 Responsibility and Authority of Developer Staff

No additional requirements.

2.2.7 Design Quality Management Plan

No additional requirements.

2.2.7.1 Design Submittals

No additional requirements.

2.2.7.2 Record Drawings and Documentation

Replace the first paragraph of Section 2.2.7.2 of Book 3 with the following:

On or prior to Final Acceptance on all or part of the Facility (excluding the TxDOT Works), Developer shall submit to TxDOT a complete set of Record Drawings for such portion. The Record Drawings and Documentation shall be an organized record of complete Plans and supporting calculations and details that actually represent what Developer constructed. Developer shall deliver to TxDOT the Record Drawings in hard copy and native electronic format.

Developer shall include a signed statement, in accordance with the Facility Agreement, ensuring that the Record Drawings reflect the constructed Work.

2.2.8 Construction Quality Management Plan

No additional requirements.

2.2.9 Operations Management Plan

No additional requirements.

2.2.10 Maintenance Management Plan

No additional requirements.

2.3 Comprehensive Environmental Protection Plan

No additional requirements.

2.4 Public Information and Communications Plan

No additional requirements.

2.5 Safety Plan

No additional requirements.

2.6 TxDOT-Developer Communications Plan

No additional requirements.

2.7 Right of Way Acquisition Plan

No additional requirements.

2.8 Cost Management Plan

Replace Section 2.8 of Book 3 with the following:

Not applicable.

Incorporate Section 2.9 as follows:

2.9 Requirements for TxDOT Offices, Equipment and Vehicles

Except where noted elsewhere in the FA, at a minimum Developer's Key Personnel and TxDOT shall remain at their respective current locations (8713 and 9001 Airport Fwy, North Richland Hills, TX 76180) for the Term of the FA to facilitate Project coordination and daily communication. Developer shall, however, be responsible for performing any revisions to either space in order to meet the requirements of this contract including but not limited to size and number of offices. Should one party require a location change other than to obtain more space in order to meet the requirements set forth in this Section 2.9 that party will incur all costs associated with the move. Should the existing space not be suitable to meet the requirements of this Section 2.9, then Developer shall provide suitable office space at another location. Suitable office space for this FA is office space meeting the conditions of this Technical Provision within close proximity to Developer's current location as noted above or adjacent to the Facility within one mile of the Facility ROW. If the current location is suitable, Developer shall extend the lease for the TxDOT project office for the Term of the FA and shall provide the new Independent Engineer office space (i.e. available for occupancy) within 120 Days of issuance of NTP1 within one mile of the current TxDOT project office. The location, condition, and amenities of the office space for the Independent Engineer are subject to TxDOT's prior written approval.

Developer shall, as part of the project:

- Provide and pay for all office space, facilities, equipment, and services necessary for TxDOT and the Independent Engineer to oversee the Work.
- Maintain the Facility office space for at least 60 Days after the Term of the FA or until otherwise agreed to by TxDOT in writing.
- After the Term of the FA, provide disposal or removal of all facilities and any site restoration needed for the Facility.

The office space and equipment provided by Developer for the Independent Engineer shall be in good and serviceable condition, at least of the same quality as those of Developer's Facility office, at all times. Developer and TxDOT shall participate in a facility condition survey prior to and at the completion of occupancy.

Developer shall provide office space for three Independent Engineer employees and one TxDOT

employee per $100 million in construction cost (minimum four employees) commencing at 120 Days after the date of issuance of NTP 1 until the Service Commencement Date of the Facility. This office space shall be a permanent facility for the term of such construction. The TxDOT office space may be the same space currently occupied by TxDOT for the NTE Segments 1 and 2W project. The office space for the Independent Engineer for this FA shall be a separate office space and not combined with the Independent Engineer for the NTE Segments 1 and 2W project. Calculations of the number of employees shall be rounded up to the next highest integer (i.e. $320 million/ $100 million = 3.2, provide space for four employees).

During the Operating Period, Developer shall provide the office space set forth below. From the Service Commencement Date, at a minimum, Developer shall provide office space for one TxDOT employee and three Independent Engineer employees. This office space shall be in a permanent facility for the remaining Term of the FA. Should Developer wish to relocate the office space to a different facility during the Term of the FA, Developer shall be responsible for all costs of the relocation of the TxDOT and Independent Engineer including technology that was not previously provided by Developer but is in use at the time of relocation.

From Service Commencement Date, when Developer's construction activities exceed $50 million in value, Developer shall provide additional office space to meet the total office space requirements noted below. Any additional office spaces beyond the minimum requirement during the Operating Period may be in a temporary facility for the duration of construction activities.

The number of total office spaces during the Operating Period shall be based on the requirements detailed in Table 2-2:

Table 2-2: Office Space Requirements for Work During the Operating Period

Construction Cost	Total Office Space During Operating Period
Minimum requirement for Term of FA, including maintenance and construction activities less than $50 million	Office space for one (1) TxDOT employee and three (3) Independent Engineer employees
$50,000,000 to $99,999,999	Office space for two (2) TxDOT employee space and six (6) Independent Engineer employees
$100,000,000 to $149,999,999	Office space for three (3) TxDOT employee space and nine (9) Independent Engineer employees
$150,000,000 to 199,999,999	Office space for four (4) TxDOT employee space and twelve (12) Independent Engineer employees
Construction value in excess of $200,000,000	Office space for five (5) TxDOT employee space and fifteen (15) Independent Engineer employees

Personal office areas, whether in temporary or permanent facilities, shall be at least 150 square feet. Each office space (i.e. TxDOT space or Independent Engineer space), whether in a temporary or permanent facility, shall include:

- One enclosed conference room at least 200sqft
- One lockable enclosed space for storage/filing at least 150 sqft
- An enclosed inside space for storage of equipment at least 100 sqft
- A computer/phone equipment room at least 100 sqft
- One restroom for each six employees that include toilet and sink, or according to local building code, whichever is more stringent.
- A combination break and lunch room area at least 400 sqft
- A reception area at least 200sqft

The restroom, conference room, and break and lunch rooms for TxDOT and Independent Engineer personnel shall be separate from each other, the NTE Segments 1 and 2W Independent Engineer's

facilities, and Developer's facilities. All space requirements are approximate in nature. Facilities that reasonably comply with these requirements will be acceptable.

Developer shall, as part of the Facility:

- Secure a well-graded site that has an access road, a parking area, and building space that meets all local building code requirements.
- Obtain all site permits.
- Provide all utility services.
- Provide a parking area for each facility for the intended number of occupants plus visitor spaces to reasonably accommodate stake holders who may visit the offices for meetings. The parking area shall be reasonably level and have an all weather surface and all-weather access.
- Provide secure storage of at least 150 sq ft at each facility for storage of small tools and equipment for the exclusive use of TxDOT and the Independent Engineer.
- Provide at least two building entrance/exits for each building, each secured with a door lock plus a dead-bolt lock. TxDOT and Independent Engineer space shall be separated by lockable doors from each other and from Developer's space.
- Ensure that the site and office space meet all access requirements of the Americans with Disabilities Act (ADA), as amended (42 USC §§12101, et seq.).

For the TxDOT and Independent Engineer office space, Developer shall provide and pay for:

- Potable water and sewer service;
- Electricity service and interior overhead lighting that meet OSHA standards and building and electrical code requirements for office space, with minimum electrical circuit capacity of twenty amperes and with at least two duplex electrical receptacles in each personal office area;
- Heating, ventilation, and cooling systems capable of maintaining temperatures between 65 and 70 degrees Fahrenheit in all spaces throughout the year;
- Daily janitorial service (except on Saturdays, Sundays and Holidays), including maintenance of trash containers and trash pickup service;
- Maintenance of the exterior areas, including the access to parking areas, that keeps them neat, clean, in good repair, and safe;
- Exterior security lighting that is automatically activated at low light levels to maintain at least two foot-candles of lighting within the fenced office site;
- 24-hour security patrol service or a silent watchman-type security system;
- Hard-wire high-speed internet access in each personal office area, including monthly service charges; and
- Telephone service with at least one outside line (with voice-mail service) for each personal office

area assigned to the office and at least two lines dedicated to fax service. Telephone service and number of outside lines for a reception area shall be in accordance with Good Industry Practice for the number of employees in the office. After installation of the telephone service, TxDOT and the Independent Engineer shall transfer billings for their office telephone service into their respective names and pay for their own telephone services including local and long distance telephone charges. An ID badge or other type of electronic access system shall be placed at the front door, at all of the doors connected to the front lobby and at the doors connecting the small and large conference rooms to the hallway. Developer will provide badges to TxDOT, the Independent Engineer, and to whomever TxDOT approves in writing.

Developer shall provide, install, and maintain the following equipment, in working order, for the TxDOT and Independent Engineer's office spaces:

Telephones

- At least one touch-tone telephone for each personal office area and conference room, each with a status indicator, access to all outside lines, and conference call capability; and including speakers for the telephones in the enclosed offices and conference rooms

Copier and Fax Equipment

In addition to the current equipment located at the TxDOT co-location office, Developer shall provide for the Independent Engineer:

- One full-scale plotter
- One high-speed laser computer printer
- One high-speed color printer capable of handling 11x17 prints
- One high-speed color photo copy machine capable of handling 11x17 prints and one facsimile transmission machine

All equipment shall be replaced and updated at least once every five years. A multipurpose piece of equipment capable of meeting multiple parts of the requirements above will be considered to meet the requirements.

Furniture

- One locking desk with three drawers or one desk with a three-drawer locking file cabinet for each employee office or cubicle;
- One office desk chair on wheels for each desk provided;
- One straight-back office guest chair for each desk provided;

- Reception desk and chair, four guest chairs, one coffee table and one end table for the reception area;
- One conference table and chairs of similar quality and quantity as of Developer conference room;
- Break and lunch room furniture including tables and chairs
- Four 5-drawer lateral filing cabinets (30W min x 19D min) for storage rooms;
- Two full wall, magnetic whiteboards, one full wall pin board and one projection screen in each conference room; and
- One whiteboard in each employee office minimum size 4 ft x 3 ft.

Premise wiring

- Developer shall provide and install the complete voice/data communications cabling system, which includes but is not limited to the EMT conduit, bridle rings, pull boxes, Category 5e UTP cable, Category 5e RJ-45 UTP receptacles, Category 3 RJ-11 UTP receptacles, receptacle boxes, cover plates, and multi-mode fiber optic cable. All cable shall be routed, terminated, labeled and tested. Voice and data circuits shall be installed in conjunction with the Technology Services Division and TxDOT Department of Information Resources staff
- Developer shall certify and state supplied components as functional before installation and will bear all responsibility for replacement of parts at work commencement
- Developer shall prepare test plan and submit before installation, test installed system and supply test results, and will conform to all industry standard testing procedures
- Developer shall terminate all Category 5e UTP cable in 66M150 punch down blocks for voice cabling and shall terminate all Category 5e UTP data cable in data patch panels within the wiring closet
- Each drop will contain two data ports with RJ45 connectors and two voice ports with RJ11 connectors
- Developer will provide all materials, as needed and required, to complete the installation of the cable plant which shall include all cable, connectors, patch panels, equipment rack(s), patch cables, face plates, punch down blocks, fiber optic cable and other equipment during the Facility duration. Developer shall (at its own expense, except as noted herein) repair it, replace it, and/or otherwise restore it to its original condition within five (5) Business Days after the occurrence of such damage or loss.

Developer shall provide supplies for copy and plotter equipment such as paper, ink, and toner.

If any Developer-provided office space, facility, or equipment is damaged, destroyed, or stolen during the Project duration, Developer shall (at its own expense, except as noted herein) repair it, replace it, and/or otherwise restore it to its original condition within five (5) Business Days after the occurrence of such

damage or loss. However, TxDOT will reimburse Developer for the actual, reasonable, and documented costs of the repair, replacement, and/or restoration of any office space, facility, or equipment for any loss or damage caused as a direct result of willful misconduct of TxDOT personnel or the Independent Engineer's personnel.

3 PUBLIC INFORMATION AND COMMUNICATIONS

3.1 General Requirements

Supplement Section 3.1 of Book 3 with the following:

Developer shall coordinate all public information communication plans with ongoing TxDOT public information efforts to ensure a consistent message is being distributed to the regional customer base.

3.2 Administrative Requirements

No additional requirements.

3.2.1 Public Information and Communications Plan

Supplement Section 3.2.1 of Book 3 with the following:

Public liaison

- Conduct media and other group tours of the Facility at appropriate times and stages.

Copies of such material shall be provided to TxDOT at least three (3) Business Days prior to dissemination to the media.

3.2.2 Public Information Coordinator

No additional requirements.

3.2.3 Public Information Office

Replace Section 3.2.3 of Book 3 with the following:

Developer shall maintain a public information office during the DB Phase and during major Renewal Work during the Operating Period. This office shall serve as the primary business location for the Public Information Coordinator and shall be located at a site convenient to the Facility Site. The public information office shall facilitate the exchange of information between Developer and the public and by providing a centralized location for residents and other Customer Groups to obtain information on the Facility, including Facility maps and plans, alternative routes, lane closures, construction updates, community impacts, and commute options.

The normal business hours of operation for the public information office shall be as follows.

- Periods during which major construction is taking place up to the last Service Commencement for the Facility and during major renewal construction activities:

Monday – Friday	7:30 am – 6:00 pm
Saturday	9:00 am – 12:00 noon
Sunday	Closed

Developer shall extend hours of operation to appropriately service Customer Groups.

Developer shall be responsible for providing a location capable of hosting community meetings when necessary.

In addition to the services listed above, Developer shall provide a 24-hour telephone hotline, manned during normal business hours of the public information office, with a recorded message describing Emergency procedures after hours.

3.2.4 Customer Groups

No additional requirements.

3.2.5 Public Meetings

Supplement Section 3.2.5 of Book 3 with the following:

The frequency of public meetings is to be addressed in Developer's PICP and will increase or decrease as needs arise to better inform the Customer Groups. Developer shall propose a schedule of public meetings to TxDOT and then conduct the public meetings that, at a minimum, will address Facility construction and Facility operations and maintenance.

3.2.6 Meeting Minutes

No additional requirements.

3.2.7 Emergency Event Communications

No additional requirements.

3.2.7.1 Lane Closures

No additional requirements.

3.2.8 Disseminating Public Information

No additional requirements.

4 ENVIRONMENTAL

4.1 General Requirements

Supplement Section 4.1 of Book 3 with the following:

The Comprehensive Environmental Protection Program shall effectively demonstrate in detail the Developer's knowledge of all applicable Facility-specific Environmental Approvals, issues, and commitments and applicable Environmental Laws as set forth in the Technical Provisions, and shall describe the processes that will be followed during the course of the Work to comply with those Environmental Approvals, issues, and commitments and Laws, as well as the documentation required to validate compliance.

The costs of all field laboratory and consulting work, including but not limited to phases II to III environmental site assessments related to Hazardous Materials, will be considered part of the Hazardous Materials Allowance. In no event shall any Phase I Hazardous Materials investigation cost be included in the Hazardous Materials Allowance.

4.2 Environmental Approvals

No additional requirements.

4.2.1 New Environmental Approvals and Amended TxDOT-Provided Approvals

Supplement Section 4.2.1 of Book 3 with the following:

TxDOT-Provided Approvals, included in the Reference Information Documents (RID), are the following:

- NEPA Approval for Interstate Highway 35W from Interstate Highway 820 to Interstate Highway 30 (the South Segment)
- NEPA Approval for Interstate Highway 35W from State Highway 114 to Interstate Highway 820 (the North Segment)
- NEPA Approval for Interstate Highway 820 from Interstate Highway 35W to the State Highway 121/State Highway 183 (the Segment 1)

4.2.2 Responsibilities Regarding Environmental Studies

No additional requirements.

4.2.3 TxDOT Review and Approval of Developer Submissions

No additional requirements.

4.3 Comprehensive Environmental Protection Program (CEPP)

Replace the first paragraph of Section 4.3 of Book 3 with the following:

As part of the FMP, Developer shall develop and implement a Comprehensive Environmental Protection Program, applicable throughout the Term of the FA to establish the approach, requirements and procedures to be employed to protect the environment. All component parts shall reflect in order of priority: impact avoidance, minimization and as last resort, compensatory mitigation. The CEPP shall satisfy applicable FHWA, TxDOT and resource agency requirements, including those detailed as commitments in any Environmental Approvals.

4.3.1 Environmental Management System (EMS)

Supplement Section 4.3.1 of Book 3 with the following:

The EMS shall establish a schedule for periodic CEPP review to ensure the CEPP is up to date. The EMS shall provide a means to track the reviews and results. At a minimum, the EMS shall require documents in the following list to be on file at the Facility office and available at any time for TxDOT review:

- CEPP component parts;
- Weekly Environmental Monitoring Reports;
- Investigative Work plans, Site Investigation Reports. and remedial action plans as necessary for hazardous material discovery/remediation;
- Wetlands delineations and appropriate Section 404 and 408 Permit Applications;
- Mitigation or resource monitoring reports, as required by resource-specific mitigation plans;
- Designs for wetland and floodplain mitigation;
- TPDES Construction General Permit (TXR150000), Notice of Intent
- TPDES Construction General Permit (TXR 150000), Notice of Termination for Work completed;
- Storm Water Pollution Prevention Plan (SW3P) and amendments, as required, to reflect Facility development and staging, including off-site plans, controls and reporting from borrow sites, waste sites, and plant location sites;
- Completed permit applications and permits as issued;
- Pre-construction inspection report;

- Training documentation;
- Developer's final noise analysis; and
- Environmental Permits, Issues, and Commitments (EPIC) Sheets.

4.3.2 Environmental Compliance and Mitigation Plan (ECMP)

- **Traffic Noise**

Replace the text under the bullet titled "Traffic Noise" in Section 4.3.2 of Book 3 with the following:

Developer shall document how it will address traffic noise mitigation. The documentation at a minimum shall include:

- Process for performing noise mitigation measures as identified and discussed in the NEPA Approvals, Environmental Commitments and schematic drawings as shown in the Mandatory Scope Schematic, TxDOT Works Design, and Approved NEPA Schematics,
- Process for performing noise mitigation measures determined throughout the life of the project, and
- Process to handle changes that may occur to proposed permanent noise mitigation in the approved NEPA document and schematic drawings as shown in the Mandatory Scope Schematic, TxDOT Works Design, and Approved NEPA Schematics.

Developer shall be responsible for implementing all noise mitigation measures as prescribed in TxDOT-Provided Approvals. Developer acknowledges that any noise mitigation measures shown in the Mandatory Scope Schematics are preliminary and may require amending to comply with the TxDOT-Provided Approvals. Any such amendments by Developer shall be submitted by Developer to TxDOT for review and approval.

Developer shall be responsible for public notification and involvement per *TxDOT Guidelines for Analysis and Abatement of Highway Traffic Noise, April 2011* and in accordance with Section 3 of the Technical Provisions. Developer shall allow fifteen (15) Days for adjacent affected property comments after each traffic noise workshop.

Developer shall be responsible for all coordination with adjacent property owners and Governmental Entities necessary to obtain all such amendments to TxDOT-Provided Approvals and for ensuring compliance with the conditions and schedules set forth in the amendment of any TxDOT-Provided Approvals.

- **Cultural Resource Studies**

Replace the second paragraph of the bullet titled "Cultural Resource Studies" in Section 4.3.2 of Book 3 with the following:

Subsequent to issuance of NTP1, Developer shall be responsible for performing any necessary cultural resource surveys, evaluations, testing, and mitigation in those areas outside of the Facility ROW shown on the Approved NEPA Schematics, as defined in the NEPA Approval and within the area of potential effects. Developer shall coordinate all necessary Antiquities Permits through TxDOT. Antiquities Permits shall be obtained from the Texas Historical Commission (THC) for archeological surveys, testing, monitoring, and data recovery.

4.3.3 Environmental Protection Training Plan (EPTP)

No additional requirements.

4.3.3.1 EPTP Scope and Content

Replace the seventh bullet of Section 4.3.3.1 of Book 3 with the following:

- BMPs for environmental compliance, including pollution prevention, erosion, sedimentation, post construction controls, and dust control measures to maintain water and air quality.

4.3.4 EPTP Participation

Supplement Section 4.3.4 of Book 3 with the following:

Developer shall require all non-administrative employees to participate in the EPTP and shall keep accurate records documenting attendance, as well as materials presented.

In addition to English, the workers must be provided the opportunity to receive their training and training materials in Spanish.

4.3.4.1 EPTP Schedule

Supplement Section 4.3.4.1 of Book 3 with the following:

Developer shall submit to TxDOT for review and approval in its good faith discretion, course outlines containing learning objectives designed to achieve stated goals and suggested staff attendance for all anticipated training requirements through the Term of the FA.

4.3.5 Hazardous Materials Management Plan (HMMP)

No additional requirements.

Incorporate Section 4.3.5.1 as follows:

4.3.5.1 Investigative Work Plans (IWP) and Site Investigation Reports (SIR)

If Hazardous Materials are encountered within any of the Facility ROW or Additional Properties used as Developer's staging area, field office site, plant sites, borrow site, or stockpile location, Developer shall prepare an investigation work plan that addresses the methods, techniques, and analytical testing requirements to adequately characterize the extent of the contaminated media (soil and/or groundwater) potentially impacting the Facility. Developer shall locate and assess the likely source of contamination.

Developer shall cause a Registered Professional Engineer and other qualified professionals, as needed, to prepare the IWP and other necessary reports in accordance with applicable, relevant or appropriate Laws and guidance.

Upon satisfactorily completing the investigative work, Developer shall summarize the findings within a Site Investigation Report and make recommendations regarding potential response actions necessary for Facility development. Developer shall take Hazardous Materials contamination into account during all subsequent phases of Facility development, including Additional Properties negotiation and acquisition, property management, design, and construction.

The Site Investigation Report shall address the characterization of the impacted area; sampling efforts and findings; opportunities to avoid the contamination by adjusting the design; level of response action warranted if the contamination cannot be avoided; feasibility of initiating response actions prior to construction; pursuit of cost-reimbursement from responsible parties; the need for completing response actions concurrent with construction and nature of any special specifications and provisions necessary for incorporation into the Facility.

Developer may initiate a preventative or corrective action after TxDOT review and approval. Developer acknowledges that TxDOT is required to receive approval of the Site Investigation Report from the various federal and State agencies and agrees to cooperate fully as required.

4.3.6 Communication Plan (CP)

No additional requirements.

4.3.7 Construction Monitoring Plan (CMP)

Supplement Section 4.3.7 of Book 3 with the following:

Prior to NTP2, Developer shall inspect existing facilities, structures, and environmentally sensitive areas in the vicinity of the Site. The Site inspection shall document the pre-construction condition of vegetation, streets, sidewalks, landscaping, residential and commercial property, creeks, storm drainage

and infrastructure that may be affected by the Facility. The purpose of the inspection is to provide a point of reference to ensure any area affected by the Work is restored to its pre-construction condition. Developer shall fully document the inspection with a report that shall include, among other things, photographs, sketches, maps, and narratives clearly depicting the pre-construction Site condition.

The inspection shall include the Municipal Separate Storm Sewer System (MS4) located within and adjacent to the Site. In addition to the purpose referenced in the previous paragraph, the purpose of this aspect of the inspection is to document pre-existing drainage issues/problems that could later result in a fine or penalty imposed by a Governmental Entity or other entity with jurisdiction over the MS4.

Following construction of the Facility, Developer shall conduct a yearly inspection to monitor the existing facilities, structures and environmentally sensitive areas in the vicinity of the Site and repair to its pre-construction condition any of the above mentioned elements except to the extent that such element is subject to the TxDOT warranties described in Section 25.7.2 of the FA.

4.3.8 Recycling Plan

No additional requirements.

4.4 Environmental Personnel

No additional requirements.

4.4.1 Environmental Compliance Manager (ECM)

Supplement Section 4.4.1 of Book 3 with the following:

The ECM shall be an employee of Developer. Developer shall not have the ability to relieve the ECM of his or her duty without the written consent of TxDOT. Should Developer desire to replace the ECM, Developer shall submit the resume of a replacement candidate at the time of the request seeking TxDOT approval for the change. Should Developer need to replace the ECM because of the departure of the incumbent ECM, Developer shall submit the resume of a replacement candidate within 30 Days of the ECM's departure. Pending the replacement of the incumbent Environmental Compliance Manager, Developer's Hazardous Materials Manager shall act as an interim Environmental Compliance Manager. In both cases, the replacement candidate shall be available fulltime within thirty (30) Days after delivery of TxDOT's written acceptance.

Qualifications: The ECM shall have at least five years experience successfully managing environmental compliance of urban freeway construction. The qualifying experience used to evaluate an ECM candidate must include the following experience:

- Developing and managing a storm water pollution prevention plan;
- Developing and managing a hazardous substance and petroleum products management plan;
- Implementing environmental mitigation plans;
- Providing environmental and personal protection training; and
- Monitoring compliance with Section 404 and 408 Permit conditions.

The Environmental Compliance Manager's qualifying experience must demonstrate the ECM is familiar with:

- The scope and terminology of ASTM E 1527-05, *Standard Practice for Environmental Site Assessment Process*,
- Provisions of the TPDES Construction General Permit (TXR 150000), and
- Requirements of Section 404 and 408 permit provisions.

4.4.2 Environmental Training Staff

No additional requirements.

4.4.3 Environmental Compliance Inspectors (ECI)

Supplement Section 4.4.3 of Book 3 with the following:

The Environmental Compliance Inspectors shall have at least one year operational control experience of Storm Water Pollution Prevention Plan activities.

4.4.4 Cultural Resource Management Personnel

Supplement Section 4.4.4 of Book 3 with the following

The ECM shall designate personnel in the event that a need arises for renewed activities to comply with cultural resources laws.

Qualifications: The Cultural Resource Management Personnel shall meet the certification requirement of TxDOT precertification work category, 2.8.1 - *Surveys, Research and Documentation of Historic Buildings, Structures, and Objects*, 2.9.1 - *Historic Architecture*, 2.10.1 - *Archeological Surveys, Documentation, Excavations, Testing Reports and Data Recovery Plans*, and 2.11.1 - *Historical and Archival Research*.

4.4.5 Natural Resource Biologist

Replace Section 4.4.5 of Book 3 with the following:

The ECM shall designate a Natural Resource Biologist to provide expertise in monitoring impacts on wildlife and the natural environment during the course of the Work.

Qualifications: The Natural Resource Biologist shall meet the certification requirement of TxDOT precertification work category, 2.6.1 - *Protected Species Determination (Habitat)* and 2.6.3 - *Biological Surveys*.

4.4.6 Water Quality Specialist

Replace Section 4.4.6 of Book 3 with the following:

The ECM shall designate a Water Quality Specialist to provide expertise in permitting delineation, storm-water pollution prevention, and the protection of jurisdictional waters during the course of the Work.

Qualifications: The Water Quality Specialist shall have verifiable experience implementing Storm Water Pollution Prevention Plans and be able to demonstrate a working knowledge of the Texas Pollutant Discharge Elimination System and MS4 permit requirements applicable to the Facility.

The Water Quality Specialist shall meet the certification requirements of TxDOT precertification work category 2.4.1 - *Nationwide Permit*.

4.4.7 Hazardous Materials Manager

Replace Section 4.4.7 of Book 3 with the following:

The ECM shall designate a Hazardous Materials Manager to provide expertise in the safe handling of Hazardous Materials required to perform the Work and those that may be discovered/impacted during the duration of the FA. The Hazardous Materials Manager shall conduct appropriate activities such as the following:

- Schedule and/or conduct training for Developer's employees.
- Verify all employee certifications prior to and required for any handling of Hazardous Materials.
- Maintain records of all incidents involving Hazardous Materials and notify the ECM, TxDOT and appropriate authorities in writing of any such incidents.

Qualifications: The Hazardous Materials Manager shall meet the certification requirements of TxDOT precertification work category 2.123.1 - *Hazardous Materials Initial Site Assessment*, be a qualified professional with 40-hour HAZWOPER certification. In addition, the Hazardous Material Manager shall

have at least five years experience in similar projects in the following areas:

- Experienced in developing IWPs, SIRs, and remedial action plans or equivalent reports necessary and acceptable to the TCEQ in material discovery and remediation efforts of Hazardous Materials.
- Experienced in TCEQ guidance for the investigation and remediation of Hazardous Materials under the TCEQ *Voluntary Cleanup Program* and *Texas Risk Reduction Program Rules*.

5 THIRD PARTY AGREEMENTS

5.1 General Requirements

TxDOT has existing agreements with local Governmental Entities along the Facility corridor that define the requirements for maintenance and operation of traffic signals, illumination and roadway maintenance in the corridor. These agreements specify the local Governmental Entities responsibilities and TxDOT's responsibilities with respect to the requirements.

For the purpose of the FA, Developer shall assume and execute TxDOT's responsibilities and duties as defined in the current and future agreements. Developer is responsible for providing TxDOT and Governmental Entities with all information necessary for it to fulfill TxDOT's responsibilities and duties under these agreements.

In accordance with current and subsequent agreements requiring TxDOT to reimburse the local Governmental Entity for their role in operating and/or maintaining certain facilities, Developer shall reimburse TxDOT said costs. Developer shall make payment to TxDOT within thirty (30) days from receipt of TxDOT's request for payment.

5.2 Traffic Signals

Traffic signal locations at which TxDOT and the local Governmental Entities have traffic signal agreements that designate the operation and maintenance responsibilities are identified in Table 16-1 of Section 16 of the Technical Provisions.

Where TxDOT is responsible for and billed for the electrical power costs for the traffic signal systems, Developer shall coordinate with the Utility Owner(s) to have the power services for all traffic signal systems in the Facility limits to be billed directly to the Developer within ninety (90) Days of NTP2.

Developer shall submit plans and specifications for proposed signal work to the relevant city and shall secure the city's written consent in accordance with the form required by the agreement between TxDOT and the city. The consent shall form part of the Released for Construction Documents.

Developer agrees to allow unconditional access to all traffic signal systems to TxDOT and the local Governmental Entities. Developer agrees to report in writing any issues regarding these traffic signals to all appropriate agencies as soon as the issue is identified.

5.2.1 Red Light Cameras

TxDOT shall have the sole discretion to approve any red light cameras within the corridor. Developer shall forward any red light cameras installation requests directly to TxDOT.

5.3 Roadway Illumination

Where roadway illumination agreements exist, Developer shall execute TxDOT's responsibilities and duties as defined by these agreements. Developer shall coordinate with and provide reasonable accommodations to the relevant third parties (municipalities) requiring access to fulfill the obligations as specified in the agreements.

As required due to reconstruction, Developer shall design and construct Frontage Road illumination where specified in existing roadway illumination agreements or where existing Frontage Roads in the Facility limits are illuminated. The operations and maintenance responsibilities will remain as specified in the existing illumination agreements.

New agreements between TxDOT and the Governmental Entity will be required when a local Governmental Entity requests additional illumination along Frontage Roads within the Facility limits. Developer will be able to review and comment on these illumination agreements and any additional design, construction, operation, and maintenance costs associated with these improvements will be considered a TxDOT Change.

5.4 Municipal Maintenance Agreements

Where Municipal Maintenance Agreements exist, Developer shall execute TxDOT's responsibilities and duties as defined by these agreements. Developer shall coordinate the necessary arrangements directly with the appropriate local Governmental Entity for additional maintenance or improvements within the local Governmental Entity's jurisdiction if so required by the Work.

5.5 Other Affected Third Parties

When Work interfaces with other third party facilities, Developer is responsible for coordinating the Work with all third parties potentially affected by the Work. Developer shall prepare and submit to TxDOT as part of the Facility Management Plan an affected third parties plan that describes how Developer will mitigate the impact of the Work upon potentially impacted third parties.

6 UTILITY ADJUSTMENTS

6.1 General Requirements

Replace Section 6.1 of Book 3 with the following:

A number of existing Utilities are located within or in the vicinity of the Facility ROW, some pursuant to statutory rights and some pursuant to property rights. Certain of those existing Utilities will need to be relocated or otherwise adjusted in order to accommodate the Facility. This Section 6 of the Technical Provisions establishes procedures and requirements for Utility Adjustments including such processes as coordination with Utility Owners, administration of the engineering, construction and other activities necessary for Utility Adjustments, and required documentation. This Section 6 of the Technical Provisions refers to certain TxDOT forms for Developer's use in Utility Adjustments. Copies of those forms are included in Attachment 6-1 of Book 2, Utility Forms. Except as otherwise provided in this Section 6 of the Technical Provisions or directed by TxDOT, whenever a TxDOT form is provided, Developer shall prepare all forms of the same type using the TxDOT form.

Developer shall cause all Utility Adjustments necessary to accommodate construction, operation, maintenance and/or use of the Facility for the Mandatory Scope. Some Utility Adjustments may be performed by the Utility Owner with its own forces and/or contractors and consultants (i.e., Owner-Managed); all others shall be performed by Developer with its own forces and/or Contractors and consultants subject to any approval rights required by the Utility Owner for those working on its facilities (i.e., Developer-Managed). The allocation of responsibility for the Utility Adjustment Work between Developer and the Utility Owners shall be specified in the Utility Agreements.

Developer's obligations regarding reimbursement to Utility Owners for eligible costs of Utility Adjustment Work, and Developer's obligations regarding the accommodation of Utilities from and after the Service Commencement Date, are set forth in Section 7.5.4 and Section 8.1.5 of the FA.

This Section 6 of the Technical Provisions does not address Utility services to the Facility. Utility services to the Facility shall be the subject of separate agreements between Developer and Utility Owners.

6.1.1 When Utility Adjustment is Required

Supplement Section 6.1.1 of Book 3 with the following:

Developer is responsible to co-ordinate and work collaboratively with TxDOT in accordance with Section 11.1.1 of the FA and the Utility Owner where a Utility Adjustment crosses between the Segment 3A Facility Segment and the Segment 3B Facility Segment. See Section 1.1.3 of the Technical Provisions

for additional details regarding the construction interface. Developer shall be responsible for utility adjustments within and including the limits of the Segment 3A Facility Segment and all other adjustments as determined in the coordination plan prepared in accordance with Section 11.1.1 of the FA.

6.1.2 Certain Components of the Utility Adjustment Work

No additional requirements.

6.1.2.1 Coordination

Replace Section 6.1.2.1 of Book 3 with the following:

Developer shall communicate, cooperate, and coordinate with TxDOT, the Utility Owners and potentially affected third parties, as necessary for performance of the Utility Adjustment Work. Developer shall be responsible for preparing (unless prepared by the Utility Owner) and securing execution (by Developer and the Utility Owner) of all necessary Utility Agreements.

All executed Utility Agreements between Developer and Utility Owners must be approved by TxDOT prior to taking effect.

6.1.2.2 Betterments

No additional requirements.

6.1.2.3 Protection in Place

No additional requirements.

6.1.2.4 Abandonment and Removal

No additional requirements.

6.1.2.5 Service Lines and Utility Appurtenances

No additional requirements.

6.1.2.6 Early Adjustments

No additional requirements.

6.1.3 Reserved

6.1.4 Agreements Between Developer and Utility Owners

No additional requirements.

6.1.4.1 Master Utility Adjustment Agreements (MUAA)

Replace Section 6.1.4.1 of Book 3 with the following:

Developer shall enter into one or more MUAAs with each affected Utility Owner to define the design, material, construction, inspection, and acceptance standards and procedures necessary to complete Utility Adjustments, as well as to define Developer's and the Utility Owner's respective responsibilities for Utility Adjustment costs and Utility Adjustment activities such as material procurement, construction, inspection, and acceptance. A MUAA may address more than one Utility Adjustment for the same Utility Owner. Additional Utility Adjustments may be added to an existing MUAA by a Utility Adjustment Agreement Amendment (UAAA).

Developer shall prepare each MUAA using the standard form of *TxDOT Master Utility Adjustment Agreement (Owner-Managed)* or *TxDOT Master Utility Adjustment Agreement (Developer-Managed)*, Attachment 6-1 of Book 2, Utility Forms. Developer shall not modify the standard forms except by approval of a Deviation pursuant to Section 7.5.2 of the FA.

On issuance of NTP1, Developer shall begin negotiations with each affected Utility Owner to reach agreement on one or more MUAAs. Developer shall finalize the necessary MUAA(s) with each affected Utility Owner within a reasonable time period after issuance of NTP1. Developer shall include any proposed changes to a standard form (other than approved Deviations as described in the preceding paragraph and filling in blanks specific to a particular Utility Owner) in a Utility Owner-specific addendum. Each MUAA (including the Utility Adjustment Plans attached thereto) shall be subject to TxDOT review and approval as part of a Utility Assembly.

6.1.4.2 Utility Adjustment Agreement Amendments

Replace the second paragraph of Section 6.1.4.2 of Book 3with the following:

Each UAAA (including any Utility Adjustment Plans attached thereto) shall be subject to TxDOT's approval as part of a Supplemental Utility Assembly. Except as otherwise directed by TxDOT or provided in an applicable Utility Agreement, Developer shall prepare all UAAAs using the standard form included in Attachment 6-1 of Book 2, Utility Forms. Developer shall not modify the standard forms except by approval of a Deviation pursuant to Section 7.5.2 of the FA. Developer shall include any proposed changes to a standard form (other than approved Deviations and filling in blanks specific to a

particular Utility Owner) in a Utility Owner-specific addendum.

6.1.5 Recordkeeping

No additional requirements.

6.2 Administrative Requirements

No additional requirements.

6.2.1 Standards

Supplement Section 6.2.1 of Book 3 with the following:

When there is no viable alternative and upon TxDOT approval, existing Utilities that cross the ROW will be allowed to remain in place below proposed bridges without being relocated as long as UAR depth requirements are met, there is no conflict with bridge bent construction and the Utility agrees to the location. Communication lines will be allowed to be placed beneath proposed Frontage Road (excluding manholes/handholes) and/or cross connecting side street pavement if necessary to avoid the Utility owner from purchasing additional ROW or easements with TxDOT's approval. Utilities or sections of Utilities not affected by construction of the Mandatory Scope, whether in whole or in part, do not have to be relocated when the location accommodation meets the requirements of the UAR.

6.2.2 Communications

No additional requirements.

6.2.2.1 Communication with Utility Owners: Meetings and Correspondence

Replace the third paragraph of Section 6.2.2.1 of Book 3 with the following.

Before distribution of any mass mailings to Utility Owners, Developer shall submit to TxDOT, twenty-one (21) Days in advance of distribution, for its review and comment the form, content, and addressees of any such mass mailings. For purposes of this Section 6.2.2.1 of the Technical Provisions, the term "mass mailing" means correspondence that is sent to 50 percent or more of Utility Owners within a three-week time period, and contains substantially the same content with respect to each Utility Owner.

6.2.3 *Utility Adjustment Team*

No additional requirements.

6.2.4 *Real Property Matters*

No additional requirements.

6.2.4.1 Documentation of Existing Utility Property Interests -- Affidavits

Replace Section 6.2.4.1 of Book 3 with the following:

For each Existing Utility Property Interest within the Project ROW claimed by any Utility Owner, Developer shall include an Affidavit of Property Interest in the applicable Utility Assembly, with documentation of the Existing Utility Property Interest (e.g., an easement deed) attached. Any such claim shall be subject to TxDOT's approval as part of a Utility Assembly review. Except as otherwise directed by TxDOT, Developer shall prepare all Affidavits of Property Interest using the standard forms included in the attachment as noted in these Technical Provisions.

6.2.4.2 Acquisition of Replacement Utility Property Interests

No additional requirements.

6.2.4.3 Relinquishment of Existing Utility Property Interests

No additional requirements.

6.2.4.4 Quitclaim Deeds

Replace Section 6.2.4.4 of Book 3 with the following:

Except as otherwise directed by TxDOT, Developer shall prepare a Quitclaim Deed for each relinquishment of an Existing Utility Property Interest using TxDOT's standard form included in the attachment as noted in these Technical Provisions. Each Quitclaim Deed shall be subject to TxDOT's approval as part of a Utility Assembly.

Developer understands and expects that a Utility Owner will not relinquish any Existing Utility Property Interest until after the Utility Adjustment has been accepted by the Utility Owner in its new location. Accordingly, instead of an executed Quitclaim Deed, the Utility Assembly for such a Utility Adjustment shall include a letter signed by the Utility Owner's authorized representative confirming that the interest will be quitclaimed upon completion of the Utility Adjustment, and a copy of the unsigned Quitclaim Deed. In these cases, Developer shall obtain the executed Quitclaim Deed upon completion of the Utility Adjustment.

6.2.4.5 Utility Joint Use Acknowledgements

No additional requirements.

6.2.4.6 Documentation Requirements

No additional requirements.

Replace the heading Section 6.3 Design of Book 3 with Section 6.3 Design Requirements.

6.3 Design Requirements

No additional requirements.

6.3.1 Developer's Responsibility for Utility Identification

Replace Section 6.3.1 of Book 3 with the following:

Developer bears sole responsibility for ascertaining, at its own expense, all pertinent details of Utilities located within the Facility ROW or otherwise affected by the Facility, whether located on private property or within an existing public ROW, and including all Service Lines.

Developer shall prepare and submit to TxDOT, a Utility Strip Map showing the information obtained and/or confirmed pursuant to this Section 6.3.1. Developer's Utility Strip Map shall show in plan view all Utilities within the Facility ROW or otherwise impacted by the Facility, in each case detailing the type of Utility facility (communication, gas, oil, water, etc.) and the Utility Owner's name and contact information. The scale of the Utility Strip Map shall be 1"=200'. Developer shall update the information provided in the Utility Strip Map with SUE data and shall submit the same to TxDOT in accordance with the Facility Management Plan.

6.3.2 Technical Criteria and Performance Standards

Delete ", whether furnished by Developer or by the Utility Owner," in the first sentence.

6.3.3 Utility Adjustment Concept Plans

No additional requirements.

6.3.4 Utility Adjustment Plans

Replace Section 6.3.4 of Book 3 with the following:

Developer shall submit Utility Adjustment Plans after TxDOT has provided Developer with Utility Adjustment Concept Plan review comments. Utility Adjustment Plans, whether furnished by Developer

or by the Utility Owner, shall be signed and sealed by a Texas Registered (or Licensed) Professional Engineer (PE).

6.3.4.1 Plans Prepared by Developer

No additional requirements.

6.3.4.2 Plans Prepared by the Utility Owner

No additional requirements.

6.3.4.3 Design Documents

Replace the first sentence of Section 6.3.4.3 of Book 3 with the following:

Developer shall ensure that each proposed Utility Adjustment is shown in the Record Drawings, regardless of whether the Utility Adjustment Plans are prepared by Developer or by the Utility Owner.

6.3.4.4 Certain Requirements for Underground Utilities

No additional requirements.

6.3.4.5 Utility Assemblies

Replace the fourth paragraph of Section 6.3.4.5 of Book 3 with the following:

Supplemental Utility Assemblies. For each UAAA, Developer shall prepare a supplement to the Utility Assembly for the relevant initial MUAA (a Supplemental Utility Assembly), covering all Utility Adjustments addressed in the UAAA. The Supplemental Utility Assembly shall contain a transmittal memo, Utility Assembly Checklist, proposed UAAA cost estimate, a proposed UAAA which has been executed by the Utility Owner and Developer (one original in each of the two original Supplemental Utility Assemblies), including all required attachments, and applicable revisions to the Utility Adjustment Plans, as well as Utility Joint Use Acknowledgement(s) and Affidavit(s) of Property Interest, if applicable. The transmittal memo shall briefly describe the desired amendment and explain why the amendment is necessary.

6.4 Construction

No additional requirements.

6.4.1 Reserved

No additional requirements.

6.4.2 General Construction Criteria

No additional requirements.

6.4.3 Inspection of Utility Owner Construction

No additional requirements.

6.4.4 Scheduling Utility Adjustment Work

Replace Section 6.4.4 of Book 3 with the following:

The Utility Adjustment Work (other than construction) may begin at any time following issuance of NTP1. Refer to Section 7.6.2 of the FA for the conditions to commencement of Utility Adjustment Construction Work by Developer. Developer shall not arrange for any Utility Owner to begin any demolition, removal, or other construction work for any Utility Adjustment until all of the following conditions are satisfied:

1. The Utility Adjustment is covered by an executed Utility Agreement (and any conditions to commencement of such activities that are included in the Utility Agreement have been satisfied);
2. Availability and access to affected Replacement Utility Property Interests have been obtained by the Utility Owner (and provided to Developer, if applicable);
3. If any part of the Utility Adjustment construction work will affect the Facility ROW, availability and access to that portion of the Facility ROW has been obtained in accordance with the applicable requirements of the FA Documents;
4. If applicable, the Alternate Procedure List has been approved by FHWA, and either (a) the affected Utility is on the approved Alternate Procedure List, as supplemented, or (b) the Utility Owner is on the approved Alternate Procedure List, as supplemented;
5. The review and comment process has been completed and required approvals have been obtained for the Utility Assembly covering the Utility Adjustment;
6. All Governmental Approvals necessary for the Utility Adjustment construction have been obtained, and any pre-construction requirements contained in those Governmental Approvals have been satisfied;
7. All other conditions to that work stated in the FA Documents have been satisfied.

6.4.5 Standard of Care Regarding Utilities

No additional requirements.

6.4.6 Emergency Procedures

No additional requirements.

6.4.7 Utility Adjustment Field Modifications

Supplement Section 6.4.7 of Book 3 with the following:

If deviation of the actual construction from the drawings is within a 2-foot horizontal or 1-foot vertical range or less, it shall not be considered a Field Change and will just be included in the As-Built Plans, provided that the deviation does not constitute a design exception from the specifications contained in the Technical Provisions and applicable standards.

6.4.8 Switch Over to New Facilities

No additional requirements.

6.4.9 Record Drawings

No additional requirements.

6.4.10 Maintenance of Utility Service

No additional requirements.

6.4.11 Traffic Control

Replace Section 6.4.11 of Book 3 with the following:

Developer shall be responsible for, and the Construction Traffic Management Plan shall cover, all traffic control made necessary by or for Utility Adjustment Work, whether performed by Developer or by the Utility Owner. Developer shall ensure that traffic control for Adjustments will be coordinated with, and subject to approval by, the local agency(ies) with jurisdiction. Developer shall ensure that traffic control will comply with the guidelines of the TMUTCD and of Section 18 (Traffic Control).

6.5 Deliverables

Replace Section 6.5 of Book 3 with the following:

Developer shall time all Submittals described in this section to meet the Facility Schedule, taking into

account TxDOT's applicable review and response times designated in this Section 6 of the Technical Provisions, or if not stated therein, then as stated in Section 6.3 of the FA. All deliverables shall conform to the standards required in the Facility Management Plan.

6.5.1 Maximum Number of Submittals

Replace Section 6.5.1 of Book 3 with the following:

Developer shall coordinate all Submittals required pursuant to this Section 6.5 of the Technical Provisions, so as not to overburden TxDOT's staff and consultants.

In each calendar week, Developer shall not submit more than four (4) Submittals, being considered separate Submittals: Utility Assemblies, Supplemental Utility Assemblies, Abbreviated Utility Assemblies, additional items submitted in response to TxDOT comments on a particular Utility Assembly, a Quitclaim Deed, and any other type of Relinquishment document.

Where the number of Submittals exceeds these limits, the submittals shall be considered excess and TxDOT may defer its review of any such excess parcels to a subsequent calendar week (or weeks as necessary).

6.5.2 Developer's Utility Tracking Report

Replace Section 6.5.2 of Book 3 with the following:

Developer shall maintain a Utility Tracking Report in tabular form, listing all Utilities located within the Facility ROW or otherwise potentially affected by the Facility. Developer shall submit the Utility Tracking Report to TxDOT both in native electronic and hard copy formats on a monthly basis. The Utility Tracking Report shall, at a minimum, contain the following information for each utility:

a) The name of the Utility Owner and a unique tracking number starting with the prefix "Highway U-" followed by a four digit number starting with 0001 - to be assigned by Developer;

b) Utility size and type;

c) Location of the Utility based upon project control datum or by station and offset;

d) The proposed method of treatment;

e) State whether the adjustment will be Owner or Developer Managed;

f) Dates on which the MUAA/UAAA was executed by TxDOT, Utility Owner, Design-Build Contractor, Developer;

g) Dates on which the UJUA was executed by the Utility Owner and TxDOT;

h) The Utility Owner's existing right of occupancy of the ROW for each Utility (e.g. UJUA, permit, easement or combination);

i) Whether any Replacement Utility Property Interest will be necessary;

j) Estimated cost approved in the MUAA or UAAA;

k) Amounts and dates of payments made by the Developer to the Utility Owner, listing in each case the type of payment (final, partial or lump sum);

l) Scheduled start and completion date for construction of each adjustment;

m) Percent complete of construction;

n) Whether any betterment is included in the adjustment.

The Utility Tracking Report shall also include a separate section for Replacement Utility Property Interests listing each necessary Replacement Utility Property Interest with the names of property owners or parcel number(s), Utility Assembly Numbers, status of the acquisition, acquisition cost, and other information as necessary. Developer shall maintain this section of the Utility Tracking Report and submit to TxDOT in the same manner as all other portions of the Utility Tracking Report.

6.5.3 Utility Assembly Submittals

Replace the second paragraph of Section 6.5.3 of Book 3 with the following:

TxDOT will review the Utility Assembly for compliance with the requirements of this Section 6.5.3 of the Technical Provisions, and within ten (10) Business Days will return the Utility Assembly to Developer with the appropriate notations (pursuant to Section 6.3 of the FA) to reflect its responses. Developer shall transmit any TxDOT comments to the Utility Owner, and shall coordinate any modification, review and approval by the Utility Owner and re-submittal to TxDOT, as necessary to resolve all TxDOT comments and/or obtain TxDOT's approval, as applicable. Upon (a) TxDOT's approval of any Utility Assembly components for which TxDOT's approval is required, and (b) completion of the review and comment process for all other Utility Assembly components, TxDOT will sign three originals of any approved UJUA and of any other components of the Utility Assembly for which Section 6 of the Technical Provisions requires TxDOT's signature.

6.5.4 FHWA Alternate Procedure

No additional requirements.

7 RIGHT OF WAY (ROW)

7.1 General Requirements

No additional requirements.

7.2 Administrative Requirements

No additional requirements.

7.2.1 Standards

Supplement Section 7.2.1 of Book 3 with the following:

- TxDOT *GPS Manual*

7.2.2 Software Requirements

No additional requirements.

7.2.3 ROW Acquisition Plan

No additional requirements.

7.2.4 Schedule and Review Procedures

Replace the second paragraph of Section 7.2.4 of Book 3 with the following:

In developing the Facility Schedule, Developer shall incorporate adequate time periods for TxDOT review and approval of Acquisition Packages. TxDOT intends to review the completed Acquisition Packages as expeditiously as possible; however, for the purposes of the Facility Schedule, Developer shall assume that the reviews performed by TxDOT will require ten (10) Business Days for Acquisition Packages that Developer submits as final and complete in accordance with Section 7.3.6 of the Technical Provisions, up to a maximum of thirty (30) Acquisition Packages. Any Submittals that would require TxDOT to review more than thirty (30) Acquisition Packages within any given ten (10) Business Day period shall be considered excess, and TxDOT may defer its review of any such Acquisition Packages to a subsequent ten (10) Business Day period (or periods as necessary). TxDOT will notify Developer of its election to defer any excess Acquisition Packages within ten (10) Business Days after receipt. The balance of Acquisition Packages in excess of thirty (30) will be rolled over to the next ten (10) Business Day period and added to the Acquisition Package Submittals made by Developer in that period. When Developer opts to submit more than one Acquisition Package at any given time, Developer shall indicate the priority of required review in order to meet the Facility Schedule.

7.2.5 Developer's Facility ROW Scope of Services

No additional requirements.

7.2.6 Acquisition Process Summary

No additional requirements.

7.2.7 ROW Personnel Qualifications

Replace the second and third paragraphs of Section 7.2.7 of Book 3 with the following:

Appraisers and appraisal reviewers shall be licensed and certified in the State of Texas and shall have a minimum of five years experience in appraising real property for eminent domain purposes, including partial taking appraisal, partial taking appraisal review and expert witness testimony. He or she must also have been actively and continuously engaged for at least three years immediately preceding his or her selection for this Facility in appraisal work primarily in Tarrant County, Texas, or as approved by TxDOT. The appraisers and the appraisal reviewers shall have separate and distinct duties, and appraisers must be employed by different firms from the appraisal reviewers. Each appraiser shall be required to submit three samples of previous appraisal work prepared for eminent domain purposes. All appraisers preparing and signing appraisals must be approved by TxDOT before performing any appraisals on the Facility. If required by TxDOT, the appraiser will be required to demonstrate his/her skills at expert witness testimony.

Each land planner shall have a minimum of five years experience in land planning, including experience with expert witness testimony in eminent domain proceedings. He or she must also have been actively and continuously engaged for at least three years immediately preceding his or her selection for this Facility in land planning work primarily in Tarrant County, Texas, or as approved by TxDOT. Developer shall provide a minimum of two land planners to assist appraisers and complete land plans.

7.2.8 Developer Conflict of Interest

No additional requirements.

7.2.9 Meetings

No additional requirements.

7.2.10 Documentation and Reporting

No additional requirements.

7.2.11 Responsibilities of Developer

Replace the second paragraph of Section 7.2.11 of Book 3 with the following:

Developer acknowledges that Developer has incorporated the value of saleable improvements into the Facility ROW costs shown in the Base Case Financial Model and any Base Case Financial Model Updates, and Developer shall concurrently, with conveyance of the real property interest to the State of Texas, and without the necessity of further documentation executed by the State, obtain the rights to said saleable improvements. Developer shall not be entitled to a credit for any improvements retained by a property owner. Upon conveyance of the real property interest to the State of Texas, Developer shall comply with all applicable Laws with respect to relocation assistance and demolition.

7.2.12 Responsibilities of TxDOT

No additional requirements.

7.2.13 TxDOT Facility Monitor/Reviewer

No additional requirements.

7.3 Pre-Acquisition Activities

No additional requirements.

7.3.1 Facility ROW Surveying and Mapping

Replace Section 7.3.1 of Book 3 with the following:

The Facility ROW map shall be prepared by Developer and submitted to TxDOT for review and approval. The Facility ROW map may be prepared in separate constructible segments established by the logical termini of the Facility. TxDOT shall have fifteen (15) Business Days for review of each submitted Facility ROW map, each containing up to a maximum of 30 parcels. Any submittals that would require TxDOT to review more than 30 parcels within any given fifteen (15) Business Day period shall be considered excess, and TxDOT may defer its review of any such excess parcels to a subsequent fifteen (15) Business Day period (or periods as necessary).

Developer shall prepare all Facility ROW surveying and mapping in accordance with the following supplemental specifications:

1. Developer shall assemble an Acquisition Survey Document Package. The Acquisition Survey Document Package shall include:
    a) One full size right of way map on paper, Scale 1" = 50' (22" x 34").

b) Three half size right of way maps on paper, Scale 1" = 100' (11' x 17")
c) One set of folders for each parcel, Parts 1 & 2, etc.., would be considered one folder. With one (copy signed and sealed) legal description, sketch, closure sheet, parent tract deed (and bi-section if applicable) secured inside on the right side. Note: just pencil on tab of folder what parcel number and TxDOT Fort Worth District will make the label.
d) Three copies (signed and sealed) of each legal and sketch loose inside of folder
e) One separate set (copies) of legal and sketch of each parcel for TxDOT records.
f) One separate set (copies) of legal and sketch of each parcel for title company.
g) One separate set of originals signed and sealed by RPLS legal and sketch to be kept in mapping files
h) A CD with DGN master file, map sheets, excel point list and raw data file and/or field notes.

Each map sheet and document page shall have an "as of" date near the lower right hand corner. The parcel plat and parcel description for a given parcel should show identical "as of" dates.

2. The parcel, as shown on the Facility ROW map sheet and plat, shall show all areas of denied access according to the current TxDOT *Access Control Management Manual* or as reviewed and approved by TxDOT.
3. The point of beginning (POB) shall be located on the proposed Facility ROW line and shown in all documents with its centerline (survey baseline) station and offset.
4. The point of commencing (POC), where applicable, shall be a well-defined monument, and shall be tied to the POB by measured bearing and distance. The POC shall not be located on any proposed Facility ROW line, or existing Facility ROW line within the proposed Facility ROW.
5. The centerline (survey baseline) station and offset shall be shown on the Facility ROW map sheets for all significant points along the Facility ROW line such as point of curvature (PC), point of tangency (PT), point of intersection (PI), point of compound curvature (PCC), and point of reverse curvature (PRC), and for property line intersections (PLI) with the Facility ROW line, and for any other monumentation points on the Facility ROW line.
6. The centerline (survey baseline) station and offset shall be shown in the parcel description and parcel plat at the beginning and ending, being the points with the lowest station and the highest station, of each parcel along the proposed Facility ROW line.
7. Facility ROW map sheets shall include all curve data, with the station and coordinates of the PI, and the stations at each end (PC, PT, PRC, PCC), for every centerline (survey baseline) curve on that map sheet.
8. Any existing ROW lines being incorporated into the proposed Facility ROW, including intersecting rights of way, shall be surveyed and monumented (if not previously monumented).

9. All Facility ROW maps (and on the title sheet) and all parcel descriptions (at the end of the description) shall include a notation that identifies the State Plane Coordinate System and UTM zones, datum (NAD83) (HARN) (2002), and the Facility grid-to-surface coordinate adjustment factor.
10. A Facility ROW map title sheet with signature blocks shall be produced for each portion of the Facility. Developer shall sign the Facility ROW map.
11. All Facility ROW maps shall include a control sheet (or sheets), to show the primary survey control points with their location relative to the Facility.
12. The parcel description and parcel plat documents shall all be referenced as parts of the exhibit recorded with the deed, so the pages shall be numbered accordingly. For example, if the parcel description is two pages, the parcel plat is one page, then the first page of the parcel description is denoted "Page 1 of 3", the parcel plat is denoted "Page 3 of 3".
13. Improvements within 100 feet outside of all proposed Facility ROW shall be depicted on the Facility ROW map sheets. All improvements should be current as of the date of the on-the-ground property survey.
14. All visible improvements (buildings and structures) within 25 feet outside of the proposed Facility ROW line shall be located by an "on-the-ground" survey and documented on the Facility ROW map sheets and the parcel plats by measured offset distance from the proposed Facility ROW line. Clearly indicate which distances are surveyed on–the-ground.
15. Calculated points shall be shown by a symbol on the drawing, with their relationship to the found reference points.
16. All property, city, county, abstract, section, and survey lines shall be indicated appropriately. A map legend should clearly define the line styles and symbols used.
17. Upon final submittal from Developer of the Facility ROW documents to TxDOT, Developer shall cause the surveyor to mark on the ground, using permanent and stable monuments as defined in Section 663.17 of the General Rules of Procedures and Practices of the Texas Board of Professional Land Surveying (TBPLS), all significant points along the Facility ROW line, as described above, and all property line intersections with the Facility ROW line. TxDOT requires these monuments to be a ½-inch iron rod, driven just below surface level, capped by a TxDOT-labeled aluminum cap (rod-and-cap monument).
18. Prior to acceptance of the Facility ROW maps and surveys by TxDOT, Developer shall cause a TxDOT Type II monument to be set at all significant points on the Facility ROW line and at intersections with existing Facility ROW lines, replacing monuments as described above (construct according to TxDOT specifications), unless otherwise directed by TxDOT.
19. Developer shall cause a TxDOT Type II monument to be set at all significant points on the

Facility ROW line and at intersections with existing Facility ROW lines, replacing monuments as described above, unless otherwise directed by TxDOT. Facility ROW line intersections with property lines shall remain monumented by a ½-inch iron rod with a TxDOT aluminum cap (rod-and–cap monument). To reference all significant points along the centerline (survey baseline), Developer shall set a rod-and-cap monument; and upon completion of the Facility ROW acquisition or as directed by TxDOT, Developer shall replace it with a TxDOT Type II monument, on the final Facility ROW lines, perpendicularly left and right of each significant centerline point, regardless of the relative orientation of the final Facility ROW line.

20. For any required revisions, Developer shall resubmit to TxDOT all documents pertaining to the parcel to reflect the most recent revision date, and shall add a notation on the appropriate documents to state briefly the reason for the revision.
21. Documents shall contain deed references (survey name, abstract number, volume and page or document number, grantee, and area) for all existing public right of way encountered within the Facility limits. If there is no recorded information found, a note shall state "Based upon our research, there appears to be no recorded vesting deed for the public right of way as shown hereon".
22. Developer shall cause the surveyor to include the denial of access line on the Facility ROW map sheets and on the parcel plats, as required for controlled access facilities. Developer also shall cause the surveyor to describe the area of denied access in the parcel description and monument on the ground with a ½" iron rod with orange cap stamped "TxDOT ADL" at the limits of the denial of access.
23. The Facility ROW map and each parcel plat shall include a parcel information table containing the areas, expressed in square feet, of the following: 1) the parent ownership as stated in all adjoining record vesting deeds or converted from the stated record acreage in those vesting deeds; 2) the parcel to be acquired as shown on the closure report for that parcel, and; 3) the remainder tract (item 1 minus item 2). If the parcel to be acquired consists of multiple parts, the Facility ROW map shall show the net remainder. The parcel information table shall also contain the areas, expressed in acres, of the parent tract, the parcel to be acquired, and the remainder. This acreage (except stated record) shall be converted from the square footage as contained in the table. A note shall be included on the Facility ROW map and on each parcel plat stating: "The acreage calculated and shown hereon is converted from the square footage shown hereon, and is for informational purposes only." Parcels with area less than one acre will not require acreage units to also be shown.
24. Within the proposed Facility ROW, all property owned by a city, county, or other local public agency in fee or easement that does not have a vesting deed shall be identified by a parcel

number and included on the Facility ROW map. Developer shall cause the surveyor to prepare a parcel description and parcel plat for use as an exhibit in the Facility ROW acquisition (property transfer) documents.

25. Developer shall cause an independent Registered Professional Land Surveyor (RPLS) to review the Acquisition Survey Document Package for consistency as to the information delineated thereon and for compliance with all applicable Technical Provisions and survey documents. The boundary location and the survey methods remain the responsibility of Developer, and are not part of this review process. TxDOT will have no obligation to accept the Acquisition Survey Document Package as complete until the reviewing RPLS has signed and sealed the compliance certificate (compliance certificate form to be provided by TxDOT).
26. Parcel numbering shall follow the TxDOT ROW Manual. Parcels are to be numbered based upon the parent tract. Developer shall revise parcel numbering due to subsequent transactions as in the following example: From a 50-acre parent tract, with a proposed Facility ROW acquisition parcel identified as "Parcel 14", a 5-acre tract is sold which will also require Facility ROW acquisition. The result is, "Parcel 14" is "Not Used", and the two new Facility ROW acquisition parcels are identified as "Parcel 14A and 14B". If the property containing "Parcel 14B" sells a portion, then "Parcel 14B" is "Not Used" and the new Facility ROW acquisition parcels are identified as "Parcel 14C and 14D", etc. Developer shall not use the letter "E" to avoid confusion with easement designations. Parcel numbering shall be sensitive to the appraisal of the required parcels.
27. Complicated portions of a Facility ROW acquisition survey can cause the Facility ROW Map to be very difficult to read. TxDOT's preferred solution is to create an additional Facility ROW map sheet or sheets for details, curve data, general notes, etc. The primary page would still retain the whole property inset, record ownership data, and most of the usual information. The additional sheet(s) should be clearly referenced and be numbered as the next sequential page(s). Pages numbered with a letter added (for example: 6A, 6B) are for revisions and corrections. Developer shall use the preferred solution unless TxDOT approves an alternate method.
28. An ownership sheet or sheets, containing an index to the information for all the parcels, shall be included and located near the beginning of the Facility ROW map, after the title sheet and control sheet. The ownership sheet index shall include the parcel numbers, the names of the property owners, the vesting deed recording information, the record area of the parent tract, the area of parcel(s) to be acquired, the area of the remainder(s) left and right, the beginning and ending stations of the parcel along the Facility ROW line, and the sheet number in the Facility ROW map where the parcel is located.
29. At property corners where more than one monument is found, a detail shall be provided to show

the measured relationship between the monuments found and the monument set or held.

30. Developer shall purchase all materials, supplies and all items necessary for proper survey monumentation. Developer may purchase Type II monuments from TxDOT. TxDOT shall make available for pick-up by Developer Type II monuments within 75 Days after TxDOT receives from Developer a written order, specifying the number of monuments to be purchased. Payment for TxDOT-supplied monuments shall be due within 30 Days after TxDOT delivers to Developer a written invoice. Developer may use these monuments only for this Facility and shall be responsible for proper storage thereof.
31. Developer at the request of the property owner or TxDOT shall re-stake the proposed Facility ROW with ½" iron rod and aluminum cap.

The survey documents produced by the Developer are the property of TxDOT, and release of any document shall be subject to TxDOT's prior written approval.

Developer shall refer to Section 9 of the Technical Provisions for additional survey requirements.

Developer shall provide sufficiency of design to determine the Ultimate Configuration ROW need and produce ROW maps that delineate the proposed ROW and potential impacts to the remaining ROW. A design certification of ROW will be provided by the Developer for each parcel which confirms that the proposed ROW acquisition is adequate and necessary to construct and perform operations and maintenance on the Facility and that other ROW acquisition alternatives are not feasible and/or cost prohibitive (sample to be provided by TxDOT).

7.3.2 Additional Reporting Requirements

No additional requirements.

7.3.3 Title Services

No additional requirements.

7.3.4 Introduction to Property Owners

No additional requirements.

7.3.5 Appraisals

No additional requirements.

7.3.5.1 Appraisal Services

No additional requirements.

7.3.5.2 Appraisal Review

No additional requirements.

7.3.6 Facility ROW Acquisition Package Approval

No additional requirements.

7.4 Acquisition Activities

No additional requirements.

7.4.1 ROW Negotiations

Replace subparagraph 4 of Section 7.4.1 of Book 3 with the following:

4. Advise the property owners, lessee, licensees, occupants, and other holders of compensable interests, as applicable, of the administrative settlement process. Confer with and transmit to TxDOT's ROW Administrator any settlement request from property owners, lessees, licensees, occupants, or other holders of any compensable interest, as applicable, including a detailed recommendation from Developer in accordance with standards, manuals and procedures as defined in Section 7.2 of the Technical Provisions. Developer and TxDOT shall jointly determine whether to accept a settlement request. Delivery of the administrative settlement request and Developer's recommendation to TxDOT must occur within fifteen (15) Business Days following Developer's receipt of the administrative settlement request.

Replace subparagraph 10 of Section 7.4.1 of Book 3 with the following:

10. Maintain a complete parcel file for each parcel. All original documentation related to the purchase of the real property interests will be maintained (housed separately from the relocation files) in conformance with TxDOT standards, manuals, and procedures, as defined in Section 7.2 of the Technical Provisions. All original Facility ROW documents must be retained and properly secured in Developer's Facility office or as otherwise approved by TxDOT. Signed original documents shall be forwarded to TxDOT periodically, or as requested by TxDOT, with a transmittal form during the acquisition process; provided, however, that all remaining original documents shall be forwarded upon completion of the acquisition of Facility ROW for the Facility.

7.4.2 Relocation Assistance

Replace paragraph 2 of Section 7.4.2 of Book 3 with the following:

Developer shall maintain a relocation office (meeting ADA requirements) within reasonable proximity of

the Project area as approved by TxDOT. At a minimum, the office hours of the relocation office shall be posted to meet the following timetables:

- Monday thru Friday: 8:00 am to 5:00 pm
- Saturday: office may be closed, unless property owner requests an appointment between 9:00 am and 12:00 pm
- Sunday: office may be closed

Replace subparagraph 8 of paragraph 5 of Section 7.4.2 of Book 3 with the following:

8. Request at least two moving estimates from moving companies to effect relocation of personal property or consistent with the Uniform Act.

7.4.3 Closing Services

No additional requirements.

7.4.4 Condemnation Support

Supplement Section 7.4.4 of Book 3 with the following:

Developer shall provide an individual or individuals having sufficient knowledge of the design of the Project to appear as an expert witness for testimony at the special commissioners hearing or other proceedings. This individual(s) is also responsible for preparing exhibits as requested by TxDOT or the Office of the Attorney General in support of said testimony.

Replace subparagraph 6 of Section 7.4.4 of Book 3 with the following:

6. Upon completion of TxDOT Form ROW-E-49 – Request for Eminent Domain Proceedings, prepare a condemnation packet containing two copies each of the following documents: the completed TxDOT form, negotiation logs, the updated title report not more than 90 Days old, appraisal receipt acknowledgment, pre-appraisal contact sheet, signed and sealed field notes, parcel sketch, bisection clause and access clause exhibits (if necessary), final offer letter reflecting latest appraisal, complete minute order request form (form to be provided by TxDOT), any correspondence sent by Developer or from the owner of the compensable interest or representatives, one copy of the appraisal report not more that 120 Days old, and proof of good faith negotiations. Submit two complete condemnation packets to TxDOT's ROW Administrator for review and approval.

7.4.5 Clearance/Demolition of Facility ROW

Replace subparagraph 1 of Section 7.4.5 of Book 3 with the following:

1. Within 10 Days from acquisition of the property and improvements, secure and protect the buildings, improvements and fixtures on the Facility ROW until they are disposed of or demolished. Developer shall board-up, mow, and winterize as required by TxDOT or applicable Law.

7.4.6 Property Fence

No additional requirements.

7.4.6.1 Property Fencing for Public Properties

No additional requirements.

7.4.6.2 Property Fencing for Private Properties

No additional requirements.

7.5 Early ROW Acquisition

No additional requirements.

8 GEOTECHNICAL

8.1 General Requirements

No additional requirements.

8.2 Design Requirements

No additional requirements.

8.2.1 Subsurface Geotechnical Investigation by Developer

Supplement Section 8.2.1 of Book 3 with the following:

- *(First bullet)* And, drainage characteristics.
- *(Second bullet)* And, soil compressibility, and short-term and long-term strength tests and properties.
- *(Fourth bullet)* Include the slope stability analysis for embankment and excavation slopes including both short-term (undrained) and long-term (drained) conditions, and discussion of design measures undertaken to ensure stability and safety of all slopes. The design minimum factor of safety required for global facility of a slope will be in accordance with Good Industry Practice. The analysis shall consider the potential for long-term surficial slide failures common to high plasticity clays in Texas, and specific recommendations shall be provided to minimize their occurrence.

8.2.2 Pavement Design

Supplement Section 8.2.2 of Book 3 with the following:

Developer may use flexible pavement for the Segment 3A Facility Segment which is designed based on the current AASHTO or AASHTO (1993) design procedure and the subsurface geotechnical data collected by Developer.

Developer's pavement design report shall also include the following:

- Tabulation of the relevant subgrade design values such as the modulus of sub-grade reaction (k-value), resilient modulus, or other basis for each pavement design section
- Description of Site conditions including any potentially soft compressible zones requiring special design considerations, and the presence and location of expansive soils requiring special design considerations
- Procedures undertaken to identify soluble sulfates and measures to prevent potentially deleterious

reactions

- Description of recommended subgrade stabilization procedures including the type of stabilizing agents, the application rates, compaction criteria, strength requirements, total depth of treatment, and other relevant details

Developer shall coordinate the design and construction of all cross streets with the Governmental Entity having jurisdiction whether a municipality, county, or TxDOT.

9 LAND SURVEYING

9.1 General Requirements

No additional requirements.

9.2 Administrative Requirements

No additional requirements.

9.2.1 Right-of-Entry

No additional requirements.

9.3 Design Requirements

No additional requirements.

9.3.1 Units

Supplement Section 9.3.1 of Book 3 with the following:

Work shall conform to state plane coordinates.

The surface adjustment factor for the Facility shall be:

Surface Adjustment Factors:

- Tarrant County: 1.00012

9.3.2 Survey Control Requirements

Supplement Section 9.3.2 of Book 3 with the following:

If Developer chooses to use GPS methods, it shall utilize the primary survey control provided by TxDOT.

Developer shall establish and maintain a permanent survey control network. The control network should consist of, at a minimum, monuments set in intervisible pairs at spacing of no greater than three (3) miles. Monuments shall be TxDOT bronze survey markers installed in concrete and marked as directed by the most current edition of the *TxDOT Survey Manual*. Developer shall replace all existing survey monuments and control points disturbed or destroyed. Developer shall make all survey computations and observations necessary to establish the exact position of all other control points based on the primary control provided.

Developer shall deliver to TxDOT, a listing of all primary and secondary control coordinate values, original computations, survey notes and other records including GPS observations and analysis made by Developer as the data are available.

9.3.3 Conventional Method (Horizontal & Vertical)

No additional requirements.

9.3.3.1 Horizontal Accuracy Requirements for Conventional Surveys

No additional requirements.

9.3.3.2 Vertical Accuracy Requirements for Conventional Surveys

No additional requirements.

9.3.4 Right of Way Surveys

No additional requirements.

9.3.4.1 Accuracy Standard

No additional requirements.

9.3.5 Survey Records and Reports

No additional requirements.

9.4 Construction Requirements

9.4.1 Units

Replace Section 9.4.1 of Book 3 with the following:
Comply with Section 9.3.1 of the Technical Provisions.

9.4.2 Construction Surveys

Replace Section 9.4.2 of Book 3 with the following:
Comply with Section 9.3.2 of the Technical Provisions.

9.5 Deliverables

No additional requirements.

9.5.1 Final ROW Surveying and Mapping

Supplement Section 9.5.1 of Book 3 with the following:

All topographic mapping created by Developer shall be provided to TxDOT in digital terrain model format using the software and version thereof being used by TxDOT at the time the mapping is developed.

9.5.2 ROW Monuments

No additional requirements.

10 GRADING

10.1 General Requirements

Supplement Section 10.1 of Book 3 with the following:

Any features that are abandoned in place shall be removed to at least two feet below the final finished grade or one foot below the pavement subbase, whichever is lower.

Developer shall not utilize Ultimate Configuration cut sections, beyond the limits required for Mandatory Scope construction, as an embankment borrow source.

10.2 Preparation within Project Limits

No additional requirements.

10.3 Design Requirements

Revise the heading of Section 10.3 of Book 3 to the heading "Design Requirements".

Delete the second sentence in Section 10.3 of Book 3.

10.4 Construction Requirements

Revise the heading of Section 10.4 of Book 3 to the heading "Construction Requirements".

Supplement Section 10.4 of Book 3 with the following:

Developer shall perform finished grading and place topsoil in all areas suitable for vegetative slope stabilization (and areas outside the limits of grading that are disturbed in the course of the Work) that are not paved.

10.5 Deliverables

No additional requirements.

10.5.1 Released for Construction Documents

No additional requirements.

11 ROADWAYS

11.1 General Requirements

Supplement Section 11.1 of Book 3 with the following:

Where changes to the roadway geometrics result in revisions to the Facility ROW, Developer is responsible for the initiation and progression of all environmental and public involvement processes in coordination with TxDOT. Developer shall perform all ROW services that are necessitated by proposed changes, in accordance with the FA Documents.

11.2 Design Requirements

Replace Section 11.2 of Book with the following:

Developer shall coordinate its roadway design with the design of all other components of the Facility, including aesthetics. The Facility roadways shall be designed to integrate with streets and roadways that are adjacent or connecting to the Facility. All design transitions to existing facilities shall be in accordance with the *TxDOT Roadway Design Manual*.

Developer shall design all Elements in accordance with the applicable design criteria and Good Industry Practice.

11.2.1 Control of Access

Replace Section 11.2.1 of Book 3 with the following:

Developer shall use best efforts to maintain all existing property accesses, including those not shown on the Segment 1 NEPA Schematic, the Mandatory Scope Schematic or the TxDOT Works Design, or provide alternative accesses following the current TxDOT *Access Management Manual* in order to minimize impacts to affected properties. The Developer shall not revise control of access without TxDOT review and approval.

11.2.2 Roadway Design Requirements

The Work includes the design and construction of the Mandatory Scope configuration presented in the Mandatory Scope Schematic.

Developer shall design the Elements of the Facility to meet or exceed the geometric design criteria noted in Tables 11-1, 11-2 and 11-4 along with approved design deviations included in Attachment 11-1 of Book 2 and approved design exceptions included in Attachment 11-2 of Book 2.

Developer shall coordinate the design and construction of improvements on crossing streets in accordance with the Governmental Entity having jurisdiction of said roadway. The Final Design of crossing streets shall incorporate the design criteria noted in Table 11-1 and the cross section elements noted in Table 11-3.

The outside lane of all newly constructed Frontage Roads in new locations, existing Frontage Roads being reconstructed in the same location, or existing Frontage Roads to remain in place shall be a shared use lane. A minimum 6' sidewalk shall be constructed along the outside of the curb of all newly constructed Frontage Roads in new locations or existing Frontage Roads being reconstructed in the same location. Existing Frontage Roads to remain in place shall have a newly constructed 6' sidewalk outside of the existing curb and gutter of the shared-use lane if a 6' sidewalk doesn't already exist. In those cases where the shared use lane will be an existing shoulder, the edge condition shall be modified to accommodate curb and gutter and a 6' sidewalk.

11.2.2.1 Miscellaneous Roadway Design Requirements

All roadside safety devices used on the Facility shall meet current crash test and other safety requirements in accordance with TxDOT standards.

Driveways shall be designed in accordance with the guidelines, which will be considered requirements, specified in TxDOT's *Roadway Design Manual - Appendix C,* "Driveway Design Guidelines" to be functionally adequate for land use of adjoining property.

The border width, measured from back of curb to the ROW line, along Frontage Roads and crossing streets shall be 15 feet minimum unless specified otherwise.

Developer shall provide declaration lanes for High Occupancy Vehicles (HOV) at entrances into the Managed Lanes that meet or exceed the requirements in Table 11-4.

Linear superelevation transitions are permitted on bridges only.

Provided that TxDOT shall ensure each such new access complies with all necessary requirements including but not limited to the relevant standards, local statutes, and Environmental Approvals, Developer shall design and construct three driveways at the approximate locations and of the dimensions shown in Attachment 11-3 - Segment 3A Driveways.

Table 11-1: Geometric Design Criteria for North Tarrant Express - Segments 3A&3B

	MAINLANES (GP & ML)	FRONTAGE ROADS	RAMPS/DIRECT CONNECTORS	CROSSING STREETS[1]	Collector-Distributor	IH 35W NB to Spur 280
GENERAL						
Roadway classification	Urban freeway or tollway	Low speed urban street	Urban freeway or tollway	Low speed urban street	Urban collector	Low speed urban street
Design Speed	Seg 3A: 70 mph Seg 3A (STA 901+00 to southernmost construction limit): 55mph Seg 3A (SH121): 55mph Seg 3B: 70 mph	40 mph	Seg 3A: 50 mph Seg 3B: 50mph See note 18	Seg 3A: 35mph Seg 3B: 35mph	40mph	25mph
Stopping sight distance See note 2	Seg 3A: 730' See note 11 Seg 3A (STA 901+00 to southernmost construction limit): 495' Seg 3A (SH121): 495' Seg 3B: 730'	305'	Seg 3A: 425' See notes 7,9,12,13 Seg 3B: 425'	Seg 3A: 250' Seg 3B: 250'	305'	155'
HORIZONTAL ALIGNMENT						

Maximum Superelevation rate	6%	N/A	6%	N/A	6%	6%
	MAINLANES (GP & ML)	**FRONTAGE ROADS**	**RAMPS/DIRECT CONNECTORS**	**CROSSING STREETS[1]**	**Collector-Distributor**	**IH 35W NB to Spur 280**
HORIZONTAL ALIGNMENT						
Minimum radius of curvature	Seg 3A: 2050' Seg 3A (STA 932+00 to southernmost construction limit): 1065' Seg 3A (SH121): 1065' Seg 3B: 2050'	675' 3b=490'	Seg 3A: 835' Seg 3B: 835'	Seg 3A: 465' Seg 3B: 465'	510'	180'
VERTICAL ALIGNMENT						
Minimum grade	0.35% 3b=.5%	0.35%	0.35% 3b=.5%	0.35%	0.35%	0.35%
Maximum grade	Seg 3A: 3.0% Seg 3A (STA 901+00 and 913+55 ML to southernmost construction limit): 4% Seg 3A (SH121): 4% Seg 3B: 3%	7.0% 3b=9%	4.0 % See note 3	7.0%	5.0%	7.0%

Minimum K-value for crest vertical curve	Seg 3A: 247 Seg 3A (STA 901+00 to southernmost construction limit): 114 Seg 3A (SH121): 114 Seg 3B: 247	44	Seg 3A: 84 Seg 3B: 84	Seg 3A: 29 Seg 3B: 29	44	12
	MAINLANES (GP & ML)	**FRONTAGE ROADS**	**RAMPS/DIRECT CONNECTORS**	**CROSSING STREETS[1]**	**Collector-Distributor**	**IH 35W NB to Spur 280**
VERTICAL ALIGNMENT						
Minumum K-value for sag vertical curve	Seg 3A: 181 Seg 3A (STA 901+00 and 913+55 ML to southernmost construction limit): 115 Seg 3A (SH121): 115 Seg 3B: 181	64	Seg 3A: 96 Seg 3B: 96	Seg 3A: 49 Seg 3B: 49	64	26
CROSS SECTION						
Lane width	12’	12’ inside lanes 14’ outside lane (includes 2’ shared use lane) 24’ (for u-turns)	14’ (single lane) 12’ per lane (multi-lane)	12’	12’	14’

Shoulder width (min.) Inside shoulder Outside shoulder	4’ (2 or less lanes) 10’ (3 or more lanes) 10’	NA (curbed) NA (curbed)	4’ See note 2 8’ See note 2	NA (curbed) NA (curbed)	4’ (2 or less lanes) 10’ (3 or more lanes) See note 2 8’/10’ See notes 2 and 14	 4’ 8’
Curb offset	N/A	2’ Outside 1’ Inside	N/A	1’	2’	N/A
	MAINLANES (GP & ML)	**FRONTAGE ROADS**	**RAMPS/DIRECT CONNECTORS**	**CROSSING STREETS[1]**	**Collector-Distributor**	**IH 35W NB to Spur 280**
CROSS SECTION						
Cross-slope (typical) Lanes Shoulders	 2.5 % 2.5 %	 2.0 % 2.0 %	 2.0 % 2.0 %	 2.0 % 2.0 %	 2.0 % 2.0 %	 2.0 % 2.0 %
CLEAR ZONE						
Distance from edge of travel lane unless noted otherwise Side slopes: within clear zone outside clear zone	30’ 6:1 max 3:1 max	3’ (measured from face of curb) See note 1 6:1 max 3:1 max	16’ 6:1 max 3:1 max	3’ (measured from face of curb) See note 1 6:1 max 3:1 max	16’ 6:1 max 3:1 max	16’ 6:1 max 3:1 max
VERTICAL CLEARANCE (Minimum)						

Over roadway	16’-6”	16’-6”	16’-6”	16’-6”	16’-6”	16’-6”
Over streets	16’-6”	16’-6”	16’-6”	16’-6”	16’-6”	16’-6”
Over railroad	23’-0”	23’-0”	23’-0”	23’-0”	23’-0”	23’-0”
Over electrified light rail	26’-6”	26’-6”	26’-6”	26’-6”	26’-6”	26’-6”
Overhead signs	21’ 0”	21’-0”	21’-0”	21’-0”	21’-0”	21’-0”
Pedestrian crossings	17’-6”	17’-6”				
OTHER						
Design vehicles	WB-50	WB-50	WB-50	WB-50	WB-50	WB-50
	MAINLANES (GP & ML)	**FRONTAGE ROADS**	**RAMPS/DIRECT CONNECTORS**	**CROSSING STREETS[1]**	**Collector-Distributor**	**IH 35W NB to Spur 280**
OTHER						
Driveway radius	N/A	30’ min commercial, 15’ min. residential	N/A	30’ min commercial, 15’ min. residential	N/A	N/A

Notes:

1. The face of new bridge columns shall be located 6 feet or more from the face of curb. This requirement is not applicable to medians on cross streets. A 1.5' minimum offset is permitted for medians on cross streets.
2. To mitigate restrictions on the design imposed by sight distance, it is acceptable to position the 8-foot shoulder on the inside of the curve and the 4-foot shoulder on the outside of the curve.
3. Ramps and direct connectors shall have a maximum grade of 4% with the exception of the following listed ramps and direct connectors in Segment 3A Facility Segment which shall have a maximum grade of 5%. However, Developer shall prepare the design using Good Industry Practice using flatter grades where possible:
   a. Ramp connecting IH 35W SB to IH 30 at south end of project to tie to existing
   b. Ramp connecting IH 35W SB to Northside Dr. from station 8+78.00 to 28+50.00
   c. Ramp connecting IH 35W SB to Northside Dr. from station 28+50.00 to 36+50.00
   d. Ramp connecting Weatherford to IH 35W SB from station 16+68.00 to 23+90.00
   e. Ramp connecting SH 121 SB to Belknap from station 32+45.00 to 46+85.00
   f. Ramp connecting SH 183 to IH 35W SB from station 18+25.00 to 22+00.00
   g. Ramp connecting Weatherford to SH 121 NB from station 23+06.66 to 35+28.67
   h. Ramp connecting IH 30 EB to IH 35W NB at south end of project
   i. DC connecting IH 35W SB to SH 121 NB
   j. Ramp connecting IH 35W Managed Lane SB to SPUR 280 SB
   k. Ramp connecting IH 35W Managed Lane NB to IH 35W General Purpose Lane NB in Segment 3A Facility Segment
   l. Ramp connecting IH 35W General Purpose Lane SB to IH 35W Managed Lane SB in Segment 3A Facility Segment
   m. Ramp connecting SPUR 280 NB to IH 35W Managed Lane NB in Segment 3A Facility Segment

Segment 3A Facility Segment:

4. STEADMAN from station 10+00.00 to 19+30.00 shall be considered a Frontage Road and classified as a low speed urban street as shown on the Approved NEPA Schematics (South Segment).
5. WEA-BEL from station 10+00.00 to 31+24.17 shall be considered a Frontage Road and classified as a low speed urban street as shown on the Approved NEPA Schematics (South Segment).
6. SH 121 SB from station 52+77.00 to 115+85.36 shall be considered a direct connector and classified as an urban freeway as shown on the Approved NEPA Schematics (South Segment).
7. Direct connector SH 121 SB from station 52+77.00 to 115+85.36 shall have a minimum stopping sight distance (SSD) for 45 mph design speed.
8. SH 121 NB from station 52+77.00 to 101+01.93 shall be considered a direct connector and classified as an urban freeway as shown on the Approved NEPA Schematics (South Segment).
9. Direct connector SH 121 NB from station 52+77.00 to 101+01.93 shall have a minimum SSD for 45 mph design speed.
10. IH 35W Managed Lane from station 883+62.35 to 908+25.36 shall be considered a direct connector and classified as an urban freeway as shown on the Approved NEPA Schematics (South Segment).
11. IH 35W Managed Lane from station 727+66.92 to 743+00.25 shall have a minimum SSD for 60 mph

design speed.

12 Direct connector IH 35W SB-121 NB from station 44+59.80 to 59+88.47 shall have a minimum SSD for 40 mph design speed.

13. Direct connector Spur 280 – SH 121 NB from station 62+93.47 to 72+70.88 shall have a minimum SSD for 30 mph design speed.

14. The following roadways shall be classified as collector-distributor. The outside shoulder width shall be as listed below:
    a. Roadway connecting Spur 280 to IH 35W SB - 8 ft outside shoulder width
    b. Roadway connecting Spur 280 to SH 121 NB - outside shoulder width varies (8 ft min. to 10 ft max.)
    c. Roadway connecting SH 121 SB to Spur 280 - 10 ft outside shoulder width
    d. Roadway connecting SH 121 SB to IH 35W NB - 10 ft outside shoulder width

15. Direct connector SH 121 SB to Spur 280 SB shall have a minimum SSD for 35mph design speed as shown on the Approved NEPA Schematics (South Segment).

16. Spur 280 is classified as an urban arterial with a minimum design speed of 35 mph as shown on the Approved NEPA Schematic (South Segment).

17. Direct connector ramp from Spur 280 EB to IH 35W NB may be designed using a 380ft radius and 35mph minimum design speed.

18. Northbound frontage road 35FRN4I south of East 4th Street shall meet a design speed of 30 mph to avoid impacts to the existing Ham Branch levee clear zone and the Central City Project's valley storage and aquatic mitigation area.

Segment 3B Facility Segment:

18. Ramp IH 35W SB to US 287 WB shall have a design speed = 40 mph.

Table 11-2: Geometric Design Criteria for the North Tarrant Express IH 35W/IH 820 Interchange

	MAINLANES (GP & ML)	FRONTAGE ROADS	RAMPS/DIRECT CONNECTORS	CROSSING STREETS[1]
GENERAL				
Roadway classification	Urban freeway or tollway	Low speed urban street	Urban freeway or tollway	Low speed urban street
Design Speed	60 mph	40 mph	50 mph	30-40 mph
Stopping sight distance	570’	305’	425’ See note 4	200’ (30 mph) 305’ (40 mph)
HORIZONTAL ALIGNMENT				
Maximum superelevation rate	6%	N/A	6%	N/A
Minimum radius of curvature	1340’	675’	835’	675’ (40 mph) 300’ (30 mph)
VERTICAL ALIGNMENT				
Minimum grade	0.35%	0.35%	0.35%	0.35%
Maximum grade	3.0%	7.0%	4.0% See note 5	7.0% (40 mph) 9.0% (30 mph)
Minimum K-value for crest vertical curve	151	44	84	44 (40 mph) 19 (30 mph)

	MAINLANES (GP & ML)	FRONTAGE ROADS	RAMPS/DIRECT CONNECTORS	CROSSING STREETS[1]
VERTICAL ALIGNMENT				
Minimum K-value for sag vertical curve	136	64	96	64 (40 mph) 37 (30 mph)
CROSS SECTION				
Lane width	12’	12’ inside lanes 14’ outside lane (includes 2’ shared use lane) 24’ (for u-turns)	14’(single lane) 12’ per lane (multi-lane)	12’
Shoulder width (min.) Inside shoulder	4’ (2 or less lanes) 10’ (3 or more lanes)	NA (curbed)	4’ See note 3	NA (curbed)
Outside shoulder	10’	NA (curbed)	8’ See note 3	NA (curbed)
Curb offset	N/A	2’	N/A	refer to Table 11-3
Cross-slope (typical) Lanes	2.5%	2.0%	2.0%	2.0%
Shoulders	2.5%	2.0%	2.0%	2.0%

	MAINLANES (GP & ML)	FRONTAGE ROADS	RAMPS/DIRECT CONNECTORS	CROSSING STREETS[1]
CLEAR ZONE				
Distance from edge of travel lane unless noted otherwise	30’	3’ (measured from face of curb)	16’	See notes 1 and 2
Side slopes: within clear zone outside clear zone	 6:1 3:1 max	 6:1 3:1 max	 6:1 3:1 max	 6:1 3:1 max
VERTICAL CLEARANCE (Minimum)				
Over roadway	16’-6”	16’-6”	16’-6”	16’-6”
Over streets	16’-6”	16’-6”	16’-6”	16’-6”
Over railroad	23’-0”	23’-0”	23’-0”	23’-0”
Over electrified light rail	26’-6”	26’-6”	26’-6”	26’-6”
Overhead signs	21’ 0”	21’-0”	21’-0”	21’-0”
Pedestrian crossings	17’-6”	17’-6”		
Design vehicles	WB-50	WB-50 WB-67 (for u-turns)	WB-50	As noted in Table 11-3
Driveway radius	N/A	30’ min commercial 15’ min. residential	N/A	30’ min commercial 15’ min. residential

Notes:

1. See Table 11-3 for crossing street functional classification
2. The face of new bridge columns shall be located 6 feet or more from the face of curb. This requirement is not applicable to medians on cross streets. A 1.5' minimum offset from face of curb is permitted for medians on cross streets.
3. To mitigate restrictions on the design imposed by sight distance, it is acceptable to position the 8-foot shoulder on the inside of the curve and the 4-foot shoulder on the outside of the curve.
4. Ramps and direct connectors shall have a minimum stopping sight distance (SSD) of 425' with the exception of the following listed ramps and direct connectors, for which the minimum SSD is as noted.
   a. Direct connector ramp connecting IH 35W to IH 820 WB shall have a minimum SSD of 305'.
   b. Direct connector ramp connecting IH 35W NB to IH 820 EB shall have a minimum SSD of 305'.
   c. Direct connector ramp connecting IH 35W SB to IH 820 WB shall have a minimum SSD of 360'.
   d. Direct connector ramp connecting IH 35W SB to IH 820 EB shall have a minimum SSD of 360'.
   e. Direct connector ramp connecting IH 820 WB to IH 35W NB shall have a minimum SSD of 360'.
   f. Direct connector ramp connecting IH 820 WB to IH 35W SB shall have a minimum SSD of 305'.
   g. Direct connector ramp connecting IH 820 EB to IH 35W NB shall have a minimum SSD of 305'.
   h. Direct connector ramp connecting IH 820 EB to IH 35W SB shall have a minimum SSD of 305'.
   i. Managed Lane direct connector ramp connecting IH 35W NB to IH 820 EB shall have a minimum SSD of 360'.
   j. Managed Lane direct connector ramp connecting IH 35W SB to IH 820 EB shall have a minimum SSD of 305'.
   k. Managed Lane direct connector ramp connecting IH 820 WB to IH 35W NB shall have a minimum SSD of 305'.
   l. Managed Lane direct connector ramp connecting IH 820 WB to IH 35W SB shall have a minimum SSD of 360'.
   m. Direct connector ramp identified on the schematic as WR8248 shall have a minimum SSD of 360'.
   n. Direct connector ramp identified on the schematic as WR248 shall have a minimum SSD of 305'.
5. Ramps and direct connectors shall have a maximum grade of 4% with the exception of the following listed ramps and direct connectors which shall have a maximum grade of 5%. Developer shall prepare the design using Good Industry Practice using flatter slopes where possible.
   - Managed Lane direct connector ramp connecting IH 35W NB to IH 35W EB (Approved NEPA Schematics (Segment 1) station 20+50 to station 30+25)

Table 11-3a: Crossing Street Functional Classifications

Segment 3A - CROSS SECTION ELEMENTS FOR ROADWAYS CROSSING IH 35W																		
Intersecting Street	Jurisdiction	Functional Classification	Design Speed (MPH)	Configuration (Over/Under)	Design Vehicle	CONFIGURATION												
						WESTBOUND						EASTBOUND						
						U-Turn	Sidewalk Minimum Width	Curb	Curb Offset	Through Lanes	Turn Lanes	Through Lanes	Curb Offset	Curb	Sidewalk/Minimum Width	U-Turn	Pedestrian Rail Above Bridge Barrier
NE 28th St/ SH 183	Fort Worth	Major Arterial Urban	35	Over	WB-50	Y-24’	N See note 2	Y	2’ outside 1’ inside	3(12’)	2(12’) with 4’ curbed median	3(12’)	2’ outside 1’ inside	Y	Y-10’	N	N
NorthsideDr/ Yucca Ave.	Fort Worth	Major Arterial Urban	35	Under	WB-50	Y-24’	N See note 2	Y	2’ outside 1’ inside	2(12’)	3(12’) with 4’ curbed median	3(12’)	2’ outside 1’ inside	Y	N See note 2	Y-24’	N
Pharr St	Fort Worth	Collector Urban	35	Under	WB-50	N	N See note 2	Y	2’				2’	Y	N See note 2	N	N
Luella St	Fort Worth	Collector Urban	35	Over	WB-50	N	Y-6’	Y	2’ outside	1(12’)	2(12’) with no curbed median	1(12’)	2’ outside	Y	Y-6’	N	N
Sylvania Ave	Fort Worth	Minor Arterial Urban	40	Over	WB-50	N	Y-6’	Y	2’	2(12’)	2(12’) with 4’ curbed median	2(12’)	2’	Y	Y-6’	N	N

Notes:

1. The face of new bridge columns shall be located 6 feet or more from the face of curb. This requirement is not applicable to medians on cross streets. A 1.5' minimum offset from face of curb is permitted for medians on cross streets.
2. Cross streets without sidewalks shall not be configured (including structural elements) to preclude sidewalk construction in the future. Sidewalk areas behind the curb shall not exceed 2% cross slope and shall be 6 feet minimum width. Raised medians in between U-turns and through lanes can be used as sidewalks provided they are 10 feet wide or greater and provided the clearance to any obstruction, excluding existing columns on bridge overpasses to remain in place for the Mandatory Scope, is 10 feet wide or greater.

Table 11-3b: Crossing Street Functional Classifications

Segment 3B – CROSS SECTION ELEMENTS FOR ROADWAYS CROSSING IH 35W																	
Intersecting Street	Jurisdiction	Functional Classification	Design Speed (MPH)	Configuration (Over/Under)	Design Vehicle	CONFIGURATION											
						WESTBOUND						EASTBOUND					
						U-Turn	Sidewalk Minimum Width	Curb	Curb Offset	Through Lanes	Turn Lanes	Through Lanes	Curb Offset	Curb	Sidewalk/Minimum Width	U-Turn	Pedestrian Rail Above Bridge Barrier
Basswood Blvd	Fort Worth	Local Street Urban	40	Over	WB-67	Y-24’	N	Y	2’	2(12’)	2(12’) with 5’ median	2(12’)	2’	Y	N	Y-24’	N

Notes:

1. The face of new bridge columns shall be located 6 feet or more from the face of curb. This requirement is not applicable to medians on cross streets. A 1.5' minimum offset from face of curb is permitted for medians on cross streets.
2. Cross streets without sidewalks shall not be configured (including structural elements) to preclude sidewalk construction in the future. Sidewalk areas behind the curb shall not exceed 2% cross slope and shall be 6 feet minimum width. Raised medians in between U-turns and through lanes can be used as sidewalks provided they are 10 feet wide or greater and provided the clearance to any obstruction, excluding existing columns on bridge overpasses to remain in place for the Mandatory Scope, is 10 feet wide or greater.

Table 11-3c: Crossing Street Functional Classifications

CROSS SECTION ELEMENTS FOR ROADWAYS CROSSING IH 820																				
Intersecting Street	Jurisdiction	Functional Classification / Roadway Classification / Terrain	Design Speed (MPH)	Configuration (over / under)	Design Vehicle	CONFIGURATION														
						SOUTHBOUND						NORTHBOUND								
						U-Turn	Sidewalk Minimum Width	Curb	Curb Offset	Through lanes	Turn Lanes	Through lanes	Curb Offset	Curb	Sidewalk Minimum Width	U-turn	Clear Zone for Cross Street Thru Lanes (Based on ADT)	Bike/Ped Accommodation	Pedestrian Rail above bridge Barrier
Mark IV Parkway	Fort Worth	Collector Street Urban / Urban	40	Under	WB-67	Y-24’	N	Y	2'	2(12')	2(12') with 18' median	2(12')	2'	Y	N	Y-24’	3’	Y	N

Notes:

1. The face of new bridge columns shall be located 6 feet or more from the face of curb. This requirement is not applicable to medians on cross streets. A 1.5' minimum offset from face of curb is permitted for medians on cross streets.

2. Cross streets without sidewalks shall not be configured (including structural elements) to preclude sidewalk construction in the future.

11.2.3 *Minimum Requirements for HOV Declaration Areas*

HOV declaration areas shall be designed in accordance with the applicable design criteria shown in Table 11-4 with the exception of the HOV declaration areas approved design exceptions specified in Attachment 11-2 of Book 2.

Table 11-4 Declaration Area Design Criteria

Description	Minimum
Transition taper ratio	50:1[1] [2]
Declaration zone length	200 ft
Left lane width (HOV declaration)	12 ft
Right lane width (all others)	12 ft
Usable shoulder width (two shoulders to be used)	1 ft
Barrier width	2 ft
Enforcement zone parking area	12 ft

Notes:
1. The taper transitions for both lanes shall occur within the same longitudinal limits.
2. Minimum approach taper ratio is 25:1.
3. IH 820 EB Managed Lane declaration area is exempted from the above declaration zone requirement (centered at approximately IH 820 EB station 627+00). The declaration lane for this area will be a parallel lane, approximately 900' long, as depicted in the Mandatory Scope Schematic.

12 DRAINAGE

12.1 General Requirements

Supplement Section 12.1 of Book 3 with the following:

The drainage facilities shall be designed and constructed to meet the requirements of the Mandatory Scope or the Ultimate Configuration, whichever is more stringent, with the exception of the Segment 3A Facility Segment south of station 862+20 which shall be designed for the Mandatory Scope. The physical location of inlet structures affected by the Work shall accommodate the Ultimate Configuration. Developer shall construct culverts to the length required to accommodate the Mandatory Scope. However, these culverts shall be sized to satisfy Ultimate Configuration requirements.

In areas outside the Facility ROW or areas within the Facility ROW but not affected by the Work, Developer is not responsible for upgrading the existing drainage system whether or not it is determined to meet the criteria in the current TxDOT *Hydraulic Manual* in the existing condition. However, the Work shall not cause any existing drainage system condition to become substandard nor shall it make worse any drainage condition.

Design shall incorporate latest land-use plans and/or reasonable potential land uses from Tarrant County and other applicable Governmental Entities within the Facility limit, including expected changes to the existing watercourses and drainage systems.

12.2 Administrative Requirements

No additional requirements.

12.2.1 Data Collection

No additional requirements.

12.2.2 Coordination with Other Agencies

No additional requirements.

12.3 Design Requirements

Supplement Section 12.3 of Book 3 with the following:

Analysis of the combined drainage system shall ensure there are no adverse impacts on the constructed

drainage system.

12.3.1 Surface Hydrology

No additional requirements.

12.3.1.1 Design Frequencies

Replace Section 12.3.1.1 of Book 3 with the following:

Developer shall use the design frequencies listed in Table 12-1.

Table 12-1: Drainage Design Frequencies

	Design Frequency (years)					Check Flood
Functional Classification and Structure Type	**2**	**5**	**10**	**25**	**50**	**100**
Interstate, controlled access hwy, & managed toll lanes (mainlines):						
♦ culverts					X	X
♦ bridges					X	X
Principal arterials:						
♦ culverts					X	X
♦ small bridges (See note 1)					X	X
♦ major river crossings					X	X
Minor arterials and collectors (including Frontage Roads):						
♦ culverts				X		X
♦ small bridges (See note 1)				X		X
♦ major river crossings					X	X
Local roads and streets (off-system projects):						
♦ culverts	X					X
♦ small bridges	X					X

	Design Frequency (years)					Check Flood
Storm drain systems on Interstate and controlled access						
Highways and managed toll lanes (mainlines):						
Functional Classification and Structure Type	2	5	10	25	50	100
♦ inlets and drain pipe			X			X
♦ inlets for depressed roadways (see note 2)					X	X
Storm drain systems on other Highways and Frontage Roads:						
♦ inlets and drain pipe			X			X
♦ inlets and drain pipe for depressed roadways (see note 2)					X	X

Notes:

1. Small bridges are considered less than 50' in length.

Frontage Road bridges over Little Fossil Creek shall be designed to accommodate a 25-year design frequency.

2. The definition of a depressed roadway is a roadway that provides nowhere for water to drain even when the curb height is exceeded. Curb height is defined as 5" (five inches).

12.3.1.2 Hydrologic Analysis

Supplement Section 12.3.1.2 of Book 3 with the following:

Developer shall perform hydraulic and hydrologic analysis for the design of drainage features to ensure accommodation of both the ultimate development of the drainage areas and interim drainage during construction of the Ultimate Configuration.

Developer shall design for the future changes in land use that may affect the magnitude of runoff and therefore the design capacity of drainage structures. Developer shall incorporate anticipated changes in the basin land use, characteristics, or water operations into the hydrologic parameters. Land use shall be estimated based on potential uses as of the latest long-range planning horizon.

12.3.2 Storm Sewer Systems

Supplement Section 12.3.2 of Book 3 with the following:

The hydraulic grade line for design storm shall be 1 foot below the lip of gutter, 1 foot below the top of

grate inlet, and 1 foot below the top of a manhole cover.

The use of slotted barriers that allow stormwater runoff to flow under them and into adjacent travel lanes shall not be used for permanent barriers. Slotted barriers may be used only for temporary conditions during construction.

12.3.2.1 Pipes

Supplement Section 12.3.2.1 of Book 3 with the following:

All pipes shall be reinforced concrete.

The minimum pipe size inside diameter shall be 18" for laterals, 24" for laterals placed under pavement, and 24" for trunk lines. The minimum box culvert height, inside dimension, shall be 2 feet.

The maximum spacing for clean-out points (inlets and manholes) shall be 300 feet for 24", 375 feet for 36", 450 feet for 42" to 54", and 900 feet for 60" or greater.

12.3.2.2 Ponding

Supplement Section 12.3.2.2 of Book 3 with the following:

Table 12-2: Allowable Ponding Widths by Roadway Classification

Roadway Classification	Design Storm Allowable Ponding Width	Check Storm Allowable Ponding Width
Interstate, controlled access Highways	Low shoulder plus one-half the width of the outer lane.	One lane free of encroachment
Barrier separated Managed Lanes 1) Single lane 2) Multiple lanes	 1) Low shoulder plus 2 ft. 2) Low shoulder plus 1 lane	Safe passage** of one lane of traffic in each direction
Principal arterials/Highways*	Low shoulder plus 1 lane	Safe passage** of one lane of traffic in each direction
Ramps, direct connectors	Low shoulder plus 2 ft.	Safe passage** of one lane of traffic
Frontage Roads	Low shoulder plus 1 lane	Safe passage** of one lane of traffic in each direction
Minor cross streets	Width and depth to allow safe passage** of one lane of traffic in	No adverse impact to adjacent property

	each direction.	

* Highways with two or more lanes in each direction

** Safe passage shall mean the width of one traffic lane being clear of ponding.

12.3.3 Stormwater Storage Facilities

No additional requirements.

12.3.4 Hydraulic Structures

Supplement Section 12.3.4 of Book 3 with the following:

Bridge class culverts shall have a minimum rise of 4' (inside dimension).

Replace the third paragraph of Section 12.3.4 of Book 3 with the following:

For all culverts, the maximum allowable headwater elevation for the design frequency shall not exceed one foot below the subgrade elevation of the applicable roadway.

12.3.4.1.1 Method Used to Estimate Flows

No additional requirements.

12.3.4.1.2 Design Frequency

Replace the third paragraph of Section 12.3.4.1.2 of Book 3 with the following:

For interstate Highways, the minimum design flood to be used in the detailed design shall be the 50-year frequency. The design flood shall provide a minimum of 2' of freeboard.

12.3.4.1.3 Hydraulic Analysis

No additional requirements.

12.3.4.1.4 Bridge/Culvert Waterway Design

No additional requirements.

12.3.4.1.5 Bridge Deck Drainage

No additional requirements.

12.3.4.1.6 Drainage Report for Major Stream Crossings

Supplement Section 12.3.4.1.6 of Book 3 with the following:

Major stream crossings are waterways either listed in the FEMA Flood Insurance Studies or requiring a bridge or bridge class culvert structure. Otherwise, the waterway is defined to be a minor stream crossing.

12.4 Construction Requirements

No additional requirements.

12.5 Deliverables

No additional requirements.

13 STRUCTURES

13.1 General Requirements

Supplement Section 13.1 of Book 3 with the following:

Developer shall prepare a detailed plan for each Element constructed on the Facility detailing the design, construction and maintenance activities to achieve a service life that meets the Residual Life Handback Requirements as defined in Section 19 of the Technical Provisions.

Developer shall design and construct bridge structures required for the Mandatory Scope to the total length and span arrangement required for the Ultimate Configuration, except the General Purpose Lane structures south of Station 862+20, including spanning future lanes that will be constructed below the structure as a part of the Ultimate Configuration. Developer shall design and construct bridge structures to the width required to satisfy the requirements of the Mandatory Scope. In locations where the Mandatory Scope does not call for the construction of the direct connector structures or full-width construction of the direct connector structures, Developer shall make provisions to accommodate the future construction or widening.

Developer shall build the structural components to accommodate the Mandatory Scope and shall ensure that bridges constructed for the Mandatory Scope can be widened to the Ultimate Configuration width at a later date with limited impact to aesthetics and traffic. Developer shall evaluate the feasibility of future construction of the Ultimate Configuration and, where this is compromised, construct those portions of the Ultimate Configuration (e.g., footings, ducts, bents, etc.). At bridges with wrap-around MSE wall abutments, the MSE wall shall be designed and constructed to the length required to satisfy the Mandatory Scope or Ultimate Configuration to minimize tear-down. The Developer shall design and construct abutments behind MSE walls to the Ultimate Configuration width, or provide specific accommodations for future widening. All retaining walls within the limits of Mandatory Scope construction shall be designed and constructed for the Ultimate Configuration, except south of station 862+20.

13.2 Design Requirements

No additional requirements.

13.2.1 Design Parameters

Supplement Section 13.2.1 of Book 3 with the following:

Developer shall submit a corridor structure type study report for bridges, retaining walls, noise walls, sign structures, and other structure components to TxDOT for comment. The corridor structure type study report will describe the structural system to be used on the Facility, design parameters for the system, materials, performance history of the chosen system and ability to meet the Residual Life requirements at Handback, impacts to the public during construction, and other information to describe the chosen system.

Unless otherwise noted, design for all roadway and pedestrian structural elements shall be based on the Load and Resistance Factor Design (LRFD) methodology included in TxDOT's *LRFD Bridge Design Manual* and as presented in the most recent *AASHTO LRFD Bridge Design Specifications*, including all interim revisions. Sidewalks shall be provided on bridge structures in accordance with Table 11-3.

The Segment 3A Facility Segment Mandatory Scope General Purpose Lanes on IH-35W shall maintain the existing vertical alignment between station 870+00 and station 898+56 on the northbound General Purpose Lanes and between station 891+50 and station 908+02 on the southbound General Purpose Lanes. The Segment 3A Facility Segment General Purpose Lanes south of station 862+20 including structures that tie in to existing ramps, will have to be demolished in order to build the Ultimate Configuration General Purpose Lanes in accordance with the Basic Configuration, the Environmental Approval permitting process and Approved NEPA Schematics.

Developer shall not be responsible to upgrade existing improvements south of Spur 280 during the DB Phase for the Mandatory Scope where such existing improvements are not negatively impacted.

Replace the fourth paragraph of Section 13.2.1 of Book 3 with the following:

Direct connectors shall be designed to accommodate the Ultimate Configuration. In locations where the Mandatory Scope does not call for the construction of Direct Connectors, Developer shall evaluate the preliminary bent locations in order to consider the feasibility of the future construction. In locations where the Mandatory Scope calls for construction of Direct Connectors with a lesser amount of lanes than the Ultimate Configuration, Developer may only build the structural components to accommodate the width required for Mandatory Scope.

13.2.2 Bridge Design Loads and Load Ratings

Supplement Section 13.2.2 of Book 3 with the following:

Bridges shall be designed to accommodate future utilities load of 125 pounds per linear foot per 12-foot lane, except for direct connection structures which shall be 125 pounds per linear foot per structure.

Developer shall provide to TxDOT both an inventory and an operating load rating of the constructed

structures. Load ratings shall be in accordance with the *AASHTO's Manual for Condition Evaluation of Bridges* and applicable Laws.

13.2.3 Bridge Decks and Superstructures

Supplement Section 13.2.3 of Book 3 with the following:

Fracture critical members shall not be used for bridges without written authorization from TxDOT, and if allowed by TxDOT fracture critical members shall be designed to allow full access for inspection.

Joints for all grade separation structures shall be sealed.

Steel and concrete box girders and caps (substructure) shall be accessible without impacting traffic below. Developer shall make steel and concrete box girders and caps (substructure) with a minimum inside depth of six (6) feet to facilitate interior inspection. Developer shall include a minimum access opening of 3'-0" diameter into all cells, and between cells, of the girders to allow free flow of air during inspections. The outside access opening cover shall hinge to the inside of the box girder and caps (substructure). An electrical system (110V and 220V) shall be incorporated inside the box girder and caps (substructure) with lighting and power outlets. Developer shall install air-tight sealed and locked entryways on all hatches and points of access.

13.2.4 Bridge Foundations

Supplement Section 13.2.4 of Book 3 with the following, after the first paragraph:

Developer shall take span arrangement and foundation locations into account to accommodate the Ultimate Configuration of the Facility.

Developer shall secure a Section 408 Permit from USACE, as required, before starting construction on bridges and approaches.

13.2.4.1 Trinity River Crossing

All documents required by the Tarrant Regional Water District (TRWD) and the United States Army Corps of Engineers (USACE) for the Trinity River crossing shall be submitted by Developer to the appropriate agency(ies) for review and approval prior to the start of construction of the Trinity River bridges and approaches. These may include, but are not limited to, detailed bridge plans for the Mandatory Scope and preliminary Ultimate Configuration design and a seepage analysis and geotechnical report of the crossing and surrounding areas. At a minimum, the detailed plans shall show bent locations, bent sizes, bent depths and how erosion along the crossing and surrounding areas will be addressed. Developer is given notice that the review and approval process is anticipated to take approximately 18 months.

The bottom elevation of bridge beams or low chord shall be no lower than the standard project flood elevation as determined by the USACE plus 3 feet (SPF+3) or the top of the existing levee, whichever elevation is higher. For the avoidance of doubt, the existing IH-35W embankments are not considered to be part of the existing levee.

The existing bridge drilled shafts in the floodway shall be removed to 2' below grade. The existing bridge drilled shafts in the channel shall be removed to the design grade elevation or the current grade elevation of the channel, whichever is lower.

Bents will be allowed within the existing standard project floodplain of the Trinity River excluding the original river channel and shall be located so as to minimize disruption to the current hydraulic conditions of the river.

13.2.4.1.1 Bent Locations

13.2.4.1.1.1 Base Case Bent Locations

New bridge spans shall be equal to or greater than existing bridge spans. Developer shall be allowed to locate bridge bents in the overbuilt levee as shown in Attachment 13-1 – Trinity River Crossing Bent Locations Base Case.

13.2.4.1.1.2 Alternative 1 Bent Locations

If Developer is unable to obtain an agreement from the USACE which allows bents to be located such that the requirements in Section 13.2.4.1.1 above can be met, then Developer shall be allowed to locate bents in the overbuilt levee such that the maximum span is 180' and compensation shall be as set forth in Section 13.2.6 of the FA.

13.2.4.1.1.3 Alternative 2 Bent Locations

If Developer is unable to obtain an agreement from the USACE which allows bents to be located such that the requirements in Section 13.2.4.1.1 and Section 13.2.4.1.2 above can be met, then Developer shall locate the bents to meet the requirements and conditions set forth in the agreement with the USACE and compensation shall be as set forth in Section 13.2.6 of the FA.

13.2.4.1.2 Secant Wall

13.2.4.1.2.1 Base Case Secant Wall

A secant or other type of retaining wall will not be required to support or protect the levee.

13.2.4.1.2.2 Alternative 1 Secant Wall

If a secant or other type of retaining wall is required to support and protect the levee, then Developer shall design and construct a secant or other type of retaining wall to support and protect the levee in accordance with USACE as required by the Section 408 Permit requirements and compensation shall be as set forth in Section 13.2.6 of the FA.

13.2.5 Bridge Railing and Barriers

Supplement Section 13.2.5 of Book 3 with the following:

Table 13-1 lists approved TxDOT bridge railing standards.

Table 13-1: TxDOT Standard Bridge Railing

TRAFFIC RAILS		
Rev Date	**Std Name**	**Description**
04-09	T101	Steel Post with W-Beam (27” tall)
04-09	T223	ConcBm& Post w/6’ Openings (32” tall)
04-09	T221	Concrete Parapet (32” tall)
04-09	T401	Concrete Parapet w/Stl Post and Rail (33” tall)
04-09	T402	Concrete Parapet w/Stl Post and Rail (42” tall)
04-09	T411	Concrete Traffic Rail w/windows(TX Classic)(32” tall)
04-09	T551	Concrete Safety F-Shape (32” tall)
04-09	T552	T501 w/Multiple Drain Slots (32” tall)
04-09	T77	Steel Post w/Two Elliptical Pipes (33” tall)
04-09	T80HT	Conc and Steel Heavy Truck Traffic Rail (50” tall)
04-09	SSTR	Single Slope Traffic Rail (36” tall)
COMBINATION RAILS		
Rev Date	**Std Name**	**Description**
04-09	C223	T223 w/Steel Pipe Rail (42” tall)
04-09	C221	T221 w/Steel Pipe Rail (42” tall)
04-09	C402	T402 w/Steel Pipe Rail (42” tall)
04-09	C411	Comb Rail w/windows (TX Classic) (42” tall)
MISCELLANEOUS RAILS		
Rev Date	**Std Name**	**Description**
04-09	T101RC	Retrofit Guide for T101 on Curbs
04-09	T1-101R	Retrofit (Convert T1 to T101)
04-09	T2/T201TR	Guide for T2/T201(Retrofit Thrie-Beam Transition)

04-09	T202TR	Guide for T202 (Retrofit Thrie-Beam Transition)
04-09	TRF	Traffic Rail Foundation
04-09	PR1	Pedestrian Rail, (42" tall)
04-09	PR2	Pedestrian Rail, (42" tall)
04-09	PR3	Pedestrian Rail, (43.75" tall)

13.2.6 Retaining Walls

Supplement Section 13.2.6 of Book 3 with the following:

Modular walls employing interlocking blocks shall not be used where surcharge loads from vehicular traffic can be present.

MSE walls shall not be used to structurally support abutment foundations on the Facility.

13.2.7 Noise/Sound Walls

No additional requirements.

13.2.8 Drainage Structures

No additional requirements.

13.2.9 Sign, Illumination, and Traffic Signal Supports

No additional requirements.

13.2.10 Widenings

Developer shall complete a load rating and condition survey of existing bridges to be widened. Ratings shall be based on current TxDOT procedures.

13.2.11 Corrosion Protection Measures

Epoxy-coated reinforcing steel shall be used a) in cast-in-place concrete portions of all bridge deck slabs, and b) in concrete bridge railings and barriers when required by applicable standards listed in Table 13-1. No additional corrosion protection measures are required for any structures.

13.3 Construction Requirements

No additional requirements.

13.3.1 Concrete Finishes

Replace Section 13.3.1 of Book 3 with the following:

Concrete finishes shall comply with the performance requirements as stated in Section 15 of the Technical Provisions.

13.3.2 Structure Metals

No additional requirements.

13.4 Deliverables

Replace Section 13.4of Book 3 with the following:

Developer shall submit with the Record Drawings the following to TxDOT:

- An inventory and operating ratings of constructed structures.
- Corridor structure type study report.
- Design notebooks.
- Structure load ratings.

14 RAIL

14.1 General Requirements

Replace Section 14.1 of Book 3 with the following:

This Section 14 consists of the requirements to coordinate, design and construct all railroad/transit elements of the Facility. Developer is responsible to identify each railroad and transit owner/operator in the Facility corridor.

14.2 Design Standards

Revise the heading of Section 14.2 of Book 3 to the heading "Design Requirements".

Replace Section 14.2 of Book 3 with the following:

The design for all railroad elements of the Facility, unless specified otherwise, shall be based on the most recent American Railway Engineering and Maintenance of Way Association (AREMA) requirements, the requirements of the operating railroad, and the practices, guidelines, procedures and methods contained in the TxDOT *Traffic Operations Manual, Railroad Operations Volume* as amended per Attachment 14-1, Amendments for the TxDOT's Traffic Operations Manual, Railroad Operations Volume, February 2000. The most restrictive criteria shall be utilized.

14.2.1 Hodge Yard Crossing

At the IH-35W crossings over the railroad tracks, approximately between station 724+00 and station 727+00, also known as the Hodge Yard Crossing, Developer shall be allowed to locate bents within the Operating Railroad ROW as shown in Attachment 14-2 – Hodge Yard Crossing Base Case Scenario.

14.2.1.1 Scenario 1

If Developer is unable to obtain an agreement from the Operating Railroad which allows bents to be located such that the requirements in Section 14.2.1 above can be met, then Developer shall be allowed to locate bents within the Operating Railroad ROW as shown in Attachment 14-3 – Hodge Yard Crossing Scenario 1 and compensation shall be as set forth in Section 13.2.6.7 of the FA.

14.2.1.2 Scenario 2

If Developer is unable to obtain an agreement from the Operating Railroad which allows bents to be located such that the requirements in Section 14.2.1 and Section 14.2.1.1 above can be met, then Developer shall locate the bents to meet the requirements and conditions set forth in the agreement with the Operating Railroad and compensation shall be as set forth in Section 13.2.6.8 of the FA.

14.2.2 Dooling Street Crossing

At the IH-35W crossings over the railroad tracks, approximately between station 740+00 and station 750+00, also known as the Dooling Street Crossing, Developer shall be allowed to locate bents within the Operating Railroad ROW as shown in Attachment 14-4 – Dooling Street Crossing Base Case Scenario.

14.2.2.1 Scenario 1

If Developer is unable to obtain an agreement from the Operating Railroad which allows bents to be located such that the requirements in Section 14.2.2 above can be met, then Developer shall locate the bents to meet the requirements and conditions set forth in the agreement with the Operating Railroad and compensation shall be as set forth in Section 13.2.6.9 of the FA.

14.2.3 Other Design Requirements

Developer's design shall minimize service interruptions to existing rail lines.

At Highway-rail grade crossings, the roadway and drainage design parameters shall be maintained at the crossing with exception to the cross slope of the pavement which may be transitioned to match the grade across the rail line. The structural design of any Utilities, including drainage structures, installed by Developer and crossing a rail line, shall be in accordance with the operating railroad's design criteria.

Developer shall coordinate, design and construct the construction staging, including any shooflies, with the Operating Railroad.

14.3 Project Work Affecting Railroad Operations

No additional requirements.

14.3.1 Railroad Agreement

No additional requirements.

14.3.2 Agreement for Construction, Maintenance and Use of Right of Way

No additional requirements.

14.3.3 Operation Safety

No additional requirements.

14.3.4 Railroad Right of Entry Agreement

No additional requirements.

14.3.5 Developer Right of Entry Agreement

No additional requirements.

14.3.6 Insurance Requirements

No additional requirements.

14.4 Construction Requirements

No additional requirements.

15 AESTHETICS AND LANDSCAPING

15.1 General Requirements

Supplement Section 15.1 of Book 3 with the following:

The intent of this Section 15 is to provide an enhancement value to both the users and the onlookers of the corridor and to provide a roadway corridor with continuity to the NTE Segments 1 and 2W Project and attractiveness through the use of comprehensive aesthetic treatments.

Where the Mandatory Scope facility is coincident with the Ultimate Configuration, landscaping shall be designed and constructed such that apparent construction requirements for the Ultimate Configuration are not hindered. In locations where the Mandatory Scope does not coincide with the Ultimate Configuration, Developer shall provide landscaping to achieve the desired aesthetic affect.

15.2 Administrative Requirements

Supplement the list of bullets in Section 15.2 of Book 3 with the following:

- Material finish and color of light poles and mast arms, ambient lighting colors, and general layout conditions.

15.2.1 Aesthetics Concepts

Replace Section 15.2.1of Book 3 with the following:

The aesthetic Elements shall be designed as corridor wide enhancements. To the extent practicable, the aesthetic Elements shall remain consistent in form, materials, and design throughout the length of the Facility and with the approved aesthetics enhancements of the NTE Segments 1 and 2W Project.

15.2.2 Aesthetics and Landscaping Plan

Supplement Section 15.2.2 of Book 3 with the following:

TxDOT approval of the Aesthetics and Landscaping Plan is required prior to construction of any Elements affected by the Plan.

The Aesthetics and Landscaping Plan shall address all the aesthetic Elements of the Facility with the production of the following plans:

A. Aesthetics Plans

- A master plan that will convey the layout of the various roadway conditions, e.g. where the depressed sections, elevated sections, and at-grade roadways are located, where there are bridges, cantilevered structural sections, etc.;
- Drawings showing where site specific elements are located, e.g. fences, signage, potential locations of community improvement opportunity areas, gate way markers, control buildings, bridge enhancements, landscaping, etc.; and
- Color schemes and their locations.

B. Landscaping Plans

- A plan that indicates plant palettes, locations of plants, plant types, and planting dates;
- A maintenance program; and
- Composite drawings of all Utilities and easements that would interfere with landscaping, markers, or any other identified enhancements.

The Aesthetics and Landscaping Plan shall include all plans, elevations, perspectives, isometrics, etc., as needed to fully convey the aesthetic treatment.

Upon completion of the Aesthetics and Landscaping Plan, Developer shall consolidate the information, which establishes the requirements for engineering of the Highway corridor aesthetics. The guidelines shall serve as the primary standard guidance necessary to produce the intended aesthetic form, function and appearance for the Facility.

15.2.3 Personnel

No additional requirements.

15.3 Design Requirements

No additional requirements.

15.3.1 Aesthetics Principles and Strategies

Supplement the list of bullets in Section 15.3.1 of Book 3 with the following:

- Aesthetics shall not interfere with safety, constructability, and maintenance requirements.

15.3.2 Walls

Supplement Section 15.3.2 of Book 3 with the following:

Noise walls shall comply with all Environmental Commitments.

The Developer is not required to incorporate aesthetic enhancements in noise/sound walls where such aesthetic enhancements alone would require the reconstruction of such noise/sound walls. Aesthetic enhancements shall only be used on noise/sound walls where they can be implemented through the use of attachments or color.

15.3.3 Bridges and Other Structures

Supplement Section 15.3.3 of Book 3 with the following:

All bridge substructure columns shall be consistent in form and texture, with similar shapes and details used for all bridges.

Developer shall ensure that all beam spans shall be of constant depth throughout each structure. If steel spans are used, depth of steel spans may differ from the depth of concrete spans.

15.3.4 Trees, Shrubs, and Other Plant Materials

Supplement Section 15.3.4 of Book 3 with the following:

Vegetation provided as a part of the Developer's Aesthetics and Landscaping Plan, other than grassing and erosion control measures, shall be incorporated in accordance with the following guidelines:

- Developer shall place one (1) ornamental, evergreen, or flowering tree per 750 square feet of plantable Facility ROW. Trees shall be placed in accordance with TxDOT's minimum clearance zones. Tree quantity calculations shall be determined by plantable Facility ROW outside of the minimum clearance zones. Trees shall be placed in the Facility ROW between mainlines and Frontage Roads. Trees shall be a minimum of six (6) feet high.
- Developer shall place one (1) deciduous tree per 1,000 square feet of plantable Facility ROW. Trees shall be placed in accordance with TxDOT's minimum clearance zones. Tree quantity calculations shall be determined by plantable Facility ROW outside of the minimum clearance zones. Trees shall be placed in the Facility ROW between mainlines and Frontage Roads. Trees shall have a three (3) inch caliper minimum.
- The mature canopy shall not overhang the travel lane or shoulder of any roadway.

15.3.5 Lighting

Developer shall design aesthetic enhancement lighting in accordance with the following aesthetic criteria:

- One pole type for the entire corridor during the DB Phase and, to the extent practicable, the Operating Period matching the approved lighting for the NTE Segments 1 and 2W Project. Developer shall provide, as part of the Aesthetics and Landscaping Plan, a lighting layout plan that addresses each light fixture (i.e. roadside lighting, high mast lighting, under bridge fixture, etc.) and type of light fixture (i.e. LED lighting, point source lighting, HID, etc.).

15.3.6 Control Buildings

Developer shall provide a minimum of three design concepts for control buildings, if any, for review by TxDOTas part of the Aesthetics and Landscaping Plan. The control facilities, vent stacks, power centers, or any other structure that requires the seal of a registered architect, shall require the production of aesthetic concepts as part of the Aesthetics and Landscaping Plan.

15.3.7 Riprap

Concrete paving shall be used in mowing areas which are difficult to maintain or under structures (such as, but not limited to areas near, next to, or between guard fence posts, sign posts, bent columns, next to retaining walls, freeway ramp gores, paved ditches, flumes, ditch inlets, etc.) to improve roadway appearance.

15.3.8 Intersection Hardscape

At a minimum, Developer shall use colored textured concrete in all raised medians at intersections. Monolithic concrete medians may not be used. Concrete pavers may be used only where Governmental Entities agree to maintain them.

15.3.9 Storm Water Quality Facilities

Developer may use water treatment facilities, detention ponds or any other water detention areas as a location for trees, shrubs, and other plant materials.

15.4 Construction Requirements

Replace the first sentence of the first paragraph of Section 15.4 of Book 3 with the following:

Developer shall provide TxDOT sample panels a minimum of 60 Days in advance of starting construction of textured concrete surfaces.

15.5 Deliverables

Replace Section 15.5 of Book 3 with the following.

Developer shall submit the Aesthetics and Landscaping Plan to TxDOT for review and approval no later than 120 Days prior to issuance of NTP2. TxDOT's approval of the Aesthetics and Landscaping Plan shall be a condition to issuance of NTP2.

16 SIGNING, DELINEATION, PAVEMENT MARKING, SIGNALIZATION, AND LIGHTING

16.1 General Requirements

Supplement Section 16.1 of Book 3 with:

No new illumination shall be required on Segment 3A Facility Segment on IH-35W south of the SH 121 interchange (approximate IH35W centerline station 895+00) provided the existing illumination meets the requirements set forth in these Technical Provisions.

Unless otherwise approved by TxDOT, sign structures shall be located to accommodate the Mandatory Scope and the Ultimate Configuration except where not possible south of station 862+20.

Lighting shall be designed and constructed to accommodate the Ultimate Configuration or Mandatory Scope, whichever governs to minimize construction of the Ultimate Configuration. The location of high-mast lighting within the Mandatory Scope construction limits shall satisfy the Ultimate Configuration.

16.2 Administrative Requirements

16.2.1 Meetings

No additional requirements.

16.3 Design Requirements

Supplement Section 16.3 of Book 3 with:

The Developer shall design all signing, delineation, pavement marking, signalization, and lighting in accordance with the current version of the *Texas Manual on Uniform Traffic Control Devices* (TMUTCD).

16.3.1 Final Design

Replace the first sentence of Section 16.3.1 of Book 3 with the following:

Developer shall advance the Final Design of the signing, delineation, pavement marking, signalization, and lighting based on the preliminary operational signing schematic as shown in the Mandatory Scope Schematic, TxDOT Works Design, and the Approved NEPA Schematics.

16.3.2 Permanent Signing and Delineation

Supplement Section 16.3.2 of Book 3 with the following:

Signs shall meet the requirements of TxDOT's *Standard Highway Sign Design for Texas*.

16.3.3 Project Signs – Outside the Facility ROW

No additional requirements.

16.3.4 Advance Toll Information Signs

Supplement Section 16.3.4 of Book 3 with the following:

See Section 21.4 of the Technical Provisions.

16.3.5 Third-Party Signs

No additional requirements.

16.3.6 Sign Support Structures

No additional requirements.

16.3.7 Permanent Pavement Marking

Supplement Section 16.3.7 of Book 3 with the following:

Developer shall provide shoulder texturing which may include raised rumble strips in accordance with appropriate standards**.** Shoulder texturing shall not be used on direct connectors, on bridges or on ramp pavement.

16.3.8 Permanent Signalization

No additional requirements.

16.3.8.1 Traffic Signal Requirements

Supplement Section 16.3.8.1 of Book 3 with the following:

New or modified traffic signal equipment shall conform to the regional Intelligent Transportation Systems (ITS) architecture and existing interconnected traffic signal systems.

Developer shall design and implement modifications to existing traffic signals within the limits of the Segment 3A Facility Segment as a result of the Final Design. Developer shall coordinate with TxDOT and all Governmental Entities to define appropriate traffic signal design requirements, local agency oversight of Developer's work, final acceptance and synchronization of traffic signals.

The traffic signal designs and modifications shall be completed in accordance with the current TxDOT standards and specifications, the TMUTCD and the requirements of the applicable Governmental Entity. The traffic signal designs shall provide for interconnection controllers compatible with the intersection controller hardware, central intersection management software, and wireline or wireless interconnect communications of the entity responsible for operations and maintenance. Developer shall coordinate the review, approval, inspection, and acceptance of the traffic signals with the Governmental Entity responsible for maintenance.

Developer is responsible for preparing traffic signal agreements (or supplements thereto) for execution by TxDOT and the Governmental Entity having operation and/or maintenance responsibilities. Except for traffic signal systems excluded by agreement, Developer will be responsible for the operations and maintenance of all traffic signal systems for the Term of the FA.

Table 16-1 Existing Traffic Signals

Cross Street	Existing or Under Construction	Within the City of	Maintained by
IH35W @ Western Center Blvd	Existing	Fort Worth	City of Fort Worth
IH35W @ Basswood Blvd	Existing	Fort Worth	City of Fort Worth
IH820 @ Mark IV Pkwy	Existing	Fort Worth	City of Fort Worth
IH35W @ Meacham Blvd	Existing	Fort Worth	City of Fort Worth
IH35W @ SH183/NE 28TH ST	Existing	Fort Worth	City of Fort Worth
IH35W @ Northside Dr./ Yucca Ave.	Existing	Fort Worth	City of Fort Worth

16.3.8.2 Traffic Signal Timing Plans

No additional requirements.

16.3.8.3 Traffic Signal Warrants

Replace the second sentence of paragraph three of Section 16.3.8.3 of Book 3 with the following:

If actual traffic volumes are not available, but opening year traffic is available, Developer shall use the procedure in Section 3.5 of the TxDOT *Traffic Signals Manual* to determine the volumes to be analyzed.

16.3.8.4 Traffic Signal Support Structures

No additional requirements.

16.3.9 Permanent Lighting

Supplement Section 16.3.9 of Book 3 with the following:

Developer shall provide continuous lighting along Frontage Roads in locations where the lighting systems are currently provided along the Frontage Roads. Developer shall be responsible for all costs of designing, installing, operating and maintaining the lighting systems. Developer may request reimbursement for the operations and maintenance of such lighting systems from the Governmental Entity to the extent an existing agreement between TxDOT and the Governmental Entity allows such request.

As necessary, Developer shall comply with all Federal Aviation Administration (FAA) requirements, submit appropriate FAA paperwork, make necessary changes to such paperwork when applicable and keep TxDOT informed of FAA involvement.

Developer shall provide continuous lighting and safety lighting systems in accordance with Chapters 5, 6, 7, and 9 of the TxDOT *Highway Illumination Manual*. The lighting design for cross streets and Frontage Roads are to be in accordance with the requirements of the local Governmental Entities or third party agreements.

TxDOT does not require continuous lighting along Frontage Roads not currently illuminated. However, third party requests for lighting within the Facility that Developer intends to implement shall be subject to prior TxDOT approval. For the purpose of this Facility, lighting along the Frontage Roads for a distance of 600' from the nose of the ramps will be considered safety lighting and is the responsibility of the Developer.

Developer shall provide an average to minimum uniformity ratio of 3.1, with a minimum lux of 1.85 and an average lux of 6.5 to 8.6 on all traveled roadways to be illuminated. Traveled roadways include: tolled lanes, General Purpose Lanes, Managed Lanes, auxiliary lanes, ramps, Frontage Roads, and ramp

terminal intersections with cross streets.

Additional guidance for illumination is provided in the RID.

16.3.10 Visual Quality

Supplement Section 16.3.10 of Book 3 with the following:

Developer shall not use timber poles for permanent installation.

The Developer shall re-sod or re-seed areas of construction disturbed by the installation of signs, traffic signal systems, or lighting systems after final installation.

16.4 Construction Requirements

No additional requirements.

16.4.1 Permanent Signing and Delineation

Supplement Section 16.4.1 of Book 3 with the following:

Guidance for signing retroreflectivity is provided in the RID.

16.4.2 Permanent Pavement Marking

Supplement Section 16.4.2 of Book 3 with the following:

Guidance for pavement marking retroreflectivity is provided in the RID.

16.4.3 Permanent Signalization

Replace the first sentence of Section 16.4.3 of Book 3 with the following:

Developer shall coordinate with the Utility Owner(s) and shall ensure necessary power service is initiated and maintained for permanent signal systems.

Supplement Section 16.4.3 of Book 3 with the following:

Developer shall connect traffic signal controllers for completed intersections operated and maintained by a Governmental Entity to the communications media provided by that Governmental Entity, at or near the completed intersection, for traffic signal monitoring and control. Connection of the completed intersection to the Governmental Entity's communications network shall be coordinated with the Governmental Entity.

16.4.4 Permanent Lighting

Supplement Section 16.4.4 of Book 3 with the following:

Developer shall remove all old illumination-related cable that does not have existing pavement or riprap above it; any existing illumination-related cable that is under the existing pavement or riprap may be abandoned.

16.5 Deliverables

No additional requirements.

16.5.1 Permanent Signing and Delineation

No additional requirements.

16.5.2 Permanent Pavement Marking

No additional requirements.

16.5.3 Permanent Signalization

Supplement Section 16.5.3 of Book 3 with the following:

Developer shall, after implementing approved timing plans, provide TxDOT and Governmental Entities responsible for operation and maintenance of the traffic signal system legible written documentation of all intersection characteristics, timing plan parameters and installation information necessary for TxDOT or the Governmental Entity to incorporate the completed signal installation into the central intersection management software being used.

16.5.4 Permanent Lighting

Supplement Section 16.5.4 of Book 3 with the following:

Developer shall provide a long, continuous layout roll of the plan view. Developer shall provide TxDOT, as a condition to Final Acceptance, the photometric data results for all lighted areas within the Facility limits.

16.5.5 Advance Toll Information Signs

Developer shall prepare and submit to TxDOT, as part of the Final Design Documents, an advance toll information sign plan that includes all components related to Managed Lanes.

16.5.6 Inspection and Acceptance Testing

Developer shall provide to TxDOT, as part of the Final Design Documents, an acceptance test plan (ATP) for all traffic signals and illumination. This ATP shall also be submitted by Developer to the appropriate local Governmental Entity. Developer shall conduct testing in accordance with the ATP and document these results to show conformance with design and construction requirements.

17 INTELLIGENT TRANSPORTATION SYSTEMS

17.1 General Requirements

Supplement Section 17.1 of Book 3 with the following:

The Facility ITS shall conform to the regional data and video communications system (RDVCS) of the North Texas Regional Comprehensive ITS Architecture.

Developer shall maintain and protect the use of the existing ITS within the Facility at all times with the exception of the Segment 3B Facility Segment during construction of the TxDOT Works.

17.2 Design Requirements

Supplement Section 17.2 of Book 3 with the following:

Developer shall prepare a preliminary ITS layout for review and concurrence by TxDOT to ensure adequate planning of the ITS implementation. The planning of the ITS implementation shall make allowance for and take into account the expected date of TxDOT Substantial Completion of the Segment 3B Facility Segment and shall be addressed in the coordination plan in accordance with Section 11.1.1 of the FA.

17.2.1 ITS Communications Requirements

Supplement Section 17.2.1 of Book 3 with the following:

Developer shall provide an independent channel within the ITS communication system to transport traffic signal interconnect communications between roadside traffic signal cabinets maintained by TxDOT and a satellite building data network switching point designated by TxDOT. Communication devices attached to this channel shall be addressed as directed by TxDOT.

17.2.2 Conduit

Supplement Section 17.2.2 of Book 3 with the following:

At a minimum, Developer shall install a conduit system with sufficient capacity for at least the number of conduits within the existing conduit network.

17.2.3 CCTV Cameras

No additional requirements.

17.2.3.1 Equipment

Supplement Section 17.2.2 of Book 3 with the following:

Initial installation of the CCTV field equipment shall conform to the requirements of TxDOT's Statewide Special Specification 6025 CCTV Field Equipment (04) except for training, warranty, measurement and payment. Any subsequent updates or replacements shall be compatible with the RDVCS requirements.

17.2.3.2 Placement

No additional requirements.

17.2.3.3 Video Requirements

No additional requirements.

17.2.3.4 Operating Requirements

No additional requirements.

17.2.3.5 Control Requirements

No additional requirements.

17.2.4 Vehicle Detection

No additional requirements.

17.2.5 Dynamic Message Signs (DMS)

Replace Section 17.2.5 of Book 3 with the following:

Developer shall provide and operate a comprehensive network of electronic DMS and single-line DMS (SDMS).

Developer shall position each DMS to allow motorists to safely view the messages being displayed. Developer shall locate the DMS to comply with large guide sign spacing stated in the TMUTCD.

DMS shall be used to inform motorists of the availability of alternate routes, and to advise travelers of adverse road conditions and congestion. DMS shall be placed to provide a driver-friendly sign-viewing angle at each DMS location.

Developer shall provide DMS using only light-emitting diode (LED) display technology. DMS used shall conform to the TxDOT special specification *National Transportation Communications for ITS Protocol*

for Dynamic Message Signs and Developer shall demonstrate compliance to TxDOT before installation of DMS.

DMS shall be uniform and, at a minimum, shall meet the TxDOT-Fort Worth District guidelines.

17.2.5.1 Single-Line DMS (SDMS)

Developer shall place SDMS over through travel lanes on existing or proposed overhead sign structures. For the Segment 3A Facility Segment, maximum spacing of SDMS shall not exceed one mile, except where a DMS location will satisfy both DMS and SDMS operational requirements and the exception is approved by TxDOT. For the Segment 3B Facility Segment, spacing of SDMS shall be in accordance with SDMS foundation locations detailed in the Attachment A of Exhibit 26 of the FA.

All sign bridges shall be designed to accommodate SDMS brackets and catwalks.

Developer shall provide LED technology SDMS composed of one-lane-wide, interconnecting modules with lane control signal (LCS) functionality embedded in each module as required to provide individual lane availability information to each through travel lane.

17.2.6 Lane Control Signals (LCS)

Supplement Section 17.2.6 of Book 3 with the following:

The lane control function shall be provided by SDMS. Developer shall provide separate lane control signals only to supplement SDMS installations as directed by TxDOT.

17.2.7 Satellite Buildings

Developer shall coordinate with TxDOT the connection of all new ITS components to the existing ITS satellite buildings covering the Facility and connections to the Fort Worth Traffic Management Center (Transvision Building).

Developer shall maintain and protect the existing satellite buildings within the Facility limits. As necessary, Developer may relocate or reconstruct the satellite buildings.

17.2.8 Center-to-Center Interface

Developer shall provide the center-to-center interface necessary to tie-in to the North Texas Regional Comprehensive ITS Architecture.

17.3 Construction Requirements

No additional requirements.

17.3.1 General

Supplement Section 17.3.1 of Book 3 with the following:

Developer may comply with requirements related to the functionality of the ITS during construction by phasing construction to establish new equipment locations prior to removal of existing equipment locations, allowing minimal service interruption for the transfer of devices from existing to new locations, or by use of portable equivalents for ITS devices, such as trailer mounted DMS, sensors or CCTV, positioned to allow removal of devices while new locations are constructed.

Developer shall coordinate with the Utility Owner(s) to provide power service for permanent ITS components.

17.3.2 Salvaging Existing Items

No additional requirements.

17.3.3 Existing ITS Relocation

Replace the second paragraph of Section 17.3.3 of Book 3 with the following:

Developer is responsible for the relocation of existing ITS within the limits of Work affecting the Segment 3A Facility Segment. Before removing existing ITS items, Developer shall perform all activities necessary to comply with the requirements relating to the ITS during construction, including installing new ITS items, relocating or replacing existing ITS items, and connecting such ITS items to the existing network.

18 TRAFFIC CONTROL

18.1 General Requirements

No additional requirements.

18.2 Administrative Requirements

No additional requirements.

18.2.1 *Traffic Management Plan*

Supplement Section 18.2.1 of Book 3 with the following:

If at any time TxDOT determines that construction-related back-ups become unreasonable, it shall notify Developer of such determination and Developer shall immediately implement corrective measures. Contingency plans of how this will be determined and occur shall be included in the Traffic Management Plan. The development and implementation of these contingency plans shall be at the Developer's expense.

18.3 Design Requirements

18.3.1 Traffic Control Plans

Replace the first sentence of Section 18.3.1 of Book 3 with the following:

Developer shall use the procedures in the TMP and the standards of the TMUTCD to develop and implement detailed traffic control plans which provide for all construction stages and phasing, as well as all required switching procedures.

Replace the third paragraph of Section 18.3.1 of Book 3 with the following:

Opposing traffic on a normally divided roadway shall be separated with appropriate traffic control devices in accordance with Good Industry Practice and the TMUTCD based on the roadway Design Speed.

Supplement Section 18.3.1 of Book 3 with the following:

18.3.1.1 Roadway Guidelines

Developer shall produce traffic control plans for periods of construction based on Good Industry Practice and shall meet or exceed the Facility specific criteria noted in Section 18.3.1.1.1 and Section 18.3.1.1.2 of the Technical Provisions.

18.3.1.1.1 Design Parameters for Traffic Control

Design vehicle: Turning movements at the roadways identified in Table 11-3 shall accommodate a WB-50 design vehicle. Design of all other local streets and driveways shall, at a minimum, accommodate the turning movements of the design vehicle accommodated in the existing configuration.

Design speed: During construction, the Design Speed for General Purpose Lanes and Managed Lanes on Interstate and State Highways must be 55 miles per hour (mph) or greater, except for major alignment transitions where the Design Speed may be reduced to 45 mph if approved by TxDOT.

Number of lanes: Except as allowed by Section 18.3.1.1.2 of the Technical Provisions the minimum number of lanes to be maintained during construction in each direction on each Roadway Component of the Facility shall be the number of lanes available prior to such construction on such Roadway Component of the Facility. Lane closures on other roadways may be considered and approved by TxDOT.

Lane widths: During construction, the minimum lane width for Managed Lanes, General Purpose Lanes, Frontage Roads and major crossing streets is 11 feet. For minor crossing streets, TxDOT may, in its sole discretion, allow 10' lanes in limited circumstances during construction for short distances after reviewing the Developer's traffic control plan.

Shoulders: Developer shall provide a minimum one foot offset from the edge of travel way to the edge of pavement or traffic barrier.

18.3.1.1.2 Allowable Lane/Roadway Closures

When lane closures are necessary, Developer shall use the public information and communication methods available to inform the appropriate Customer Groups (refer to Section 3 of the Technical Provisions).

Closures must be coordinated with adjacent projects.

In addition to the requirements set forth in Section 3.2.7.1, Developer shall issue a Lane Closure Notice (LCN) to TxDOT and affected Governmental Entities fourteen (14) Days prior to the publication of any notices or placement of any traffic control devices associated with lane closures, detour routing or other change in traffic control requiring lane closures except lane closures of less than 24-hour duration. The LCN shall contain the estimated date, time, duration, and location of the proposed Work requiring the lane closure.

If an Emergency condition should occur, Developer shall provide a LCN to TxDOT within 2 Days after the commencement of the event. For non-TxDOT controlled facilities, Developer shall immediately

notify the controlling Governmental Entity. Developer shall keep TxDOT and affected Governmental Entities informed of any and all changes or cancellations of proposed lane closures prior to the date of their implementation.

A. Lane Closure Prior to Service Commencement

Developer may reduce the number of General Purpose Lanes in accordance with Table 18-1a during non-restricted hours. General Purpose Lane closures, including Incident or Emergency lane closures caused by any Developer-Related Entity, other than those permitted in Table 18-1a, will cause Lane Rental Charges to be levied against Developer as specified in Section 3.4 of Exhibit 18 of the FA. Lane rental charges shall not be levied if TxDOT determines in its sole discretion that the lane closure is required in connection with an Incident or Emergency not caused by any Developer-Related Entity.

Table 18-1a: Permitted Lane Closures Prior to Service Commencement

Description of Operations		**Permitted Lane Closures[1]**		
Category of Work	**General Purpose Lanes** (One Direction)	**Peak Hours[2]**	**Off-Peak Hours[3]**	**Night Time Hours[3]**
Any work necessary up to NTP2.	5	None	3	3
	4	None	2	2
	3	None	1	1
	2	None	None	1
Work after commencement of construction: Placement of CTB, placement of pavement markings, full depth roadway repair, placement of bridge beams, bridge demolition or similar operations	5	None	3	3
	4	None	2	2
	3	None	1	1
	2	None	None	1
Work after commencement of construction: Adjacent construction, lanes for construction traffic or similar operations	5	None	2	2
	4	None	2	2
	3	None	1	1
	2	None	None	1
Notes:				

1. A minimum of 2 lanes in each direction will be required on IH820, IH35W, SH121 and US287General Purpose Lanes at all times except as specifically approved by TxDOT.
2. **Peak Hours** means the period as described in Exhibit 1 of the FA. Peak Hours shall be evaluated on an annual basis and the Peak Hours will be adjusted as necessary.
3. **Night Time / Off-Peak Hours** means the periods as described in Exhibit 1 of the FA. Times will be established utilizing 7 day-24 hour traffic counts to be performed by the Developer, results of which shall be provided to TxDOT for evaluation.

If exceptional circumstances exist, additional lanes may be closed during Off -Peak or Night Time Hours with the written permission of TxDOT at its sole discretion and lane rental charges may apply. Off-Peak Hours may be started earlier or extended later with TxDOT approval.

Developer shall obtain prior written approval from TxDOT for any reduction in the existing number of Frontage Road or major crossing street lanes as defined in Table 18-2 prior to any such reduction.

B. Lane Closure after Service Commencement

Developer may reduce the number of General Purpose Lanes for work activities occurring after Service Commencement in accordance with Table 18-1b.

Table 18-1b: Permitted Lane Closures after Service Commencement

Description of Operations		Permitted Lane Closures[1]		
Category of Work	**General Purpose Lanes** (One Direction)	**Peak Hours[2]**	**Off-Peak Hours[3]**	**Night Time Hours[3]**
Placement of CTB, placement of pavement markings, full depth roadway repair, placement of bridge beams, bridge demolition or similar operations	5	None	1	2
	4	None	1	2
	3	None	None	1
	2	None	None	1
Adjacent construction, lanes for construction traffic or similar operations	5	None	1	2
	4	None	1	2
	3	None	1	1
	2	None	None	1

Notes:
1. A minimum of 2 lanes in each direction will be required on IH820 and IH35W and a minimum of 3 lanes in each direction will be required for SH121 and SH183 at all times except as noted above and as specifically approved by TxDOT.
2. **Peak Hours** means the period as described in Exhibit 1 of the FA. Peak Hours shall be evaluated on an annual basis and the Peak Hours will be adjusted as necessary.
3. **Night Time / Off-Peak Hours** means the period as described in Exhibit 1 of the FA. Times will be established utilizing 7 day-24 hour traffic counts to be performed by the Developer, results of which shall be provided to TxDOT for evaluation.

If exceptional circumstances exist, additional lanes may be closed during Off Peak or Night Time Hours with the prior written permission of TxDOT at its sole discretion. Off-Peak Hours may be started earlier or extended later with TxDOT approval.

Developer shall obtain written approval from TxDOT for any reduction in the existing number of Frontage Road or major crossing street lanes as defined in Table 18-2 prior to any such reduction.

C. Full Roadway Component Closure

Closure of all General Purpose Lanes in one or both directions may only be allowed during Night Time Hours and with the express written approval by TxDOT and Governmental Entities having jurisdiction of roadways affected by the closure. Closure of General Purpose Lanes prior to Service Commencement shall be subject to Lane Rental Charges. The detour route for full General Purpose Lane closures shall not be tolled. TxDOT will have the right to lengthen, shorten, or otherwise modify the foregoing restrictions as actual traffic conditions may warrant. Major crossing streets, as listed in Table 18-2, must remain open to traffic in both directions during the Term and in accordance with Table 18-2.

Table 18-2 List of Major Crossing Streets

CROSSING STREET	CLASSIFICATION	Overpass/Underpass	Lanes to be maintained during peak hours
Basswood Blvd	Major	Overpass	3EB + 3WB
Western Center Blvd	Major	Underpass	2EB + 2WB
Mark IV Parkway	Major	Underpass	2EB + 2WB
Meacham Blvd	Major	Underpass	2EB + 2WB
E. Long Ave.	Major	Underpass	1EB + 1WB

NE 36th ST	Major	Underpass	1EB + 1WB
NE 33rd ST	Major	Underpass	1EB + 1WB
Papurt Dr. [1]	Major	Underpass	1EB + 1WB
SH183/NE 28TH ST	Major	Overpass	2EB + 2WB
Watauga Rd	Major	Underpass	1EB + 1WB
E. Northside Dr. (WB) / Yucca Ave. (EB)	Major	Underpass	2EB + 2WB
Turnaround at Trinity River	Major	Underpass	2
Pharr ST	Major	Underpass	1EB + 1WB
SH 121	Major	Underpass	2EB + 2WB
E. 4th ST	Major	Underpass	1EB + 1WB
Spur 280	Major	Overpass	2EB + 2WB
Luella ST	Major	Underpass	1EB + 1WB
Cypress Rd over Spur 280	Major	Overpass	1NB + 1SB

1. Crossing at Papurt Drive to remain open until alternative provided.

Developer will be allowed to close entrance and exit ramps except that no two consecutive entrance or two consecutive exits can be closed at the same time.

Existing direct connectors shall remain open to traffic until replacement direct connectors are constructed and open to traffic.

18.3.1.2 Restricted Hours

A. Holiday Restrictions

No work that restricts or interferes with traffic shall be allowed from 12:00 noon on the day preceding to 10:00 pm on the day after the following holiday schedule. TxDOT has the right to lengthen, shorten, or otherwise modify these restrictions as actual traffic conditions may warrant.

- New Year's Eve and New Year's Day (December 31 through January 1)
- Easter Holiday Weekend (Friday through Sunday)
- Memorial Day Weekend (Friday through Monday)

- Independence Day (July 3 through noon on July 5)
- Labor Day Weekend (Friday through Monday)
- Thanksgiving Holiday (Wednesday through Sunday)
- Christmas Holiday (December 23 through 26)

B. Event Restrictions

No work that restricts or interferes with traffic shall be allowed for the regional events set forth below. TxDOT has the right to lengthen, shorten, or otherwise modify these restrictions as actual traffic conditions may warrant. TxDOT also has the right to modify the list of major events as they are added, rescheduled or warranted.

- NASCAR Nationwide and Sprint Cup Racing Series (3 races total) at Texas Motor Speedway usually held in late March/early April (restricted from 3:00 p.m. of the night preceding the first event until Monday 5:00 a.m. following the event).
- NASCAR Nationwide and Sprint Cup Racing Series (3 races total) at Texas Motor Speedway usually held in late October/early November (restricted from 3:00 p.m. of the night preceding the first event until Monday 5:00 a.m. following the event).
- Indy Series Racing and NASCAR Truck Series Racing (2 races) at Texas Motor Speedway usually held in June (restricted from 3:00 p.m. of the night preceding the first event until Monday 5:00 a.m. following the event).

18.3.1.3 Other Traffic Management Plan Requirements

Additional Traffic Management Plan requirements are as follows:

1) Developer shall notify the traveling public by placing changeable message signs a minimum of seven (7) Days in advance of actual roadway closure or major traffic modifications. Where available and when possible, Developer shall coordinate and utilize Dynamic Message Signs on the regional ITS system.

2) Developer shall utilize uniformed police officers for General Purpose Lane closures.

18.4 Construction Requirements

No additional requirements.

18.4.1 Developer Responsibility

No additional requirements.

18.4.2 Access

No additional requirements.

18.4.3 Detours

Supplement Section 18.4.3 of Book 3 with the following:

Developer shall use State routes for detour routes, wherever applicable. If State routes are unavailable, Developer shall use local arterials, provided that Developer has obtained the necessary permits from the Governmental Entity having jurisdiction. Under no circumstances shall Developer use local arterials for detour routes without the prior written approval by TxDOT.

Developer shall provide motorists with appropriate guidance, including signing, on diverting around the construction, detouring around specific construction sites, and traveling through the construction areas. This shall include the installation and maintenance of temporary regional signs to divert traffic

18.4.3.1 Local Approvals

Developer shall communicate any planned ramp closure and staging analysis with the Governmental Entity having jurisdiction within the Facility. When ramp movements are diverted or detoured along existing roads, Developer shall be responsible for obtaining the necessary approvals from agencies having jurisdiction over the routes used. Developer shall also be responsible for any and all costs that may be assessed for the use of these existing roads.

19 MAINTENANCE

Replace Section 19 of Book 3in its entirety with the following:

19.1 General Requirements

Developer shall maintain the Project in a manner that provides a safe and reliable transportation system for improved mobility. Developer is responsible for performing all activities necessary to satisfy the Performance Requirements and the Handback Requirements with respect to the maintained Elements, together with other duties described in this Section 19 of the Technical Provisions.

19.1.1 General Maintenance Obligations

Developer shall take all necessary actions to achieve the following:

- Maintain the Facility and Related Transportation Facilities in a manner appropriate for a facility of the character of the Facility.
- Minimize delay and inconvenience to Users and, to the extent Developer is able to control, users of related Transportation Facilities.
- Identify and correct all Defects and damages from Incidents.
- Monitor and observe weather and weather forecasts to proactively deploy resources to minimize delays and safety hazards due to heavy rains, snow, ice, or other severe weather events.
- Remove debris, including litter, graffiti, animals, and abandoned vehicles or equipment from the Project ROW.
- Minimize the risk of damage, disturbance, or destruction of third-party property during the performance of maintenance activities.
- Coordinate with and enable TxDOT and others with statutory duties or functions in relation to the Project or Related Transportation Facilities to perform such duties and functions.
- Perform systematic Project inspections, periodic maintenance, and routine maintenance in accordance with the provisions of Developer's Maintenance Management Plan and Developer's Safety Plan.

Developer is responsible for providing all resources necessary for the performance of all activities in the Maintenance Management Plan.

Developer shall perform the maintenance of the Managed Lanes and the General Purpose Lanes in an identical manner.

Developer shall repair, if necessary, and resurface, including restriping, all flexible pavements that are not being reconstructed under the Madatory Scope as shown on the Mandatory Scope Schematics. The resurfacing shall be a minimum 2" overlay.

19.1.2 Developer's Obligation to Remedy and Repair

19.1.2.1 Performance Requirements of Existing Elements from NTP2 to Substantial Completion

Developer is responsible for operations and maintenance of all Elements within the limits of the Facility in accordance with Table 1-7 including the existing Elements. For the avoidance of doubt, "existing" means Elements in place and operating, in Segment 3A Facility Segment, prior to commencement of construction of the Work, and in Segment 3B Facility Segment, prior to commencement of construction of the TxDOT Works.

In taking over operations and maintenance of existing facilities, Developer shall perform an inspection and evaluation of the asset conditions for existing infrastructure and existing improvements and establish the Asset Condition Score within ninety (90) days after the Operating Commencement Date in accordance with Table 19-1, Performance and Measurement Table Baseline. TxDOT will make available any maintenance records in its possession that will assist in establishing the Asset Condition Score. Table 19-1, Performance and Measurement Table Baseline is included as Attachment 19-1 of Book 2. Refer to Section 19.4.6 for additional requirements regarding the Asset Condition Score.

Developer shall prepare and submit to the Independent Engineer and TxDOT for review and comment a Work plan that demonstrates how the Performance Requirements for each Element, with the exception of all flexible pavements that are not being reconstructed under the Mandatory Scope as shown on the Mandatory Scope Schematics, having an asset condition not meeting the Performance Requirements specified in Table 19-1 identified from the inspection and evaluation described above will be fully met and maintained by the Substantial Completion date. Developer shall submit the Work plan to TxDOT within thirty (30) days of the completion of the inspection and evaluation described in the paragraph above.

Developer shall take necessary action such that the Category 1 Defect hazards to motorists are mitigated within the period given in the column entitled "Cat 1 Hazard Mitigation" in Table 19-1.

Developer shall take necessary action to maintain and repair, as necessary, Elements such that the Pavement Condition Score for Element Category 1.2 shall not be less than 50.

Developer shall take necessary action to maintain and repair, as necessary, Elements such that the free cross-sectional area for Element Category 2.1 shall not be less than 70%.

Developer shall maintain all flexible pavements that are not being reconstructed under the Mandatory Scope as shown on the Mandatory Scope Schematics such that the Asset Condition Score determined in accordance with this Section 19.1.2.1 shall be achieved from the Operating Commencement Date to Substantial Completion.

19.1.2.2 Performance Requirements of Temporary Ramps and Diversions

Temporary Work for the maintenance of traffic during Construction Work and/or Renewal Work are to be maintained in a safe, functional and fair condition meeting the requirements of TxDOT standards and Good Industry Practice.

19.1.2.3 Performance Requirements after Substantial Completion

After an Element has been constructed, re-constructed, or renewed or after the Service Commencement Date of each Facility Segment or part of a Facility Segment, Developer is to maintain the Elements in accordance with Table 19-1. In meeting the requirements of Section 19 of the Technical Provisions, where a Category 1 Defect is revealed by any inspection or is otherwise brought to the attention of Developer, Developer shall take immediate steps to alert Users to the hazard and shall categorize, correct, make safe and repair the Defect in accordance with Table 19-1.

For Category 1 Defects, Developer shall:

- Take necessary action such that the hazard to Users is mitigated within the period given in the column entitled "Cat 1 Hazard Mitigation" in Table 19-1.
- Permanently remedy the Defect within the period given in the column entitled "Cat 1 Permanent Remedy" in Table 19-1.

For Category 2 Defects, Developer shall undertake the permanent repair within the period specified in the column entitled "Cat 2 Permanent Repair" in Table 19-1.

Developer shall maintain all flexible pavements that are not being reconstructed under the Mandatory Scope as shown on the Mandatory Scope Schematics such that the Asset Condition Score determined in Section 19.1.2.1 shall be achieved throughout the Term.

19.1.3 TxDOT Obligation to Remedy and Repair

Until NTP2, TxDOT will reasonably perform the type of routine maintenance of each Element Category

which is normally included as an annually recurring cost in the TxDOT Highway maintenance and repair budgets including repairs required to restore asset condition following accidents and Incidents. TxDOT is not obligated to extend the Residual Life of any Element through reconstruction, rehabilitation, restoration, renewal, or replacement.

19.1.4 Transition of Maintenance

Developer shall coordinate with TxDOT to achieve a smooth transition of maintenance activities from TxDOT. Developer shall assume full responsibility for all maintenance activities on the Segment 3A Facility Segment on the Operating Commencement Date and from TxDOT Substantial Completion on Segment 3B Facility Segment as described in Section 8.3 of the FA.

19.2 Maintenance Management Plan (MMP)

Developer shall prepare a Maintenance Management Plan (MMP) that sets out how Developer will comply with the maintenance obligations described in Section 19.1 of the Technical Provisions and defines the process and procedures for the maintenance of the Facility for the Term of the FA. The MMP shall include performance requirements, measurement procedures, threshold values at which maintenance is required, inspection procedures and frequencies, and subsequent maintenance to address noted deficiencies, for each physical Element of the Project in accordance with Table 19-1, including impacts to Related Transportation Facilities. The MMP shall identify response times to mitigate hazards, permanently remedy, and permanently repair Defects. Response times shall be in accordance with Table 19-1, or lower. Developer shall differentiate response times for Defects that require prompt attention due to immediate or imminent damage or deterioration, excluding those items which have no impact on any parties other than Developer, and response times for other Defects. Developer shall update this plan as required, or at least annually. Developer shall submit the MMP to TxDOT for review and approval at least sixty (60) Days prior to the issuance of NTP2. Approval by TxDOT of the MMP shall be a condition of NTP2. Developer shall comply with all aspects of the approved MMP.

The MMP shall include procedures for managing records of inspection and maintenance activities, including appropriate measures for providing protected duplication of the records. Inspection and maintenance records shall be kept for the Term of the FA and shall be provided to TxDOT at the time the Project is delivered to TxDOT, at either expiration of the Term or earlier termination of the FA.

Developer shall use the results of the inspections described in its MMP and other relevant information to determine, on an annual basis, the Residual Life of each Element of the Facility. From this, Developer shall update the scope of the Renewal Work Schedule. Renewal Work shall be performed at the point in time necessary to establish a Useful Life for each Element that will avoid deterioration of any Element to

the extent that such deterioration would cause non-compliance with a Performance Requirement.

19.2.1 Additional Requirements

The MMP shall address, but shall not necessarily be limited to, the following:

a) Maintenance and service manual

b) Spare parts

c) Inventory control

d) Maintenance Management Information System (MMIS) functionality

e) Software maintenance

f) Special tools and equipment

g) Defect tracking and corrective action

h) Reliability and maintainability analysis

i) Vendors for equipment and maintenance services

j) Retaining wall monitoring

The Developer shall include in the MMP how the following specific obligations are implemented:

a) Preventative maintenance

Developer shall adhere to the minimum standards as determined by the equipment manufacturer's recommended maintenance schedule and operating procedures.

b) Maintenance and service manual

Developer shall prepare and update a maintenance and service manual in both printed and electronic file format (searchable PDF). The manual shall be comprehensive and shall include, but not be limited to, detailed technical maintenance and servicing descriptions for all major and safety critical components as well as equipment that is specialized to meet the needs of this Project. The manual shall include preventive maintenance schedules, testing and trouble-shooting techniques, corrective measures, both temporary and permanent, the location and availability of support services, point to point component wiring schematics and logic signal flows, assembly and disassembly drawings, including exploded view drawings.

Standard service manuals for unmodified commercial products are acceptable for inclusion in the MMP provided that they contain details and accurate information in order to properly service the specific equipment supplied under this FA. Large size diagrams and mechanical assembly diagrams need not be reduced or incorporated into the manual if these drawings are delivered with the manuals.

c) Spare Parts and inventory levels

Developer shall maintain a comprehensive, accurate, and auditable parts and spares inventory adequate to address the maintenance obligations. This information contained in the inventory shall be compatible with the Maintenance Management Information System (MMIS) as described in Section 19.5.3 of the Technical Provisions.

d) Maintenance records

Developer shall prepare quarterly, one-year and five-year maintenance Work plans for the Operating Period. The five-year maintenance Work plan is to be updated each year and include anticiapted and acutal renewal activities to take place within the five-year period. The one-year maintenance Work plans shall be updated every quarter and shall include a rolling 12-month maintenance Work plan.

As the maintenance Work plans are implemented, Developer shall manage records of inspection and maintenance activities as related to the maintenance Work plans in accordance with Section 19.2 and the FA Documents.

In respect of this requirement a maintenance Work plan means a detailed plan that identifies all maintenance activities that will be undertaken during a specified period, including a schedule of the associated road closures expected.

19.2.2 Standard of Remedy or Repair

The remedy or repair of any Element shall meet or exceed the standard identified in the column entitled "Target" in Table 19-1 and an O&M Record shall be created by Developer to verify that this requirement has been met.

19.2.3 Accident Reduction Program

Developer shall implement an accident monitoring and reduction program in accordance with FHWA requirements and Good Industry Practice.

19.2.4 Highway Conditions Report System

Developer shall report to TxDOT Highway and weather conditions every workday morning by 6:10 a.m. and update the information as needed to TxDOT and include this information on the Developer's web page at the time of being reported to TxDOT.

The following types of information are to be reported:

a) Highway conditions which close travel in one direction for more than four hours or create hazardous travel including construction or maintenance sites, roadway or right of way damage, major accidents or hazardous spills; and

b) Weather-related events which may cause unsafe driving conditions such as ice, sleet, snow, floods, high winds or hurricanes.

19.2.5 Renewal of Elements

The following conditions are considered Defects and Developer shall address these in accordance with the response times shown in Table 19-1:

a) The Asset Condition Score of an Element is below 3 as described in Table 19-4, except for asphalt and concrete pavement.

b) For asphalt and concrete pavement, other than existing pavement to remain in place at the locations specified in Section 1.1.1, rehabilitation must be initiated when any of the following occur:

1) The pavement condition rating on any one-mile continuous segment:
   - Falls below 75 for managed lanes, general purpose lanes and ramps
   - Falls below 65 for frontage roads

2) International Roughness Index (IRI) on any one-mile continuous segment is greater than:
   - 145 for managed lanes, general purpose lanes and ramps
   - 155 for frontage roads

c) The "reliability" is less than 99.9% for any safety critical Element. Such an Element is defined as one that, should it fail, the safe operation of any aspect of the Project would be in jeopardy or an immediate or imminent safety hazard would result.

d) The "reliability" is less than 90% for an Element other than a safety critical Element.

e) The Element ceases to function, or dies (as in the case of certain landscaping).

f) The frequency of repair is higher than that recommended in the manufacturer's preventive

maintenance schedule.

"Reliability" is calculated as the in-service time over a prescribed time period. For example, if an Element is out of service for 20 Days of 365 Days, its "reliability" is 94.5% (i.e. (365 – 20)/365 x 100%). Developer shall apply the reliability measurement over a moving 365 Days.

All renewed Elements shall meet all applicable code requirements and industry design standards at the time of completion of the Renewal Work for the particular Element.

19.2.6 Mitigation for Severe Weather Events

In addition to the obligations of Section 19.1.1 of the Technical Provisions to monitor and observe weather and weather forecasts and to proactively deploy resources accordingly for weather events, the Developer's MMP shall establish the means by which all the Project's trafficked roadway types, for example Managed Lanes, General Purpose Lanes and Frontage Roads, are to be managed to minimize delays and safety hazards in the event of any severe weather event.

19.3 Handback Requirements

Developer shall prepare a Handback Plan that contains the methodologies and activities to be undertaken or employed to meet the Handback Requirements. Developer shall submit the Handback Plan, including a Residual Life Methodology plan, to TxDOT for review and approval no later than the first day of the fifth full calendar year before the anticipated Termination Date.

Table 19-2, Residual Life Requirements, defines the number of years of required final Residual Life certain Elements must have at Handback. Table 19-2, Residual Life Requirements, is included as Attachment 19-2 of Book 2. Table 19-2 shall be populated throughout the contract term to define the final Residual Life of all applicable Elements if it is deemed certain Elements are not included. At Handback any Element of the Facility for which a "Required Final Residual Life" is not specified in Table 19-2, the required final Residual Life for the Element shall equal the documented serviceable life of the Element or five (5) years, whichever is less.

Developer shall perform an initial, an intermediate, and a final Residual Life Inspection that covers all physical Elements within the Facility as noted below. Within thirty (30) Days following performance of each Residual Life Inspection, Developer shall submit to TxDOT the findings of the inspection, Residual Life test results and Residual Life calculations, as more particularly described in Section 8.10.1.2 of the FA.

On the Termination Date, Developer shall certify in writing to TxDOT that all physical Elements of the

Facility other than those Elements for which Developer exercised its option pursuant to Section 8.10.1.2 of the FA meet or exceed their respective Residual Life requirements defined herein.

19.3.1 Residual Life Inspections

Developer shall perform Residual Life Inspections and testing with appropriate coverage such that the results are representative of the whole Facility as described in Table 19-2. TxDOT shall be given the opportunity to witness any of the inspections and/or tests and shall be given a minimum of ten (10) Business Days notice prior to the performance of any such tests. Developer shall deliver to TxDOT, within ten (10) Business Days after it is created, the output data arising from any testing and any interpretation thereof made by the testers.

19.3.1.1 Initial Residual Life Inspection

Between sixty-three (63) and sixty (60) months prior to the end of the Term, Developer shall perform an initial Residual Life Inspection including all Elements set forth in Table 19-2. Within thirty (30) Days following performance of the initial inspection, Developer shall submit the initial inspection report to TxDOT which will contain the findings of the inspection, including Residual Life test results, a report(s) by an independent testing organization(s), and Developer's calculation of Residual Life at Handback for each inspected Auditable Section.

19.3.1.2 Intermediate Inspection

Between twenty-one (21) and eighteen (18) months before the end of the Term, Developer shall perform an intermediate Residual Life Inspection including all Elements within the Facility, regardless of whether Developer has undertaken Renewal Work for a particular Element in the period since the initial inspections. Within thirty (30) Days following performance of the intermediate inspection, Developer shall submit the intermediate inspection report to TxDOT, which will contain the findings of the inspection.

19.3.1.3 Final Inspection

Between ninety (90) and thirty (30) Days before the end of the Term, Developer shall perform a final Residual Life Inspection including all Elements within the Facility, regardless of whether Developer has undertaken Renewal Work for a particular Element in the period since the initial and intermediate inspections. Within thirty (30) Days following performance of the final inspection, Developer shall submit the final inspection report to TxDOT, which will contain the findings of the inspection.

19.3.2 Renewal Work Schedule for Handback Requirements

The Renewal Work Schedule for each of the five (5) years before the end of the Term shall include, in addition to other requirements specified in the FA Documents:

- Developer's calculation of Residual Life for each Element calculated in accordance with the Residual Life Methodology and taking into account the results of the inspections set forth above.
- The estimated cost of the Renewal Work at the end of its Residual Life for each Element for which Developer exercised its option under Section 8.10.1 of the FA.

  Refer to Section 2.1.3 for additional information regarding Renewal Work Schedule.

19.4 Inspections

Developer shall cause trained and competent personnel to plan and implement a program of inspections of the Facility which:

- Verifies the continuing safety of the Facility for Users.
- Prioritizes Defects requiring immediate and urgent attention because they are likely to create a danger or serious inconvenience to Users (Category 1 Defects).
- Identifies Category 2 Defects to be included for repair either within Developer's annually recurring Highway maintenance and repair program or as Renewal Work.
- Is responsive to reports or complaints received from Customer Groups.
- Takes account of Incidents and Emergencies affecting the Facility.
- Monitors the effects of extreme weather conditions.
- Collates data to monitor performance of the Facility and to establish priorities for future maintenance operations and Renewal Work.

Developer shall ensure that personnel performing inspections of road pavements and structures are certified as inspectors and/or raters in accordance with the FA Documents.

19.4.1 Inspection Frequency

Developer shall establish an annual schedule for Inspections which will be appropriately spaced throughout the year. After periods of inclement weather or other events which may cause accelerated deterioration of the asset, safety hazards or other detrimental impacts to the Facility, Developer shall conduct comprehensive visual surveys which will identify all such areas of concern.

Developer shall establish inspection procedures and perform inspections so that:

- All Category 1 Defects are identified and remedied such that the hazard to Users is mitigated

within the period given in the column entitled "Category 1 Hazard Mitigation" in Table 19-1.

- All Category 1 Defects are identified and permanently remedied within the period given in the column entitled "Category 1 Permanent Remedy" in Table 19-1.
- All Category 2 Defects excluding those items which have no impact on any parties other than Developer are identified and permanently repaired within the period given in the column entitled "Category 2 Permanent Repair" in Table 19-1.

The periods stated in Table 19-1 under each of the above headings shall be deemed to start upon the date Developer first obtained knowledge of, or first reasonably should have known of, the Defect. For this purpose Developer shall be deemed to first obtain knowledge of the failure not later than the date of delivery of the initial notice to Developer. Developer shall investigate reports and complaints on the condition of the Facility received from all sources. Developer shall record these as O&M Records together with details of all relevant inspections and actions taken in respect of Defects, including temporary protective measures and repairs.

19.4.2 Inspection Standards

In performing inspections to identify Category 1 and Category 2 Defects, Developer shall, for any Element defined in the column entitled "Element" in Table 19-1, conform at a minimum to the inspection standards set forth for that Element in the column entitled "Inspection and Measurement Method" in Table 19-1.

19.4.3 General Inspections

Developer shall perform General Inspections in accordance with the MMP so that the repairs of all Defects are included in planned programs of work.

O&M Records in respect of General Inspections shall include details of the manner of inspection (e.g. center lane closure or shoulder), the weather conditions and any other unusual features of the inspection.

General Inspections shall be performed such that Category 2 Defects are identified and repaired within the period shown in Table 19-1 or, if the Defect is not specified in Table 19-1, within six (6) months of the Defect occurring; provided that Defects which require special equipment to identify or are listed under the heading of Specialist Inspections in Section 19.4.4 of the Technical Provisions may have different identification periods.

19.4.4 Specialist Inspections

Developer shall undertake Specialist Inspections for Elements listed in Table 19-3 below and shall include the inspection results as O&M Records.

Table 19-3 – Specialist Inspections

Element	Frequency
Roadway	Annual survey of pavement condition for the entire Facility, including mainlines, ramps, and Frontage Roads, undertaken using automated condition survey equipment to measure all necessary criteria including: ruts, skid resistance and ride quality according to the inspection and measurement methods set forth in Table 19-1.
Bridges	Inspections and load rating calculations at the frequency specified in the Technical Documents. In addition, NBIS inspections as per FHWA Laws and at the frequency specified in FHWA regulations.
Electrical supplies to lighting, signs, traffic signals and communications equipment	Inspections as required by FHWA or electrical Laws.
Toll equipment	Inspections as required by the equipment manufacturer.

19.4.5 Developer Audit Inspections

Developer shall undertake detailed inspections of randomly selected Auditable Sections for audit purposes (the "Developer's Audit Inspections") at least once quarterly following the initial inspection and evaluation of existing Elements and improvements described in Section 19.1.2.1. On each occasion that a Developer's Audit Inspection is undertaken, the inspection shall include at least five (5) percent of the total available Auditable Sections. Developer shall assess the condition of each Element of the Facility, as set forth in the column entitled “Element” in Table 19-1 using the inspection and measurement method set forth in the column entitled “Inspection and Measurement Method”. Developer’s Audit Inspections shall include physical inspection of those Elements that are safely accessible without traffic control. Where the measurement method would require specialist equipment or would require traffic lane closures to implement, Developer shall assess the condition of the relevant Element by reference to the current O&M Records held in Developer’s database.

Developer shall create a new O&M Record for each Element physically inspected in accordance with the column entitled “Measurement Record” in Table 19-1. Developer's Audit Inspections shall be undertaken on a schedule agreed to with the Independent Engineer on Auditable Sections randomly selected by the Independent Engineer. The Independent Engineer shall be given the opportunity with seven (7) Days notice, to accompany Developer when it undertakes the physical inspections associated with the Audit Inspection.

In taking over operations and maintenance of existing facilities Developer shall establish the Asset

Condition Score for the existing facilities by initiating 100% Audit Inspections of existing facilities within ninety (90) Days after Operating Commencement Date. TxDOT will make available any maintenance records in its possession that will assist in establishing the Asset Condition Score.

19.4.6 Asset Condition Score by Developer

Within ten (10) Days following each Developer's Audit Inspection, Developer shall assess its achievement of the Performance Requirements by self scoring against the Targets set forth in Table 19-1, the Performance and Measurement Table Baseline.

Developer shall report quarterly to TxDOT and the Independent Engineer an Asset Condition Score to include, for each Element Category, all of the Auditable Sections inspected in the most recent Developer's Audit Inspection. Developer shall assess the Asset Condition Score according to the measurement criteria set forth in Table 19-4 below.

Table 19-4 Asset Condition Score Criteria for Element Categories

(Reported quarterly for each Element Category for all inspected Auditable Sections)

Score	Criteria
5	• Targets for individual Elements are almost entirely met (95% to 100% compliance with the relevant Targets for each Element within each Auditable Section), and • Is fully functional and in nearly new condition, meeting or exceeding Performance Requirements.
4	• Targets for individual Elements are substantially met (less than 95% compliance and 90% or greater compliance with the relevant Targets for each Element within each Auditable Section), and • Is functional and in good condition, meeting Performance Requirements.
3	• Targets for individual Elements are mostly met (less than 90% compliance and 75% or greater compliance with the relevant Targets for each Element within each Auditable Section), and • Is in fair condition, but suggesting need for early replacement, renewal or repair of individual Element and/or maintenance or operation improvement action to meet Performance Requirements.
2	• Targets for individual Elements are barely met (less than 75% compliance and 50% or greater compliance with the relevant Targets for each Element within each Auditable Section), or • In poor condition demonstrating need for immediate replacement, renewal or repair of individual Element and/or immediate change to Facility Management Plan.
1	• Targets for individual Elements are not met ((less than 50% compliance with the

Score	Criteria
	relevant Targets for each Element within each Auditable Section), or • In very poor condition demonstrating need for immediate replacement, renewal or repair of individual Element and/or immediate change to Facility Management Plan.

Notes:

1. The Asset Condition Score for any Element Category shall be determined by the lowest Asset Condition Score for any Element within the Element Category. The calculation of Asset Condition Score is demonstrated by the following example:

   Assume there are 520 Auditable Sections, of these 5%, or 26 are audited each quarter. There are five Targets to be assessed for Element "pavement markings". There are therefore, 5 x 26 = 130 measurement records for pavement markings. If 125 of these measurement records meet the Target, there would be 96% compliance and an Asset Condition Score of five assigned to the Element. However, if one of the remaining Elements in the Element Category achieves an Asset Condition Score of four the Asset Condition Score for the Element Category will be four.
2. The mean of the Asset Condition Scores across Elements in any Element Category is calculated to 1 decimal point and also recorded.
3. Where a measurement record relates to a service measured over time or an Element that is not represented in more than 25% of Auditable Sections then the Asset Condition Score will be based on the total service and not a 5% random sample. This applies to the performance measurement of Element Categories as follows, or other Element Catagories meeting the above criteria identified following establishment of Auditable Sections:
   - 3-Structures
   - 7-Traffic Signals
   - 13-ITS and ETCS Equipment
   - 14-Tolling Facilities and Buildings (Not Used)
   - 16-Snow and Ice Control
   - 17-Incident Response
   - 18-Customer Response

   Pavement Condition Score is a component of Asset Condition Score for Element Category "Pavement", but Pavement Condition Score shall also be reported annually for the entire Facility.
4. Developer acknowledges that Asset Condition Score is a mechanism to benchmark the performance of the Facility against the performance of other similar facilities and that TxDOT may, during the Term, alter the Asset Condition Score criteria to reflect Good Industry Practice.

5. "Mean" in this context shall be the arithmetic mean.

Each Asset Condition Score of less than three or mean Asset Condition Score across Elements of less than 3.5 (for any Element Category) is deemed a noncompliance (see Exhibit 18 of the FA).

19.5 Highway Location and Data Requirements

19.5.1 Texas Reference Marker System (TRMS)

Developer shall implement the *Texas Reference Marker System*.

19.5.2 Establishment of Auditable Sections

The entire Facility and all Work shall be subject to Auditable Sections. Developer shall establish Auditable Sections referenced to the *Texas Reference Marker System*. Developer shall establish and prepare plans identifying the Auditable Sections. The plans shall identify the boundaries of each Auditable Section and shall cross reference to an inventory describing each Element of the Facility contained within each Auditable Section. Developer shall submit these plans no later than thirty (30) days prior to commencement of initial inspections. Initial inspections shall take place by the Operating Commencement Date.

19.5.3 Maintenance Management Information System (MMIS)

Developer shall implement a computer based MMIS to record inventory, failures, repairs, maintenance activities and inspections performed. Developer shall enter all of the physical Elements into the MMIS with Element identifications (IDs) consistent with those descriptions and units of measure used by TxDOT. All information shall be recorded in a consistent manner and shall be searchable by individual attribute.

Developer shall include relevant physical Element information in the MMIS including but not limited to, location, equipment nomenclature, serial number, name, date of installation, technician ID, type of failure, date-time of failure, date-time of response to the site and date-time time returned to service, preventive maintenance work, scheduled work, work repair code, failure and repair history, and statistical data on mean time between failure and mean time to repair. The MMIS shall be configured to report work by TxDOT function code, physical Element, reference marker, crew and unit of measurement.

In the MMIS, the information for bridges shall include National Bridge Inventory (NBI) sheets. The MMIS shall be fully populated and operational prior to each Operating Commencement Date and kept updated and operational for the duration of the FA.

The MMIS shall be capable of reporting system performance on a geographical basis to demonstrate

compliance with operational and maintenance requirements. The MMIS shall incorporate a Geographical Information System (GIS), which shall use the same database engine as the MMIS and shall use the MMIS for display of physical Element information. All physical Elements shall be recorded on the MMIS. The physical Element locations are to be accurate to within one foot in 100 feet. The information displayed geographically shall include pavement condition measurements, maintenance limits, average daily traffic and truck counts, Work performed by roadway segment, type of work, crew/contractor, etc., and any other information relevant to the construction, operation, maintenance and renewal of the Facility. When a physical Element is constructed, installed, maintained, inspected, modified, replaced or removed, the MMIS shall be updated within three (3) days of completion of such Work. Defects shall be recorded on the MMIS within three (3) days of them coming to the attention of Developer. All other recording requirements shall be recorded on the MMIS within fifteen (15) days of completion or occurrence of the relevant activity.

Developer shall fully populate and make operational the MMIS prior to the Operating Commencement Date for each Facility Segment and shall keep the MMIS updated and operational for the duration of the Facility Agreement. Developer shall provide equipment, facilities and training necessary to permit remote, real-time, dedicated high-speed access to the MMIS, via one terminal each, for TxDOT and the Independent Engineer. Developer shall handover the fully populated MMIS and everything required for its operation to TxDOT, or other entity as directed by TxDOT, upon expiration or earlier termination of the FA and Lease.

20 BICYCLE AND PEDESTRIAN FACILITIES

20.1 General Requirements

No additional requirements.

20.2 Design Requirements

20.2.1 Bicycle Facilities

Supplement Section 20.2.1 of Book 3 with the following:

Developer shall accommodate existing on-street bicycle facilities and proposed bicycle routes identified in the *NCTCOG Metropolitan Transportation Plan Regional Veloweb Trail System* and shall accommodate bicycle facilities a minimum of 12' wide across IH35W on the north side of the Cottonbelt Fort Worth Connector.

20.2.2 Pedestrian Facilities

Supplement Section 20.2.2 of Book 3 with the following:

The development of the Mandatory Scope shall provide pedestrian facilities that meet or exceed the requirements identified in Section 11 of the Technical Provisions to accommodate the existing and proposed pedestrian facilities including, but not limited to, existing and proposed pedestrian facilities identified in the *NCTCOG Metropolitan Transportation Plan Regional Veloweb Trail System*. Developer's design shall accommodate pedestrian facilities at all crossing streets. Additional requirements are as follows:

- Developer shall provide a pedestrian bridge crossing the Facility at a location in the vicinity of station 947+00 on US287. The east landing of this pedestrian bridge will be located within Harmon Field Park, a 4(f) property, as shown on the Approved NEPA Schematics.

20.2.3 Final Design

No additional requirements.

21 TOLLING

21.1 General Requirements

Replace Section 21.1 of Book 3 with the following:

In the FMP, Developer shall set forth an approach, procedures, and methods for an Open Road Toll (ORT) Electronic Toll Collection System (ETCS).

Developer shall include the ETCS design in the Final Design Documents and shall submit it in accordance with the FMP and FA Documents. Developer shall demonstrate that its ETCS design is capable of accommodating the Ultimate Configuration without substantial teardown.

Developer shall design, develop, test, integrate, deploy, operate, and maintain the ETCS to properly transmit to NTTA a record of the tolls due from all Users in accordance with the toll rate policy and methodology set forth in the FA of which all records are subject to an audit. Developer shall provide data to, and receive data from, NTTA by means of the ETCS so as to enable Developer to maximize collection of all toll payments from Users in a timely, accurate, and efficient manner.

21.2 Design Requirements

Replace Section 21.2 of Book 3 with the following:

Developer shall prepare the ETCS design in accordance with the requirements of this Section 21 of the Technical Provisions and all applicable TxDOT standards. Developer shall specially identify, within the FMP, proposed Deviations from the requirements of this Section 21 of the Technical Provisions and such TxDOT standards.

21.3 ETCS Design and Operational Criteria

21.3.1 ETCS Infrastructure Requirements

21.3.1.1 Mainline Tolling

Replace Section 21.3.1.1 of Book 3 with the following:

Subject to the provisions of Exhibit 4 of the FA, mainline tolling shall be located such that all User vehicles using the Managed Lanes are assessed a toll. Pending Developer's design, tolling and ramp tolling shall incorporate declaration zones to determine whether vehicles are classified as HOV meeting the requirements of Exhibit 4 of the FA.

21.3.1.2Ramp Tolling

No additional requirements.

21.3.1.3Utility and Personnel Access-way.

No additional requirements.

Incorporate Section 21.3.1.4 as follows:

21.3.1.4Declaration of High Occupancy Vehicles

Developer shall implement a system that identifies vehicles using the Managed Lanes as High Occupancy Vehicles for applicable toll discounts as specified by the terms of the FA. Until technological advances provide sufficient accuracy and reliability, Developer shall design, construct and operate all necessary declaration area locations and enforcement area locations and adopt appropriate declaration methods. In doing so, Developer shall consider locations for such facilities that are within the Facility limits as well as areas that are off-site.

Developer shall coordinate and cooperate with TxDOT and the Law enforcement agencies for the validation of the HOV discount.

21.3.2 ETCS Functional Requirements

21.3.2.1General

Replace Section 21.3.2.1 of Book 3 with the fifth paragraph of the Interface Control Document (ICD) of the NTTA TSA and supplemented with the following:

The ETCS shall be interoperable with all transponders issued by tolling authorities sanctioned by the Texas Department of Transportation. The different types of transponders currently in use in Texas are shown in Table 21-3. Developer shall provide and integrate the transponder readers and antennas that are compatible with the ATA protocol compatible transponders.

Table 21-3: Transponder Models

TransCore Model Number	Power	Internal/External	Mounting Surface	Agency
AT5544	Battery	Either (sealed case)	Non-metallic	HCTRA/TxDOT
AT5545	Battery	Either (sealed case)	Metallic	HCTRA
AT5547	Battery	Internal	Non-metallic	HCTRA

13-5547-600	Battery	Internal	Non-metallic	TxDOT
AT5140	Battery	External (bumper)	Metallic or non-metallic	HCTRA
13-0700-900	Beam	External (bumper)	Metallic or non-metallic	HCTRA
AT5100	Beam	Internal	Non-metallic	NTTA
AT5145	Beam	External (bumper)	Metallic or non-metallic	NTTA/TxDOT
13-5145-01	Battery	External (bumper)	Non-metallic	TxDOT
13-0700-120	Beam	Internal	Non-metallic	HCTRA/NTTA/TxDOT

21.3.2.2 User Classification Sub-system (UCS)

No additional requirements.

21.3.2.3 Video Exception Sub-system (VES)

No additional requirements.

Incorporate Section 21.3.3 as follows

21.3.3 Supplemental Lighting

Any supplemental lighting that Developer chooses to install shall be deployed within the Facility ROW and shall not cause light pollution at Tolling Zones that are in close proximity to residential neighborhoods.

Image capture system lighting design shall avoid blinding or otherwise impairing the vision of motorists. The image capture system lighting design shall not impair the vision of motorists in adjacent lanes and roads as well as traffic traveling in the opposite direction, where applicable.

21.4 Advance Toll Information Signs

Replace Section 21.4 of Book 3 with the following:

Developer shall design, install, operate, and maintain advance toll information signs in accordance with TxDOT standards for both Segment 3A Facility Segment and Segment 3B Facility Segment.

No later than twelve (12) months before the start of construction of the toll collection system, Developer shall submit to TxDOT for review a layout of the Facility, including for Segment 3B Facility Segment,

identifying the proposed locations and details (including proposed wording) of all advance toll information signs. The advance toll information signs shall be coordinated with other Facility signs. Signs shall be located to provide maximum visibility to Users and situated:

- At all RTF locations providing User access to the Facility Managed Lanes
- Prior to all entrance ramps to the Facility Managed Lanes

Developer shall consult with TxDOT and shall incorporate the current TxDOT logo or logos that Developer shall integrate into the design and fabrication of guide and trailblazer signs.

21.5 ETCS Performance Requirements

No additional requirements.

22 OPERATIONS

22.1 General Requirements

Replace Section 22.1 with the following:

The responsibility of Developer for operations Work will begin as noted in Section 8.3 of the FA and continue for the Term. Developer shall institute an effective operations management system to monitor the condition of the Facility and each Element within the Facility and institute an effective maintenance program to comply with the performance measures established in the Maintenance Management Plan as described in Section 19.2 of the Technical Provisions.

22.2 General Operations Obligations

Replace the second paragraph of Section 22.2 of Book 3 with the following:

Developer shall submit the Operations Management Plan (OMP) for operations during the DB Phase to TxDOT for approval at least sixty (60) Days prior to NTP2; approval of the plan by TxDOT shall be a condition of NTP2. The OMP for the DB Phase shall be developed by Developer to a level of detail appropriate for the operations to be performed during the DB Phase.

The OMP shall be updated by Developer as necessary to include the operations to be performed after Service Commencement including addressing any requirements when only part of the Facility has opened for traffic. The updated OMP shall be submitted to TxDOT at least sixty (60) Days prior to Service Commencement; approval of the plan by TxDOT shall be a condition of Service Commencement.

Between NTP1 and the Operating Commencement Date, Developer will coordinate with TxDOT to ensure a smooth transition of operation responsibilities from TxDOT to Developer, which will be effective as noted in Section 8.3 of the FA.

Replace the first bullet of the third paragraph of Section 22.2 of Book 3 with the following:

- Incident Reports: For each Incident, the Report shall identify the nature of the Incident, time, date, location, parties involved, and actions taken. Developer shall include details for any traffic control in place at the time of the Incident. For Incidents involving deaths, a report shall be submitted to TxDOT within twenty-four (24) hours of the Incident.

22.3 Operation of the Project

No additional requirements.

22.3.1 Corridor Management

No additional requirements.

22.3.2 Condition Preservation

No additional requirements.

22.3.3 Patrols

No additional requirements.

22.3.4 ITS Operations

No additional requirements.

22.3.5 Traffic Control and Incident Management

Supplement Section 22.3.5 of Book 3 with the following:

In the event of an Incident, Developer shall commence the implementation of safety procedures (including road signing, information for Users, information for Law enforcement agencies) as soon as practicable.

Developer shall not reopen any area of the Facility which has been closed, until all appropriate safety and traffic management measures have been completed.

As a part of Developer's Operations Management Plan (OMP), a comprehensive Incident Management Plan (IMP) shall be developed by and documented by Developer to ensure that Developer has considered, planned, addressed, and trained for all likely natural and man-made events or situations that are Incidents or Emergencies, and has established protocols, procedures, and guidelines to mitigate the impacts, and respond to and recover from all such events. In the IMP, Developer shall clearly distinguish between events or situations considered as either Incidents or Emergencies. Developer shall prepare the IMP and its subcomponents in coordination with and input from the Participating Agencies that are responsible for resolving Emergency events. Developer shall submit the IMP as a part of the Project's OMP Submittal and shall include in the IMP the following items:

a) Procedures to identify Incidents and notify Emergency Services providers and establish traffic control for Incident management activities in a timely manner;

b) Procedures for removal of stalled, broken down, wrecked or otherwise incapacitated vehicles from the travel lane, including coordination with Emergency Services/Law enforcement;

c) Procedures to provide a maximum response time of fifteen (15) minutes by Developer and all measures to be instituted by Developer to clear the Incident and return lane availability within fifteen (15) minutes of arriving at the Incident site;

d) Procedures for cleanup of debris, oil, broken glass, etc. and other such objects foreign to the roadway surface;

e) Procedures to communicate IMP information to Developer's public information personnel and notify the public of traffic issues related to Incidents in keeping with the requirements of Section 3 of the Technical Provisions; and

f) Descriptions of contact methods, personnel available, and response times for any Emergency condition requiring attention during off-hours.

The IMP shall be submitted by Developer to TxDOT for approval as a condition of NTP2.

Developer shall cause a trained member of staff to be available twenty-four (24) hours a Day, seven (7) Days a week to coordinate Developer's response to any Incident or Emergency. Developer shall assist Participating Agencies providing Emergency Services to minimize danger, disruption or delay to the public and pollution of watercourses or groundwater.

Developer shall attend to Incidents with trained personnel, equipped to perform the functions required in Section 22 of the Technical Provisions, in accordance with the obligations stated in the Performance and Measurement Table Baseline (See Table 19.1).

Developer shall provide services for automobile towing of Users' light and heavy vehicles at the Users' expense.

Where an Incident or Emergency has an effect on the operation of the Project, Developer shall clear obstructions and repair damage to the Project, in accordance with the IMP, under the supervision of the relevant Participating Agencies if necessary, such that the Project is returned to normal operating standards and safe conditions as quickly as possible. Where liquid or soluble material spills are involved, Developer shall take all necessary measures to minimize pollution of watercourses or groundwater. Where structural damage to Highway structures is suspected, Developer shall cause that a suitably qualified bridge engineer or specialist inspector is available to evaluate the structure and to advise on temporary repairs and shoring needed to provide safe clearance of the Incident or Emergency. Where such an Incident or Emergency involves a personal injury, Developer shall not remove any vehicle or other item that may assist a potential investigation by a Participating Agency until authorized to do so by such agency or agencies.

Developer shall appoint a traffic safety officer and one or more deputies to make all arrangements necessary for safety and traffic control including the provision and operation of recovery vehicles for breakdowns. Developer shall cause the traffic safety officer or one of his/her deputies to be on site at all times when safety and traffic management measures are proceeding and to be readily available at all times to deal with matters related to safety and traffic control. Developer shall perform traffic control and incident management of the Managed Lanes and General Purpose Lanes in an identical manner.

22.3.6 Policing

No additional requirements.