Texas Department of Transportation

Technical Provisions

DFW Connector Project

BOOK 2

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1 GENERAL

1.1 Project Improvements

The specific improvements to be completed by the Developer include design and construction of the following facilities:

CONFIGURATION 1

1. **One Directional Interchange** within the general footprint of existing interchanges: The improvements will have complex geometry and a connection to a collector distributor roadway. The proposed three leg interchange at SH 121 and SH 114 west of Main Street includes direct connectors (fly-over ramps) on the western portion of the Project to serve traffic heading northbound on SH 121 to westbound on SH 114 and eastbound SH 114 to southbound on SH 121; currently, this traffic must use William D. Tate Avenue.

2. **Highway Merge/Diverge Areas** associated with SH 114 and SH 121 west of Main Street and SH 114 east of Texan Trail and SH 121 south of DART (Cottonbelt) Rail Line.

3. **Arterial Flyover Connections** to two arterials: Two connections with SH 26 southwest of SH 114, and an existing flyover connection to William D. Tate Avenue that will remain.

4. **One partial Collector-Distributor (CD)** along southbound SH 121 in the area between SH 114 and IH 635.

5. **Toll Managed Lanes** on SH 114. Two to three toll managed lanes westbound extending from east of FM 1709 to approximately 3500' east of Texan Trail and two toll managed lanes eastbound extending from FM 1709 to Texan Trail (pavement markings will provide for one operational managed lane in each direction with two lanes each direction provided at the toll gantries to be located between Main Street and Texan Trail). One toll managed lane in the westbound direction will be provided in the existing median from a location approximately 3500' east of Texan Trail extending to a termini located approximately 1500' east of International Parkway. One toll managed lane in the eastbound direction will be provided in the existing median from a location near Texan Trail extending to a termini located approximately 1000' west of Freeport Parkway.

   The westbound managed lane facility will begin approximately 1500' east of International Parkway and extend to a location east of FM 1709. The eastbound managed lane facility will begin at a location east of FM 1709 and extend to a location approximately 1000' west of Freeport Parkway. The managed lanes will be separated from the general-purpose main lanes by concrete barriers, with access available only at the west and east ends of the Project. These lanes will adjust to changing traffic conditions by complying with the managed lane policies of the Regional Transportation Council prepared by the North Central Texas Council of Governments. The managed lane facility segment west of Texan Trail will allow for sorting of traffic through the toll gantries. In addition, shoulders are provided in this area for monitoring and enforcement.

In performing the improvements to Configuration 1, Developer shall be responsible for design and construction of all areas included within the scope of Configuration 1. The Developer shall be responsible for performing utility design and relocation for all utilities required to construct Configuration 1. The Developer shall acquire all ROW required to construct Configuration 1 and ROW for Configuration 3 west of Texan Trail with the exception of DFW-Airport parcels.

CONFIGURATION 2

1. **Two Directional Interchanges** within the general footprint of existing interchanges: a four-level interchange at SH 114/International Parkway and a three leg interchange at SH 121 and SH 114 west of Main Street. The improvements will have complex geometry and connections to collector distributor roadways. The proposed interchange at SH 121 and SH 114 west of Main Street includes direct connectors (fly-over ramps) on the western portion of the Project to serve traffic heading northbound on SH 121 to westbound on SH 114 and eastbound SH 114 to southbound on SH 121; currently, this traffic must use William D. Tate Avenue.

2. **Highway Merge/Diverge Area**s associated with SH 114 and SH 121 west of Main Street, SH 114 east of International Parkway, and SH 121 north of the DART (Cottonbelt) Rail Line.

3. **Arterial Flyover Connections** to two arterials: two connetcions with SH 26 southwest of SH 114, and an existing flyover connection to William D. Tate Avenue that will remain.

4. **One Set of Collector-Distributors (CDs)** along northbound and southbound SH 121 in the area between SH 114 and IH 635.

5. **Toll Managed Lanes,** two lanes in each direction on SH 114 extending from east of FM 1709 to east of International Parkway. The managed lanes will be separated from the general-purpose main lanes by concrete barriers, with access available only at the west and east ends of the Project. These lanes will adjust to changing traffic conditions by complying with the managed lane policies of the Regional Transportation Council prepared by the North Central Texas Council of Governments. The managed lane facility includes an additional lane in each direction for approximately one-half mile just west of International Parkway to allow for sorting of traffic through a toll gantry located east of Texan Trail. In addition, shoulders are provided in this area for monitoring and enforcement. There will also be a tolled southbound entrance ramp into the DFW Airport.

6. **Toll Ramp**, one lane tolled southbound entrance ramp into the DFW Airport.

In performing the improvements to Configuration 2, Developer shall be responsible for design and construction of all areas included within the scope of Configuration 2. The Developer shall be responsible for performing utility design and relocation for all utilities required to construct Configuration 2. The Developer shall acquire all ROW required to construct Configuration 2 and ROW for Configuration 3 west of Texan Trail with the exception of DFW-Airport parcels.

CONFIGURATION 3

1. **Three Directional Interchanges** within the general footprint of existing interchanges: a three-level interchange at SH 121/IH 635, a four-level interchange at SH 114/International Parkway, and a three leg interchange at SH 121 and SH 114 west of Main Street. The improvements will have complex geometry and connections to collector distributor roadways. The proposed interchange at SH 121 and SH 114 west of Main Street includes direct connectors (fly-over ramps) on the western portion of the Project to serve traffic heading northbound on SH 121 to westbound on SH 114 and eastbound SH 114 to southbound on SH 121; currently, this traffic must use William D. Tate Avenue.

2. **Highway Merge/Diverge Areas** associated with FM 2499 and SH 121, SH 360 and SH 121, and SH 114 and SH 121 west of Main Street.

3. **Arterial Flyover Connections** to four arterials: at FM 1709, two connections with SH 26 southwest of SH 114, SH 26 north of IH 635, and a flyover connection to William D. Tate Avenue.

4. **Two Sets of Collector-Distributors (CDs)** along northbound and southbound SH 121 in the area between SH 360 and SH 114 in the southwest portion of the Project limits and along northbound and southbound SH 121 between SH 114 and FM 2499 on the northeast portion of the Project.

5. **Toll Managed Lanes,** two lanes in each direction on SH 114 extending from east of FM 1709 to east of International Parkway. The managed lanes will be separated from the general-purpose main lanes by concrete barriers, with access available only at the west and east ends of the Project. These lanes will adjust to changing traffic conditions by complying with the managed lane policies of the Regional Transportation Council prepared by the North Central Texas Council of Governments. The managed lane facility includes an additional lane in each direction for approximately one-half mile just west of International Parkway to allow for sorting of traffic through a toll gantry located east of Texan Trail. In addition, shoulders are provided in this area for monitoring and enforcement.

6. **Toll Ramp,** one lane tolled southbound entrance ramp into the DFW Airport.

In performing the improvements to Configuration 3, Developer shall be responsible for design and construction of all areas included within the scope of Configuration 3. The Developer shall be responsible for performing utility design and relocation for all utilities required to construct Configuration 3. The Developer shall acquire all ROW required to construct Configuration 3 with the exception of DFW-Airport parcels.

1.2 Limits of Construction and Lanes

The proposed limits of construction and travel lanes to be constructed are as follows:

CONFIGURATION 1

DFW Connector—from SH 121/SH 114 Merge (near William D. Tate Avenue) to SH 114/SH 121 Interchange with International Parkway:

Between Main Street and Texan Trail:

- 6 eastbound and 7 westbound general purpose lanes, with auxiliary lane (pavement markings will provide for 4 operational eastbound general purpose lanes).

- 2 managed lanes in each direction (4 total) (pavement markings will provide for 1 operational managed lane in each direction with 2 operational managed lanes in each direction at the location of the toll gantries and enforcement area).

- 3 to 4 frontage road lanes in each direction The westbound frontage road improvements are not continuous and transitions with the existing westbound frontage road occur at locations approximately 800’ east of Main Street and 1500’ west of Texan Trail (the existing frontage road will be utilized between these locations).

Between Texan Trail to approximately 3500’ east of Texan Trail

- 7 to 8 westbound general purpose lanes (pavement markings will provide for 7 operational westbound general purpose lanes)

- 4 eastbound general purpose lanes (from Texan Trail to approximately 1500’ east of Texan Trail).

- 2 to 3 managed lanes in the westbound direction (pavement markings will provide for 1 operational managed lane in the westbound direction).

- 1 managed lane in the eastbopund direction.

Between 3500' east of Texan Trail to International Parkway:

- 3 westbound general purpose lanes along SH 114
- 4 southbound general purpose lanes (with auxiliary lane) along SH 121 (pavement markings will provide for 4 operational southbound general purpose lanes.
- 1 managed lane in the median in the eastbound and westbound direction (2 total)

SH 114—from **east of** North Kimball Avenue to SH 121/SH 114 Merge (near William D. Tate Avenue):

North of SH 26:

- 4 to 6 main lanes in each direction (pavement markings to provide 3 to 5 operational main lanes in each direction).
- 2 to 5 frontage road lanes in each direction

At William D. Tate Avenue:

- 3 main lanes in each direction
- 2 managed lanes in each direction (pavement markings to provide 1 operational managed lane in each direction).
- 2 to 3 frontage road lanes in each direction

From SH 114/SH 121/International Parkway Interchange to the east:

- 1 westbound managed lane extending from International Parkway to approximately 1500' east.
- 1 eastbound managed lane extending from International Parkway to approximately 1000' west of Freeport Parkway.

SH 121—from south of Mustang to SH 121/SH 114 Merge (near William D. Tate Avenue):

South of Mustang Drive:

- 1 additional main lane northbound in the existing median extending to approximately 3000' south of Mustang Drive
- 1 additional main lane southbound in the existing median extending to approximately 2000' south of Mustang Drive.

North of Mustang Drive:

- 3 main lanes in each direction with auxiliary lanes
- 2 to 3 northbound frontage road lanes

SH 121—from SH 114/SH 121 Interchange with International Parkway to Dallas County Line:

Between SH 114 and DART (Cottonbelt) Rail Line:

- 4 southbound main lanes

- 3 to 6 southbound collector-distributor lanes (pavement markings will provide for 3 operational southbound collector-distributor lanes.

SH 26 (Ira E. Woods Avenue)—from East of South Kimball Avenue to East of Baylor Parkway (East of SH 114):

2 main lanes in each direction

FM 1709/BU 114L – from Nolen Drive to South Park Boulevard:

- 2 to 3 main lanes in each direction

CONFIGURATION 2

DFW Connector—from SH 121/SH 114 Merge (near William D. Tate Avenue) to SH 114/SH 121 Interchange with International Parkway:

Between Main Street and Texan Trail:

- 6 eastbound and 7 westbound general purpose lanes, with auxiliary lane
- 2 managed lanes in each direction (4 total)
- 3 to 4 frontage road lanes in each direction The westbound frontage road improvements are not continuous and transitions with the existing westbound frontage road occur at locations approximately 800' east of Main Street and 1500' west of Texan Trail (the existing frontage road will be utilized between these locations).

At Toll Gantry:

- 6 eastbound and 8 westbound general purpose lanes
- 3 managed lanes in each direction (6 total)
- 4 westbound frontage road lanes
- 2 eastbound ramp lanes to eastbound SH 114

SH 114—from **east of** North Kimball Avenue to SH 121/SH 114 Merge (near William D. Tate Avenue):

North of SH 26:

- 4 to 6 main lanes in each direction
- 2 to 5 frontage road lanes in each direction

At William D. Tate Avenue:

- 3 main lanes in each direction
- 2 managed lanes in each direction
- 2 to 3 frontage road lanes in each direction

From SH 114/SH 121/International Parkway Interchange to the east:

- 3 main lanes eastbound with auxiliary lanes and 4 main lanes westbound transitioning to existing 5 eastbound main lanes and existing 5 westbound mainlanes

SH 121—from South of Mustang to SH 121/SH 114 Merge (near William D. Tate Avenue):

South of Mustang Drive:

- 1 additional main lane northbound in the existing median extending to approximately 3000' south of Mustang Drive
- 1 additional main lane southbound in the existing median extending to approximately 2000' south of Mustang Drive.

North of Mustang Drive:

- 3 main lanes in each direction with auxiliary lanes
- 2 to 3 northbound frontage road lanes

SH 121—from SH 114/SH 121 Interchange with International Parkway to Dallas County Line:

Between SH 114 and IH 635:

- 3 to 7 northbound and 3 to 5 southbound main lanes (pavement markings will provide for 2 to 4 operational northbound main lanes).
- 2 to 3 northbound lanes and 4 to 6 southbound collector-distributor lanes (pavement markings will provide for 2 to 4 operational southbound collector-distributor lanes).
- 3 southbound frontage road lanes

Between IH 635 and Dallas County Line:

- 1 main lane northbound and 1 main lane southbound additional in the existing median.

SH 26 (Ira E. Woods Avenue)—from East of South Kimball Avenue to East of Baylor Parkway (East of SH 114):

2 main lanes in each direction

FM 1709/BU 114L – from Nolen Drive to South Park Boulevard:

- 2 to 3 main lanes in each direction

International Parkway—from south of North Airfield Drive to SH 114:

- 4 to 6 northbound and 4 to 6 southbound main lanes
- 2 to 3 frontage road lanes in each direction (discontinuous)
- 1 lane toll ramp on the southbound entrance

CONFIGURATION 3

DFW Connector—from SH 121/SH 114 Merge (near William D. Tate Avenue) to SH 114/SH 121 Interchange with International Parkway:

Between Main Street and Texan Trail:

- 6 eastbound and 7 westbound general purpose lanes, with auxiliary lane
- 2 managed lanes in each direction (4 total)
- 3 to 4 frontage road lanes in each direction

At Toll Gantry:

- 6 eastbound and 8 westbound general purpose lanes
- 3 managed lanes in each direction (6 total)
- 4 westbound frontage road lanes
- 2 eastbound ramp lanes to eastbound SH 114

SH 114—from **east of** North Kimball Avenue to SH 121/SH 114 Merge (near William D. Tate Avenue):

North of SH 26:

- 4 to 6 main lanes in each direction
- 2 to 5 frontage road lanes in each direction

At William D. Tate Avenue:

- 3 main lanes in each direction
- 2 managed lanes in each direction
- 2 to 3 frontage road lanes in each direction

From SH 114/SH 121/International Parkway Interchange to the east:

- 3 main lanes eastbound with auxiliary lanes and 4 main lanes westbound transitioning to existing 5 eastbound main lanes and existing 5 westbound mainlanes

SH 121—from Hall Johnson Road to SH 121/SH 114 Merge (near William D. Tate Avenue)::

- 3 main lanes in each direction with auxiliary lanes
- 4 northbound and 3 southbound collector-distributor lanes to/from SH 360
- 2 to 3 northbound lanes and 3 southbound frontage road lanes

SH 121—from SH 114/SH 121 Interchange with International Parkway to Dallas County Line:

Between SH 114 and IH 635:

- 3 to 7 northbound and 3 to 5 southbound main lanes

- 2 to 3 northbound lanes and 4 to 6 southbound collector-distributor lanes
- 3 southbound frontage road lanes

Between IH 635 and Dallas County Line:

- 4 to 5 northbound and 5 southbound main lanes with auxiliary lanes
- 2 to 4 northbound lanes and 2 to 3 southbound collector-distributor lanes
- 3 to 4 northbound and 2 to 3 southbound (discontinuous) frontage road lanes

SH 26 (Ira E. Woods Avenue)—from East of South Kimball Avenue to East of Baylor Parkway (East of SH 114):

- 2 main lanes in each direction

SH 360—from South of Stone Myers Parkway to SH 121:

- 2 to 3 main lanes in each direction

FM 1709/BU 114L – from Nolen Drive to South Park Boulevard:

- 2 to 3 main lanes in each direction

International Parkway—from south of North Airfield Drive to SH 114:

- 4 to 6 northbound and 4 to 6 southbound main lanes
- 2 to 3 frontage road lanes in each direction (discontinuous)
- 1 lane toll ramp on the southbound entrance

IH 635—from SH 114 to West of Royal Lane:

- 5 to 6 main lanes in each direction

FM 2499—from North of Denton Creek to SH 121:

- 2 main lanes in each direction
- 2 to 3 frontage road lanes in each direction

1.3 General Construction Requirements

Developer shall perform design and construct the Project in compliance with requirements in TxDOT's *Standard Specifications for Construction and Maintenance of Highways, Streets and Bridges*.

1.4 Transition at SH 114

For Configurations 2 and 3, the proposed improvements along SH 114 east of the SH 114/SH 121/International Parkway Interchange contained in the applicable configuration cannot be fully constructed prior to the completion to the adjoining SH 114 expansion. Attachment 1-1 provides technical requirements for the design and construction of the transition and Attachment 1-2 provides a conceptual diagrammatic depiction of the proposed transition to existing SH 114.

While Developer shall complete Configuration 3 Design and applicable configuration design for the SH 114 transition, Developer will only be responsible for the construction of the applicable configuration.

1.5 Configurations 1 and 2

For Configuration 1, the proposed improvements contained in the Configuration 3 Design will not be fully constructed. Attachment 1-3 provides technical requirements for the design and construction of Configuration 1 and Attachment 1-4 provides a conceptual diagrammatic depiction of the proposed Configuration 1. Developer is responsible for design of Configuration 1 and Configuration 3 design within the limits of Configuration 1. Developer is responsible for demonstrating and ensuring that Developer's design within the limits of Configuration 1 accommodates the future construction of Configuration 3 outside the limits of Configuration 1. Developer will only be responsible for the construction of Configuration 1.

For Configuration 2, the proposed improvements contained in the Configuration 3 will not be fully constructed. Attachment 1-5 provides technical requirements for the design and construction of the Configuration 2 and Attachment 1-6 provides a conceptual diagrammatic depiction of the proposed Configuration 2. Developer is responsible for design of Configuration 2 and Configuration 3 within the limits of Configuration 2. Developer is responsible for demonstrating and ensuring that Developer's design within the limits of Configuration 2 accommodates the future construction of Configuration 3 outside the limits of Configuration 2. Developer will only be responsible for the construction of Configuration 2.

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2 PROJECT MANAGEMENT

Section 2 of Book 3 is replaced with the following:

Developer shall establish and maintain an organization that effectively manages all Elements of the Work. This Project management effort shall be defined by and follow the Project Management Plan (PMP), which is a collection of several management plan Elements describing discrete Elements of the Work. The Project Management Plan is an umbrella document that describes Developer's managerial approach, strategy, and quality procedures to design and build the Project and achieve all requirements of the CDA Documents.

The structure of the Project Management Plan is outlined in Table 2-1A.

Table 2-1A: Elements of the Project Management Plan

PMP Chapter	Chapter Title
1	**Project Administration**
2	**Quality Management Plan**
2A	Design Quality Management Plan
2B	Construction Quality Management Plan
3	**Comprehensive Environmental Protection Plan**
4	**Public Information and Communications Plan**
5	**Safety Plan**
6	**TxDOT – Developer Communications Plan**
7	**Right of Way Acquisition Plan**

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

2.1 Administrative Requirements

No additional requirements.

2.1.1 Project Schedule

No additional requirements.

2.1.1.1 General Requirements

Developer shall be responsible for the adequacy of the Project Schedule and managing resources to meet the requirements of the CDA Documents and the PMP, including TxDOT reporting and invoicing requirements. The software that TxDOT is currently using is Primavera 3.0 (P3).

2.1.1.2 Required Submittals

Supplement Section 2.1.1.2 of Book 3 with the following:

Developer shall develop, update, and submit the following submittals in accordance with the applicable provisions of the Agreement.

2.1.1.2.1 Baseline Schedule

Section 2.1.1.2.1 of Book 3 is replaced with the following:

Developer shall use the preliminary schedule submitted with the Proposal as a foundation to prepare a Project Baseline Schedule. Developer shall be responsible for updating scheduling software to maintain compatibility with current TxDOT-supported scheduling software.

The Project Baseline Schedule shall include a separate narrative report which describes, in general fashion, Developer's proposed methods of operation for designing and constructing the major portions of the Work required by the CDA Documents. The schedule narrative shall describe the general sequence of design and construction, the proposed Critical Path of the Project, and all Project Schedule milestones.

The Project Baseline Schedule shall include all Work activities required under the CDA Documents, in sufficient detail to monitor and evaluate design and construction progress, from commencement of the Work to Final Acceptance of the Work. The Project Baseline Schedule shall also include activities for property acquisition, Utility Adjustments, permit acquisitions, and interfaces with other projects, localities, municipalities and other Governmental Entities. For each activity, Developer shall indicate the duration (in Days) required to perform the activity and the anticipated beginning and completion date of each activity. In addition, the Project Baseline Schedule shall indicate the sequence of performing each major activity and the logical dependencies and inter-relationships among the activities.

The Project Baseline Schedule shall include a listing of all submittals as called out in the CDA Documents. Submittal activity durations shall include specific durations for TxDOT review and/or approval of Developer's submittals as called out elsewhere in the CDA Documents.

With the exception of activities relating to Environmental Approvals by Governmental Entities, each activity depicting Developer's operations shall have duration of not more than 20 Days, and not less than one Day, except as otherwise approved by TxDOT. All activities shown in the schedule, with the exception of the first and last activities, shall have a minimum of one predecessor and a minimum of one successor activity.

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 and shall not be used to the financial detriment of either party. Any method utilized to sequester Float calculations will be prohibited without prior approval of TxDOT. Any schedule, including the Project Baseline Schedule and all updates thereto, showing an early completion date shall show the time between the scheduled completion date and the applicable Milestone Schedule Deadline as "Project Float."

Developer shall allocate the total contract price and quantities throughout the Project activities in the Project Schedule. Such allocation shall accurately reflect Developer's cost for each Project activity and shall not artificially inflate, imbalance, or front-load line items. The price of each Project activity shall be all-inclusive and shall include all direct and indirect costs, overhead, risks, and profit. Note that cost information will be suppressed on the Proposal submission, but shall be included with Developer's first monthly Project Schedule Update(s) and submitted with Developer's first Draw Request.

Percent complete shall be used to show activity progress as of the status date. The definition of percent complete for activities shall be made in consultation with TxDOT prior to beginning of scheduled Work. It should only be altered with TxDOT's consent. Developer shall establish a WBS with clearly

identifiable linkage between the Price Proposal and Developer-designated Project activities, and phases represented in the Project Schedule. The WBS for each Work element shall indicate the duration, timing, and logical relationship to other Work Elements, including relationships to Project activities other than the parent Project activity of the particular Work Element. The WBS for each Project activity shall be defined in terms of Work Elements reflecting the types of Work shown in the Price Elements (see Book 2). Project activities shall be broken down at a minimum to Work Elements (e.g., bridges may be broken down into foundations, substructure, superstructure, and decks). All Work shall be broken down to similar manageable Work Elements. For Utility Adjustment Work, if Work is not shown as a Project activity itself, such Work shall be shown as a Work Element, where applicable. For mobilization, Developer shall provide a list of Work items that are included in each Project activity or Work Element.

2.1.1.2.2 Project Status Schedule Updates

Section 2.1.1.2.2 of Book 3 is replaced with the following:

Developer shall update, on a monthly basis, the approved Project Schedule to reflect the current status of the Project, including approved Change Orders.

Each Project Status Schedule Update shall accurately reflect actual start and actual finish dates of Work, percentage complete, and Days remaining for Work in progress as of the effective date of the updated Project Baseline Schedule. Each Project Status Schedule Update shall indicate the overall completion percentage of the Project.

No changes in activity durations, calendar assignments, logic ties, or constraints will be allowed in the Project Status Schedule Update without the written approval of TxDOT in accordance with Section 2.1.1.2.3 (Project Schedule Revisions). The monthly Project Status Schedule Update shall include a schedule narrative report which describes the status of the Project in detail, including progress made that period, plans for the forthcoming period, all potential delays and problems, their estimated effect on the Project Schedule and on overall completion, and whether on, ahead of, or behind schedule.

2.1.1.2.3 Project Schedule Revisions

Until TxDOT approves a revision, all Project Schedule submittals shall be tracked against the previously approved Project Schedule. Accepted revisions shall be incorporated into the Project Schedule at the next monthly schedule update.

2.1.2 Document Management

All electronic information submitted to TxDOT shall be searchable and legible.

2.1.2.1 Project Management Plan Requirements

No additional requirements.

2.1.2.2 Electronic Document Management System (EDMS)

No additional requirements.

2.2 Quality Management Plan

No additional requirements.

2.2.1 General Requirements

Section 2.2.1 of Book 3 is replaced with the following:

Developer shall develop, implement, and maintain the Quality Management Plan for the Term. The Quality Management Plan shall describe the system, policies, and procedures that ensure the Work meets the requirements of the CDA Documents and provides documented evidence of same.

The complete Quality Management Plan shall incorporate the following features:

- Developer shall make all quality records immediately available to TxDOT for review. Developer shall provide TxDOT with a copy of any and/or all quality records when requested.
- The Quality Management Plan shall encompass all Work performed by Developer and Contractors of all tiers.
- Developer shall submit to TxDOT the results of all internal audits within seven Days of their completion**.**
- Developer shall promptly submit to TxDOT non-conformance reports both upon issuance and resolution.

The Quality Management Plan shall contain detailed procedures for Developer's quality control and quality assurance activities. Developer's quality process shall incorporate planned and systematic verifications and audits undertaken by an independent party. Developer shall conduct all quality control, quality assurance, performance verification, and design overlay and coordination among design disciplines, all in accordance with the Quality Management Plan and the requirements of the CDA Documents.

Inspections, reviews, and testing shall only be performed by personnel with appropriate training and qualifications, using appropriate equipment that is accurately calibrated and maintained in good operating condition at an AMRL (AASHTO R18, "Establishing and Implementing a Quality System for Construction Materials Testing Laboratories") accredited facility, or at a facility with comparable certification (e.g., ISO 17025, "General Requirements for the Competence of Testing and Calibration Laboratories").

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

Section 2.2.5 of Book 3 is replaced with the following:

The Quality Management Plan shall contain detailed descriptions of the inspection and test plans, including the timing and frequency of testing, that Developer will use to meet quality control and quality assurance requirements of the Work

Developer shall revise its Quality Management Plan when its own quality management organization detects a systemic or fundamental non-conformance in the work performed or in the manner the Work is inspected or tested, or when TxDOT advises Developer of such a problem.

2.2.5.1 TxDOT Construction Notices

On a weekly basis, Developer shall provide TxDOT with a rolling three-week inspection notice. The inspection notification shall include the fabrication schedule and planned construction activities for items where TxDOT is performing the fabrication inspection.

2.2.5.2 Reporting, Recordkeeping, and Documentation

Developer shall develop and maintain inspection and testing records that include, but are not limited to:

- Quality control inspection reports and process control material sampling/testing results, and control charts, shall be submitted to TxDOT within twenty-four (24) hours following the inspection or test.
- The Construction Quality Acceptance Firm (CQAF) shall maintain, electronically, a daily log of all inspections performed for both Developer and Subcontractor operations in a format acceptable to TxDOT, and transmitted to TxDOT daily. The daily inspection reports shall identify inspections conducted, results of inspections, location and nature of defects found, causes for rejection, and remedial or corrective actions taken or proposed. The responsible technician and supervisor shall sign the daily inspection reports. The results of the daily inspections shall be provided to TxDOT in an electronic format within twenty-four (24) hours after the work shift.
- The CQAF shall be responsible for establishing an electronic system for recording all material test results. The responsible technician and his/her supervisor shall sign the daily test reports. The results of the daily tests shall be provided within one (1) Day of test completion.
- The CQAF's inspection and materials quality program shall electronically deliver the laboratory and field test results to TxDOT in the database format provided in Attachment 2-2. This electronic reporting is intended to allow the Developer and TxDOT to make timely and accurate decisions on workmanship and material quality issues.

2.2.5.3 Laboratory Requirements

Developer shall perform testing in accordance with, but not limited to:

- Quality acceptance tests shall be conducted by the CQAF's testing laboratory identified in the CQMP that complies with the requirements of the AASHTO Accreditation Program (AAP) or other appropriate certification acceptable to TxDOT for the pertinent test. A copy of AAP accreditation certificate(s) shall be transmitted to TxDOT upon their receipt by the testing laboratory.
- Equipment in all laboratories shall be certified prior to commencing any construction activities and shall retain the certification by AASHTO, or TxDOT, as applicable for the duration of the Work.
- Use of on-site satellite or field laboratories is permitted if each laboratory has written policies and procedures to ensure that the satellite laboratories performing testing activities are capable of providing testing services in compliance with applicable test methods. Procedures shall address inspection and calibration of testing equipment, as well as a correlation-testing program between the accredited laboratory and portable or satellite facilities.

2.2.5.4 Supply Source and Material Quality

Quality of all materials shall conform to requirements contained in the CDA Documents and to any requirements of affected Utility Owners. The CQAF shall provide plant inspection and aggregate sampling and testing at concrete and asphalt plants. Manufacturers' test reports may supplement, but not replace, the QA inspections, sampling, testing and certification provisions.

2.2.6 Responsibility and Authority of Developer Staff

Section 2.2.6 of Book 3 is replaced with the following:

Personnel assigned to perform inspection, testing, or monitoring of characteristics for acceptance shall not be those personnel performing or directly supervising the Work being accepted.

Developer's quality assurance and quality control managers shall have the authority to stop Work for quality-related issues.

2.2.7 Design Quality Management Plan

Developer shall prepare and submit to TxDOT for review and approval a Design Quality Management Plan (DQMP) that describes its policies, procedures, and staffing to manage design quality in accordance with the requirements of this Section 2.2.7.

2.2.7.1 Released for Construction Documents

Not later than two Business Days after Developer has completed design of any particular Released for Construction Document, Developer shall submit the signed and sealed document to TxDOT.

2.2.7.2 Record Drawings and Documentation

No additional requirements.

2.2.7.3 DQMP General Requirements

The DQMP shall describe and include the following general requirements:

- Clear definition of the specific responsibilities of the internal quality control functions of the Design Firm and the quality review functions of the external Professional Services Quality Review Firm (PSQRF) shall be provided.

- The quality control and quality review procedures for Professional Services products shall be organized by discipline (such as structural, civil, utilities). These procedures shall specify measures to ensure that appropriate quality requirements are specified and included in the Professional Services product and to control deviations from such requirements.

- Specific quality control and quality review procedures, including all required forms and checklists, shall be specified for preparing, verifying and checking all Professional Services products to ensure that they are independently checked and back-checked in accordance with generally accepted engineering practices in the State of Texas and the requirements of the CDA Documents. The checking of structural design shall include a set of independent calculations, performed by the Developer's Design Firm, for all structural elements.

- The designer and checker shall be clearly identified on the face of all Final Design Documents. The PSQP shall also include specific procedures for verifying the Professional Services product, along with any computer programs being used for such purposes. Design Documents shall be stamped, signed and dated by the engineer in responsible charge for that item, element, or phase of the Work.

- Procedures shall be described for coordinating Professional Services performed by different individuals or firms working in the same area, in adjacent areas, or on related tasks to ensure that conflicts, omissions or misalignments do not occur between drawings or between the drawings and the specifications. This shall also include the coordination of the review, approval, release, distribution and revision of documents involving such parties.

- Procedures shall: (1) ensure that Developer personnel are familiar with all the provisions of the CDA Documents concerning their respective responsibilities; (2) provide for the education, training and certification, as appropriate, of personnel performing activities affecting or assessing the quality of the Work to assure that such personnel achieve and maintain reasonable proficiency; and (3) ensure that the Work is performed according to the DQMP, generally accepted engineering practices in the State of Texas and the CDA Documents.

- Procedures shall be established for meeting documentation requirements; the filing of design criteria, reports and notes, calculations, plans, specifications, schematics and supporting materials needed during the Final Design; and the specific responsibilities of personnel to satisfy these requirements. All Design Documents shall be maintained, organized and indexed by Developer and copies made available to TxDOT, upon its request.

- Procedures and schedules for the PSQRF to perform audits of the Design Firm's quality control procedures under the DQMP.

2.2.7.4 Personnel and Staffing

Professional Services Quality Control Manager. Developer shall assign a Professional Services Quality Control Manager (PSQCM) who shall be responsible for management of the quality control program for the design, environmental, ROW, Utilities and survey. The PSQCM shall not be involved with direct scheduling or production activities; and shall report directly to Developer's management team. The PSQCM shall see that the methods and procedures contained in the approved DQMP are implemented and followed by Developer design staff in the performance of the Work. The PSQCM shall be a Registered Professional Engineer.

Professional Services Quality Review Manager. The independent Professional Services Quality Review Manager (PSQRM) identified in the Proposal shall be an employee of the PSQRF and is considered one of the Developer's Key Personnel. The PSQRM shall be responsible for overall management of the detailed review process for the Design Work. The PSQRM shall be a Registered Professional Engineer and shall report and coordinate all issues directly with Developer's Project Manager and TxDOT. If the PSQRM, in consultation with the Developer's Project Manager and TxDOT, is unable to reach satisfactory resolution of issues pertaining to the quality of the Design Work, the PSQRM shall provide written notification to the Developer's Executive Committee and TxDOT outlining the concerns and actions taken in attempt to correct the concerns, and recommend a suggested course of action. TxDOT will then be responsible for resolving the concerns with the Developer.

Personnel in Responsible Charge. Developer shall designate (by name) the personnel in responsible charge for each item, element, or phase of the Work. The personnel in responsible charge shall possess the necessary registrations in the State of Texas and shall be personally responsible for directly supervising the Work and who will stamp, sign and date the Professional Services product for a given item, element, or phase of the Work as applicable.

Reviewing Professional Services. The Developer personnel performing the quality control check of the Professional Services shall not be directly involved with the original development of the item, element, or phase being checked. The PSQRF shall perform a detailed review of all Professional Services after the Developer has completed the quality control check.

2.2.7.5 Professional Services Submittal Review Process

Developer shall conduct a series of working meetings with its Professional Services staff, the internal quality control of Developer staff, the PSQRF's staff, and TxDOT to establish workflow processes and procedures to be utilized during the design review process that are consistent with the CDA Documents.

The working meetings are also to develop an understanding on general design concepts such as geometrics, aesthetics, drainage, traffic control, and structures.

Developer and TxDOT shall collaborate and mutually agree upon (i) a list of proposed sections (i.e., Station x+xx to Station y+yy) for the Work; (ii) Professional Services packaging and content (such as drainage, individual structures, roadway, traffic sequencing, and others); (iii) a list of mandatory submittals; and (iv) a proposed submittal schedule. The Professional Services reviews shall be evenly scheduled over the duration of the Professional Services phase of the Work. Sections and packages shall be logically organized into manageable pieces, and shall contain sufficient information and details to confirm Developer intent and to validate conditions. Developer shall obtain TxDOT's written approval of the sections, packages and contents, the schedule, and the methodology prior to making the first submittal to the PSQRF.

At a minimum, PSQRF shall conduct detailed mandatory submittal reviews for Professional Services elements listed in this Section 2.2.7.5. The PSQRM shall chair the submittal reviews, and Developer shall maintain formal documentation of these meetings for TxDOT's audit.

The purpose of the submittal reviews is for the PSQRF to verify and document that all Professional Services products are proceeding in accordance with Project requirements, sound engineering practice, applicable Law, the Governmental Approvals and the CDA Documents. All submittals are subject to review and comment by the PSQRF and other persons as provided herein. The PSQRF shall refuse and reject any submittal that does not comply with the requirements of applicable Law, the Governmental Approvals and/or the CDA Documents.

If the Developer and TxDOT cannot come to an agreement on the list of mandatory submittals, the following list shall be provided at a minimum:

- Corridor Structure Type Study and Report submittals
- Preliminary Bridge Layout submittals
- Preliminary Design submittal
- Final Design Submittal
- Any deliverables described in the Technical Provisions
- Exhibits Supporting Railroad Agreements
- Design Exceptions and Design Waiver Requests

2.2.7.5.1 Final Design Submittal

The Final Design Submittal shall be submitted to the PSQRF for review and certification of compliance. Construction packages for individual Work items, elements, or phases shall be organized such that the final document package can be assembled in a manner similar to the standard construction documentation typically provided to TxDOT for conventional project letting, as mutually agreed upon by Developer and TxDOT.

When Developer has completed the Final Design Submittal for an item, element, or phase and wishes to obtain TxDOT's concurrence of such design, the PSQRM shall certify that:

- The design meets all applicable requirements of the CDA Documents, applicable Law and the Governmental Approvals.
- The design has been checked in accordance with Developer's approved PSQP.
- The item or element is ready for construction.
- Developer has obtained all required Final ROW, Governmental Approvals, and Utility Owner approvals.

The Final Design Submittal shall be complete Design Documents incorporating all of the design submittal review comments. All documentation, including PSQRF's written certifications, copies of TxDOT's approval of deviations from design standards and/or Design Exceptions shall be provided with the Final Design Submittal.

Prior to certifying the above items, elements, or phases, and upon review and comment of the Final Design Submittal by the PSQRF and TxDOT, PSQRF shall schedule a formal review with TxDOT.

2.2.7.5.2 Formal Review

PSQRM will conduct a formal review presentation to TxDOT at a location acceptable to TxDOT. The formal review presentation will be held following the PSQRF's and TxDOT's review and comment of the mandatory submittals.

At least five (5) Business Days prior to the applicable formal review presentation dates, Developer will assemble and submit drawings or other documents to TxDOT for information and review.

Draft minutes of formal review presentations shall be submitted to TxDOT by PSQRM within five (5) Business Days after completion of each review.

2.2.7.6 Resubmittal Process

Resubmittals of any design submittal may be required if deemed necessary by the PSQRF (where PSQRF approval and/or certification is required), TxDOT, or any Governmental Entities with jurisdiction over the Project. Each resubmittal must address all comments received from a prior submittal in a manner satisfactory to the commenting party. Submittals shall be resubmitted as many times as necessary to address comments of the PSQRF, TxDOT or any Governmental Entity.

Upon completion of the PSQRF's review, Developer may forward such submittals to TxDOT and the appropriate Governmental Entities for review and comment or approval. If TxDOT had requested additional information during the final formal review, PSQRM will conduct an additional formal review of the resubmitted items, elements, or phases. A copy of all correspondence relating to each submittal made to any Governmental Entity shall be concurrently provided to TxDOT.

2.2.7.7 Certification of Compliance

PSQRM shall verify that Developer has obtained approval from applicable Governmental Entities, and Utility Owners prior to the issuance of a "Certification of Compliance" designation of the Design Documents by the PSQRM. Following issuance of a "Certification of Compliance" by the PSQRM, TxDOT shall review and provide written concurrence.

After Developer has incorporated the Final Design Submittal and/or the resubmittal of formal review comments into its design and all concerns and questions have been resolved to the satisfaction of TxDOT, Developer shall provide Final Design package to TxDOT. Developer as part of its Final Design package shall include all:

- Design drawings
- Design calculations
- Design reports
- Specifications
- Electronic files
- Documentation required for al Final ROW
- Governmental Approvals
- Utility Owner approvals

TxDOT's concurrence with the PSQRM's certification of compliance will not constitute approval of the design or subsequent construction, nor relieve Developer of its responsibility to meet the requirements hereof. Irrespective of whether TxDOT provides Developer with the authority to begin construction on items, elements, or phases of the Work prior to completion of the design for the entire Project, Developer shall bear the responsibility to assure that construction meets the requirements of the CDA Documents, applicable Law and the Governmental Approvals.

Construction on any item, element, or phase covered by the PSQRM's certification of compliance of said item, element, or phase shall only progress to the extent covered by the Design Documents included in that statement, except for the Work performed in accordance with Section 2.2.7.9 (Early Start of Construction). Prior to progressing further with construction of a certified package, Developer shall complete the next item, element, or phase of design or complete the Final Design, and obtain TxDOT's concurrence, except for the Work performed in accordance with Section 2.2.7.9. Any items, elements, or phases of design, subsequent to the certification of compliance from PSQRF, shall be checked and certified by the PSQRM in the same manner as indicated above.

If TxDOT determines that the Final Design Documents do not meet the requirements of the CDA Documents, applicable Law and/or the Governmental Approvals, TxDOT will notify Developer in writing of any specific deficiencies in the Final Design Documents. Developer shall correct such deficiencies; modify the Final Design Documents; and, if necessary, modify construction upon receipt of TxDOT's comments.

If there is evidence that the DQMP procedures are not adequate, as evidenced by TxDOT's oversight reviews or problems during construction, TxDOT may, at its sole discretion, withhold payment for design and construction until sufficient PSQP procedures are in place. If construction is in progress, TxDOT may suspend ongoing Work represented by the deficient design and require correction of design and/or construction defects.

Developer shall provide quantity estimates for Work covered by Final Design Documents. The quantity estimates shall be in units consistent with the quality acceptance and quality review sampling and testing requirements in the DQMP.

2.2.7.8 Design Changes

Developer or TxDOT may initiate design changes. Design changes may occur either on items, elements, or phases undergoing construction or after Final Design. In order to process these types of changes, Developer shall submit, when the problem or change occurs, a Request for Information (RFI) for TxDOT's approval.

All design changes submitted under the RFI procedure shall undergo the same DQMP checks as the original design.

The designer responsible for the original design shall approve design changes during construction, or design changes to Final Design Documents in writing. If the original designer is no longer available, then after notification to the original designer, an experienced Registered Professional Engineer shall provide documentation of design changes. All plans, final submittals, specifications, calculations, and reports for design changes shall be stamped, signed and dated by an experienced Registered Professional Engineer. In all cases, the PSQRM shall certify in writing that the design change has been:

- Designed in accordance with the requirements of the CDA Documents, applicable Law and the Governmental Approvals,
- Checked in accordance with Developer's approved DQMP, and
- Prepared consistently with other elements of the original design.

Developer shall request and schedule interim and final RFI formal design review(s) by TxDOT for all design changes made during construction or to the Final Design Plans. All changes made through the RFI process shall be documented in the As-Built drawings as specified in Section 8.15 (As-Built Documents).

2.2.7.9 Early Start of Construction

The following will set forth the circumstances under which certain items, elements, or phases of the Work may be packaged by Developer to initiate an Early Start of Construction prior to obtaining TxDOT's concurrence of the Final Design for the item, element, or phase. The "Early Start of Construction" requirements shall apply to any Work that is performed by Developer prior to receiving TxDOT's written concurrence with the PSQRM's certification of compliance of the Final Design Submittal for the Work. All such Work is performed at the sole risk of Developer. TxDOT does not consider any items as satisfying the DQMP requirements until the PSQRM has issued a certification of compliance and TxDOT has issued a written concurrence therewith.

TxDOT, at its sole discretion, may defer Early Start of Construction for any portions of the Work as requested by Developer.

Any Work constructed by Developer prior to receiving TxDOT's concurrence of the Final Design Submittal for the Work, and later determined to be unacceptable by TxDOT, in its sole discretion, shall be revised, removed or otherwise reconfigured to the satisfaction of TxDOT at Developer's sole cost and expense and without any consideration given to an extension of the Completion Deadline.

TxDOT and Developer shall agree on procedures for Early Start of Construction, which procedures shall, among other things, include a process for distributing construction documents signed and sealed by a Registered Professional Engineer to TxDOT and Developer's field staff. In order for Developer to proceed

with early phases of construction of a portion of the Work, specific pertinent items of the design shall have been previously reviewed by the PSQRF and TxDOT and comments from both the PSQRF and TxDOT shall have been transmitted to the Developer. For example, Early Start of Construction may be rough grading of a specific portion of the Project, for which specific pertinent items of the design may include:

- Horizontal and vertical alignment
- Typical sections
- Related elements of the drainage system
- Related elements of the Traffic Control Plan specifically applicable during the term of the Early Start of Construction scope
- Subsurface geotechnical investigations and recommendations
- Slope stability analysis and recommendations
- Preliminary structure general plans (if a structure is within the element or portion of the nonstructural Work)
- Settlement monitoring program
- Construction specifications

An Early Start of Construction shall be at the sole and complete risk of Developer, and does not release Developer from any of the requirements described in Section 2.2.7 (Design Quality Management Plan). If, as a result of the review process, construction modifications or changes to already completed Work elements performed under the Early Start of Construction are required, Developer shall make any and all construction modifications to already completed construction activities at its sole cost and expense without any entitlement to time extensions or adjustment in the Price.

2.2.8 Construction Quality Management Plan

Developer's Construction Quality Management Plan (CQMP) shall describe its internal quality control and quality acceptance policies, procedures, and personnel used by it, Suppliers, and Subcontractors during construction of the Work. The CQMP shall be The CQP shall be consistent with the applicable procedures contained in the current *TxDOT Contract Administration Handbook for Construction Projects* and establish a clear distinction between quality control and quality acceptance activities and persons performing them. At a minimum, the CQMP shall specify:

- Methods and procedures that clearly define the distinction/authority/responsibility for the administration of Developer's CQMP.
- That Developer, Supplier, and Subcontractors designate an individual on each crew to be responsible for performing daily field inspections of their own Work and for preparing a daily QC report to document the inspection performed.
- The review and approval of all Portland cement concrete and hot mix asphaltic concrete mix designs by a CQAF Registered Professional Engineer.

- Methods and procedures to be utilized by Developer to obtain active participation of the work force in quality control operations to achieve a quality project; reporting forms to be used by the responsible quality control personnel shall be included.

- A construction quality control organization and staffing plan. The period of time that the quality control staff member will be present on the site shall be shown, resumes of the Key Personnel shall be included, and the experience/knowledge/skill levels of the quality control support staff shall be stated.

- CQAF organizational and staffing plans. The period of time that the quality acceptance staff member will be present on the site shall be shown; resumes of key staff members shall be included; and the required minimum knowledge, technical skills, and experience level of the personnel related to the various inspection functions, such as grading, drainage, pile-driving and structures inspections, that will occur on the Work shall be stated. The administrative/clerical support staff for maintenance and management of records/documents pertinent to quality acceptance for the QCP activities shall be identified.

- Procedures for inspecting, checking, and documenting the Work. Inspection, examinations and measurements shall be performed for each operation of the Work to assure quality.

- Procedures to ensure that all activities affecting the quality of the Work are accomplished under controlled conditions, using appropriate equipment for the task being performed.

- Procedures to ensure that the education, training, and certification of personnel performing CQMP activities are achieved and maintained and that all Work is performed in accordance with the approved designs, plans, and specifications.

- Procedures to ensure that critical elements of the Work are not started or continued without inspection and testing by the quality acceptance personnel on site. Inspection points shall be identified and communicated to the CQAF, Construction Quality Control Manager (CQCM), and TxDOT. Procedures to proceed beyond inspection points shall be developed.

- Description of specific procedures to ensure that all Work conforms to the requirements of the CDA Documents, Governmental Approvals and applicable Law, and the Design Documents, as well as that all materials, equipment, and elements of the Work will perform satisfactorily for the purpose intended.

- Documents specifying that all activities undertaken by or on behalf of Developer affecting the quality of the Work shall be prescribed and accomplished by documented instructions, procedures, and appropriate drawings. Such instructions, procedures and drawings shall include quantitative and qualitative criteria to be used to determine compliance.

- Measures to ensure that purchased materials, equipment, and services conform to the CDA Documents, the Governmental Approvals, applicable Laws, Rules, and the Design Documents. These measures shall be consistent with Good Industry Practice and shall include provisions for source evaluation and selection, objective evidence of quality furnished by Subcontractors and Suppliers, inspection at the manufacture or vendor source, and examination of products upon delivery.

- Procedures for identification and control of materials, equipment, and elements of the Work. These procedures shall be consistent with the Good Industry Practice to ensure that identification of the item is maintained by appropriate means, either on the item or on records traceable to the item, as necessary, throughout fabrication, erection, installation and use of the item.

- Procedures to ensure that materials, equipment or elements of the Work that do not conform to requirements of the CDA Documents, the Governmental Approvals, applicable Law or the Design Documents are not used or installed. These procedures shall include identification, documentation, segregation, disposition and notification to TxDOT and, if appropriate, Governmental Entities and other affected third parties, as well as procedures for TxDOT to review Nonconforming Work.

- Procedures for processing a Request for Information (RFI) to resolve discrepancies and/or questions in the plans and specifications so that all changes are documented and approved by Developer's design engineers and TxDOT.

- Procedures to indicate, by the use of markings such as stamps, tags, labels, routing cards, or other suitable means, the status of inspections and tests performed upon individual items of the Work.

- A program for inspection for each operation of all Work examinations, measurement and tests of materials or elements of the Work to assure quality.

- A program for coordination of all inspections and testing with the inspections and tests of Governmental Entities and Utility Owners.

- A program to ensure performance of all testing required to demonstrate that all materials, equipment and elements of the Work will perform satisfactorily for the purpose intended and meet the standards specified in the CDA Documents. It shall specify written test procedures which include provisions for ensuring that all prerequisites for the given test have been met and that adequate test instrumentation is available and used. The CQMP shall require test results be documented and evaluated to ensure that test requirements have been satisfied. The CQMP shall also demonstrate how the CQAF will track its testing frequencies to ensure compliance with the CDA Documents.

- Procedures for reviewing and approving acceptance test results, categorizing test results in a manner acceptable to TxDOT, transmitting acceptance test results to TxDOT in a format acceptable to TxDOT for use in fulfilling its statistical validation requirements, and working collaboratively with TxDOT to resolve statistical non-validation between CQAF and TxDOT test results.

- Measures to ensure that tools, gauges, instruments, and other measuring and testing devices used in activities affecting quality are properly maintained, controlled, calibrated, certified and adjusted at specified periods to maintain accuracy within industry standards.

- Procedures to control the handling, storage, shipping, cleaning and preservation of materials and equipment to prevent damage or deterioration.

- Procedures to ensure that conditions adverse to quality, such as failures, malfunctions, deficiencies, defective material and equipment, deviations and other Nonconforming Work are promptly identified and corrected. The procedures shall ensure that the cause of the condition is determined and corrective action taken to preclude repetition. The identification of the significant condition adverse to quality, the cause of the condition and the corrective action taken shall be documented and reported to TxDOT in writing and to appropriate levels of Developer's management to ensure corrective action is promptly taken.

- A comprehensive system of planned and periodic audits of Developer's CQMP to determine adherence to and the effectiveness of the CQMP. CQAF personnel shall perform the audits in accordance with the written procedures or checklists. Audit results shall be documented, reviewed, and acted upon by Developer. Follow-up action, including re-audit of deficient areas following corrective action, shall be taken where indicated.

- Measures to control the receipt and issuance of documents, such as instructions, procedures, training manuals and drawings, including changes thereto, which prescribe activities affecting quality. These measures shall ensure that approved documents, including authorized changes thereto, are reviewed for adequacy and approved for release by authorized personnel of Developer and are distributed to and used at the location where the prescribed activity is performed. Changes to documents shall be reviewed and approved by the same organizations that performed the original review and approval unless TxDOT consents, in writing, to another responsible organization.

- The requirements and methods for controlling documents. Developer's document control system shall be compatible with TxDOT's.

- Procedures and personnel to be used to assure that specified instrumentation is installed and monitored in accordance with applicable specifications.

- The form and distribution of certificates of compliance.

Procedures for quality acceptance in the CQMP with respect to checking and verifying the accuracy and adequacy of construction stakes, lines, and grades established by Developer.

2.2.8.1 Personnel and Staffing

2.2.8.1.1 Construction Quality Control Manager (CQCM)

Developer shall assign an on-site Construction Quality Control Manager (CQCM) who shall be responsible for management of the quality control aspect of the CQMP. The CQCM shall not be involved with scheduling or production activities, and shall report directly to Developer's management team. The CQCM shall see that the methods and procedures contained in the approved CQMP are implemented and followed by Developer and Subcontractors in the performance of the Work. The CQCM shall be a Registered Professional Engineer.

2.2.8.1.2 Construction Quality Control Staff

Developer's and Subcontractors' construction work force are all considered to be members of Developer's quality control staff as each and everyone is responsible for the quality of the Work. Personnel performing QC inspection shall ensure quality of workmanship and QC sampling/testing shall ensure that materials meet the required specifications prior to acceptance testing performed by the CQAF. Personnel responsible for performing the quality control inspection shall be knowledgeable and receive training to perform their quality control duties. Personnel performing quality control sampling/testing shall be knowledgeable in the testing methods and procedures and do not need to be certified or direct employees of the Developer, but cannot be employees of the CQAF.

2.2.8.1.3 Construction Quality Acceptance Manager (CQAM)

Developer's CQAF shall assign an on-site Construction Quality Acceptance Manager (CQAM) who shall be responsible for management of the quality acceptance aspect of the CQMP. The CQAM shall be a Registered Professional Engineer and shall be an employee of the CQAF. The CQAM shall report jointly to Developer's management team and TxDOT. The CQAM shall not report to any person or party directly responsible for design or construction production.

The CQAM shall review, approve, authorize, examine, interpret and confirm any methods or procedures requiring the "Engineers' review, approval, authorization, examination, interpretation, confirmation, etc." which are contained in the TxDOT Standards.

2.2.8.1.4 Construction Quality Acceptance Staff

A quality acceptance inspection and material sampling/testing staff shall be provided under the direction of the CQAM to perform inspection and material sampling/testing of all Work performed and materials incorporated into the Project by any member of Developer's group. If approved in writing in advance by TxDOT, qualified individuals who are employees of or retained by manufacturers, vendors or Suppliers may inspect certain portions of Work.

The quality acceptance inspection and testing staff shall be employees of the CQAF and shall have been trained in the applicable inspection and material sampling and testing procedures. The quality acceptance staff shall be experienced in highway inspection and material testing. The training and experience of the quality acceptance staff shall be commensurate with the scope, complexity, and nature of the activity to be controlled and tested. Qualifications shall include appropriate TxDOT or State Highway Agency certification for testing and inspection as well as nationally recognized certifications such as NICET or ACI certification in applicable inspection or testing activities. Construction quality acceptance staff shall report to the CQAM.

The quality acceptance staff shall provide oversight and perform audits of the quality control inspection and material sampling/testing operation.

The quality acceptance inspection staff shall check compliance of all material, equipment, construction, installations, and operations. Construction activities requiring continuous field quality acceptance inspection or sampling and testing, in the sole discretion of TxDOT, shall proceed only in the presence of assigned QA personnel. The CQMP shall identify those activities.

2.2.8.1.5 Construction Quality Acceptance Staffing Levels

The size of the quality acceptance staff shall reflect the volume of quality acceptance activities necessary for the Work in progress and shall be maintained in accordance with the approved CQMP. The CQAF staff will perform quality acceptance oversight, inspection, and testing services typically performed by TxDOT on traditional projects, with the exception of monitoring tests.

The Construction quality acceptance staffing requirements shall be updated as necessary throughout the Term of the Work to reflect changes in the actual construction schedule. Developer shall ensure that adequate Construction quality acceptance staff is available and that CQMP activities are undertaken in a manner consistent with the Project Schedule and in a manner that will enable Developer to achieve the Substantial Completion and Final Acceptance deadlines.

Should TxDOT determine that Developer is not complying with CQMP because of lack of staff, TxDOT shall have the right, without penalty or cost, including time extensions or delay damages, to restrict Work efforts until appropriate levels of staffing consistent with the CQMP and satisfactory to TxDOT are obtained or TxDOT may contract with a separate firm to perform these services and withhold payment to Developer for such services.

2.2.9 Maintenance Management Plan

Not used.

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 Deliverables

No additional requirements.

2.8.1 Project Management Plan

No additional requirements.

2.9 Requirements for TxDOT Offices and Equipment

Except where noted elsewhere in the CDA Documents, Developer and TxDOT shall co-locate for the term of the Agreement to facilitate Project coordination and daily communication. The definition of "co-locate" for this Agreement is office space meeting the conditions of this Technical Provision that are near each other along or adjacent to the Project within one mile of the Project ROW.

Developer shall provide TxDOT office space (i.e., available for occupancy) within sixty (60) Days of issuance of Notice To Proceed 1 (NTP1). The location, condition, and amenities of the office space for TxDOT are subject to TxDOT's prior written approval. The office space requirements for the core office and the field offices are provided below.

2.9.1 Computer and Equipment Requirements

The Developer shall provide, install, and maintain the following computers, peripherals, and software for the TxDOT office spaces:

- One computer and monitor including all necessary peripherals for each personnel office area and the reception area.
- Desktop computers shall be Dell GX745 CPU's with a Dell 1908 flat panel monitor or equivalent.
- Laptop computers shall be a Dell 430 Latitude with a Dell 1908 flat panel monitor or equivalent.
- Peripherals will include at minimum, monitor stand, docking station for laptop computers, mouse, keyboard, extra battery for laptop computers, and a carry bag for laptop computers.
- Necessary software required to perform TxDOT functions for the Project, Microsoft Office Professional, Microsoft Outlook and be compatible with all other Microsoft software products.
- The computers, monitors and peripherals shall be at least equal to the ones used by the Developer's staff.

The Developer shall provide, install, and maintain the following telephones, servers, copiers and fax equipment, and premise wiring for the TxDOT office space:

- At least one touch-tone telephone for each personal office area, each with a status indicator, access to all outside lines, and conference-call capability; and including speakers for the telephones in the enclosed offices rooms.
- At least one touch-tone conference telephone with satellite microphones for each conference room, each with a status indicator, caller id, access to all outside lines, and conference-call capability.
- Provide AC/DC chargers and other chords as needed for cellular telephones, for each employee.
- Hardware and software will be compatible with that of Good Industry Practice and of the Developer's system interface.
- Full-scale color plotter capable of handling 36 inch roll plots, 36x24 inch plots and 11x17 plots (core office only).
- One high-speed laser computer printer capable of handling 11x17 prints.
- One high-speed color printer capable of handling 11x17 prints.
- One high-speed color photocopy machine capable of handling 11x17 prints.
- One facsimile transmission machine.
- One color scanner capable of handling 11x17 prints.
- All equipment shall be replaced and updated at least once every three years or when the Developer upgrades, whichever comes first. A multipurpose piece of equipment capable of meeting multiple parts of the requirements above will be considered to meet the requirements.
- All office supplies including copier paper, toners, pens, pencils, notepads and other miscellaneous office supplies.
- 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 ISD and TxDOT Department of Information Resources staff.
- Certify and state supplied components as functional before installation and will bear all responsibility for replacement of parts at work commencement.
- Prepare test plan and submit before installation, test installed system and supply test results, and will conform to all industry standard testing procedures
- 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.

- 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 miscellaneous materials.

2.9.2 Core Office Requirements

Developer shall provide all space, facilities, and support elements necessary to design, construct and maintain the TxDOT core office in accordance with the CDA Documents. Developer shall provide office space, not to exceed 6,000 square feet, for TxDOT's design and Project management staff including, the General Engineering Contractor and other contract employees. If it is necessary to locate any of these elements of the Work off-site or outside of this office, Developer shall obtain TxDOT's prior written consent.

Developer shall provide a preliminary TxDOT facility area layout plan to TxDOT no later than seven (7) Days after Notice to Proceed (NTP). TxDOT will promptly review and comment on required modifications to the layout within ten (10) days. Developer shall submit a final facility layout plan within ten (10) Days of receipt of TxDOT comments.

Developer shall have the TxDOT facility area available for move-in no later than sixty (60) days.

2.9.2.1 TxDOT Facility Area and Items Provided by Developer

Developer shall provide separate office space for the exclusion use of TxDOT's design and Project management staff in the TxDOT facility area as specified herein and subject to TxDOT's prior written approval. This office space shall be located within the same building or complex as Developer's office staff. TxDOT will be reasonable regarding re-use of existing space within Developer's current office facility, providing the space is contiguous and workable in TxDOT's sole discretion.

Office Condition. The offices shall be in good and serviceable condition, at least of the same quality as those of Developer's counterpart office space, and available for occupancy as specified herein. Both Parties shall participate in a facility condition survey prior to and at the completion of occupancy. TxDOT shall return possession of Developer-provided TxDOT facility area to Developer in essentially the same condition as when TxDOT occupied the facilities, except for reasonable wear and tear and except for alterations, or loss or damage caused by any member of Developer-Related Entity.

Loss or Damage. If office spaces, related facilities or fixtures are destroyed, damaged or stolen during the Work, in the TxDOT facility area, except as a direct result of willful misconduct of TxDOT or its personnel, Developer shall, at its cost and within ten (10) Business Days after the occurrence of such destruction or damage, repair those items to their original condition or replace them. However, in the case of lost, damaged, or stolen office equipment (e.g., computers, fax machines, copy machines, and printers) necessary for normal office operations, replacement shall occur within two (2) Business Days. If loss or damage is caused as a direct result of willful misconduct of TxDOT or its personnel, Developer shall replace the facilities noted herein within the timeframes specified herein, and TxDOT shall reimburse Developer for actual, reasonable and documented costs incurred.

Office Facilities and Equipment. For the TxDOT facility area it provides, Developer shall:

1. General. Secure facility space, obtain all permits, install and pay for all utility services, and maintain the facilities as part of the Work.

2. Access and Security. Provide separate TxDOT entrance/exit(s) from building, which shall be secured with electronic door lock(s) plus a deadbolt lock. Developer shall provide security badge card access with locking doors running on time zone/holiday schedules for entry doors as well as other designated areas (e.g., server room, document storage, offices). Developer shall provide software for maintaining

access to these areas, which will be owned and/or maintained by TxDOT's design and Project management staff.

3. Lighting and Electricity. Include with all interior spaces overhead lighting meeting OSHA, building, and electrical and energy code requirements for similar office space (provide nominal 30 foot candles of light at 30 inches above finish floor). Each office space shall have at least four duplex receptacles, with minimum circuit capacity of twenty (20) amperes.

4. Janitorial and Trash Services. Provide daily janitorial service (except Saturdays, Sundays and Holidays) and maintain trash containers and trash pickup service for the building and site areas beyond the TxDOT facility area. This shall include, but not be limited to, sweeping and mopping floors, cleaning restrooms and break room, emptying wastebaskets, and periodic dusting. This service shall be paid for by Developer. Developer will pay for and procure janitorial services for the TxDOT facility area.

5. Exterior Maintenance. Maintain the exterior areas of office spaces, including access to parking areas.

6. Accessibility and Licensing. Meet all access requirements of the Texas Accessibility Standards, the Americans with Disabilities Act Accessibility Guidelines, as amended (42 USC §§12101, et seq.), and the applicable building code. Facility design plans shall be submitted to the Texas Department of Licensing and Regulation (TDLR) for review and approval as required by Section 16, Chapter 68 of the Texas Administration Code.

7. Restrooms, Break Room, and Entry Space. Provide access to women's and men's restrooms, break room space and building entry space, these spaces may be shared with Developer's office space/staff. These spaces and all TxDOT spaces shall have access 24 hours per day, 7 days per week, 365 days per year (24/7/365). In lieu of access to a common break room, Developer may provide a 200 SF break room/kitchen within the TxDOT space, with refrigerator with freezer compartment, ice machine, sink including waste disposer, microwave, and dishwasher. Break room/kitchen will have storage closet (25 sq. ft.) and cabinets with drawers and counter tops. In the event that access to restrooms cannot be accessed from a common building entry/lobby, Developer may provide separate restrooms for the TxDOT facility area. In the event it is necessary to locate a separate break room and/or restrooms within the TxDOT facility area, the 6,000 SF TxDOT space allocation may be required to be increased to accommodate these spaces.

8. HVAC. Provide electrical, heating, ventilation, and air conditioning (HVAC) systems capable of maintaining temperatures between 65 and 75 degrees Fahrenheit in all spaces, 24 hours per day, 7 days per week, 365 days per year (24/7/365), through the year. Server room shall have dedicated air conditioning/cooling system capable of maintaining temperatures between 65 and 70 degrees Fahrenheit, and 15% relative humidity.

9. Code Requirements. Meet all applicable building and fire code requirements.

10. Disposal and Removal. Be responsible for disposal or removal of all Developer-provided facilities and any facility and/or site restoration Work as required.

Space Requirements. Although actual spaces may vary slightly, the following nominal size requirements will apply, and the typical TxDOT facility area shall include the following elements:

1. Offices. Enclosed offices for TxDOT's management staff (nominal 150 square feet each) 15 total (5 with keyed door hardware).

2. Cubicles. Cubicle area spaces for administration staff (nominal 100 square feet each) 10 total; (power supply and data and communication lines to cubicles may be provided through power pole drops).

3. Conference Rooms. Three conference rooms (enclosed) 2 at nominal 12'x 20' (240 SF) and one at nominal 12'x 30' (360 SF) All shall have dimmable lighting; each conference room shall have one chair for every 24 SF of conference room space and a conference table of sufficient size for each chair.

4. Reception Area. Receptionist space with waiting area with seating for 4 visitors (nominal 200 SF); other furniture to be determined jointly by developer and TxDOT.

5. Work Room. Work room (nominal 150 SF) with 30-inch high plastic laminate wall-mounted counters (15 lineal feet of counter). Work room shall be located near the center of the facility, and in close proximity to the receptionist space.

6. Storage and Filing. One (1) lockable space for storage and filing, nominal 10'x15' (150 SF).

7. Server Room. One computer server room (100 SF) that has limited access and is locked via security card access. Server room shall be accessible via hallway entry not sharing any walls with the exterior of the building, and have no windows, a nonstatic floor covering, and at least three dedicated 20-amp power circuits and one 30-amp circuit. All patch panels (phone and data) shall be located within the designated server room. Temperature shall be maintained with a dedicated air conditioning/cooling system as defined above.

8. Parking Area. Parking area for at least forty (40) vehicles (30 staff/10 visitors) that is reasonably level (all-weather surface and all-weather access).

9. Exterior Lighting. Sufficient exterior security lighting that is automatically activated at low light levels to maintain two (2) foot-candles of lighting within the building and parking areas of the site.

10. Corridors. Corridors within the TxDOT facility shall have a nominal width of 54 inches.

Miscellaneous Requirements and Features. The following shall be provided as noted:

1. Flooring. Carpeted flooring (nonstatic in server room).

2. Entry Access. Entry to TxDOT areas by electronic door hardware card access (not keyed), with U.P.S. on locks (fail closed).

3. Electrical Outlets. Each office and conference room shall have two (2 data, 1 com Cat 5E) outlets per room, and one (2 data, 1 com Cat 5E) outlet per cubicle, as well as outlets at designated printer, fax and copier locations and any and all shared areas (i.e., workroom, storage room, etc.). All data/voice outlets shall be installed next to power outlets.

4. HVAC. 24/7/365 HVAC as previously described.

5. Window Coverings. Horizontal mini-blinds (no drapes) for each exterior window.

6. Power Circuits. Provide dedicated electrical power circuits for copiers, and minimum of 6 duplex receptacles with three dedicated 20-amp circuits and one 30-amp circuit for the server room.

7. Fire Extinguishers. Developer shall provide fire extinguishers, per fire code and fire marshal with jurisdiction.

8. Insurance. Insurance (obtained and provided by Developer) covering the use of the Project office by Developer and TxDOT, in accordance with the terms of the underlying property use agreement with the property owner, but in no event shall the insurance be less than that required by the Agreement.

9. Vending Area. Developer shall provide access to general building vending area.

10. Utilities. Initial installation and monthly expense of all utilities paid by Developer except long-distance telephone service.

11. Emergency Contacts. 24-hour emergency contact to Developer.

12. Furniture. Developer-provided allowance of $50,000 in the Price for furniture, which shall be obtained by Developer at the direction of TxDOT, and billed through Developer. At the end of the Project, Developer shall have ownership of the furniture and shall be entitled to the full salvage value of the furniture, with the right to retain or otherwise dispose of the furniture at its sole discretion, without any further accounting to TxDOT.

Items Not Required. The following items are not required:

1. Cable television connections or service.

2. Outside storage.

3. Electronic security system (other than electronic door access hardware).

2.9.3 Field Offices

Developer shall provide field office space for the exclusive use of TxDOT's field construction staff for the Project as specified herein.

Subject to TxDOT's prior written approval, Developer shall provide separate facilities for TxDOT's resident engineer staff located within the same complex as Developer's field office. Should Developer elect to construct the Work using field offices other than the one specified, corresponding facilities shall be provided for TxDOT's exclusive use and shall be at least of the same quality as Developer's counterpart management and field staff.

Developer shall provide the field staff facilities at least ten (10) Business Days prior to starting any Work activity involving staff that will occupy the field staff facilities.

Office Condition. The field office(s) shall be in good and serviceable condition, at least of the same quality as those of Developer's counterpart management and field staff, respectively, and available for occupancy as specified herein. Both Parties shall participate in a facility condition survey prior to and at the completion of occupancy. TxDOT shall return possession of Developer-provided facilities to Developer in essentially the same condition as when TxDOT occupied the facilities, except for reasonable wear and tear and except for alterations, loss, or damage caused by any member of Developer-Related Entity.

Loss or Damage. If office space(s) or related facilities are destroyed, damaged or stolen during the Work, except as a direct result of willful misconduct of TxDOT or its personnel, Developer shall, at its cost and within ten (10) Business Days after the occurrence of such destruction or damage, replace those items that it had provided or repair them to their original condition; however, in the case of lost, damaged, or stolen office equipment (e.g., computers, fax machines, copy machines, printers, etc.) necessary for normal office operations, replacement shall occur within two (2) Business Days. If loss or damage is caused as a direct result of willful misconduct of TxDOT or its personnel, Developer shall replace the facilities noted herein within the timeframes specified herein, except that TxDOT shall reimburse Developer for actual, reasonable, and documented costs incurred.

Office Facilities and Equipment. For the facilities it provides, Developer shall:

1. General. Secure sites, obtain all site permits, install and pay for all utility services, and maintain the facilities as part of the Work.

2. Access and Security. Provide separate buildings or trailers for TxDOT staff that include at least two entrances/exits, providing an 8' x 10' (minimum) covered area, from each building or trailer. Each entrance/exit shall be secured with a door lock plus a deadbolt lock.

3. Lighting and Electricity. Include with all interior spaces overhead lighting meeting the requirements of the Occupational Safety and Health Administration (OSHA) and of building and electrical codes for office space. Each office space shall have at least two duplex receptacles. The minimum circuit capacity shall be twenty (20) amperes.

4. Janitorial and Trash Service. Provide daily janitorial service (except Saturdays, Sundays and Holidays) and maintain trash containers and trash pickup service. This will include, but not be limited to, sweeping and mopping floors, cleaning the toilet, and lavatory and emptying wastebaskets.

5. Exterior Maintenance. Maintain the exterior areas of office spaces, including access to parking areas.

6. Accessibility. Meet all access requirements of the Americans with Disabilities Act, as amended (42 USC §§12101, et seq.).

7. Utility Service. Provide potable water, sewer service, and electricity to the office facility.

8. HVAC. Provide heating, ventilation, and air conditioning (HVAC) systems capable of maintaining temperatures between 65 and 70 degrees Fahrenheit in all spaces through the year.

9. Code Requirements. Meet all local building and fire code requirements.

10. Disposal and Removal. Be responsible for disposal or removal of all Developer-provided facilities and any site restoration Work as required.

Space Requirements. Although actual space requirements will depend upon Work schedule and geographic locations of the field offices, a typical field office should include the following elements:

1. Offices. Enclosed offices for TxDOT's construction representative, TxDOT-designated construction manager and three other TxDOT or contract employees (150 square feet each).

2. Offices/Cubicles. Offices or cubicles for up to ten (10) field engineer/inspection/ administration staff (100 square feet each).

3. Conference Rooms. Conference rooms (enclosed) (200 square feet) and access to another conference room (350 square feet).

4. Storage and Filing. Two (2) lockable spaces for storage and filing at each field office (a combined space of 150 square feet).

5. Surveying Equipment Storage. Clean inside storage space for surveying equipment (80 square feet).

6. Tool Shed. Shed for small tools and equipment (outside) (150 square feet).

7. Site Amenities. A well-graded site for the office with access road, parking area, and security fence with lockable drive-in gates sufficient to enclose the office and parking area.

8. Staff Parking Area. A parking area for at least fifteen (15) vehicles that is reasonably level (all-weather surface and all-weather access) within the boundaries of a security fence.

9. Visitor Parking Area. An all-weather level surface outside the security fence to accommodate visitor parking (all-weather surface and all-weather access-minimum of 2,000 square feet).

10. Security. A 24-hour security service or silent watchmen-type security system.

11. Exterior Lighting. Sufficient exterior security lighting that is automatically activated at low light levels to maintain two (2) foot-candles of lighting within the fenced field office site.

12. Window Security. Security bars on all windows.

13. Laboratory Facility. A completed facility suitable to accommodate a functioning portable lab (approximately 2500 square feet).

14. Cultural Resources Storage. Sufficient space and covered facilities for any archeological or paleontological recovery operations (approximately 2,000 square feet).

15. Kitchen/Break Room. Each field office shall contain a 200 sq. ft. kitchen with storage closet (25 sq. ft.), cabinets with drawers and counter tops.

16. Restrooms. Two restrooms including toilets and sinks.

17. First Aid Facilities. Emergency first aid facilities.

Items Not Required. The following items are not required:

1. Laboratory Testing Equipment.

3 PUBLIC INFORMATION AND COMMUNICATIONS

3.1 General Requirements

Developer shall coordinate all public information communication plans with ongoing TxDOT public information activities to ensure that a consistent message is being distributed to the regional Customer Groups.

3.2 Administrative Requirements

No additional requirements.

3.2.1 Public Information and Communications Plan

Section 3.2.1 of Book 3 is replaced with the following:

Developer shall prepare a comprehensive Public Information and Communications Plan (PICP), based upon the preliminary communications plan submitted with Developer's Proposal, which informs, educates, and engages the Customer Groups throughout every stage of the Project. In preparing this plan, Developer shall identify the Customer Groups and develop specific plans to respond to their concerns and needs in all respects regarding the Project. After incorporation of comments from TxDOT on the plan, Developer shall implement the various activities and initiatives contained therein. Developer shall continually maintain the plan to ensure delivery of high-quality, well executed communications throughout the Term of the Agreement.

The PICP shall be flexible to capture the full magnitude of yet-to-be-determined impacts from Project activities such as design, construction, and maintenance, and the public's reaction to these and other impacts. The PICP shall also be resilient to successfully implement the outlined strategies, given the ever-changing desire for depth, breadth, and frequency of information by a variety of important Customer Groups such as the media, elected officials, and the general public.

The PICP shall include a general timeline listing public information activities for the Project over the entire Term of the Agreement.

TxDOT may audit Developer's performance of the activities set forth in the PICP. Developer shall make appropriate changes to the PICP as required to meet the findings of any audit or review and to suit the changing goals and needs of the Project. Developer shall cooperate with TxDOT to amend the PICP as required to suit circumstances as yet unknown, including public reaction to the impacts from the Work and the depth, breadth and frequency of information necessitated by Customer Groups. Developer shall document the efforts and results of the PICP in measurable terms to clearly indicate compliance.

Developer shall provide sufficient qualified staffing to effectively implement the PICP.

In developing the PICP, Developer shall make appropriate provisions to achieve the following:

Public Liaison

- Gain and maintain public support, building on existing community partnerships and communication networks.
- Provide the public with opportunities for input.
- Demonstrate to the public that the Project will be developed pursuant to a well-executed program.
- Notify the public in advance of key Project ROW acquisition, construction, and maintenance activities and communicate the potential impacts of these activities.

- Develop, disseminate and display timely, high-quality, innovative, user-friendly, accurate and appropriate community information including exhibits showing slope grading, drainage, bridge structures, retaining walls, sound walls, and Project ROW acquisition.
- Develop and manage a public relations campaign and communication strategy to convey key messages, branding and pertinent information about the Project.
- At appropriate times and stages and as requested by TxDOT, allow tours of the Project.
- Coordinate responses to invitations to attend group meetings, conferences, and other similar events.

Customer Groups

- Develop a forum to coordinate on-going dialogue among Customer Groups, TxDOT, and Developer.
- Prepare and distribute Project-related materials in a user friendly format to inform Customer Groups through appropriate means such as: meetings, interviews, media kits, news releases, telephone correspondence, newsletters, brochures, e-mail, hotlines, Highway Conditions Reports (HCRs), dynamic message boards, Web alerts, public opinion polls/surveys, videos, display booths, presentations, public access information kiosks, and special events.
- Organize and manage meetings with key elected officials, the general public, representatives of civic organizations, businesses, and special interest groups along the Project corridor (individually or in groups) for the purpose of building rapport with affected stakeholders.

Media

- Build on existing TxDOT media resources and/or create and develop advertising messages, including graphics, logos, and slogans.
- Place Project-related messages in the appropriate media.
- Develop and distribute public service announcements, paid advertising, and news reports.
- Manage media relations with key transportation and business reporters and prepare and distribute news releases and media kits.

Environmental

The PICP shall detail the communication hierarchy for information distribution related to the compliance with the Comprehensive Environmental Protection Plan, as described in Section 4 (Environmental). The PICP shall include names and contact information, including emergency contact information, and the preferred methods of routine, and emergency communication distribution.

Developer shall assign audit and quality assurance responsibilities to a member of his quality assurance team. The Public Information Coordinator shall not perform those duties because of the potential conflict of interest.

Copies of material are to be provided to TxDOT prior to dissemination to the media. TxDOT reserves the right to review and comment on the material prior to distribution.

3.2.2 Public Information Coordinator

No additional requirements.

3.2.3 Public Information Office

Section 3.2.3 of Book 3 is replaced with the following:

Developer shall maintain a public information office for the Term of the Agreement. The hours of operation for this office shall be as outlined in Book 2, Section 3.2.3. This office shall serve as the primary business location for the Public Information Coordinator and shall be conveniently located at the

Project office. The public information office shall facilitate the exchange of information between Developer and the public and provide a centralized location for residents and other Customer Groups to obtain information on the Project, including Project maps and Plans, alternative routes, lane closures, construction updates, community impacts, and commute options.

Developer shall maintain a public information office for the duration of the Agreement. This office shall facilitate the exchange of information between the Developer and the public and provide a centralized location for residents and other Customer Groups to obtain information on the Project, including Project maps and plans, alternative routes, lanes closures, construction updates, community impacts, and commuting options.

During major construction, the hours of operation of the public information office shall be as follows.

Monday–Friday	7:30 a.m.—6:00 p.m.
Saturday	9:00 a.m.—12:00 noon
Sunday	Closed

If there is an emergency or a need arises to better serve the Customer Groups, hours of operation may be required to be extended.

The public information office shall be co-located at the Project Office and shall have readily available at least two conference rooms capable of hosting community and stakeholder meetings. These conference rooms shall be at a convenient and accessible location that facilitates attendance by Customer Groups. One of these rooms shall accommodate at least 50 persons and another shall accommodate at least 15 persons.

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

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

To maximize public participation, public meetings shall be advertised with sufficient advance notice in the appropriate media outlets, such as the *Texas Register*, local newspapers, and television and radio stations. The Developer shall be solely responsible for meeting advertisement except that the *Texas Register* advertising shall be routed through TxDOT's Public Information Office.

3.2.6 Meeting Minutes

Developer shall submit draft versions of all meeting minutes to TxDOT for review before distributing final versions to the meeting attendees and appropriate Customer Groups.

3.2.7 Emergency Event Communications

No additional requirements.

3.2.7.1 Lane Closures

Section 3.2.7.1 of Book 3 is replaced with the following:

Subject to the lane closure restrictions set forth in Section 18 (Traffic Control), Developer shall provide TxDOT and appropriate Customer Groups a minimum of two weeks advance notice for lane closures and/or traffic switches planned to be in effect longer than 24 hours, and a minimum of 48 hours advance notice for lane closures that are planned to be in effect less than 24 hours, using all appropriate tools as needed. The Public Information Coordinator shall input all lane closures (or an event that results in lane closures) into the TxDOT HCR.

3.2.8 Disseminating Public Information

No additional requirements.

3.3 Deliverables

No additional requirements.

3.3.1 PICP

No additional requirements.

3.3.2 Meeting Minutes

No additional requirements.

4 ENVIRONMENTAL

4.1 General Requirements

The Program shall effectively demonstrate in detail the Developer's knowledge of all applicable project-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.

4.2 Environmental Approvals

No additional requirements.

4.2.1 New Environmental Approvals and Amended TxDOT-Provided Approvals

No additional requirements.

4.2.2 TxDOT Review and Approval of Developer Submissions

No additional requirements.

4.3 Comprehensive Environmental Protection Plan (CEPP)

The CEPP shall be completed in accordance with Attachment 2-1.

4.3.1 Environmental Management System (EMS)

No additional requirements.

4.3.2 Environmental Compliance and Mitigation Plan (ECMP)

The Developer shall document how they shall comply with the Migratory Bird Treaty Act (MBTA). The documentation at a minimum shall include.

- Process for training personnel on the requirements of the MBTA,
- Process for communicating any commitments regarding MBTA,
- Process for complying with any commitments.

4.3.3 Environmental Protection Training Plan (EPTP)

No additional requirements.

4.3.3.1 EPTP Scope and Content

No additional requirements.

4.3.4 EPTP Participation

No additional requirements.

4.3.4.1 EPTP Schedule

No additional requirements.

4.3.5 Hazardous Materials Management Plan (HMMP)

No additional requirements.

4.3.6 Communication Plan (CP)

No additional requirements.

4.3.7 Construction Monitoring Plan (CMP)

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 Project. 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. This inspection shall be performed by the Developer and may include representatives from TxDOT and the jurisdictional entity. Developer shall document the inspection with a report that shall include photographs, sketches, maps, and narratives clearly depicting the pre-construction Site condition.

The post-award inspection shall inspect the Municipal Separate Storm Sewer System (MS4) located within and adjacent to the Site. The purpose of this inspection is to document pre-existing drainage issues and problems that could later result in a fine or penalty imposed by the jurisdictional entity.

4.3.8 Recycling Plan

No additional requirements.

4.4 Environmental Personnel

No additional requirements.

4.4.1 Environmental Compliance Manager (ECM)

No additional requirements.

4.4.2 Environmental Training Staff

No additional requirements.

4.4.3 Environmental Compliance Inspectors (ECI)

No additional requirements.

4.4.4 Cultural Resource Management Personnel

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

4.4.5 Natural Resource Biologist

The Natural Resource Biologist shall meet the certification requirement of TxDOT Work Category, 2.6.1, "Protected Species Determination (Habitat)" and 2.6.3, "Biological Surveys."

4.4.6 Water Quality Specialist

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 project. The Water Quality Specialist shall meet the certification requirements of TxDOT Work Category 2.4.1, "Nationwide Permit."

4.4.7 Hazardous Materials Manager

No additional requirements.

4.5 Deliverables

No additional requirements.

5 THIRD PARTY AGREEMENTS

5.1 General Requirements

TxDOT has agreements with local Governmental Entities (third parties) along the Project that define the construction, maintenance, and operation of traffic signals, illumination, and roadway maintenance. Those agreements are provided in the Reference Information Documents.

5.2 Traffic Signals

New construction or modifications to the existing traffic signals are defined in Section 16 (Signing, Delineation, Pavement Marking, Signalization, and Lighting).

5.3 Roadway Illumination

Some local Governmental Entities may request continuous illumination along the frontage roads within the Project limits. Should this occur, additional agreements between TxDOT and the Governmental Entity will be required. Developer shall coordinate with and provide reasonable accommodations to the third party to carry out the installation, operations and maintenance obligations as specified in such agreements.

For sections of continuous lighting specified by these additional agreements, safety lighting included in that section is considered a component of the overall system and responsibilities for said safety lighting shall be those in the terms of the additional agreement.

New construction or modifications to the existing illumination are defined in Section 16 (Signing, Delineation, Pavement Marking, Signalization, and Lighting).

6 UTILITY ADJUSTMENTS

6.1 General Requirements

Section 6.1 is replaced with the following:

A number of existing Utilities are located within or in the vicinity of the Project 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 Project. This Section 6 establishes procedures and requirements for Adjusting Utilities 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 references certain TxDOT forms for the Developer's use in Adjusting Utilities. Copies of those forms are included in Attachment -6 - Utility Forms. Except as otherwise provided in this Section 6 or directed by TxDOT, whenever a TxDOT form is provided in Attachment 6, 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 Project. TxDOT will assist the Developer in the Utility Adjustment process, to the extent described in the CDA Documents. 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 the Developer with its own forces and/or Subcontractors 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 the 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 the Developer's obligations regarding the accommodation of Utilities from and after Substantial Completion, are set forth in Section 6.8 of the Agreement.

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

6.1.1 When Utility Adjustment is Required

No additional requirements.

6.1.2 Certain Components of the Utility Adjustment Work

No additional requirements.

6.1.2.1 Coordination

No additional requirements.

6.1.2.2 Betterments

No additional requirements.

6.1.2.3 Protection in Pace

No additional requirements.

6.1.2.4 Abandonment and Removal

No additional requirements.

6.1.2.5 Service Lines and Utility Appertunances

No additional requirements.

6.1.2.6 Early Adjustments

No additional requirements.

6.1.3 Reserved

No additional requirements.

6.1.4 Agreements Between Developer and Utility Owners

No additional requirements.

6.1.4.1 Master Utility Adjustment Agreements (MUAA)

No additional requirements.

6.1.4.2 Utility Adjustment Agreement Amendments

No additional requirements.

6.1.5 Recordkeeping

No additional requirements.

6.2 Administrative Requirements

No additional requirements.

6.2.1 Standards

Section 6.2.1 is replaced with the following:

All Utility Adjustment Work shall comply with all applicable Laws, these Technical Provisions, the Utility Adjustment Standards applicable pursuant to Section 6.8 of the Agreement, and the requirements specified in this Section 6.

6.2.2 Communications

No additional requirements.

6.2.2.1 Communication with Utility Owners: Meetings and Correspondence

No additional requirements.

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

No additional requirements.

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

No additional requirements.

6.2.4.5 Utility Joint Use Acknowledgements

No additional requirements.

6.2.4.6 Documentation Requirements

No additional requirements.

6.3 Design

No additional requirements.

6.3.1 Developer's Responsibility for Utility Identification

Section 6.3.1 is replaced with the following:

Developer bears sole responsibility for ascertaining, at its own expense, all pertinent details of Utilities located within the Project ROW or otherwise affected by the Project, whether located on private property or within an existing public ROW, and including all Service Lines. Developer's obligation shall include making diligent inquiries at the offices of the Utility Owners, consulting public records, and conducting SUE, including field studies (such as potholing), as appropriate, taking into consideration the possibility that the information provided to TxDOT (as reflected in the Utility Strip Map) may be inaccurate and that the Utility Owners may also provide to Developer inaccurate or inexact information with regard to their facilities.

TxDOT believes that the information provided is as complete as reasonably possible, based on the SUE services performed to produce the Utility Strip Map. However, Developer should expect discrepancies in size, location, ownership, and number of lines in a particular location, etc., and shall verify all information to its own satisfaction. Any inaccuracy in, or omission from, the information provided with respect to Utilities shall not relieve Developer from its duties with respect to the Utility Adjustment Work.

Regardless of the quality level SUE investigation work performed or provided by TxDOT, the Developer bears all risk of the actual locations of the Utilities. TxDOT accepts no risk involved in the actual location of the Utilities and has furnished Levels “B” through “D” data for informational purposes.

Accurate field verification of some Utilities will be required in order to design Project features to avoid conflicts, to Adjust the Utility or to conclude that neither is necessary. The extent of information needed, and the information provider for each facility, will be decided by mutual agreement between Developer and the Utility Owner. Field verification information shall be supplied, both horizontally and vertically, in the Project control datum to accurately apply the locations to the Project drawings and databases.

Developer shall prepare and submit to TxDOT, no later than 90 days after NTP2, or 30 days before the first assembly package is submitted, 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 "plain view" all of the Utilities within the Project ROW or other wise impacted by the Project, 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'.

6.3.2 Technical Criteria and Performance Standards

Section 6.3.2 is replaced with the following:

All design plans for Utility Adjustment Work, whether furnished by Developer or by the Utility Owner, shall be consistent and compatible with the following:

- The applicable requirements of the CDA Documents, including Section 6.2.1 (Standards)
- The Project as initially designed and constructed
- Any Utilities remaining in, or being installed in, the same vicinity
- All applicable Governmental Approvals
- Private approvals of any third parties necessary for such work

6.3.3 Utility Adjustment Concept Plans

No additional requirements.

6.3.4 Utility Adjustment Plans

No additional requirements.

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

No additional requirements.

6.3.4.4 Certain Requirements for Underground Utilities

No additional requirements.

6.3.4.5 Utility Assemblies

No additional requirements.

6.4 Construction

No additional requirements.

6.4.1 Reserved

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

No additional requirements.

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

No additional requirements.

6.4.8 Switch Over to New Facilities

No additional requirements.

6.4.9 Record Drawings

Section 6.4.9 is replaced with the following:

Developer shall provide Record Drawings to each Utility Owner for its Adjusted Utilities, in accordance with the applicable Utility Agreement(s).

Developer shall provide Record Drawings to TxDOT (regardless of whether design and/or construction of the subject Utilities was furnished or performed by the Developer or by the Utility Owner). These drawings shall show the location of, and label as such, all abandoned Utilities, shall show and label all other Utilities, whether remaining in place or relocated, located within the Project ROW or otherwise impacted by the Project, and shall otherwise comply with Section 2. Developer shall provide the Record Drawings for each Adjustment to TxDOT not later than ninety (90) Days after the Utility Owner accepts the Adjustment or before such earlier deadline as is specified elsewhere in the CDA Documents.

6.4.10 Maintenance of Utility Service

No additional requirements.

6.4.11 Traffic Control

No additional requirements.

6.5 Deliverables

No additional requirements.

6.5.1 Maximum Number of Submittals

Section 6.5.1 is replaced with the following:

Developer shall coordinate all Submittals required pursuant to this Section 6.5, so as not to submit overburden TxDOT's staff and consultants. In each calendar week, Developer shall not submit more than:

1. Five Utility Assemblies (excluding Supplemental or Abbreviated Utility Assemblies)
2. Five of any documentation constituting any of the following:
   - A modified or additional item submitted in response to TxDOT comments on a particular Utility Assembly
   - A Quitclaim Deed
   - Any other type of relinquishment document
3. Five Supplemental Utility Assemblies;
4. Five Abbreviated Utility Assemblies.

6.5.2 Developer's Utility Tracking Report

Section 6.5.2 is replaced with the following:

Developer shall maintain a Utility Tracking Report in tabular form, listing all Utilities located within the Project ROW or otherwise potentially affected by the Project. The Utility Tracking Report shall provide sufficient information to provide a clear and concise status of all aspects of each utility relocation on the project.

Developer shall submit the Utility Tracking Report to TxDOT and update it periodically in accordance with the PMP.

6.5.3 Utility Assembly Submittals

No additional requirements.

6.5.4 FHWA Alternate Procedure

Section 6.5.4 is replaced with the following:

The Developer will develop the Alternate Procedure List that includes the utility owner's name, approximate station numbers and estimated cost. TxDOT will then submit to the FHWA the Alternate Procedure List in order to obtain FHWA authorization for federal reimbursement Promptly upon determining that any additional Utility Owner not referenced on the Alternate Procedure List is impacted by the Project, Developer shall submit to TxDOT all documentation as referenced above in order to update the Alternative Procedure List.

TxDOT will forward the approved Alternate Procedure List (and any amendments thereto) to Developer, promptly upon receipt of same from the FHWA.

7 RIGHT OF WAY (ROW)

7.1 General Requirements

Section 7.1 is replaced with the following:

Developer's obligations in respect of the acquisition of Project ROW are set forth in Sections 6.1 of the Agreement.

This Section 7 sets forth the ROW activities that are assigned to Developer, including pre-acquisition and acquisition activities, and designates which ROW activities TxDOT will conduct. This section also sets forth the requirements applicable to the Work assigned to Developer related to the acquisition of Project ROW. Developer shall provide all services necessary to acquire title to the Project ROW, in form and substance acceptable to TxDOT, in the name of the State of Texas, relocation of displacees and

clearance/demolition of the improvements from the Project ROW, as more fully described in the following sub-sections.

Except as otherwise set forth in the Agreement, Developer's Project ROW staff and/or Contractors will function as independent contractors while acquiring Project ROW, and not as an agent, representative, or employee of TxDOT.

7.2 Administrative Requirements

No additional requirements.

7.2.1 Standards

No additional requirements.

7.2.2 Software Requirements

No additional requirements.

7.2.3 ROW Acquisition Plan

No additional requirements.

7.2.4 Schedule and Review Procedures

Section 7.2.4 is replaced with the following:

The Project Schedule shall indicate the date to begin the acquisition of the Project ROW and the anticipated completion date of acquisition activities for each parcel. TxDOT shall be advised of all Additional Properties and temporary rights or interests in real property to be acquired by Developer. In developing the Project Schedule, Developer will give priority to the acquisition of parcels that have significant impact on the Project Schedule and/or affect the Critical Path as so indicated. The monthly status reports required by Section 2.1.1 shall provide updated projections for the acquisition date of each parcel.

In developing the Project 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 Project Schedule, Developer shall assume that the reviews performed by TxDOT will require ten Business Days for Acquisition Packages that Developer submits as final and complete in accordance with Section 7.3.6 – Project ROW Acquisition Package Approval, up to a maximum of 25 Acquisition Packages. Any Submittals that would require TxDOT to review more than 25 Acquisition Packages within any given ten Business Day period shall be considered excess, and TxDOT may defer its review of any such Acquisition Packages to a subsequent ten Business Day period (or periods as necessary). TxDOT will notify Developer of its election to defer any excess Acquisition Packages within ten Business Days after receipt. The balance of Acquisition Packages in excess of 25 will be rolled over to the next ten 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 Project Schedule.

If TxDOT notifies Developer that any submitted Acquisition Package has a deficiency, Developer shall correct such deficiency and resubmit the package to TxDOT, which resubmissions shall be treated as a new Acquisition Package as described above. An Acquisition Package shall be deficient, as determined

by TxDOT, if any of its components fails to meet any of the criteria established by this section for such component, or contains any material errors or omissions.

TxDOT reserves the right to undertake additional review on Acquisition Packages that contain or identify facts or issues of an unusual nature or which do not clearly fit within TxDOT standards and will notify Developer in writing that the review period will be extended by an additional ten Business Days before rendering a decision to Developer.

Developer may request TxDOT to do a preliminary review of the survey, Project ROW map, and appraisal before the complete Acquisition Package is submitted. TxDOT may elect to review the preliminary submission of the survey and appraisal and notify Developer of any deficiencies within ten Business Days after TxDOT's receipt of such preliminary submission.

7.2.5 Developer's Project ROW Scope of Services

No additional requirements.

7.2.6 Acquisition Process Summary

Section 7.2.6 is replaced with the following:

Developer's major activities with respect to the acquisition of the Project ROW include:

- Project ROW surveying and mapping
- Project ROW budget estimates and updates
- Title services
- Appraisal services
- Appraisal review
- Negotiations
- Closing services
- Relocation assistance
- Condemnation support services
- Clearance and demolition of Project ROW
- Environmental due diligence
- Documentation and document control
- Progress reports
- Project ROW administration and management
- Project ROW quality management
- Letter from Developer's design engineer certifying that the required Project ROW acquisition is necessary and that any proposed alternatives are not feasible or are cost prohibitive
- Obtaining rights of entry, as necessary

7.2.7 ROW Personnel Qualifications

Section 7.2.7 is replaced with the following:

Developer's ROW Acquisition Manager shall have at least five years experience managing the acquisition of transportation right of way projects for a condemning authority, be licensed as a real estate salesman or broker pursuant to the Texas Real Estate Act or rules established by the Texas Real Estate Commission, be familiar with appraisal and appraisal report review pursuant to the Uniform Standards of Professional Appraisal Practice (USPAP), and be familiar with the Uniform Act and applicable Laws of the State of Texas.

Each Appraiser 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 Project in appraisal work primarily in Tarrant and/or Dallas Counties, 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 (3) 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 Project. 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 and 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 Project in land planning work primarily in Tarrant and/or Dallas Counties, or as approved by TxDOT. There shall be a minimum of two land planners who will be available to assist appraisers and provide complete land plans.

Each relocation agent shall have a minimum of three years experience in relocation assistance for right of way projects pursuant to the Uniform Act. A relocation agent's responsibilities shall include the following: Determination of eligibility of all displacees, contacting all displacees and informing them of their benefits, maintaining a file of all documentation concerning the relocation of the displacees, and extending all relocation assistance advisory services.

Each ROW negotiator shall be licensed either as a real estate sales person or broker pursuant to the Texas Real Estate Act or rules established by the Texas Real Estate Commission, and shall be familiar with appraisal and appraisal report review pursuant to the USPAP. The negotiator shall have a minimum of three years experience in right of way negotiations. The ROW negotiator's responsibilities shall include the following: contact with property owners on the Project to discuss the acquisition of property needed for the Project, maintain complete and accurate files of all transactions and contacts with the property owners and/or their representatives, and actively work toward a joint resolution to acquire the property with the property owner.

Each real estate attorney shall be licensed by the State of Texas and shall have at least five years experience in title review and curative matters. The following responsibilities can be handled by the real estate attorney or qualified ROW personnel: coordinate and clear all title issues, and compliance assistance with State and federal acquisition requirements for the properties acquired for the Project.

ROW personnel shall have at least three years experience in title review and curative matters. ROW personnel's responsibilities shall include, but not be limited to the following: maintain complete and accurate files of all transactions and contacts with the property owners and/or their representatives, coordinate and clear all title issues and assist at closing the properties acquired for the Project.

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

Section 7.2.11 is replaced with the following:

As set forth in Section 6.2.3 of the Agreement and as more fully described in this section, Developer shall be responsible for all services and preparation of all documentation for all Project ROW acquisition, easement acquisition, permitting and related relocation assistance for the Project. The Work related to Project ROW acquisition includes mapping, surveying, environmental assessment, testing and remediation, appraisal, appraisal review, negotiation, acquisition, procurement of title insurance, clearing of title, closing of acquisitions, condemnation support including expert witnesses required by TxDOT and/or the Attorney General's Office for all condemnation proceedings through Special Commissioner's Hearings. The Developer shall also be responsible for all exhibits, transcripts, and photos associated with condemnation services and proceedings required by the Attorney General's Office through Special Commissioner's Hearings and appeals, relocation assistance, and clearance/demolition of improvements, as required.

Developer and TxDOT acknowledge that Developer has incorporated the value of saleable improvements into the Project ROW costs and that 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.

Developer shall also be responsible for all services and preparation of all documentation for the acquisition of any temporary right or interest in real property that is not necessary for the Project but that Developer deems advisable to acquire for work space, contractor lay-down areas, material storage areas, borrow sites, or any other convenience of Developer. Except as otherwise authorized by Law for temporary areas that are necessary for construction of the Project, TxDOT shall not be obligated to exercise its power of eminent domain in connection with Developer's acquisition of any such temporary right or interest, and TxDOT shall have no obligations or responsibilities with respect to the acquisition, maintenance or disposition of such temporary rights or interests.

Developer shall be responsible for processing and distributing all payments of: agreed purchase prices or court awards and judgments; special commissioner's awards; relocation assistance payments; all legal, administrative and incidental expenses of, or related to, Project ROW (including the purchase price of Project ROW for drainage and other required easements); and temporary easements or other interests in real property acquired for the Project.

Developer shall notify TxDOT of all Developer Designated ROW and temporary rights of interests in real property to be acquired by the Developer. Developer must have prior approval from TxDOT in order to be reimbursed by TxDOT for Developer Designated ROW prior to the acquisition of all Developer Designated ROW. All Developer Designated ROW shall be acquired in the name of the State of Texas.

7.2.12 Responsibilities of TxDOT

Section 7.2.12 is replaced with the following:

TxDOT shall have the following responsibilities in connection with acquisition of Project ROW:

1. Except as otherwise set forth in this section, provide final approval for all Acquisition Packages, relocation assistance payments, administrative settlement requests, negotiated settlement requests, court settlement requests, payments and other approvals required by the CDA Documents, by the

State or by applicable Law within ten Business Days after receipt of complete Acquisition Packages from Developer.

2. After receiving a complete condemnation packet from Developer in accordance with Section 7.4.4-Condemnation Support, TxDOT will submit a minute order request on the agenda of the next scheduled Texas Transportation Commission meeting; provided the completed condemnation package is submitted ten business days before the Commission's required deadline for eminent domain minute order requests.
3. TxDOT will coordinate with the Office of the Attorney General to provide legal counsel to prepare and deliver to TxDOT the condemnation petition within 20 Business Days after the Attorney General's receipt of the condemnation packet, including Commission minute order approval. TxDOT shall deliver the condemnation petition to Developer within ten Business Days after receipt of the condemnation petition from the Office of the Attorney General.
4. TxDOT will provide all coordination services between Developer and the Office of the Attorney General for prosecution of jury trials.
5. TxDOT will provide a ROW Administrator to serve as first point of contact for all Project ROW issues as set forth in 23 CFR § 710.313(d).

7.2.13 TxDOT Project Monitor/Reviewer

No additional requirements.

7.2.14 Responsibilities of the Office of the Attorney General

No additional requirements.

7.3 Pre-Acquisition Activities

No additional requirements.

7.3.1 Project ROW Surveying and Mapping

Section 7.3.1 is replaced with the following:

Developer shall perform all Project ROW surveying and mapping and shall prepare all Project ROW documents in accordance with applicable TxDOT Standards, including the TxDOT *Right of Way Manual*, the TxDOT *Survey Manual*, and the TxDOT *GPS Manual*. Developer shall refer to the current *Manual of Practice* by the Texas Society of Professional Land Surveyors and the *US National Map and Accuracy Standards*. Developer shall refer to Section 9 (Land Surveying) for additional survey requirements.

When the final Project ROW map is prepared by Developer and submitted to TxDOT for review and approval, TxDOT shall have 15 Business Days for review of each submitted ROW map, up to a maximum of 25 parcels. Any submittals that would require TxDOT to review more than 25 parcels in a ROW map within any given 15 Business Day period shall be considered excess, and TxDOT may defer its review of any such excess parcels to a subsequent 15 Business Day period (or periods as necessary). The Project ROW map may be prepared in separate constructible segments as established by the logical termini of the Project.

Developer shall submit the Acquisition Packages in conformance with Section 7.3.6 (Project ROW Acquisition Package Approval)**.**

Developer shall prepare all Project 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, sketch, closure sheet, parent tract deed (& Bi-Section if applicable) secured inside on the right side. Note: just pencil on tab of folder what Parcel no. and FTW District will make the label.
d) Three copies (signed & 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 R.P.L.S. legal & 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 ROW map sheet and plat, shall show all areas of denied access according to the current TxDOT *Access Control Management Manual*.
3. The point of beginning (POB) shall be located on the proposed Project 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 Project ROW line, or existing Project ROW line within the proposed Project ROW.
5. The centerline (survey baseline) station and offset shall be shown on the Project ROW map sheets for all significant points along the Project 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 Project ROW line, and for any other monumentation points on the Project 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 Project ROW line.
7. Project 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 Project ROW, including intersecting rights of way, shall be surveyed and monumented (if not previously monumented).
9. All Project 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 Project grid-to-surface coordinate adjustment factor or refer to Primary Project Controls provided by TxDOT (refer to Section 9.2.3.1 and 9.2.3.2).
10. A Project ROW map title sheet with signature blocks shall be produced for each portion of the Project. Developer shall sign the Project ROW map.
11. All Project ROW maps shall include a control sheet (or sheets), to show the primary survey control points with their location relative to the Project.
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 Project ROW shall be depicted on the Project 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 Project ROW line shall be located by an "on-the-ground" survey and documented on the Project ROW map sheets and the parcel plats by measured offset distance from the proposed Project 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 of the Project 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 Project ROW line, as described above, and all property line intersections with the Project 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 ROW maps and surveys by TxDOT, Developer shall cause a TxDOT Type II monument to be set at all significant points on the Project ROW line and at intersections with existing Project 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 Project ROW line and at intersections with existing Project ROW lines, replacing monuments as described above, unless directed by TxDOT. Project ROW line intersections with property lines shall remain monument 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 Project ROW acquisition or as directed by TxDOT, Developer shall replace it with a TxDOT Type II monument, on the final Project ROW lines, perpendicularly left and right of each significant centerline point, regardless of the relative orientation of the final Project 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 Project 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. The documents produced by the surveyor are the property of TxDOT, and release of any document shall be subject to TxDOT's prior written approval.
23. Developer shall cause the surveyor to include the denial of access line on the Project 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" the limits of the denial of access..
24. The Project 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 Project 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 Project 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.

25. Within the proposed Project ROW, all property owned by a city, county, or other local public agency (LPA) in fee or easement that does not have a vesting deed shall be identified by a parcel number and included on the Project ROW map. Developer shall cause the surveyor to prepare a parcel description and parcel plat for use as an exhibit in the Project ROW acquisition (property transfer) documents.
26. 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).
27. 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 Project ROW acquisition parcel identified as Parcel 14, a 5-acre tract is sold which will also require Project ROW acquisition. The result is, Parcel 14 is "Not Used", and the two new Project ROW acquisition parcels are identified as Parcel 14A and 14B. If the property containing Parcel 14B sells a portion, then 14B is "Not Used" and the new Project 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.
28. Complicated portions of a Project ROW acquisition survey can cause the Project ROW Map to be very difficult to read. TxDOT's preferred solution is to create an additional Project 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.
29. 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 Project 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 Project ROW line, and the sheet number in the Project ROW map where the parcel is located.
30. 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.
31. 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 Project and shall be responsible for proper storage thereof.
32. Developer at the request of the property owner or TxDOT shall re-stake the proposed ROW with ½" iron rod and aluminum cap.

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 Project ROW Acquisition Package Approval

No additional requirements.

7.4 Acquisition Activities

No additional requirements.

7.4.1 ROW Negotiations

Section 7.4.1 is replaced with the following:

Developer shall conduct all negotiations in accordance with the requirements of applicable Law. In conjunction with negotiations, Developer shall:

- Within ten Business Days of TxDOT's approval of the Acquisition Package, contact each property owner or owner's designated representative, in person where practical, to present the offer and deliver an appraisal report (appraisal report cannot be more than 6 months old) and appropriate brochures. A copy of the appraisal report for the subject property shall be provided to the property owner or authorized representative at the time of offer. Developer shall also maintain a file record of receipt of appraisal signed by the property owner. Developer shall also maintain follow-up contacts and secure the necessary documentation and title curative Work upon acceptance of the purchase offer.
- At the time of offer, produce and distribute to all property owners and displacees, TxDOT- approved informational brochures, as appropriate. The ROW brochures shall be purchased by Developer and shall include language about the use of the Declaration of Taking Procedure if the Developer anticipates requesting the utilization of this procedure by TxDOT anywhere within the Project.
- Identify lessees, licensees, occupants, or other parties with potential compensable interests including outdoor advertising sign owners, and, if appropriate, after consultation with TxDOT, negotiate with such parties for the acquisition of their compensable interests.
- 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 7.2.1-Standards TxDOT shall determine whether to accept a settlement request. Delivery of the administrative settlement request and Developer's recommendation to TxDOT must occur within five Business Days of Developer's receipt of the administrative settlement request.

Developer, at its request or the request by TxDOT and/or the TxDOT Administrative Settlement Committee, may participate in the evaluation of the administrative settlement request and attend the committee meeting.

Developer shall provide a letter with the TxDOT Administrative Settlement Committee's response to the property owner, lessee, licensee, occupant, or other holder of a compensable interest, as applicable. Developer shall deliver all settlement responses (if within reasonable proximity of the Project) by hand within three Business Days after receipt. If this delivery method is not feasible, Developer shall mail (return receipt requested) response letters not more than three Business Days following any decision by the TxDOT Administrative Settlement Committee. If Developer selects the mailing option, Developer shall make a telephone call to the property owner to discuss the settlement offer prior to mailing the response letter. The TxDOT ROW Administrator, on an as needed basis, will convene the TxDOT Administrative Settlement Committee.

Notwithstanding an unsuccessful completion of the formal administrative settlement process, Developer may, in its sole discretion, engage in ongoing negotiations with the owners of compensable interests. Developer shall develop and incorporate in its ROW Acquisition Plan a procedure for these negotiated settlements. Said negotiations may continue until such time as the Texas Transportation Commission adopts a minute order authorizing the filing of a condemnation petition. Developer shall submit to TxDOT its recommendation of a negotiated settlement and obtain TxDOT's consent prior to acceptance of any settlement.

Provide timely (i.e., not more than ten Business Days after inquiry) response to the verbal or written inquiries of any property owner, lessee, licensee, occupant or other holder of a compensable interest, as applicable.

Prepare a separate negotiator contact report for each meeting or conversation with any person (or their appointed representative(s) supported by a written confirmation of appointment) who has a compensable interest in each parcel on TxDOT Form ROW-N-94 – Negotiator's Report. Contact reports shall also be prepared for unsuccessful attempts to contact such persons.

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 7.2.1-Standards All original ROW documents must be retained and properly secured in Developer's Project office or as otherwise approved by TxDOT. Signed original documents shall be periodically forwarded to TxDOT with a transmittal form during the acquisition process as requested by TxDOT; provided, however, that all remaining original documents shall be forwarded upon completion of the acquisition of Project ROW for the Project.

Prepare and deliver documents of conveyance (including bisection clause and access clause, if applicable) to the property owner, lessee, licensee, occupant, or other holder of any compensable interest, as applicable, and obtain their execution of the same. All signatures on documents to be recorded shall be notarized in accordance with Texas law.

Pursue and obtain Possession and Use Agreements (PUA) concurrently with the parcel negotiations. The form of PUA will be provided by TxDOT and will contain provisions allowing for construction to commence while negotiations are finalized. Such agreements will be sought and negotiated by Developer strictly in accordance with the Law and only with the prior written consent of TxDOT. If Developer exercises the use of a TxDOT PUA, Developer must obtain a deed or commence action on condemnation proceedings by forwarding a condemnation packet to TxDOT for approval within six months from the date of the PUA.

Be open to all reasonable settlement requests (that comply with the regulations as outlined in this section) from the property owners, which are feasible and help expedite the Project ROW acquisition process. Developer acknowledges and understands that TxDOT encourages all positive and creative solutions which satisfy the property owner and promote the success of the Project.

Developer shall prepare and deliver a final offer letter to the property owners, lessees, licensees, occupants, or other holders of any compensable interest, as applicable. The letter shall be on Developer's letterhead and shall be signed by the ROW Acquisition Manager. Developer shall submit to TxDOT, a copy of the final offer letter within two days after delivery to the property owner.

If the offer is not accepted, Developer shall follow the procedures established for condemnation.

7.4.2 Relocation Assistance

No additional requirements.

7.4.3 Closing Services

No additional requirements.

7.4.4 Condemnation Support

Section 7.4.4 is replaced with the following:

Developer shall support condemnation efforts as directed by TxDOT and further delineated as follows:

1. Notify TxDOT of any potential condemnation and document the reason(s) for condemnation including recommendations for property closure.
2. Conduct all applicable eminent domain-condemnation activities in accordance with the policies and procedures as described in the TxDOT *Right of Way Manual*, Volume 4: "Eminent Domain "; in the TxDOT *Appraisal and Review Manual*, Chapter 6 "Eminent Domain-State Acquisition" or as revised; and in Chapter 21, Texas Property Code.
3. After non-response or upon receipt of a copy of the rejected final offer from a property owner or other property right holder entitled to compensation, request an updated title report from the title company issuing the original title commitment.
4. Provide to TxDOT, within ten Days following non-response or rejected certified mailing, notification thereof together with a signed and sealed parcel description and parcel plat, and a bisection clause and access clause, if necessary, with the clauses attached to a property exhibit containing the parcel description and parcel plat.
5. Use the information from the title report to join all parties having a property interest on applicable the TxDOT form. Spouses of property holders with compensable rights must also be joined.
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 most recent approved appraisal report, and proof of good faith negotiations. Submit two complete condemnation packets to TxDOT's ROW Administrator.
7. Send a copy of the complete petition to the title company and confirm with the title company that the appropriate parties were joined in the case and that no changes in title have occurred since the original litigation guaranty was issued.

8. File the petition for condemnation with the appropriate court clerk after a determination that a timely settlement is not feasible.
9. Coordinate and provide legal and technical support to the Attorney General's office, as required to facilitate filing the petition, assignment of a court, and setting of a hearing date.
10. Make available to TxDOT on behalf of the Attorney General's office an agent who will be expected to assist in making arrangements for conferences with witnesses prior to trial, filing the condemnation petition, informing the Attorney General's office as to the filing date of the petition and the case number assigned to the suit, and perform any other duties which will assist in the successful prosecution of the suit, including his or her attendance in court and filing necessary documents to complete all eminent domain proceedings.
11. Depending on the market conditions or if over six months have elapsed since the date of the initial offer, contact the attorney handling the case for TxDOT and confer about the advisability of preparing an updated appraisal. If it is determined that an updated or new appraisal is necessary or desirable, obtain such appraisal using the same procedures as described in Section 7.3.5.1 (Appraisal Services) above. Developer must also undertake appraisal review as described in Section 7.3.5.2 (Appraisal Review).
12. Coordinate with TxDOT on behalf of the Attorney General as to land planners and/or other expert witnesses as required by the Attorney General. Developer, at its cost, shall provide the land planner or other expert at the request of TxDOT or the Attorney General. The land planner or other expert report, if required, shall be completed and forwarded to the appraiser before the updated appraisal is completed.
13. Appear or provide for the appearance of expert witness(es) or fact witness(es) when requested by TxDOT or the Attorney General's Office. The appearances may include pre-commissioner's hearing preparations, special commissioner's hearings, and subsequent proceedings including jury trials and related proceedings.
14. Submit the updated appraisal to TxDOT and the attorney handling the case for TxDOT for review and approval, which review and approval shall occur within ten Business Days of receiving the updated appraisal. TxDOT and Developer must approve any revised offer in writing prior to an offer letter being sent. If a revised offer is approved, prepare a final offer letter, make the revised offer to the property owner or other holder of a compensable interest, as applicable, and submit a copy of the final offer letter to TxDOT for written approval.
15. Communicate with TxDOT as to the parcel status on a monthly basis and in the Project progress report or as requested by TxDOT.
16. Serve in person, a "Notice of Hearing" at least 11 Days prior to the date of the special commissioners' hearing or other hearings and notice requirements as directed or authorized by the court.
17. Call and send reminders letter two to three weeks in advance of any hearing to the assigned attorney, engineer, technical experts, appraiser, the commissioners, court reporter, and TxDOT's ROW Administrator concerning hearing dates.
18. Upon completion of the hearing, prepare TxDOT Form ROW-E-73 – Data Sheet – Special Commissioners Hearing and commissioners' time sheets. Developer shall make payment to all commissioners involved in the hearing and include payment for commissioners as part of general Project ROW services.
19. Coordinate and provide support to TxDOT's counsel and facilitate distribution of copies of award, prepare request for payment, and file notice of deposit. Developer shall coordinate with TxDOT on behalf of the Office of the Attorney General regarding expert witnesses needed to testify on behalf of the State at the special commissioners' hearing and subsequent proceedings including jury trials. At the request of the Office of the Attorney General or TxDOT, Developer shall provide and pay for all necessary expert witnesses including: engineering, land planners, real estate consultants, cost estimators, outdoor advertising sign experts and environmental consultants and Developer shall appear as expert witness or fact witness, as requested. Developer

shall also make any Contractors available to appear as an expert witness or fact witness, as requested at the special commissioners' hearing or subsequent proceedings. The selection of all expert witnesses to be used for jury trials shall be determined by the Attorney General's Office.

20. Schedule and pay for all court reporter services, transcription costs, expert witness fees, exhibits, and exhibit workbooks as directed by TxDOT. All documents and exhibits used in the special commissioner's hearings shall be submitted to TxDOT within 20 Days after completion of such hearing.
21. Be responsible for coordinating the pre-hearing meeting with TxDOT on behalf of the Attorney General's office and all others required for testimony or exhibit preparation.
22. Timely file and provide proper service of objections if requested by TxDOT after completion of the special commissioner's hearing and promptly provide evidence of filing and copies of all filed documents to TxDOT. Within three days after objections have been filed, Developer, at its cost, shall order transcripts of such hearing.

7.4.5 Clearance/Demolition of Project ROW

No additional requirements.

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 Acquisitions

Section 7.5 is replaced with the following:

TxDOT will acquire all DFW-Airport Parcels.

TxDOT shall notify the Developer if certain Project ROW parcels in addition to the DFW-Airport Parcels are scheduled to be acquired by Governmental Entities prior to issuance of the NTP. The Developer will be updated regularly on the status of the acquisition process for each parcel.

After NTP, Developer shall be responsible for coordinating the scheduling of any remaining early Project ROW acquisition by other Government entities with the Project Schedule. Based on the status of each parcel, TxDOT may require the Developer to complete the acquisition of certain parcels with the exception of the DFW-Airport Parcels.

8 GEOTECHNICAL

8.1 General Requirements

No additional requirements.

8.2 Design Requirements

8.2.1 Subsurface Geotechnical Investigation by Developer

No additional requirements.

8.2.2 Pavement Design

Section 8.2.2 of Book 3 is replaced with the following:

Developer shall design, construct, and, where applicable, maintain roadway pavements using Good Industry Practice and the subsurface geotechnical data collected by Developer. The pavement designs shall be signed and sealed by a Professional Engineer Registered in the State of Texas. Developer shall include the proposed pavement designs for the Project in the Proposal and shall indicate the applicable roadway and station limits for each pavement design. Where applicable, the Proposal shall also include a detailed description of the proposed pavement maintenance program for the duration of the Maintenance Agreement. The Developer shall provide in the Proposal a tabulation of the design k-values, resilient modulus, or other basis for the pavement thickness designs, and including station limits. After Developer has completed its pavement investigations and analyses, Developer shall provide verification of the Proposal pavement designs for TxDOT review.

The TxDOT *Pavement Design Manual* shall be the basis for all pavement designs for the Project, and is supplemented with the requirements contained within this document as identified in the paragraphs in this section. Where there are conflicts between the requirements in these two documents, the requirements in this document shall take precedence.

The number of ESALs and/or the traffic volumes to be used in the pavement designs shall be those provided in Book 2. Lane distribution factors for both flexible and rigid pavement designs shall be applied in accordance with the following criteria:

Table 1. Lane Distribution Factors

Total Number of Lanes in One Direction	Lane Distribution Factor
One or two lanes	1.0
Three lanes	0.7
Four or more lanes	0.6

Developer should expect that subgrade materials will vary throughout the Project limits. Developer shall verify that the materials encountered or imported meet the Effective Modulus of Subgrade Reaction, modulus, or other design subgrade support value as utilized for the structural section design. If the site subgrade materials have a lower value than used for the Proposal-phase pavement designs, Developer shall submit an adjusted pavement design for review and acceptance by TxDOT.

Developer shall prepare separate pavement designs, as applicable, for the following:

- Mainline and ramp pavements
- Mainline and Ramp Toll Plazas including the entrance and exit transitions
- Frontage road pavements
- Cross-road pavements
- Service driveways and parking areas
- Temporary pavement construction areas

Pavement design report(s) shall document the assumptions, considerations, and decisions contributing to Developer's pavement designs, including the following:

- Pavement design details by location, including structural layer materials, general specifications, and thicknesses
- Where applicable, lifecycle management analysis, including the periods for resurfacing, reconstruction, and other rehabilitation measures and what these activities are likely to entail
- Site conditions which might influence the design and performance of pavements
- Relevant geotechnical data and drainage requirements including boring logs, laboratory soil test results, and active or passive drainage system design
- Design criteria used in determining the pavement design(s), including traffic loads, pavement material characterization, environmental conditions, and pavement design life
- Other considerations used in developing the pavement design(s), including subgrade preparations and stabilization procedures

8.2.2.1 *Methodology Enhancements*

No additional requirements.

8.2.2.2 *Related Pavement Materials Specifications*

No additional requirements.

8.2.2.3 *Pavement Type Selection*

All permanent pavements on the project shall be designed and constructed as rigid pavements.

8.2.2.3.1 Rigid Pavement

Section 8.2.2.3.1 of Book 3 is replaced with the following:

Design Specification. Rigid pavement shall be designed in accordance with the TxDOT's Pavement Design Guide using the design inputs as summarized in the table below.

Table 8-2. Rigid Pavement Design Inputs

28 day Concrete Modulus of Rupture, psi	620
28 day Concrete Elastic Modulus, psi	5,000,000
Effective Modulus of Subase/Subgrade Reaction, psi/inch	300 psi/inch max.
Serviceability Indices ▪ Initial Serviceability Index ▪ Terminal Serviceability Index	 4.5 2.5
Load Transfer Coefficient	*
Drainage Coefficient	**
Overall Standard Deviation	0.39
Reliability %	95
Design Traffic, 18 Kip Equivalent Single Axle Load (ESAL)	Provided in Book 2
* Table 8-1, *TxDOT Pavement Design Guide, Revised October 2006* ** Table 8-2, *TxDOT Pavement Design Guide, Revised October 2006*	

Effective Modulus of Subgrade Reaction. The Effective Modulus of Subgrade Reaction (k in psi/in) is to be used for design and the value to be achieved at all times during construction activities.

Potential Vertical Rise (PVR). Developer shall design the overall subgrade and pavement structure to have a PVR no greater than 1.0 inch as calculated in accordance with TEX-124-E from soil tests in a soil column 20 feet deep as measured from the proposed finished pavement grade. Alternatively, provide materials that result in an Effective Plasticity Index (PI) of less than 25 when calculated to a depth of 8 feet from finished pavement surface for mainline pavements, and to a depth of 7 feet from finished pavement surface for non-mainline pavements. Calculation and sampling requirements for determination of Effective PI are stated in Section 8.3.1 Pavement Material Requirements.

8.2.2.3.2 Flexible Pavement

There shall be no permanent flexible pavements designed and constructed on the Project.

8.3 Construction Requirements

No additional requirements.

8.3.1 Pavement Materials Requirements

Section 8.3.1 of Book 3 is replaced with the following:

The Developer shall incorporate the following requirements into the preparation of the initial pavement designs for the proposal and the subsequent final pavement designs, plans, quality control and quality assurance programs, and the field construction procedures. Subject to approval by the Owner, alternate material specifications and construction requirements may be proposed by the Developer provided the objectives of the project are met and an equivalent pavement structure is provided.

Subgrade Material Composition. The Developer shall analyze subgrade material composition, design the pavement structure, and perform necessary construction procedures to eliminate soluble sulfate induced heave. When soluble sulfates may present a potential for a reaction detrimental to the pavement structure, Developer shall submit alternate designs and/or construction procedures for Owner approval.

When quantities of soluble sulfates detected are greater than 500 ppm, the Developer shall determine the source of the sulfate and whether there are greater concentrations existing or that would be created when pulverized in and surrounding the sampled location. The TxDOT "Guidelines for Treatment of Sulfate-

Rich Soils and Bases in Pavement Structures" shall be used to assist with testing and detection. For the extent of soil containing greater than 3000 ppm soluble sulfate minerals, a minimum of 12 inches of sulfate-free fill material shall separate the bottom pavement layer assigned structural credit and the sulfate bearing soil. No soil shall have additives introduced to such material that would cause a detrimental reaction to the pavement structure or its ride quality as measured by the International Roughness Index (IRI).

Effective Plasticity Index (PI). The same method of determining Effective PI shall be used for both design and verification of design. Developer shall determine the Effective PI for unstabilized subgrade to the depth specified below finished pavement surface. The Effective PI shall be determined, using Tex-106-E, via a process that proportionately accounts for the plasticity contribution of the soil binder (material passing the #40 sieve) for each individual one foot layer, or portion thereof, to the depth specified. The Effective PI is ultimately a weighted average of the Plasticity Indices of the material in the soil column analyzed. For example, the sum of all PI measurements representative of each one foot deep sample tested divided by the total depth designated by the pavement type; i.e. 8 feet for mainline pavements and 7 feet for non-mainline pavements. Concrete, hot mix asphaltic concrete, stabilized base courses, granular base, and stabilized subgrade/embankment are considered to be non-swelling with no PI. Stabilized materials shall meet material requirements stated herein.

Unbound Base. Where one or more unbound layers of granular base are placed, a Grade 1 or Grade 2 base as defined by Item 247 of the TxDOT *Standard Specifications* is required. A minimum placement thickness of 6 inches is required.

Stabilized Base. Stabilized base may either be modified with chemical additives or asphaltic binders. Liquid additives shall not be used. Materials to be stabilized shall meet the requirements of either Grade 1 or Grade 2 base as defined by Item 247 of the TxDOT *Standard Specifications*, and shall have a minimum thickness of 6 inches. Asphalt stabilized base material will meet the requirements of Item 292 of the TxDOT *Standard Specifications*. When chemical additives are used to stabilize base, Table 5 will be used to determine the stabilizer content. Stabilized base will be designed to achieve the unconfined compressive strength shown in Table 5 immediately following a 10-day capillary moisture conditioning. Moisture conditioning will be conducted in a similar method as that used in TEX-121-E.

Table 8-5. Minimum and maximum retained unconfined compressive strength values to be achieved when using chemical additives for stabilization, by pavement type.

Pavement Type	Minimum UCS (psi)	Maximum UCS (psi)
Flexible Pavement	300	500
Rigid Pavement	500	750

Subbases.

(a) Granular Materials. Materials classified by the Unified Soil Classification System as any of the following: GP, GM, SW, SP, SM, SC, ML, shall be stabilized if present within 30 inches of the finished pavement surface. The aforementioned materials may be used as a subbase and included as a structural layer when stabilized and meet the requirements of stabilized subbase as defined herein. These materials shall be stabilized, when required, to achieve a minimum layer thickness of 6 inches. Untreated granular base meeting the requirements of Item 247, Grade 1 or 2 may replace these materials without restriction.

(b) Stabilized Subbase. Materials not included in Granular Materials above, do not meet the requirements of Item 247, TxDOT Standard Specifications, or materials that have a Plasticity Index (PI) value less than 25, may be stabilized and used as a structural layer. For structural

layers, provide a minimum 6-inch thickness of compacted material. Stabilized subbase materials shall be designed to achieve not less than 100 psi unconfined compressive strength immediately following a 10-day capillary moisture conditioning. Moisture conditioning will be conducted in a similar method as that used in TEX-121-E. These materials shall be designed as defined in test methods used for the selected additive.

(c) Stabilized Subgrade. If subgrade stabilization is used for purposes of providing a working platform then no structural benefits can be claimed and the stabilized subgrade shall not be included in the pavement design. For structural layers, provide a minimum 6-inch thickness of compacted material. If a structural layer is required, design and mold subgrade material with the desired additive using the TxDOT test method appropriate for the additive incorporated. The design shall achieve not less than 100 psi unconfined compressive strength immediately following a 10-day capillary moisture conditioning conducted in a method similar to that used in TEX-121-E.

Surface Course. The surface course for all roadways utilizing flexible pavement design shall be a minimum of two (2) inches of asphaltic concrete pavement.

8.3.2 Construction Verification

Section 8.3.2 is replaced with the following:

General. The independent Construction Quality Acceptance Firm (CQAF) shall perform the Developer's quality acceptance. The construction verification tasks described below are part of the CQAF quality acceptance efforts.

Effective Modulus of Subgrade Reaction. The Developer shall verify that the design effective modulus of subgrade reaction has been achieved through the field construction activities. This verification process shall include field sampling and testing activities designed to provide confirmation of the design effective modulus of subgrade reaction. This verification process shall be described in a plan that includes, but not limited to, the verification methodology, example calculations, reference documents, and frequency of field sampling and testing. The Developer shall submit this verification plan to the Owner for review and comment.

Effective Resilient Modulus, (MR). The Developer shall provide subgrade modulus verification testing in accordance with AASHTO T307. Retrieve a randomly selected verification sample at a minimum rate of one sample (three replicates per sample) for each 2500 linear feet of roadbed; where the roadbed has a dimensioned width greater than 100 feet, one additional sample will be collected and tested. Frontage and other access roads are sampled and tested independently if more than 100 feet separates the roadbeds or are not parallel to the mainline alignment. Additional samples shall also be taken at each location where a significant and recognizable change in subgrade material (a change in USCS classification) is encountered during grading operations.

Where multiple layers of material are present, MR shall be determined for the representative soil within three feet in depth from the finished pavement subgrade elevation. Where rock is the predominant subgrade and MR determination is not practical, a maximum MR of 25,000 psi may be assumed.

Regardless of the position of the layer or material sampled and tested, use only the AASHTO T307 load sequence number 7 of 15 for verification testing (4 psi confining pressure, 4 psi maximum axial stress for Type 2 materials; 10 psi confining pressure, 10 psi maximum axial stress for Type 1 materials). The MR results from this testing shall be compared to the Effective MR selected for use in designing the pavement structure, to confirm that the material meets the design criteria. If the materials fail to meet the criteria, Developer shall be responsible to take corrective action that is acceptable to the Owner.

Effective Plasticity Index (PI). The Developer shall demonstrate to the Owner that the specified design requirements are met by randomly selecting at least one location per 2,500 linear feet of roadbed and shall sample the subgrade materials to a depth below finished pavement surface as designated by the pavement design. Mainline roadbeds, ramps, and frontage roadbeds are considered independently. Sampling shall also take place when a recognizable change in the subgrade material is encountered during grading operations as determined by a change in Unified Soil Classification System classification.

The Developer shall provide for the testing of these materials in accordance with Tex-106-E to determine the Effective PI. The results shall be compared to design requirements to confirm that the strata meet the design criteria. If the materials fail to meet the criteria, Developer shall be responsible to take corrective action that is acceptable to the Owner

Smoothness Specification. Smoothness of the pavement constructed shall conform to the requirements of TxDOT Item 585, Ride Quality for Pavement Surfaces, amended as cited below:

Article 585.3 Bullet B1. Travel Lanes. This paragraph is modified to delete "Unless otherwise shown on plans, ".

Additionally, Surface Test Type A shall be utilized for all longitudinal profiling except for intersections.

Article 585.3D. Acceptance Plan and Pay Adjustments. The entire section is voided and replaced by the following:

The Owner will evaluate profiles based on the CQAF test results to determine acceptance and corrective action. Corrective action acceptable to the Owner is required, at the Developer's sole expense, for any 0.1-mile section that measures an average IRI in excess of 75 inches per mile for rigid pavements, or in excess of 65 inches per mile for flexible pavements. After making corrections, reprofile the pavement section to verify that corrections have produced the required improvements.

Use diamond grinding or other methods approved by the Owner to correct surface areas that have more than 1/8 inch variation between any two contacts on a 10-foot straightedge. Use diamond grinding or other approved methods to remove localized roughness as determined using an inertial profiler in accordance with TEX-1001-S. For asphalt concrete pavements, fog seal the aggregate exposed from diamond grinding.

Article 585.4 Measurement and Payment. The entire section is voided.

8.4 Deliverables

No additional requirements.

9 LAND SURVEYING

9.1 General Requirements

No additional requirements.

9.2 Administrative Requirements

No additional requirements.

9.2.1 Standards

No additional requirements.

9.2.2 Right-of-Entry

No additional requirements.

9.3 Design Requirements

No additional requirements.

9.3.1 Units

The surface adjustment factor for the Project is provided for use as follows:

- Tarrant County: 1.00012

Developer shall convert State Plane to surface by multiplying the State Plane Coordinate by the appropriate surface adjustment factor.

9.3.2 Survey Control Requirements

Section 9.3.2 of Book 3 is replaced with the following:

Developer shall base all additional horizontal and vertical control on the Level 2 and Level 3 control provided by TxDOT.

Developer shall establish and maintain additional survey control as needed and final ROW monumentation throughout the duration of the Project. Developer shall replace all existing survey monuments and control points disturbed or destroyed until Final Acceptance.

Developer shall tie any additional horizontal and vertical control for the Project to the TxDOT-supplied Primary (Level 2) or Secondary (Level 3) control network. If Developer chooses to use GPS methods, Developer shall meet the accuracy of the appropriate level of survey as defined in the TxDOT *GPS User's Manual*.

All survey control points shall be set and/or verified by a Registered Professional Land Surveyor licensed in the State of Texas.

If the Developer chooses to use Global Positioning System (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 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, secondary control coordinate values, original computations, survey notes, and other records, including GPS observations and analysis made by Developer as a condition to Substantial Completion.

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

Replace Table in Book 3 Section 9.3.3.2 with the following:

	1st ORDER	2nd ORDER	3rd ORDER	REMARKS AND FORMULAE
Error of Closure	0.013 feet $\sqrt{K}$	0.026 feet $\sqrt{K}$	0.039 feet $\sqrt{K}$	Loop or between control monuments
Maximum Length of Sight	250 feet	300 feet		With good atmospheric conditions
Difference in Foresight and Backsight Distances	±10 feet	±20 feet	±30 feet	Per instrument set up
Total Difference in Foresight and Backsight Distances	±20 feet. per section	±50 feet per section	±70 feet per section	Per total section or loop
Recommended Length of Section or Loop	2.0 miles	3.0 miles	4.0 miles	Maximum distance before closing or in loop
Maximum Recommended Distance Between Benchmarks	2000 feet	2500 feet	3000 feet	Permanent or temporary benchmarks set or observed along the route
Level Rod Reading	± 0.001 foot	± 0.001 foot	± 0.001 foot	

Recommended Instruments and Leveling Rods	Digital Level, Automatic or tilting w/ parallel plate micrometer precise rods	Digital Level, Automatic or tilting w/ parallel plate micrometer precise rods	Digital Level, Automatic or tilting w/ parallel plate micrometer precise rods	When two or more level rods are used, they should be identically matched
Principal Uses	Broad area control, subsidence or motion studies jig & tool settings	Broad area control, engineering projects basis for subsequent level work	Small area control, drainage studies, some construction and engineering	

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

Section 9.4.1 of Book 3 is replaced with the following:

Comply with Technical Provisions.

9.4.2 Construction Surveys

Section 9.4.2 of Book 3 is replaced with the following:

Comply with Technical Provisions.

9.5 Deliverables

9.5.1 Survey Records

No additional requirements.

9.5.2 Final ROW Surveying and Mapping

No additional requirements.

9.5.3 ROW Monuments

Not Used

10 GRADING

10.1 General

No additional requirements.

10.2 ROW Preparation

No additional requirements.

10.3 Slopes and Topsoil

No additional requirements.

10.4 Sodding

No additional requirements.

10.5 Deliverables

Not used.

11 ROADWAYS

11.1 General Requirements

No additional requirements.

11.2 Design Requirements

Section 11.2 of Book 3 is replaced with the following:

Developer shall coordinate its roadway design with the design of all other components of the Project, including aesthetics. The Project roadways shall be designed to integrate with streets and roadways that are adjacent or connecting to the Project.

Developer shall design all Elements in accordance with the applicable design criteria and Good Industry Practice based on the Design Speeds for various Elements.

The Project roadways shall be designed to incorporate roadway appurtenances, including fences, noise attenuators, barriers, and hazard protection as necessary to promote safety and to mitigate visual and noise impacts on neighboring properties.

11.2.1 Control of Access

Section 11.2 of Book 3 is replaced with the following:

Unless shown to be deleted in the Configuration 3 or as amended in the Configuration 3, Developer shall maintain all existing property accesses, including those not shown on the schematic, and shall not revise control of access.

11.2.2 Roadway Design Requirements

Developer shall design the Elements of the Project to meet or exceed the geometric design criteria noted in Table 11-1A (Geometric Design Criteria).

Developer shall coordinate, design and construct the improvements on crossing streets in accordance with the Governmental Entity having jurisdiction of said roadway. The crossing streets shall incorporate the design criteria noted in Table 11-2 (Crossing Street Functional Classifications).

11.2.2.1 Roadway Design Deviations

The roadway schematic used for environmental approval has the following design deviations to the geometric design criteria stated in Table 11-1. These values are less than is usually considered Good Industry Practice, so the Developer is encouraged to prepare a final design that meets or exceeds the geometric design criteria. If extenuating circumstances persist in which the Developer has demonstrated the design can not meet the geometric design criteria, then TxDOT will approve design deviations at these locations.

1. The vertical profile for the Direct Connector SH 121 South to Spur 97 South between Sta. 5901+50 to Sta. 5910+00 may be designed using a gradient not greater than 4.57%.

2. The vertical profile for the Direct Connector SH 26 North to SH 121 North between Sta. 3262+50 to Sta. 3270+50 may be designed using a gradient not greater than 4.41%.

3. The vertical profile for the Direct Connector SH 121 North to WB SH 114 William D. Tate between Sta. 609+75 to Sta. 615+25 may be designed using a gradient not greater than 4.93%.

4. The vertical profile for the Direct Connector SH 114 West to SH 121 North between Sta. 34+00 to Sta. 35+30 may be designed using a gradient not less than 0.25%.

5. The vertical profile for the Northbound Frontage Road SH 121 NB (From IH 635 West) between Sta. 2937+75 to Sta. 2952+53 may be designed using a gradient not less than 0.25%.

6. The vertical profile for the Ramp SH 114 WBFR to FM 1709 West between Sta. 703+50 to Sta. 730+00 may be designed using gradients not greater than 5.00%.

7. The vertical profile for the Ramp SH 114 West to Main between Sta. 5+50 to Sta. 10+00 may be designed using a gradient not greater than 4.43%.

8. The vertical profile for the Ramp SH 114 EBFR to SH 114 East (FM 1709) between Sta. 6+50 to Sta. 13+00 may be designed using a gradient not greater than 5.00%.

9. The vertical profile for the Ramp SH 114 WB to SH 26 between Sta. 6+00 to Sta. 14+00 may be designed using a gradient not greater than 4.80%.

10. The vertical profile for the Ramp SH 121 North to SH 121 NBFR (Exit to Stone Myers) between Sta. 18+50 to Sta. 32+25 may be designed using a gradient not greater than 5.00%.

11. The vertical profile for the Ramp SH 121 SBFR (Bass Pro) to SH 121 South between Sta. 11+75 to Sta. 21+50 may be designed using a gradient not greater than 5.00 %.

12. The vertical profile for the Ramp SH 360 NBFR to SH 121 North between Sta. 4+75 to Sta. 12+50 may be designed using a gradient not greater than 4.52%.

13. The vertical profile for the Ramp SH 121 NBFR (Bass Pro) to SH 121 North between Sta. 7+75 to Sta. 11+75 may be designed using a gradient not greater than 4.30%.

14. The vertical profile for the ramp SH 121 South to Texan Trail between Sta. 9+00 to Sta. 16+50 may be designed using a gradient not greater than 5.00%.

15. The vertical profile for the Ramp FM 2499 to FM 2499 NBFR between Sta. 5+50 to Sta. 8+00 may be designed using a gradient not greater than 5.00%.

16. The vertical profile for the Ramp SH 114 WBFR (Bass Pro) to IH 635 between Sta. 5+50 to Sta. 14+75 may be designed using a gradient not greater than 4.75%.

17. The vertical profile for the Ramp Westbound to Texan Trail between Sta. 13+50 to Sta. 16+00 may be designed using a gradient not less than 0.29%.

18. The vertical profile for the Direct Connector IH 635 EB between Sta. 5931+25 to Sta. 5964+00 may be designed using a gradient not greater than 4.93%.

19. When it is not practicable to provide the stopping sight distance on horizontal curves along direct connectors and mainlanes correlating with the design speeds in Table 11-1 the amount of stopping sight distance required to be provided must be at least the amount correlating with the geometrics in the TxDOT-provided schematics. The inside shoulder width on ramps or direct connectors may be increased to 8 feet with a corresponding decrease in the outside shoulder width to 4 feet.

20. For Configuration 2 only, the allowable minimum design speed for Ramp S121972 is 45 mph and the maximum allowable grade for the ramp vertical profile is 5.0%.

21. For Configuration 1 and Configuration 2 only, when it is not practicable to provide minimum vertical clearances described in Table 11-1 for transition pavements that widen an existing pavement under existing bridges, clearances less than 16’6” may be utilized.

Table 11-1: Geometric Design Criteria [1]

	Mainlines	Frontage Roads	Ramps, Direct Connectors, and Collector Distributor	Other Streets
General				
Roadway Classification	Urban Freeway or Tollway	Urban Collector	Urban Freeway or Tollway	Urban Minor, Principal Arterial, Collector
Design Speed	55mph for FM 2499 70 mph for SH 114/121 and IH 635	40 mph	50 mph	(see Table 11-2)
Horizontal Alignment				
Max. Superelevation Rate	6%	2%	6%	N/A
Absolute Min. Radius	1065' (55 mph) 2050' (70 mph)	675'	835'	940' (45 mph) 675' (40 mph) 475' (35 mph) 300' (30 mph)
Vertical Alignment				
Minimum Grade	0.35 percent	0.35 percent	0.35 percent	0.35 percent
Maximum Grade	3.0 percent	7.0 percent	4.0 percent	6.0 percent (50 mph) 7.0 percent (40 mph) 9.0 percent (30-35 mph)
Minimum K_{sag}	115 (55 mph) 181 (70 mph)	64	96	79 (45 mph) 64 (40 mph) 49 (35 mph) 37 (30 mph)
Minimum K_{crest}	114 (55 mph) 247 (70 mph)	44	84	61 (45 mph) 44 (40 mph) 29 (35 mph) 19 (30 mph)
Cross-Section				
Lane Width	12'	12'	14' (24' for two lane) 12' Collector Distributor	12'
Shoulder Width:				
Inside Shoulder	4' (10' for three lanes)	NA (curbed)	4' [4] (10' for three lanes)	NA (curbed)
Outside Shoulder	10' [9]	NA (curbed)	8' [4] (10' for three lanes)	NA (curbed)
Curb Offset	N/A	2'	N/A	Refer to Table 11-2
Cross-Slope Managed Lanes:				
General-Purpose Lane	2.0 percent			
- Inside 2 Lane	2.0 percent	2.0 percent	2.0 percent	2.0 percent
- Outside Lanes	2.5 percent	2.0 percent	2.0 percent	2.0 percent
Clear Zone				

Distance from Edge of Travel Lane Unless Noted Otherwise	30’	3’ from face of curb	16’	Refer to Notes 2 and 3.
Side slopes: -within clear zone -outside clear zone	 6:1 max 3:1 max	 6:1 max 3:1 max	 6:1 max 3:1 max	 6:1 max 3:1 max
Vertical Clearance (Minimum)				
Over Roadway [5] Over Streets [5] Over Railroad Over Electrified Light Rail Overhead Signs [5] Pedestrian Crossings [5]	16’-6” 16’-6” 23’-0” 26’-6” 21’-0” 17’-6”	16’-6” 16’-6” 23’-0” 26’-6” 21’-0” 17’-6”	16’-6” 16’-6” 23’-0” 26’-6” 21’-0” 17’-6”	16’-6” 16’-6” 23’-0” 26’-6” 21’-0” 17’-6”
Other				
Design Vehicles Driveway Radius	WB-50 N/A	WB-50 [6] 30’ min commercial 15’ min. residential	WB-50 N/A	As noted in Table 11-2 20’ min. commercial 5’ min. residential

Notes:

1. Design criteria lower than shown above will not be allowed without TxDOT approval.
2. See Table 11-2 (Crossing Street Functional Classifications).
3. The face of the new bridge columns shall be located 6 feet or more from the face of curb.
4. 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.
5. Vertical clearances shall be measured from the top of the 30-year pavement section, including any future overlay stages of the pavement design.
6. The Design Vehicle at the frontage road intersections with Texan Trail and with Main shall be WB-62.
7. Jug handles to be designed for minimum 20 mph design speed with a maximum 4% superelevation.
8. Allow minimum radius of u-turn connections at the service roads as shown in the schematics provided.
9. For Configuration 1 only, the minimum outside shoulder width for a 1-lane managed lane facility is 8 feet. The minimum lane width remains at 12 feet and the minimum inside shoulder width remains at 4 feet.

Table 11-2: Crossing Street Functional Classifications

Intersecting Street	Jurisdiction	Functional Classification	Design Speed (mph)	Position (over/under)	Design Vehicle	Ultimate Configuration													
		Roadway Classification				U-Turn	Sidewalk and Min. Usable Width	Curb and Gutter	SB offset to face of curb	SB Thru Lanes	Turn Lanes	NB Thru Lanes	NB offset to face of curb	Curb and Gutter	Sidewalk and Min. Usable Width	Clear Zone for Cross Street Thru Lanes	U-Turn	Bike/Ped Accommodation?	Pedestrian Protection Barrier
W Northwest Hwy E of SH 114	South-lake	Arterial Urban	40	over SH 114	WB-50	Y	Y (6')	Y	2'	3 (12')	24' median with turn bays	3 (12')	2'	Y	Y (6')	3'	Y	Y	N
FM 1709 (E Southlake Blvd)	South-lake	Arterial Urban	40	over SH 114	WB-50	Y	Y (6')	Y	2'	3 (12')	14' continuous left after DC	3 (12')	2'	Y	Y (6')	3'	N	Y	N
SH 26 E of SH 114	TxDOT	Arterial Urban	45	under SH 114	WB-50	Y	Y (10')	Y	2'	2 (12')	16' median with turn bays	2 (12')	2'	Y	Y (6')	3'	N	Y	N
SH 26 W of SH 114	TxDOT	Arterial Urban	45	under SH 114	WB-50	Y	Y (10')	Y	2'	3 (12')	16' median with turn bays	3 (12')	2'	Y	Y (6')	3'	N	Y	N
W D Tate Ave E of SH 114	Grape-vine	Collector Urban	40	over SH 114	WB-50	Y	Y (6')	Y	2'	2 (12')	16' median with turn bays	2 (12')	2'	Y	Y (6')	3'	Y	Y	N
W D Tate Ave W of SH 114	Grape-vine	Collector Urban	40	over SH 114	WB-50	Y	Y (6')	Y	2'	3 (12')	16' continuous left	3 (12')	2'	Y	Y (6')	3'	Y	Y	N
Main St	Grape-vine	Arterial Urban	35	over SH 114/121	WB-62	Y	Y (6')	Y	2'	2 (12')	2 (12')	2 (12')	2'	Y	Y (6')	3'	Y	Y	N
Texan Trail	Grape-vine	Collector Urban	40	over SH 114/121	WB-62	Y	Y (6')	Y	2'	2 (12')	2 (12') with curbed median	2 (12')	2'	Y	Y (6')	3'	N	Y	N
Bass Pro Dr	Grape-vine	Collector Urban	30	over SH 21	WB-50	Y	Y (6')	Y	2'	3 (12')	2 (12') with curbed median	3 (12')	2'	Y	Y (6')	3'	Y	Y	N
Grapevine Mills Blvd	Grape-vine	Arterial Urban	30	over 2499	WB-50	N	Y (6')	Y	2'	3 (12')	2 (12') with curbed median	3 (12')	2'	Y	Y (6')	3'	Y	Y	N

Intersecting Street	Jurisdiction	Functional Classification / Roadway Classification	Design Speed (mph)	Position (over/under)	Design Vehicle	Ultimate Configuration												
						U-Turn	Sidewalk and Min. Usable Width	Curb and Gutter	SB offset to face of curb	SB Thru Lanes	Turn Lanes	NB Thru Lanes	NB offset to face of curb	Curb and Gutter	Sidewalk and Min. Usable Width	Clear Zone for Cross Street Thru Lanes	U-Turn	Bike/Ped Accommodation?	Pedestrian Protection Barrier
Stars & Stripes Way	Grape-vine	Collector Urban	30	over 2499	WB-50	Y	Y (6')	Y	2'	2 (12')	2 (12')	2 (12')	2'	Y	Y (6')	3'	N	Y	N
Mustang Dr N of SH 121	Grape-vine	Collector Urban	40	over SH 121	WB-50	N	Y (6')	Y	2'	2 (12')	curbed median with turn bays	2 (12')	2'	Y	Y (6')	3'	N	Y	N
Stone Meyers Pkwy	Grape-vine	Collector Urban	30	under SH 121	WB-50	Y	Y (6')	Y	2'	3 (12')	curbed median with burn bays	3 (12')	2'	Y	Y (6')	3'	Y	Y	N
FM 2499 North of Denton Creek	Grape-vine	Arterial Urban	45	N/A	WB-50	N	N	Y	1'	3 (12')	N/A	3 (12')	1'	Y	N	3'	N	N	N

Notes:

1. Developer shall only be responsible for design and construction of crossing streets that are within the limits of the applicable configuration (see Attachments 1-4 and 1-6).

11.2.2.1 Miscellaneous Roadway Design Requirements

All roadside safety devices such as metal beam guard fence, bridge rails, sign supports, light poles, and crash cushions shall satisfy the performance criteria of the latest report and shall comply with the findings and recommendations of the *Roadway Safety Process Review–Final Report* (dated October 23, 2000), which was conducted by FHWA and TxDOT.

Driveways shall be designed in accordance with the latest TxDOT's *Roadway Design Manual—Appendix C,* "Driveway Design Guidelines.

11.3 Deliverables

Section 11.3 of Book 3 is replaced with the following:

Deliverables shall include the preliminary Configuration 3 Design as part of Exhibit 17 (Listing of Reference Information Documents) and any subsequent changes to the Configuration 3 Design.

12 DRAINAGE

12.1 General Requirements

No additional requirements.

12.2 Administrative Requirements

12.2.1 Data Collection

No additional requirements.

12.2.2 Coordination with Other Agencies

No additional requirements.

12.3 Design Requirements

Section 12.3 of Book 3 is replaced with the following:

Developer shall design all Elements of the drainage facilities in accordance with the applicable design criteria and Good Industry Practice. Local requirements, if more stringent than those of the CDA Documents, shall supersede other requirements and be handled with a third party agreement.

The design of drainage systems shall include reconfiguration of the existing drainage systems within the Project limits, and design of new and reconfigured storm drainage systems as required to meet the performance requirements as defined in this Section 12.

Developer shall provide facilities compatible with existing drainage systems and all applicable municipal drainage plans or approved systems in adjacent properties. Developer shall preserve existing drainage patterns wherever possible.

Elements of the existing drainage system within the Project limits scheduled to remain in place must meet hydraulic capacity requirements as detailed in Book 2, Section 12. If any Elements of the existing system do not comply with the requirements of Section 12 (Drainage) or Section 13 (Structures), those Elements shall be replaced by Developer.

Developer may make use of existing drainage facilities, provided overall drainage requirements for the Project are achieved and the combined drainage system functions as intended.

Developer shall base its Final Design on design computations and risk assessments for all aspects of Project drainage.

Developer shall design roadside open channels such that the profiles have adequate grade to minimize sedimentation.

Stormwater pump stations shall not be used on the Project.

12.3.1 Surface Hydrology

No additional requirements.

12.3.1.1 Design Frequencies

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

Table 12-1: Drainage Design Frequencies

	Design					Check Flood
Functional Classification and Structure Type	**2**	**5**	**10**	**25**	**50**	**100**
Interstate, controlled-access highways and managed toll lanes (main lanes):						
♦ culverts					X	X
♦ bridges					X	X
Principal arterials:						
♦ culverts				X		X
♦ small bridges				X		X
♦ major river crossings					X	X
Minor arterials and collectors (including frontage roads):						
♦ culverts				X		X
♦ small bridges *				X		X
♦ major river crossings					X	X
Storm drain systems on Interstate and controlled-access highways and managed toll lanes (main lanes):						
♦ inlets and drain pipe					X	X
♦ inlets for depressed roadways**					X	X
Storm drain systems on other highways and frontage:						
♦ inlets and drain pipe			X			X
♦ inlets for depressed roadways**					X	X

Notes.

* Small bridges are considered less than 50 feet in length.

** A depressed roadway provides nowhere for water to drain even when the curb height is exceeded. Curb height is defined as five (5) inches.

12.3.1.2 Hydrologic Analysis

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. Developer shall design all drainage facilities to accommodate probable land use in 2030 in accordance with current development policy.

Developer shall design drainage structure capacities for the maximum hydrologic conditions described in Table 12-1, above.

12.3.2 Storm Sewer Systems

No additional requirements.

12.3.2.1 Pipes

No additional requirements.

12.3.2.2 Ponding

Section 12.3.2.2 of Book 3 is replaced with the following:

Developer shall design drainage systems to limit ponding to the widths listed below for the design frequency event:

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 Toll Lanes: Single Lane Multiple Lanes	 Low shoulder plus 2 ft. 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 each direction.	No adverse impact on adjacent property

* Highways with two or more lanes in each direction

12.3.3 Stormwater Storage Facilities

No additional requirements.

12.3.4 Hydraulic Structures

No additional requirements.

12.3.4.1 Culverts

Bridge class culverts shall have a minimum rise of four feet.

Existing bridge-class culverts with a sufficiency rating of less than 50 shall be classified as deficient.

12.3.4.2 Bridges

No additional requirements.

12.3.4.2.1 Method Used to Estimate Flows

Section 12.3.4.2.1 of Book 3 is replaced with the following:

Developer shall ensure that the selected hydrologic method is appropriate for the conditions in the watershed.

For all crossings located within a FEMA Flood Insurance Study (FIS) with peak flow information, Developer shall gather and utilize, as appropriate, the flow information provided in the FIS and any subsequent Letters of Map Revision (LOMR) for estimating flow. Developer shall model FEMA flow in order to meet the National Flood Insurance Program (NFIP) criteria and requirements. However, Developer must size structures based on flow determined in accordance with the methodology stated in Section 12.3.1.2.

For a crossing on the same waterway as a stream gauging station with a length of record of at least 25 years, Developer shall collect and use the flow data available from the station, as appropriate, to determine design flows within the following limitations, provided there is no major control structure (e.g., a reservoir) between the gauge and the Project:

- For crossings near the gauging station on the same stream and watershed, use the discharge directly for a specific frequency from the peak stream flow frequency relationship.
- For crossings within the same basin but not proximate to the gauging station, transposition of gauge analysis results is allowable.
- For crossings not within a gauged basin, the peak-flow flood frequency shall be developed using data from a group of several gauging stations based on either a hydrologic region (e.g., regional regression equations), or similar hydrologic characteristics.
- If no significant changes in the channel or basin have taken place during the period of record, the stream gauging data may be used. The urbanization character of the watershed must not be likely to change enough to affect significantly the characteristics of peak flows within the total time of observed annual peaks and anticipated service life of the highway drainage facility.

For crossings not located within a FEMA FIS or on a gauged waterway, Developer shall select the appropriate method for calculating the design flows based on site conditions, and Good Industry Practice.

12.3.4.2.2 Design Frequency

Section 12.3.4.1.2 of Book 3 is replaced with the following:

Major river crossings, bridges, culverts and storm drain systems shall be designed for the design-year frequency corresponding to the functional classification of the associated roadway. The functional classification for each roadway is shown in Book 2, Section 11.

Developer shall evaluate bridges for contraction scour and pier scour concerns and incorporate protection in accordance with Good Industry Practice.

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 two (2) feet of freeboard.

12.3.4.2.3 Hydraulic Analysis

No additional requirements.

12.3.4.2.4 Bridge/Culvert Waterway Design

No additional requirements.

12.3.4.2.5 Bridge Deck Drainage

No additional requirements.

12.3.4.2.6 Drainage Report for Major Stream Crossings

No additional requirements.

12.4 Construction Requirements

No additional requirements.

12.5 Deliverables

Section 12.5 of Book 3 is replaced with the following:

Within 30 days of Substantial Completion, Developer shall submit to TxDOT, as part of the Record Drawings, a Drainage Design Report, which shall be a complete documentation of all components of the Project's drainage system. At a minimum, the Drainage Design Report shall include:

- Record set of all drainage computations, both hydrologic and hydraulic, and all support data.
- Hydraulic notes, models, and tabulations
- Storm sewer drainage report
- Bridge and culvert designs and reports for major stream crossings
- Pond designs, including graphic display of treatment areas and maintenance guidelines for operation
- Correspondence file
- Drainage system data (location, type, material, size, and other pertinent information) in a suitable electronic format

13 STRUCTURES

13.1 General Requirements

For bridges, walls, bridge class culverts, sign structures and other miscellaneous structures, a Corridor Structure Type Study and Report shall be submitted to TxDOT for review and comment prior to design of these Elements. At a minimum, structural concepts, details and solutions, soil parameters, hydraulics, environmental requirements, wetland impacts, safety, highway alignment criteria, constructibility, aesthetics requirements, and continuity for the Project shall be evaluated in the Study and Report. Evaluation of existing structures that will be retained shall be included in the Study and Report. The Study and Report shall clearly define Developer's actions to achieve a 100-year service life for Project bridges, walls, culverts and miscellaneous structures.

13.2 Design Requirements

No additional requirements.

13.2.1 Design Parameters

Section 13.2.1 is replaced with the following:

Developer shall ensure that bridges crossing over waterways withstand a 500-year frequency event with no loss of structural integrity.

Bridges crossing over the Project shall, at a minimum, be designed to accommodate the Project and all planned expansions or updates of each facility by its respective owner as provided in the Configuration 3 Design provided by TxDOT. Alignments shall meet the requirements indicated in Book 2, Section 11 for the functional classification of each roadway.

Unless otherwise noted, the design of 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*.

Sidewalks shall be provided on both sides of the following bridges:

- Bethel Road/Bass Pro Drive
- Texan Trail
- Main Street/Spur 103
- William D. Tate Avenue
- Stars and Stripes Way
- Mustang Drive
- Grapevine Mills Boulevard

13.2.2 Bridge Design Loads and Load Ratings

Section 13.2.2 is replaced 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 of structure.

Developer shall provide to TxDOT both an inventory and an operating load rating of the constructed structures in accordance with TxDOT and federal rules and regulations. Load ratings shall be in accordance with AASHTO's *Manual for Condition Evaluation of Bridges*.

13.2.3 Bridge Decks and Superstructures

Section 13.2.3 is replaced with the following:

Timber bridges, masonry bridges, and structural plate arches are not allowed. Bridges shall not use intermediate hinges.

Fracture-critical members shall not be used for bridges without written authorization from TxDOT. Fracture-critical members shall be designed to allow full access for inspection.

Developer shall minimize the number of deck joints wherever possible. Developer shall locate joints to provide for maintenance accessibility and future replacement. Joints for all grade-separation structures shall be sealed.

Developer shall protect sidewalks from vehicular impact by a TxDOT-approved bridge railing as required in the TxDOT *Bridge Railing Manual* based on roadway Design Speed. For the applicable configuration, pedestrian rail shall be used along structure pavement edges and installed to minimize future damage when accommodating the Configuration 3.

To the extent possible, Developer shall make bridge superstructures, joints, and bearings accessible for long-term inspection and maintenance. Developer shall make open-framed superstructures accessible with walkways or by use of ladders or an under-bridge inspection truck.

Steel and concrete box girders shall be accessible without impacting traffic below; Developer shall make steel and concrete box girders with a minimum inside depth of six (6) feet to facilitate interior inspection. Developer shall include a minimum access opening diameter of 3'-0" 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. An electrical system (110 volts [V] and 220V) shall be incorporated inside the box girder with lighting and power outlets. Developer shall install air-tight and locked entryways on all hatches and points of access.

13.2.4 Bridge Foundations

No additional requirements.

13.2.5 Bridge Railing and Barriers

Section 13.2.5 is replaced with the following:

All barrier systems used on the Project shall meet current crash test requirements as determined by TxDOT. All testing and associated costs for non-standard railings shall be the sole responsibility of Developer and shall be accomplished through a third party acceptable to TxDOT. TxDOT will provide a current list of standard railing in Book 2, Section 13.2.5 and will provide updated lists upon request. Developer shall protect sidewalks from vehicular impact by using TxDOT-approved bridge railings.

Refer to Table 13-1 (TxDOT Standard Bridge Railing) for the list of standard railings.

Table 13-1: TxDOT Standard Bridge Railing

TRAFFIC RAILS		
Rev Date	**Std Name**	**Description**
04-05	T101	Steel Post with W-Beam (27” tall)
04-05	T203	Concrete Parapet w/5-ft Openings (27” tall)
04-05	T221	Concrete Parapet (32” tall)
04-05	T401	Concrete Parapet w/Stl Post and Rail (33” tall)
04-05	T402	Concrete Parapet w/Stl Post and Rail (42” tall)
04-05	T411	Concrete Traffic Rail w/windows (TX Classic) (32” tall)
04-05	T501	Concrete Safety Shape (32” tall)
04-05	T502	T501 w/Multiple Drain Slots (32” tall)
04-05	T503	Pre-cast T501 w/Anchor Bolts (32” tall)
04-05	T504	Pre-cast T501 for Box, Slab & Dbl-T Beams (32” tall)
04-05	T77	Steel Post w/Two Elliptical Pipes (33” tall)
04-05	HT	Heavy Truck Traffic Rail (50” tall)
04-05	SSTR	Single Slope Traffic Rail (36” tall)
COMBINATION RAILS		
Rev Date	**Std Name**	**Description**
04-05	C203	T203 w/Steel Pipe Rail (42” tall)
04-05	C221	T221 w/Steel Pipe Rail (42” tall)
04-05	C402	T402 w/Steel Pipe Rail (42” tall)
04-05	C411	Comb Rail w/windows (TX Classic) (42” tall)
04-05	C501	T501 w/Steel Pipe Rail (42” tall)
04-05	C502	C501 w/Multiple Drain Slots (42” tall)
MISCELLANEOUS RAILS		
Rev Date	**Std Name**	**Description**
02-03	T101RC	Retrofit Guide for T101 on Curbs
02-03	T1-101R	Retrofit (Convert T1 to T101)
04-05	T2/T201TR	Guide for T2/T201 (Retrofit Thrie-Beam Transition)
04-05	T202TR	Guide for T202 (Retrofit Thrie-Beam Transition)
02-03	T501R	T501 Retrofit Guide
02-03	T6R	T6 Retrofit Guide
04-05	TRF	Traffic Rail Foundation
04-05	PR1	Pedestrian Rail (42” tall)
04-05	PR2	Pedestrian Rail (42” tall)
03-06	PR3	Pedestrian Rail (43.75” tall)
03-06	BR3	Pedestrian/Bicycle Rail (55.75” tall)
04-05	B221	T221 w/Chain Link Fence (Bicycle) (68” tall)”

13.2.6 Retaining Walls

Section 13.2.6 is replaced with the following:

Developer shall design and construct components of the Project to provide embankments without the use of retaining walls. Where earthen embankments are not feasible, Developer may use retaining walls.

Wall types and components will be allowed only if:

- They have been accepted for general use by transportation authorities.
- Developer can demonstrate that the design of the wall type and components will perform well under the Project’s environmental conditions.

Metal walls, including bin walls, steel modular walls and sheet pile walls, recycled material walls and timber walls are not allowed. Modular walls employing interlocking blocks shall not be used where surcharge loads from vehicular traffic are present.

No weep holes through the face of the retaining walls will be allowed, except at the base of the walls.

Mechanically stabilized earth (MSE) walls shall not be used to support abutment foundations on the Project.

Reinforcement elements in permanent MSE walls shall be designed to have adequate corrosion resistance and durability to provide a 100-year service life following the completion of construction.

13.2.7 Noise/Sound Walls

No additional requirements.

13.2.8 Drainage Structures

Section 13.2.8 is replaced with the following:

In developing the design of drainage structures, Developer shall account for maximum anticipated loadings encountered during the Project.

Energy dissipaters, if used, shall be considered as structural Elements.

13.2.9 Sign, Illumination, and Traffic Signal Supports

Section 13.2.9 is replaced with the following:

Developer shall design overhead and cantilever sign supports to accommodate the Project configuration. Cantilever and sign bridge supports shall be placed outside the clear zone or shall be otherwise protected by appropriate safety measures.

13.3 Construction Requirements

No additional requirements.

13.3.1 Concrete Finishes

Section 13.3.1 is replaced with the following:

Concrete finishes shall comply with the performance requirements as stated in Book 2 Section 15.

13.3.2 Structure Metals

Section 13.3.2 is replaced with the following:

Welding shall be in accordance with the requirements of the ANSI/AASHTO/AWS Bridge Welding Code.

13.4 Deliverables

Section 13.4 is replaced with the following:

Developer shall submit an inventory and operating ratings of constructed structures with the Record Drawings.

The following shall be submitted to TxDOT:

- Corridor Structure Type Study and Report
- Design notebooks
- Structure load ratings

14 RAIL

14.1 General Requirements

Section 14.1 is replaced with the following:

This section defines the criteria required for the Project to accommodate and/or design and construct across adjacent railroad facilities.

14.2 Administrative Requirements

No additional requirements.

14.2.1 Project Work Affecting Railroad Operations

No additional requirements.

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

No additional requirements.

14.2.3 Operation Safety

No additional requirements.

14.2.4 Railroad Right of Entry Agreement

No additional requirements.

14.2.5 Developer Right of Entry Agreement

No additional requirements.

14.2.6 Insurance Requirements

No additional requirements.

14.3 Design Requirements

No additional requirements.

14.4 Construction Requirements

Section 14.4 is replaced with the following:

Developer shall comply with all construction requirements and specifications set forth by the operating railroad.

Developer shall be responsible for scheduling the work to be completed by operating railroad as well as the work to be completed by its own forces.

14.5 Deliverables

No additional requirements.

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

No additional requirements.

14.5.2 Insurance

No additional requirements.

15 AESTHETICS AND LANDSCAPING

15.1 General Requirements

No additional requirements.

15.2 Administrative Requirements

Section 15.2 is replaced with the following:

This Section 15 presents minimum aesthetics and landscape design requirements for Project designs. For purposes of this Section 15, the following list of items will be considered the aesthetics Elements of the Project design:

- Material, finish, color, and texture of bridge Elements
- Materials, finish, and color of barriers and railings
- Paved slope treatments
- Finish, color, and texture of retaining and noise walls
- Contour grading, slope rounding, channel treatments, and drainage
- Sculptural and artistic features of other structures
- Material, finish, and color of light poles and mast arms
- Sidewalks, median or pedestrian specialty paving, including material, finish, and color
- Hardscape at interchanges and intersections
- Gateway and wayfinding markers
- Fencing
- Signage – overhead, attached, and ground-mounted
- Gantries
- Trees, shrubs, and other plant material
- Any permanent building construction within the Project, including ancillary support, operational, and toll collections
- Light fixture, ambient light colors, and general layout conditions

15.2.1 Aesthetics Concepts

Section 15.2.1 is replaced with the following:

Developer shall prepare three aesthetics concepts of the Project for presentation to local communities and Customer Groups. Developer shall base this presentation on the principles, requirements, and strategies provided in Section 15.3 (Design Requirements). Before presenting the aesthetics concepts to the public, Developer shall meet and review the proposed aesthetics concepts with TxDOT. After meeting with the public, Developer shall prepare a final aesthetic concept and submit it to TxDOT for approval.

Developer shall use TxDOT Forth Worth District's (preliminary) Landscaping and Aesthetics Master Plan for guidance.

TxDOT will establish and chair an Aesthetics Committee. The Aesthetics Committee's role during the design phase of the Development Work shall be advisory to TxDOT.

15.2.2 Aesthetics and Landscaping Plan

Section 15.2.2 is replaced with the following:

Developer shall prepare an Aesthetics and Landscaping Plan in conformance with the Project's approved aesthetic concept for approval by TxDOT, in its good faith discretion. This Aesthetics and Landscaping Plan shall provide guidelines and requirements for the aesthetics design of the Project. The Aesthetics and Landscaping Plan shall include all elements to fully communicate the proposed aesthetic treatment to TxDOT.

The Aesthetic and Landscape Plan shall address all the aesthetic Elements of the Project with the production of the following plans:

- Aesthetic Plans
  - A master plan that will convey the layout of the various roadway conditions (e.g., depressed sections, elevated sections, at-grade roadways, bridges, control buildings, and cantilevered structural sections)
  - Drawings showing where site-specific elements are located (e.g., fences, signage, potential locations of community improvement opportunity areas, gate way markers, bridge enhancements, landscaping)
  - Color schemes and their locations
- Landscaping Plans
  - A plan that indicates plant palettes, locations of plants, plant types, and planting dates
  - A maintenance program
  - 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 Aesthetic 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 of this and future similar projects.

15.2.3 Personnel

No additional requirements.

15.3 Design Requirements

No additional requirements.

15.3.1 Aesthetics Principles and Strategies

Section 15.3.1 is replaced with the following:

Developer shall follow the guidelines and requirements of the Project's Aesthetics and Landscaping Plan.

15.3.2 Walls

Section 15.3.2 is replaced with the following:

Developer shall design noise/sound walls to be similar in color, texture, and style to those of retaining walls, and shall develop an aesthetics treatment that is consistent with other physical features such as structures, landscaping, and other highway components.

Developer shall apply aesthetic treatments to the vertical surfaces of retaining and noise/sound walls where the surface is visible from the roadway or adjacent properties. Consistent treatments shall be used for retaining and noise/sound walls that articulate the design themes established for the Project.

Developer shall pay special attention to aesthetic design Elements and utilize high aesthetic quality of finishes and materials at interchanges and approaches to toll collection points.

15.3.3 Bridges and Other Structures

No additional requirements.

15.3.4 Trees, Shrubs, and Other Plant Materials

Developer shall use plant species native to the area or naturalized for the Project Site.

15.3.5 Riprap

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

Concrete riprap may be stamped with a pattern and shall be painted and/or stained.

15.4 Construction Requirements

Section 15.4 is replaced with the following:

Developer shall provide TxDOT sample panels a minimum of 60 days in advance of starting construction of textured concrete surfaces. Developer shall construct sample panels in accordance with TxDOT *Standard Specifications for Construction and Maintenance of Highways, Streets, and Bridges* Item 427.4.B.2.d (Form Liner Finish) and the approved Aesthetics and Landscaping Plan. TxDOT must review and approve the sample panels before any construction form liners may be ordered, obtained, or used. Developer shall provide sample panels having a textured portion at least 5.0 feet by 5.0 feet with a representative un-textured surrounding surface.

The approved sample panel shall be the standard of comparison for the production concrete surface texture.

For textured panels or concrete surfaces finished with a coating of paint or stain, Developer shall prepare a corresponding coated panel or surface area of an in-place Element for approval prior to the coating operation.

Color samples shall be provided from the Federal Standard 595B Colors Fan Deck.

15.5 Deliverables

No additional requirements.

15.5.1 Aesthetics Concepts

Section 15.5.1 is replaced with the following:

Developer shall submit the three preliminary concepts to TxDOT for review and approval in its good faith discretion within 60 Days of issuance of NTP1.

15.5.2 Aesthetics and Landscaping Plan

No additional requirements.

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

16.1 General Requirements

No additional requirements.

16.2 Administrative Requirements

No additional requirements.

16.2.1 Meetings

No additional requirements.

16.3 Design Requirements

No additional requirements.

16.3.1 Final Design

No additional requirements.

16.3.2 Permanent Signing and Delineation

No additional requirements.

16.3.3 Project Signs – Outside the Project ROW

No additional requirements.

16.3.4 Advance Toll Information Signs

Section 16.3.4 is replaced with the following:

For advance toll information signs, Developer shall be responsible for determining sign locations and foundation types, and design and installation of the new signs.

Developer shall use Good Industry Practice in determining the locations for advance toll information signs. At a minimum, advance toll information signs shall be installed at all locations with public access to the managed lanes.

16.3.5 Third-Party Signs

No additional requirements.

16.3.6 Sign Support Structures

Overhead-mounted signs shall provide a vertical clearance of not less than 21'-0".

16.3.7 Permanent Pavement Marking

Section 16.3.7 is replaced with the following:

Developer shall ensure that the design and installation of all pavement markings comply with applicable TMUTCD requirements. Painted or thermoplastic longitudinal permanent markings shall not be used on mainlanes.

Developer shall mark median noses of all raised islands and inside edges of exclusive turn lanes (channelized curbs) in accordance with the requirements of TMUTCD.

Developer shall use black background in combination with standard TMUTCD marking colors on skip lines on the controlled access main lanes where light-colored pavement does not provide sufficient contrast with the markings.

Developer shall provide shoulder texturing in accordance with TxDOT Standard Sheets RS(1-4)-06. Shoulder texturing shall not be used on direct connectors, on bridges, or across ramp pavement.

16.3.8 Permanent Signalization

No additional requirements.

16.3.8.1 Traffic Signal Requirements

Section 16.3.8.1 is replaced with the following:

Developer shall design and install fully-actuated permanent traffic signals at all TxDOT-authorized intersections within Project limits. In addition, Developer shall modify, as appropriate, any existing traffic signals impacted by the Final Design. Developer shall coordinate with TxDOT and the applicable Governmental Entities to define appropriate traffic signal design requirements, local agency oversight of Developer's Work, and final acceptance of traffic signals. Developer shall coordinate with local communities for synchronization of traffic signal networks.

Developer shall provide interconnection systems between new or modified signals and any other signal system within the Project Site as required by TxDOT or the applicable local Governmental Entity. Developer shall make existing signal systems compatible with the proposed interconnections. Developer shall ensure continuous communication with the traffic signal system within the Project Site, and shall provide all communication hardware/equipment for TxDOT or the applicable local Governmental Entity to communicate with the signal systems within the Project Site.

Developer shall provide both pedestrian and vehicle video detectors at all traffic signals within the Project Site.

All signal heads shall utilize LED fixtures.

Installation of new traffic signals and modifications of existing traffic signals listed in Table 16-1 (Traffic Signals) shall be completed in accordance with the current TxDOT standards and specifications, the TMUTCD and the requirements of the applicable Governmental Entity. 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. Within the City of Southlake, Developer will be responsible for the operations and maintenance of all new traffic signal systems for the term of the Agreement.

Table 16-1: Traffic Signals

Cross Street	Existing or Under Construction	Within the City of	Maintained by
SH 121 @ Hall Johnson	Existing	Grapevine	Grapevine
SH 360 @ Stone Meyers Parkway	Existing	Grapevine	Grapevine
SH 121 @ Stone Meyers Parkway	Planned	Grapevine	Grapevine
SH 121 @ Mustang Drive	Existing	Grapevine	Grapevine
SH 114 @ Main Street (Spur 103)	Existing	Grapevine	Grapevine
SH 114 @ William D Tate Avenue	Existing	Grapevine	Grapevine
SH 114 @ SH 26	Existing	Grapevine	Grapevine
SH 114/SH 121 @ Texan Trail	Existing	Grapevine	Grapevine
SH 114/SH 121 @ Bass Pro Drive	Existing	Grapevine	Grapevine
FM 2499 @ Stars and Stripes	Existing	Grapevine	Grapevine
SH 26 @ Ernest Dean Parkway	Existing	Grapevine	Grapevine
SH 26 @ Baylor Parkway	Existing	Grapevine	Grapevine
FM 2499 @ Grapevine Mills Parkway	Existing	Grapevine	Grapevine
SH 114 @ FM 1709	Existing	Grapevine	TxDOT

Notes:

1. Developer shall only be responsible for installation of new traffic signals or modifications to existing traffic signals within the limits of the applicable configuration (see Attachments 1-4 and 1-6).

16.3.8.2 Traffic Signal Timing Plans

No additional requirements.

16.3.8.3 Traffic Signal Warrants

Section 16.3.8.3 is replaced with the following:

As part of the Final Design process, Developer shall collect traffic data and prepare traffic warrant studies for intersections not signalized at the time of NTP1. The warrant studies shall address all signal warrant criteria in the TMUTCD. Developer shall make recommendations for new signal installations based on these warrant studies in consultation with TxDOT and the local Governmental Entities. TxDOT will reasonably determine if a signal or modification is required, based upon the warrant study.

All requests for signals within the Project ROW throughout the Term of the Agreement shall be subject to TxDOT approval.

Signal warrant studies shall be based on actual traffic and/or opening year traffic projections. If actual traffic volumes are not available, but opening year traffic volume is available, use the procedure in Attachment 16-1 to determine the volumes to be analyzed. If opening year traffic volumes are not

available, opening year traffic volumes shall be calculated by applying a 50-percent reduction to the Design Year traffic projections. Developer shall conduct additional traffic counts and signal warrant studies for all intersections located in the Project ROW, commencing six months after the Project is opened for traffic. If additional signals or modifications to existing signals are warranted, based on the traffic volumes obtained through these studies, Developer shall be responsible for installation of additional traffic signals or modification of previously-installed traffic signals. If, based on the above traffic counts, the need for a signal or signal modification is unclear, TxDOT will reasonably determine if the new signal or signal modification is required.

16.3.8.4 Traffic Signal Support Structures

No additional requirements.

16.3.9 Permanent Lighting

Section 16.3.9 is replaced with the following:

Developer shall provide continuous roadway lighting along the highway main lanes, managed lanes, ramps, and cross streets within the Project limits. Developer shall install lighting according to the National Electric Code (NEC).

Developer shall prepare lighting studies that consider illumination levels, uniformity, and sources for the roadways, interchanges, and special areas.

All third-party requests for lighting within the Project Site shall be subject to TxDOT approval.

On all traveled roadways to be illuminated, Developer shall provide illumination levels in accordance with Attachment 16-2.

Developer shall design the lighting system to minimize or eliminate illumination of areas outside the Project ROW.

Luminaire poles and breakaway bases shall be designed in accordance with AASHTO's *Standard Specifications for Structural Supports for Highway Signs, Luminaires, and Traffic Signals*. For all poles located within the clear zone of the roadways, Developer's design shall incorporate breakaway devices that are pre-qualified by TxDOT.

Developer shall place all understructure lighting in a configuration that minimizes the need for lane closures during maintenance.

Developer shall determine and design appropriate foundation types and lengths for permanent lighting structures.

Developer shall not place ITS cable, fiber-optic lines, signal conductors, or any other non-lighting related cables or conductors in the lighting conduit, ground boxes, or junction boxes.

Developer shall minimize the potential hazards of lighting poles through the careful consideration of mounting options and pole placements, including the following options:

- Placing mast arms on traffic signal poles
- Placing pole bases on existing or proposed concrete traffic barrier
- Placing poles behind existing or proposed concrete traffic barrier or metal beam fence
- Placing high mast lighting outside the clear zone, especially in roadway horizontal curves

Developer shall ensure that lighting structures comply with FAA height restrictions near airport facilities. In the event that proposed or existing luminaires, mast arms, or poles infringe into an airport's or

heliport's base surface, Developer shall coordinate with the FAA and TxDOT to permit or relocate such structures. If FAA restrictions prohibit lighting structures from being placed in certain areas near an airport facility, Developer shall find alternative ways of providing the required level of lighting.

16.3.9.1 Additional Requirements

Additional requirements are as follows:

1. High-mast lighting must not infringe into residential areas adjacent to the Project ROW.
2. Developer must coordinate with the FAA regarding installation of obstruction lights, if any, on a case-by-case basis.
3. At a minimum, underground conduit in interchange areas or temporary detours shall not be less than 2" or Schedule 80 polyvinyl chloride (PVC); all other underground conduit installations shall not be less than 2" or Schedule 40 PVC.
4. The minimum conductor size shall be #8 wire; Developer shall not use duct cable for illumination purposes.
5. Developer shall place bridge lighting brackets no more than 10 feet from abutments or bents; however, in special circumstances, the bridge lighting brackets may be placed a maximum of 20 feet from abutments and piers.
6. If overhead electric lines confine the placement of luminaires, Developer may use special davit-arm luminaires.
7. Minimum inside dimensions for ground boxes shall be 15.25 inches (width) by 28.25 inches (length) by 10 inches (depth).
8. Ground box covers shall be 2-inch-thick (nominal), nonconducting material and labeled "Danger High Voltage Illumination".
9. Riprap aprons shall be provided to ground boxes located in grassy areas.
10. Lights shall have an identification tag denoting a contact person or office in case of emergency or for maintenance, and the address and telephone number.

16.3.10 Visual Quality

Section 16.3.10 is replaced with the following:

Notwithstanding the requirements of Section 16.3.9 (Permanent Lighting), Developer shall make a reasonable attempt to provide luminaires of equal height along the roadway.

The 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

No additional requirements.

16.4.2 Permanent Pavement marking

Section 16.4.2 is replaced with the following:

Developer shall meet the following minimum retroreflectivity values for edge line markings, centerline/no passing barrier line, and lane lines when measured anytime after 3 days but not later than 10 days after application:

- Type I, Thermoplastic, Pavement Markings:
  - White markings: 250 mill candelas per square meter per lux (mcd/m2/lx)
  - Yellow markings: 175 mcd/ m2/lx
- Type II, Paint & Beads, Pavement Markings:
  - White markings: 175 mcd/ m2/lx
  - Yellow markings: 100 mcd/ m2/lx

Painted or thermoplastic longitudinal permanent markings will not be allowed on mainlines.

16.4.3 Permanent Signalization

No additional requirements.

16.4.4 Permanent Lighting

Section 16.4.4 is replaced with the following:

Developer shall coordinate with the Utility Owner(s) and ensure power service is initiated and maintained for permanent lighting systems. Where the Work impacts existing lighting, Developer shall maintain existing lighting levels as temporary lighting during construction and restore or replace prior to Substantial Completion. At all times during the Project, safe lighting conditions shall be maintained along traveled roadways.

Developer shall affix an identification decal on each luminaire, ground box, and electrical service maintained and/or operated by Developer for inventory purposes and shall submit inventory information to TxDOT in a TxDOT-compatible format. This identification shall denote that these are property of TxDOT and shall provide a TxDOT-provided contact phone number and address in the event of Emergency or necessary maintenance.

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

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

No additional requirements.

16.5.4 Permanent Lighting

Section 16.5.4 is replaced with the following:

Before placing any permanent lighting, Developer shall provide TxDOT a layout indicating the proposed location of such items.

Developer shall provide TxDOT the photometric data results for all lighted areas within the Project limits. Developer shall provide a long continuous layout roll of the plan view.

17 INTELLIGENT TRANSPORTATION SYSTEMS

17.1 General Requirements

Section 17.1 is replaced with the following:

An Intelligent Transportation System (ITS) is necessary for monitoring the Project's traffic flow and performance both during construction and as a permanent installation. The Project ITS must accurately detect traffic and traffic operational conditions throughout the Project limits, based on the applicable configuration and its transitions and roadway widenings, and clearly communicate relevant and useful travel information to the people using the facility.

TxDOT has an operating ITS network that will need to connect to the new system provided by Developer. The Project ITS must be compatible with such in-place system(s) that TxDOT and other agencies (including other developers) are currently operating. Developer shall coordinate the ITS planning and implementation with TxDOT and other Governmental Entities that have roadways within or intersecting the Project.

The Project ITS shall conform to the North Texas Regional Comprehensive ITS Architecture, as described at http://nortex-its.org/Architecture/ArchHome.htm.

Developer shall maintain and protect the use of the existing ITS within the Project at all times, except for system crossovers that are approved by TxDOT.

Developer shall be responsible for DMS supporting the managed lanes but shall not be responsible for ITS specifically required to collect and transmit toll collection data.

17.2 Design Requirements

Section 17.2 is replaced with the following:

Developer shall prepare a Preliminary ITS layout for review and concurrence by all local agencies, TxDOT, and its Systems Integrator. Based on the results of this review and concurrence, Developer shall provide a complete and operational ITS network throughout the Project that is expandable as capacity is increased along the Project roadways, utilizes hardware and software components consistent and compatible with TxDOT in the manner described in this Section 17.2 and the other affected Governmental Entities, resistant to weather encountered in the Project area, and places components in locations that are not hazardous to Users.

Subject to the specific requirements of this Section 17, Developer shall determine the number and specific locations of all ITS components. The Project ITS will not include Highway Advisory Radio (HAR) or Roadway Weather Information Systems (RWIS) installations. The Developer will, however, include RWIS in the Project ITS design to ensure the locations have necessary conduit access and room for foundation placement when RWIS systems are installed in later projects.

Developer shall provide safe ingress/egress areas and structures to accommodate authorized personnel access to ITS components for maintenance and operation activities.

17.2.1 ITS Communications Requirements

Communications design shall commit a maximum of 50% of available fiber optic strands in each cable to Project video or Project network connections, with a minimum fiber optic cable size of 36 strands.

17.2.2 Conduit

Conduit design shall provide multi-duct conduit duct banks, for communications cables, with a maximum design fill of 50% of available inner-ducts. Each inner-duct's cable fill shall not exceed 40% of available cross-section.

17.2.3 CCTV Cameras

No additional requirements.

17.2.3.1 Equipment

Initial installation shall conform to the requirements of Attachment 17-1 – TxDOT's Statewide Special Specifications 6025 (04) and Attachment 17-2 – TxDOT Statewide Special Specifications 1238.

17.2.3.2 Placement

Distance between CCTV cameras shall not exceed 1.5 miles.

17.2.3.3 Video Requirements

Section 17.2.3.3 is replaced with the following:

Developer shall provide state-of-the-art CCTV cameras that meet the following requirements:

- Remotely operable pan, tilt and zoom functions compatible with existing TxDOT video control systems and software
- An f/1.6 or better glass multi-coated zoom lens, with variable focal length from 3.6 mm, or less, to at least 82.8 mm
- Solid-state design with digital signal processing (DSP) for digital zoom
    - for auto/manual long-term integration (exposure) control, with built-in frame buffer
    - for auto-focus; for built-in I.D. generator, with white letters and black outline
- Conformance to a minimum of National Television Systems Committee (NTSC) video output and Electronic Industries Association (EIA)-170A standards
- No less than 30 frames per second (fps) color
- Able to produce clear, low-bloom, low-lag video pictures under all conditions, from bright sunlight to nighttime scene illumination of 0.02 foot-candles
- Maintenance of color quality by a continuous, through-the-lens, automatic, white balance for color temperatures from 2850 degrees Kelvin to greater than 5100 degrees Kelvin, with less than 10 Institute of Radio Engineers (IRE) units unbalance
- Aspect ratio of 4:3
- Zero geometric distortion
- Signal to noise distortion of 55 dB with AGC off
- Built-in auto focus and auto iris, with manual override capability
- Overexposure protection to prevent permanent damage to cameras when pointed at strong light sources, including the sun, for brief periods of time

Developer shall replace cameras that fail within 48 hours of discovery of their lack of compliance.

17.2.3.4 Operating Requirements

Section 17.2.3.4 is replaced with the following:

Developer shall provide cameras with built-in heaters, mounting structure, and related equipment capable of operating within the following weather conditions:

- Wind load of 80 mph without permanent damage to mechanical and electrical equipment
- Ambient temperature range of -35 degrees Fahrenheit to +140 degrees Fahrenheit
- Relative humidity range not to exceed 95 percent within the temperature range of +40 degrees Fahrenheit to +110 degrees Fahrenheit
- Humidity range of 0 to 100 percent condensing

17.2.3.5 Control Requirements

No additional requirements.

17.2.4 Vehicle Detection

Section 17.2.4 is replaced with the following:

Developer shall provide permanent detection for each highway lane of the Project that measures vehicular volume, lane occupancy, and speed information by lane on the roadway. Developer shall also provide detection at one location in each direction that provides classification information by lane on the roadway. The detectors shall be non-intrusive to the roadway users. Spacing for the permanent vehicle detection shall be no greater than 0.75 miles in each highway lane in the Project and shall include detection of each entrance ramp lane, and each exit ramp lane.

Developer may attach detection units to existing structures with prior concurrence from TxDOT. Where an existing structure is not available, or in lieu of attaching the detection unit to an existing structure, Developer shall install a mounting structure or pole solely for the vehicle detector. Any mounting poles placed specifically for ITS items shall conform to TxDOT specifications for CCTV mounting poles.

Developer shall provide permanent detection for all declaration lanes for the managed toll lane system.

17.2.5 Dynamic Message Signs (DMS)

Section 17.2.5 is replaced with the following:

Developer shall provide a comprehensive network of electronic DMS. 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 shall demonstrate compliance before installation of DMS.

Developer shall position each DMS to allow motorists to safely view the messages being displayed throughout the 1000 foot approach immediately upstream of the DMS. Developer shall locate the DMS to comply with large guide sign spacing stated in the TMUTCD.

DMS shall be used to inform motorist 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.

17.2.6 Lane Control Signals (LCS)

Not used.

17.2.7 Single-Line DMS (SDMS)

Developer shall place SDMS over through travel lanes on existing or proposed overhead sign structures on managed and mainline roadways. 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. 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.

17.2.8 Satellite Buildings

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

Developer shall maintain and protect the existing Satellite Buildings within the Project limits. As necessary, Developer may relocate the satellite buildings using the aesthetics and landscaping requirements included in Exhibit 17 (Listing of Reference Information Documents).

17.2.9 Center-to-Center Interface

Developer shall provide a center-to-center interface implementing appropriate portions of the Interface Control Documents in the "C2C Tools – Center to Center (C2C) Development Toolkit." The toolkit can be downloaded from TxDOT's website:

http://www.txdot.gov/services/technology_services/engineering_software.htm

17.3 Construction Requirements

No additional requirements.

17.3.1 General

Developer shall sequence construction to place proposed, and relocate existing, ITS components for construction support. Developer shall provide temporary power and communications, if necessary, to ensure detection is available providing traffic condition and travel time information to motorists through the website, ensure video is available providing incident verification and monitoring to Developer and TxDOT personnel and providing video snapshots to motorist through the website, and ensure DMS and SDMS, where applicable, are available providing en-route traffic conditions and construction closure information to motorists through local real-time messaging.

17.3.2 Salvaging Existing Items

No additional requirements.

17.3.3 Existing ITS Relocation

No additional requirements.

17.4 Deliverables

No additional requirements.

18 TRAFFIC CONTROL

18.1 General Requirements

No additional requirements.

18.2 Administrative Requirements

No additional requirements.

18.2.1 Traffic Management Plan

Section 18.2.1 is replaced with the following:

Developer shall develop, implement, and maintain a Traffic Management Plan (TMP) that includes the following items:

- Descriptions of the qualifications and duties of the traffic engineering manager, traffic control coordinator, and other personnel with traffic control responsibilities
- Procedures to identify and incorporate the needs of transit operators, Utility Owners, Governmental Entities, local governmental agencies, Emergency Service providers, school districts, business owners, and other related Users, Customer Groups or entities in the Project corridor and surrounding affected areas
- Procedures for obtaining acceptance of detours, road and lane closures and other traffic pattern modifications from applicable Governmental Entities, and implementing and maintaining those modifications
- Procedures for signing transitions during construction from one stage to the next and from interim to permanent signing
- Procedures for maintenance and replacement of traffic control devices, including pavement markings and traffic barriers, if used
- Procedures to regularly evaluate and modify, if necessary, traffic signal timings, and the procedures for the development, TxDOT approval, implementation, testing, and maintenance of all affected signals
- Procedures to coordinate with the appropriate Governmental Entities operating signal networks along the Project or Project detour routes to ensure temporary system compatibility, establish responsibilities for temporary signal installation, maintenance, operation and removal, and coordinate traffic signal timing with local signal networks
- Procedures and process for the safe ingress and egress of construction vehicles in the work zone
- Provisions to provide continuous access to established truck routes and Hazardous Material (HazMat) routes, and to provide suitable detour routes, including obtaining any approvals required by the appropriate governmental entities for these uses
- Procedures to modify plans as needed to adapt to current Project circumstances
- Procedures to communicate TMP information to Developer's public information personnel and notify the public of maintenance of traffic issues in conjunction with the requirements of Book 2, Section 3
- Descriptions of contact methods, personnel available, and response times for any deficiencies or Emergency conditions requiring attention during off-hours.
- Procedures for night work (9:00 p.m. to 5:00 a.m.) to include a work zone light system design in accordance with NCHRP Report 498.

18.3 Design Requirements

No additional requirements.

18.3.1 Traffic Control Plans

Section 18.3.1 is replaced with the following:

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

Developer shall produce a traffic control plan for each and every phase of Work that impacts traffic and involves traffic control details. The traffic control plan shall include details for all detours, traffic control devices, striping, and signage applicable to each phase of construction. Information included in the traffic control plans shall be of sufficient detail to allow verification of design criteria and safety requirements, including typical sections, alignment, striping layout, drop off conditions, and temporary drainage. The traffic control plans shall clearly designate all temporary reductions in speed limits. Changes to posted speed limits will not be allowed unless specific prior approval is granted by TxDOT.

Opposing traffic on a normally divided roadway shall be separated with appropriate traffic control devices accordance with Good Industry Practice and TMUTCD based on roadway design speed.

Developer shall maintain signing continuity on all active roadways within or intersecting the Project at all times.

Throughout the duration of the Project, Developer shall ensure all streets and intersections remain open to traffic to the greatest extent possible by constructing the Work in stages. Developer shall maintain access to all adjacent streets and shall provide for ingress and egress to public and private properties at all times during the Project.

Developer shall prepare public information notices, in coordination with Section 3 (Public Information and Communications), in advance of the implementation of any lane closures or traffic switches. These notices shall be referred to as Traffic Advisories.

18.3.1.1 Design Parameters for Traffic Control Plans

Design Vehicle. Turning movements at the roadways identified in Table 11-3 shall accommodate a WB-50 design vehicle. Turning movements on all other local streets and driveways shall, at a minimum, provide similar characteristics as existing.

Design Speed. On Interstate and State Highways, the design speed shall be 55 miles per hour (mph), except for major alignment transitions, where the design speed may be reduced to 45 mph if approved by TxDOT.

Number of Lanes. Except as permitted by Section 18.3.1.2, the minimum number of lanes to be maintained shall be the number of lanes currently available on each controlled access facility, Lane closures on other roadways may be considered, within reason, so long as all traffic patterns and accesses are maintained.

Lane Widths. Each lane shall be 12 feet wide unless existing lanes are narrower. No lane shall be less than 11 feet wide.

Shoulders. A minimum one foot offset from the edge of travel way to the edge of pavement or portable concrete traffic barrier (PCTB) is required

18.3.1.2 Allowable Lane and Roadway Closures

Closures will only be permitted when the Developer can demonstrate that the closure will provide clear benefit to the progress of the Work. Closures must be coordinated with adjacent projects and priority shall be given to the closure submitted first.

Lane Closure. Except for Incidents or Emergencies, Liquidated Damages will be levied against Developer, as defined in the CDA, for lane closures other than those permitted in this Section 18.3.1.2.

Developer shall not reduce the number of roadway controlled access lanes below the current number of roadway controlled access lanes during Peak Times. The Developer may lower the number of roadway lanes in each direction during Off-Peak Times provided that a minimum of two roadway controlled access lanes in each direction are maintained.

Developer shall seek TxDOT approval if a reduction in the current number of frontage road or arterial street lanes are required.

If a bridge cannot be demolished safely within these requirements, roads may need to be closed and traffic detoured during the lowest-volume times. Developer shall seek TxDOT's approval for such traffic closures.

Any complete roadway closure will require a Traffic Control Plan to be submitted and approved by TxDOT.

Driveway Closure. Developer shall maintain a minimum of one driveway per business at all times. For businesses with multiple driveways, when driveway closure is necessary to progress Work, no driveway may be closed for more than 30 consecutive days or more than 45 days in a 90-day period.

18.3.1.3 Detour Usage

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.

Developer shall provide motorists with guidance 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 around the Project. Motorist guidance to and along detour routes shall be provided, together with regional guidance.

18.3.2 Restricted Hours

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

- Super Bowl Game Day (from preceding Sunday through subsequent Saturday)
- 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)

18.3.3 Other TMP Requirements

Additional Traffic Management Plan requirements are as follows:

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

Developer shall use off-duty uniformed police officers for mainlane 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

No additional requirements.

18.5 Deliverables

No additional requirements.

18.5.1 Traffic Management Plan

No additional requirements.

18.5.2 Traffic Control Plans

No additional requirements.

19 MAINTENANCE

19.1 General Requirements

No additional requirements.

19.1.1 General Maintenance Obligations

Not used.

19.2 Maintenance Management Plan (MMP)

Not used.

19.2.1 Maintenance During Work

Section 19.2.1 is replaced with the following:

Developer shall be responsible for maintenance and repairs to any portion of the Work until Final Acceptance is issued in accordance with the Agreement. The Work shall include routine maintenance (such as litter pickup, and mowing), responding to emergencies and operational problems, and inspections and repairs required on an as-needed basis or as directed by TxDOT until issuance of Final Acceptance. Upon Final Acceptance, and provided that TxDOT does not implement the Capital Maintenance Agreement, TxDOT shall assume the maintenance obligations. If Developer fails to perform such maintenance within 10 Business Days of discovery of the need for the work, TxDOT reserves the right to perform such work as it deems necessary with its own forces, and/or to enter into special contracts for the maintenance of specific items.

19.3 Deliverables

Not used.

20 BICYCLE AND PEDESTRIAN FACILITIES

20.1 General Requirements

Not additional requirements.

20.2 Administrative Requirements

Not additional requirements.

20.3 Design Requirements

Not additional requirements.

20.3.1 Bicycle Facilities

Section 20.3.1 is replaced with the following:

Developer's facilities shall be consistent with the region's bicycle and pedestrian plan, and accommodate existing bicycle paths and crossings, and bicycle facilities. Developer shall coordinate with Governmental Entities to ensure consistency with existing and proposed bicycle facilities.

Developer shall accommodate existing bicycle facilities and proposed bicycle routes identified in the NCTCOG Metropolitan Transportation Plan regional Veloweb trail system.

20.3.2 Pedestrian Facilities

Developer shall accommodate existing bicycle facilities and proposed bicycle routes identified in the NCTCOG Metropolitan Transportation Plan regional Veloweb trail system.

20.3.3 Final Design

No additional requirements.

20.4 Construction Requirements

Section 20.4 of Book 3 is replaced with the following:

Comply with Technical Provisions.

20.5 Deliverables

No additional requirements.

21 TOLLING

21.1 General Requirements

The tolling requirements in this section shall apply to the tolled managed lanes on SH 114 and the southbound entrance ramp into the DFW Airport.

21.2 Administrative Requirements

No additional requirements.

21.3 Design Requirements

No additional requirements.

21.3.1 ETCS Infrastructure Requirements

No additional requirements.

21.3.1.1 Mainline Tolling

Section 21.1.3.1.1 is replaced with the following:

The System Integrator will furnish and install all toll gantries and directly related construction items.

21.3.1.2 Ramp Tolling

Section 21.3.1.2 is replaced with the following:

The System Integrator will furnish and install all toll gantries and directly related construction items.

21.3.1.3 Utility and Personnel Access-way

Not used.

21.3.2 ETCS Functional Requirements

Not used.

21.3.2.1 General

Not used.

21.3.2.2 User Classification Sub-system (UCS)

Not used.

21.3.2.3 Video Exception Sub-system (VES)

Not used.

21.3.3 ETCS Performance Requirements

Not used.

21.4 Construction Requirements

Section 21.4 is replaced with the following.

For the tolled managed lanes on SH 114, the Developer shall construct a toll zone maintenance area for each toll zone. (*See Figure 21.4-1)* The toll zone maintenance area shall include a paved parking area protected by concrete traffic barrier and any necessary crash attenuators. The overall length of the toll zone maintenance area shall be approximately 900 feet, of which approximately 700 feet shall be a weaving and stopping area for maintenance vehicles entering from the general purpose lanes. The Developer shall furnish and install four four-inch conduits extending from the toll zone maintenance area to edge of pavement outside of the general purpose lanes. The Developer shall furnish and install a ground box at each conduit terminus. The Developer shall coordinate with TxDOT and the Integrator to determine the exact dimensions of the toll zone maintenance area and the location of all conduits. The Developer shall be responsible for all general roadway work through each tolling zone, *e.g.* paving, grading, striping, installation of traffic barriers, etc. The Developer shall provide and install all static toll signs and sign support structures.

In Configurations 2 and 3, for the southbound entrance ramp to the DFW Airport, the Developer shall furnish and install four four-inch conduits extending from the toll booth to edge of pavement outside of the ramp lane. The Developer shall furnish and install a ground box at each conduit terminus. The Developer shall coordinate with TxDOT and the Integrator to determine the location of all conduits. The Developer shall be responsible for all general roadway work through each tolling zone, *e.g.* paving, grading, striping, installation of traffic barriers, etc. The Developer shall provide and install all static toll signs and sign support structures.

For both the managed lanes along SH 114 and the southbound entrance ramp to the DFW Airport, the Integrator will be responsible for the following tasks:

- The Integrator will furnish and install all toll gantries and toll gantry foundations. Generally, two gantries will be installed at each toll zone. The toll gantry foundations will not be in-line with any Developer installed concrete traffic barrier.
- The Integrator will furnish and install all Dynamic Message Signs ("DMS") responsible for displaying toll amounts, i.e. DMS not used for general ITS purposes. The Integrator will also be responsible for installing sign structures, power, and communications for each toll DMS.
- The Integrator will be responsible for coordinating with the communications and electrical Utility Owners to purchase and install the service on behalf of TxDOT.
- The Integrator will install all toll-gantry-mounted static signs.

21.5 Deliverables

No additional requirements.