January 4, 2022

EXHIBIT A

SCOPE OF SERVICES

FOR

Financial Project ID: 449688-1-32-01

RESURFACE & SAFETY IMPROVEMENTS POLK PARKWAY (SR 570) (MP 8 TO MP 17.2)
POLK *COUNTY*

Florida Turnpike Enterprise

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SCOPE OF SERVICES FOR CONSULTING ENGINEERING SERVICES

HIGHWAY AND BRIDGE/STRUCTURAL DESIGN

This Exhibit forms an integral part of the agreement between the State of Florida Department of Transportation (hereinafter referred to as the DEPARTMENT or FDOT) and *[Consultant Name or leave blank until CONSULTANT is selected]* (hereinafter referred to as the CONSULTANT) relative to the transportation facility described as follows:

Financial Project ID: 449688-1-52-01 & 449688-2-52-01
Related Financial Project ID(s): ***N/A***
Federal Aid Project No.: ***N/A***
Roadway:
Polk Parkway (SR 570)
Project Description:
Resurface & Safety Improvements in Polk Pkwy (SR 570) (MP 8 to MP 17.2)
Bridge No(s).

- ***160261, 160262, 160263, 160264, 160273, 160274, 160283, 160271, 160272, 160269, 160270, 160265, 160266, 160267, 160268, 164507, 160277, 160275***

Railroad Crossing No.:
Bridge 160277 & 160275 over CSX railroad
Context Classification:

- ***N/A***

1 PURPOSE

The purpose of this Exhibit is to describe the scope of work and the responsibilities of the CONSULTANT and the DEPARTMENT in connection with the design and preparation of a complete set of construction contract documents and incidental engineering services, as necessary, for improvements to the transportation facility described herein.

- Major work mix includes:
  - ***0012 RESURFACING***
- Major work groups include:
  - ***3.3 Controlled Access Highway Design***
- Minor work groups include:
  - ***4.1.1 Miscellaneous Structures; 4.1.2 Minor Bridge Design; 6.3.1 Intelligent Transportation Systems Analysis and Design; 7.1 Signing, Pavement Marking & Channelization; 7.2 Lighting, 7.3 Signalization; 8.1 Control Surveying; 8.2 Design, Right of Way & Const. Surveying; 9.1 Soil Exploration; 9.2 Geotechnical Classification Lab Testing***

Known alternative contracting methods include:

- ***N/A***

The general objective is for the CONSULTANT to prepare a set of contract documents including plans, specifications, supporting engineering analysis, calculations, and other technical documents in accordance with FDOT policy, procedures and requirements. These Contract documents will be used by the contractor to build the project and test the project components. These Contract documents will be used by the DEPARTMENT or its Construction Engineering Inspection (CEI) representatives for inspection and final acceptance of the project. The CONSULTANT shall follow a systems engineering process to ensure that all required project components are included in the development of the Contract documents and the project can be built as designed and to specifications.

The Scope of Services establishes which items of work in the FDOT Design Manual (FDM) and other pertinent manuals are specifically prescribed to accomplish the work included in this contract and also indicate which items of work will be the responsibility of the CONSULTANT and/or the DEPARTMENT. ***However, the Scope of Services is supplemental to and does not limit the responsibilities of all parties as outlined in the FDM.***

The CONSULTANT shall be aware that as a project is developed, certain modifications and/or improvements to the original concepts may be required. The CONSULTANT shall incorporate these refinements into the design and consider such refinements to be an anticipated and integral part of the work. This shall not be a basis for any supplemental fee request(s).

The CONSULTANT shall demonstrate good project management practices while working on this project. These include communication with the DEPARTMENT and others as necessary, management of time and resources, and documentation. The CONSULTANT shall set up and

maintain throughout the design of the project a contract file in accordance with DEPARTMENT procedures. CONSULTANTs are expected to know the laws and rules governing their professions and are expected to provide services in accordance with current regulations, codes and ordinances and recognized standards applicable to such professional services. The CONSULTANT shall provide qualified technical and professional personnel to perform to DEPARTMENT standards and procedures, the duties and responsibilities assigned under the terms of this agreement. The CONSULTANT shall minimize to the maximum extent possible the DEPARTMENT's need to apply its own resources to assignments authorized by the DEPARTMENT.

The DEPARTMENT will provide contract administration, management services, and technical reviews of all work associated with the development and preparation of contract documents, including Construction documents. The DEPARTMENT's technical reviews are for high-level conformance and are not meant to be comprehensive reviews. The CONSULTANT shall be fully responsible for all work performed and work products developed under this Scope of Services. The DEPARTMENT may provide job-specific information and/or functions as outlined in this contract, if favorable.

The DEPARTMENT's General Consultants will provide contract administration, project management, and technical reviews of work associated with this Contract.

2 PROJECT DESCRIPTION

The CONSULTANT shall investigate the status of the project and become familiar with concepts and commitments (typical sections, alignments, etc.) developed from prior studies and/or activities. If a Preliminary Engineering Report is available from a prior or current Project Development and Environment (PD&E) study, the CONSULTANT shall use the approved concepts as a basis for the design unless otherwise directed by the DEPARTMENT.

An Existing Roadway Conditions Assessment Report (ERCAR) (FPID 449688-2) has been developed for this Project and will be provided by the DEPARTMENT. The CONSULTANT will be responsible for review of the ERCAR, and recommendations provided within the report; implementation of these recommendations are included within the efforts described in this Scope of Services.

The scope of work for this Project consists of, but is not limited to:

The Scope of Work for this Project consists of milling, resurfacing and safety and design upgrade improvements for the Polk Parkway, from north of the Polk Pkwy West Toll Plaza (approximately Milepost 8.2) to North of the bridge over the CSX railroad (approximately Milepost 17.2). The proposed work will include, but will not be limited to:

- ***Review of Existing Roadway Conditions Assessment Report (ERCAR) documenting improvements, recommendation, and/or design variations/exceptions/technical memorandums***
- ***Implementation of improvements and/or recommendations as identified in ERCAR***
- ***Milling and resurfacing the existing travel lanes, inside and outside shoulders, and median openings from begin project north of the Polk Pkwy West Toll Plaza (approximately Milepost 8.2)to end limits at North of the bridge over the CSX railroad (approximately Milepost 17.2).Resurfacing of ramp(s), travel lane(s) and inside and outside shoulders, at Lakeland Highlands Road, US 98, and SR 540, excluding any areas covered by Central Polk Pkwy project (FPID 440897-2) and AET project (FPID 440857-1)***
- ***Milling and resurfacing through Polk Pkwy (SR 570) mainline including Maintenance of Traffic (MOT) for Toll Equipment Contractor (TEC) installation testing and commissioning. Including toll evasion evaluation & corrective measure recommendations.***
- ***Bridges within the limits do not contain asphalt overlay; resurfacing on the bridge approach slabs are anticipated.***
- ***Construct ground in rumble strips***
- ***Repair of all guardrail openings for maintenance access and correct/adjust guardrail as needed***
- ***Perform cross slope analysis and cross slope correction to meet criteria, address needed transitions between the varied milling and resurfacing sections***
- ***Modify plans to reflect any special adjustments to the mill and resurface process that may be required along the drainage inlets, curbed areas, and median crossovers.***
- ***Correct the shoulder drop-off along the edge of pavement***
- ***Correct all deficiencies that do not comply with the American Disability Act, at the***

Lakeland Highlands Interchange.

- ***Pedestrian/crosswalk lighting and design for ramp crosswalk at Lakeland Highlands Interchange.***

2.1 Project General and Roadway (Activities 3, 4, and 5)

The CONSULTANT shall provide the required roadway design and complete all the associated tasks necessary to prepare the construction plans and documents based upon review of previously developed ERCAR and the recommendations provided within.

QA/QC Staffing Plan:

The CONSULTANT shall develop a QA/QC plan that includes the Project Staffing list using the Template on Enterprise Design Website link* (https://floridasturnpike.com/business-opportunities/design*) and provide to DEPARTMENT'S Project Manager.

Documents Requiring Concurrence Signatures Submittals:

Draft and Final versions of design documents requiring DEPARTMENT'S concurrence signatures (i.e., typical sections, design exceptions, design variations, etc.) must be submitted to the DEPARTMENT'S Project Manager for review through the ERC process. Once the ERC process is complete, the DEPARTMENT'S Project Manager can proceed with obtaining the necessary concurrence signatures.

Public Involvement:
CAP Level: Cap Level 1

Other Agency Presentations/Meetings: ***FDOT District 1 & Pasco County***

Joint Project Agreements: ***N/A***

Specifications Package Preparation: ***MSP / TSP anticipated***

Estimated Quantities Report Preparation: ***EQR anticipated***

Value Engineering: ***N/A***

Risk Assessment Workshop: ***N/A***

Plan Type:
This Project will be produced with the indicated criteria specified within the FDM.

Typical Section: ***The CONSULTANT shall prepare and provide a Typical Section Design Package in accordance with the FDM***

Number of Typical Sections:

1.) *One (1) SR 91 Mainline – Four (4) Lane Divided Rural Limited Access Highway (Standard Grassed Median)*

2.) *One (1) SR 91 Mainline – Four (4) Lane Divided Rural Limited Access Highway (Bifurcated Wide Median)*

3.) *One (1) SR 91 Mainline – Four (4) Lane Divided Rural Limited Access Highway (Reduced Median)*

4.) *One (1) Single Lane Ramp*

5.) *One (1) Single Lane Ramp (Reduced Shoulder Width)*

6.) *Additional typical sections as determined by the CONSULTANT and approved by the DEPARTMENT.*

Pavement Designs: The CONSULTANT shall prepare and provide a Pavement Design in accordance with the current FDOT Flexible Pavement Design Manual. The following twelve (12) pavement designs are anticipated to be included in the Pavement Design Package:

1. *Four (4) standard milling & resurfacing for SR 91 travel lanes & shoulders*
2. *Two (2) deep milling & resurfacing for SR 91 travel lanes & shoulders.*
3. *Two (2) full depth milling & resurfacing for SR 91 travel lanes & shoulders.*
4. *Two (2) standard milling & resurfacing for ramps travel lanes & shoulders.*
5. *One (1) full depth milling & resurfacing for ramps travel lanes.*
6. *One (1) Additional pavement designs as identified by the CONSULTANT and approved by the DEPARTMENT.*

Pavement Type Selection Report(s): ***N/A***

Cross-Slope Correction: ***L1 – 1.331 miles and R1 – 1.833 miles***

Access Management Classification: ***N/A***

Median Crossovers:

The CONSULTANT shall evaluate existing median crossovers for conformance to criteria in FDM and Enterprise Design website link **https://floridasturnpike.com/business-opportunities/design**

Transit Route Features: ***N/A***

Major Intersections and Interchanges:
Number of Major Intersections and Interchanges: [*3*] *Lakeland Highlands Rd, US 98, and SR 540*

Roadway Alternative Analysis: ***N/A***

Level of Temporary Traffic Control Plan (TTCP):

The CONSULTANT shall develop Level I Traffic Control Plans (TCP) for Polk Pkwy Resurfacing and Safety Improvements.

Temporary Lighting:
To be coordinated with the District Lighting Engineer.

Temporary Signals:
To be determined by the CONSULTANT.

Temporary Drainage:
To be determined by the CONSULTANT.

Design Variations/Exceptions***/Technical Memorandums: The CONSULTANT shall prepare Nine (9) Design Variations/Exceptions/Design Variation Memorandums in accordance with the FDM.:***

1. *Design Exception – Shoulder Width*
2. *Design Exception – Horizontal & Vertical Stopping Sight Distance*
3. *Design Exception – Cross Slope & Superelevation*
4. *Design Variation – Stopping Sight Distance*
5. *Design Variation – Shoulder Width*
6. *Design Variation – Shoulder width during construction*
7. *Design Variation – Median Opening Spacing*
8. *Design Variation Memo – Horizontal Curve Length, Vertical Curve Length, Median Width, Guardrail Offset, Light pole Offset,*
9. *Deviation from Turnpike Lane Closure Policy*

Back of Sidewalk Profiles: ***N/A***
Number of Back of Sidewalk Profiles: ***N/A***

Selective Clearing and Grubbing:
Number of acres of Selective Clearing and Grubbing and/or Plant Preservation Area: N/A.

2.2 Drainage (Activities 6a and 6b)

The CONSULTANT shall provide the required drainage design and stormwater management services and complete all the associated tasks necessary to prepare the construction plans and documents including permit applications for all work within the limits of this Project

System Type: The drainage collection system is mainly an open system in which runoff sheet flows off the roadway to roadside ditches. These ditches convey runoff into stormwater management ponds. There are areas that collect runoff with shoulder gutter inlets which discharge into roadside ditches that convey water to stormwater management ponds.

Number of stormwater management facility sites: There are 17 stormwater management ponds.

Number of cross drains: 28 cross drains

For Tab 18 structure design purposes:

Box Culverts/Special Design Structures		
Location	***Culvert Size (W x H) Or Special Structure Type***	***New or Extension***
EB/WB Polk Pkwy Mainline (MP 11.2) Structure 160283	*3-cells: (Cell 1) 8'-4"x10'x314' (Cell 2&3) 9'-4"x5'-6"x314'*	*N/A*

2.3 Utilities Coordination (Activity 7)

The CONSULTANT is responsible to certify that all necessary arrangements for utility work on this project have been made and will not conflict with the physical construction schedule. The CONSULTANT should coordinate with DEPARTMENT personnel to coordinate transmittals to Utility Companies and meet production schedules.

The CONSULTANT shall ensure FDOT standards, policies, procedures, practices, and design criteria are followed concerning utility coordination.

The CONSULTANT may employ more than one individual or utility engineering consultant to provide utility coordination and engineering design expertise. The CONSULTANT shall identify a dedicated person responsible for managing all utility coordination activities. This person shall be contractually referred to as the Utility Coordination Manager and shall be identified in the CONSULTANT proposal. The Utility Coordination Manager shall be required

to satisfactorily demonstrate to the FDOT District Utilities Administrator that they have the following knowledge, skills, and expertise:

- A minimum of 4 years of experience performing utility coordination in accordance with FDOT, Federal Highway Administration (FHWA), and American Association of State Highway and Transportation Officials (AASHTO) standards, policies, and procedures.
- A thorough knowledge of the FDOT plans production process and District utility coordination process.
- A thorough knowledge of FDOT agreements, standards, policies, and procedures.

The Utility Coordination Manager shall be responsible for managing all utility coordination, including the following:

- Assuring that Utility Coordination and accommodation is in accordance to the FDOT, FHWA, and AASHTO standards, policies, procedures, and design criteria.
- Assisting the engineer of record in identifying all existing utilities and coordinating any new installations. Assisting the Engineer of Record with resolving utility conflicts.
- Scheduling and performing utility coordination meetings, keeping and distribution of minutes/action items of all utility meetings, and ensuring expedient follow-up on all unresolved issues.
- Distributing all plans, conflict matrixes and changes to affected utility owners and making sure this information is properly coordinated and documented.
- Identifying and coordinating the completion of any FDOT or utility owner agreement that is required for reimbursement, or accommodation of the utility facilities associated with the project.
- Review and certify to the District Utilities Administrator that all Utility Work Schedules are correct and in accordance with the DEPARTMENT's standards, policies, and procedures.
- Prepare, review and process all utility related reimbursable paperwork inclusive of betterment and salvage determination.

The CONSULTANT's utility coordination work shall be performed and directed by the Utility Coordination Manager that was identified and approved by FDOT's Project Manager. Any proposed change of the approved Utility Coordination Manager shall be subject to review and approval by FDOT's Project Manager prior to any change being made in this contract.

Expected Utilities:

- *Bright House Networks, Century Link, City of Auburndale, City of Lakeland Water and Wastewater, Fiber Light LLC, Florida Governmental Utility Authority, Florida Public Utilities Gas, Frontier Communications, Gulfstream, Kinder Morgan Central Florida Pipeline, Lakeland Electric, Polk County Utilities, TECO, TECO Peoples Gas, Uniti Fiber, Verizon Business, Zayo Group*

The DEPARTMENT's Project Suite Enterprise Edition (PSEE) is a scheduling and document control program that utilizes a series of modules to organize, update and transmit data. Within PSEE, the DEPARTMENT has created a Utilities Module for use by FDOT staff, CONSULTANTs, and Utility Agency/Owners (UAOs). When the UAO has agreed to utilize the PSEE Utilities Module, the CONSULTANT shall coordinate with the UAOs and transmit plans, schedules, agreements, and other documents for the arrangement of utility work on the Project through the PSEE Utility Module. The CONSULTANT is responsible for coordination with all UAOs, those utilizing the PSEE Utilities Module and those not utilizing the module.

2.4 Environmental Permits and Environmental Clearances (Activity 8)

The DEPARTMENT will provide compensatory wetland mitigation in accordance with Section 373.4137, Florida Statutes.

The permitting involvement shall be determined by the CONSULTANT while finalizing the design. Environmental analysis (including field work) relative to wetlands and wildlife will be dependent upon the proposed improvements. The CONSULTANT will be responsible for the environmental analysis as appropriate.

The CONSULTANT shall submit an electronic copy of the draft permit packages to the Florida's Turnpike Enterprise's Permits Coordinator and the Florida's Turnpike Enterprise's Project Manager at the 45% Drainage submittal, or as directed by the Florida's Turnpike Enterprise's Project Manager. Electronic copy of the final permit packages shall be completed and delivered to the Florida's Turnpike Enterprise's Permits Coordinator and Project Manager with Phase II Plans Submittal, or as directed by FTE's Project Manager.

The CONSULTANT will pay for all regulatory permit application fees required for the Project and shall be reimbursed per current FDOT guidelines.

It is the responsibility of the CONSULTANT to determine the environmental permits that will be required for the Project.

2.5 Structures (Activities 9 - 18)

The CONSULTANT shall review the previously developed ERCAR, and recommendations provided in relation to Structures. These features may include, but are not limited to: Existing Bridges, Bridge Shoulder Widths, Expansion Joints, Load Ratings, Traffic Railings, Thrie-beam Connections, Minimum Vertical Clearances, Horizontal Clearances/Pier Protection, Bridge Culverts, Culverts, Farm Crossings, Sign Structures, Signalization Structures, and other features as identified in the ERCAR.

Bridge(s):

1.) *Bridge No. 160261 – WB SR 570 over Lakeland Highlands Rd. (MP 8.7), medium span concrete superstructure:* ***spall repair, expansion joint and header replacement***

2.) *Bridge No. 160262 – EB SR 570 over Lakeland Highlands Rd. (MP 8.7), medium span concrete superstructure:* ***spall repair, expansion joint and header replacement***

3.) *Bridge No. 160263 – WB SR 570 over US 98 (MP 10.1), medium span concrete superstructure:* ***spall & crack repair***

4.) *Bridge No. 160264 – EB SR 570 over US 98 (MP 10.1), medium span concrete superstructure:* ***spall & crack repair, guardrail transition & connection retrofit***

5.) *Bridge No. 160273 – WB SR 570 over Reynolds Rd. (MP 10.8), medium span concrete superstructure:* ***spall & crack repair, expansion joint replacement***

6.) *Bridge No. 160274 – EB SR 570 over Reynolds Rd. (MP 10.8), medium span concrete superstructure:* ***spall & crack repair, expansion joint replacement, guardrail transition & connection retrofit***

7.) *Bridge No. 160283 – WB & EB SR 570 over drainage canal (MP 11.2), bridge culvert:* ***spall, crack, & scaling repair***

8.) *Bridge No. 160271 – WB SR 570 over Pavers Rd. (MP 11.7), medium span concrete superstructure:* ***spall & crack repair, expansion joint replacement***

9.) *Bridge No. 160272 – EB SR 570 over Pavers Rd. (MP 11.7), medium span concrete superstructure:* ***spall & crack repair, expansion joint replacement and header replacement, guardrail transition & connection retrofit***

10.) *Bridge No. 160269 – WB SR 570 over Saddle Creek (MP 13.2), medium span concrete superstructure:* ***spall & crack repair, expansion joint and header replacement, guardrail transition & connection retrofit***

11.) *Bridge No. 160270 – EB SR 570 over Saddle Creek (MP 13.2), medium span concrete superstructure:* ***spall & crack repair, expansion joint and header replacement***

12.) *Bridge No. 160268 – EB SR 570 over Ramp A (MP 13.6), structural steel superstructure:* ***spall repair, expansion joint replacement***

13.) *Bridge No. 160265 – WB SR 570 over Landfill Rd. (MP 13.9), medium span concrete superstructure:* ***N/A, structures will be widened and upgraded under project FPID 440897-2***

14.) *Bridge No. 160266 – EB SR 570 over Landfill Rd. (MP 13.9), medium span concrete superstructure:* ***N/A, structures will be widened and upgraded under project FPID 440897-2***

15.) Bridge No. 160267 – Ramp D over WB & EB SR 570 (MP 14.5), structural steel superstructure: ***N/A, structure will be removed under Project FPID 440897-2.***

16.) Bridge No. 164507 – CR 542 over WB & EB SR 570 (MP 16.3), structural steel superstructure: ***guardrail transition & connection retrofit***

17.) Bridge No. 160277 – WB SR 570 over CSX railroad (MP 17.1), medium span concrete superstructure: ***spall repair, expansion joint and header replacement***

18.) Bridge No. 160275 – EB SR 570 over CSX railroad (MP 17.1), medium span concrete superstructure: ***spall repair, expansion joint and header replacement, guardrail transition & connection retrofit***

Type of Bridge Structure Work

- BDR (Activity 10) – *N/A*
- Temporary Bridge (Activity 11) – *N/A*
- Short Span Concrete (Activity 12) – *N/A*
- Medium Span Concrete (Activity 13)
    - *Bridge No. 160261 & 160262, 160263 & 160264, 160273 & 160274, 160271 & 160272, 160269 & 160270, 160277 & 160275*
- Structural Steel (Activity 14):
    - *Bridge No. 160268, 164507*
- Segmental Concrete (Activity 15) – *N/A*
- Movable Span (Activity 16) – *N/A*

Retaining Walls: *N/A*

Miscellaneous Structures:
Culverts: *Bridge No. 160283*
Sign Structures: *N/A*
Signalization Structures: *See Section 2.7.*

2.6 Signing and Pavement Markings (Activities 19 & 20)

The CONSULTANT shall provide the required signing and pavement marking design and complete all the associated tasks necessary to prepare a component set of Signing and Pavement Marking plans needed as a result of the improvements identified within the previously developed ERCAR for the limits of the Project. The CONSULTANT's services shall include, but are not limited to, review of previously developed ERCAR and provided recommendations, preparing notes, plan sheets, details, guide sign worksheets, cross sections, sign structure designs and report of core borings in accordance with FDM Chapter 940, Signing and Pavement Marking Plans.

2.7 Signalization (Activities 21 & 22)

Intersections: Lakeland Highlands Rd and Bartow Rd

Signalized Intersections Impacted By This Project						
Signalized Intersection No.	***Signalized Intersection (Location)***	***# of Single Mast Arms***	***# of Double Mast Arms***	***# Pole Span Wire Assembly***	***As Builts/Design Plans Available (Y/N)***	***"Added" or "Deleted" and Describe Scope for this SA***
1	*Polk Parkway (SR 570) EB offramp @ Lakeland Highlands Rd*	*1*	*1*	*NA*	*Y*	*Upgrade vehicular detection for all approaches*
2	*Polk Parkway (SR 570) WB offramp @ Lakeland Highlands Rd*	*1*	*1*	*NA*	*Y*	*Upgrade vehicular detection for all approaches*
3	*Polk Parkway (SR 570) EB offramp @ Bartow Rd*	*3*	*0*	*NA*	*Y*	*Upgrade vehicular detection for all approaches*
4	*Polk Parkway (SR 570) WB offramp @ Bartow Rd*	*3*	*0*	*NA*	*Y*	*Upgrade vehicular detection for all approaches*

2.8 Lighting (Activities 23 & 24)

The CONSULTANT shall provide all of the professional services and complete all of the associated tasks necessary to prepare the Lighting portion of the construction plans.

2.9 Landscape (Activities 25 & 26) – *N/A*

2.10 Survey (Activity 27)

Design Survey:
The CONSULTANT shall provide, as needed, topography, digital terrain model (DTM), drainage and outfalls, right of way, and other appropriate surveys including field investigations.

Subsurface Utility Exploration ***(SUE)***:
The CONSULTANT shall provide SUE services in all locations that include new underground infrastructure or earthwork excavation (i.e., drilled shafts, bridge piles, strain poles, mast arms, miscellaneous foundations, drainage structures, pipe culverts, new ditches, etc.) in areas that work will be performed.

Right of Way Survey: *N/A*

Vegetation Survey: *N/A*

2.11 Photogrammetry (Activity 28) - *N/A*

2.12 Mapping (Activity 29)

Control Survey Map: ***Complete limits of project***

Right of Way Map: ***Graphically depict from furnished right-of-way maps, label existing R/W as needed.***

Legal Descriptions: ***Prepare Legal Descriptions for one (1) aerial easement and one (1) permanent easement for the CSX RR crossing @ MP 17.2.***

Maintenance Map: *N/A*

Miscellaneous Items: ***Prepare two (2) sketches of description for one (1) aerial easement and one (1) permanent easement for the CSX RR crossing @ MP 17.2.***

2.13 Terrestrial Mobile LiDAR (Activity 30)

Mobile LiDAR – scan full length of project limits.

2.14a Architecture (Activity 31) – *N/A*

2.14b Toll Facility Development – N/A

2.15 Noise Barriers (Activity 32) – *N/A*

2.16 Intelligent Transportation Systems (Activities 33 & 34)

The CONSULTANT shall provide all of the professional services and complete all of the associated tasks necessary to prepare the ITS portion of the construction plans to address recommendations of the associated ERCAR report. ITS improvements for this project will include replacement of existing fiber route markers, and analyses and replacement of existing maintenance pads.

ITS coordination with Landscape Architecture shall include both underground conflicts and above-ground impacts to existing and/or proposed Landscaping. The CONSULTANT shall closely coordinate with the Landscape Architect to ensure that all conflicts are identified, addressed and mitigated in the Contract Documents.

2.17 Geotechnical (Activity 35)

The CONSULTANT will provide subsurface investigation and prepare geotechnical reports providing recommendations to support the design and construction of proposed

improvements including roadway, structures, drainage and pavement. Provide recommendations addressing monitoring of existing structures and document details and reasons of selecting structures not required by the standard specifications.

Pavement cores and evaluation has been performed by the Florida's Turnpike Enterprise's Materials Office and will be provided to CONSULTANT. The CONSULTANT shall coordinate with the Florida's Turnpike Enterprise's Roadway Engineer regarding all work and requests, original and additional, associated with the pavement coring information used in the Pavement Design Report.

2.18 3D Modeling (Activity 36)

The CONSULTANT shall provide a 3D Model in areas of cross slope/superelevation correction, median closures, and any other roadside improvements involving earthwork. No optional services are included.

2.19 Project Schedule

Within ten (10) days after the Notice-To-Proceed, and prior to the CONSULTANT beginning work, the CONSULTANT shall provide a detailed project activity/event schedule for DEPARTMENT and CONSULTANT scheduled activities required to meet the current DEPARTMENT Production Date. The schedule shall be based upon approximately fifteen (15) months. The current production date is September 13, 2024. The schedule shall be accompanied by an anticipated payout and fiscal progress curve. For the purpose of scheduling, the CONSULTANT shall allow for a ***(3) three*** week review time for each phase submittal and any other submittals as appropriate.

The schedule shall indicate all required submittals.

Work Activity/Submittal Review *(to be determined by DEPARTMENT)*	***Time (weeks)*** *(to be determined by DEPARTMENT)*
Roadway Plans Review (Including independent submittals like Typical Section Package, Pavement design, Lane Closure Analysis / 45% Traffic Control Plan (TCP), 45% Drainage, and Design Variations/Exceptions/Technical Memorandums)	*2*
CTL Sheets Review	*1*
Phase I, II, III, IV	*3*

Work Activity/Submittal Review *(to be determined by DEPARTMENT)*	***Time (weeks)*** *(to be determined by DEPARTMENT)*
Prepare/Execute Utility Agreements Activity	*16*

All fees and price proposals are to be based on the negotiated schedule of *15* months for final construction contract documents.

Periodically, throughout the life of the contract, the project schedule and payout and fiscal progress curves shall be reviewed and, with the approval of the DEPARTMENT, adjusted as necessary to incorporate changes in the Scope of Services and progress to date.

The approved schedule and schedule status report, along with progress and payout curves, shall be submitted with the monthly progress report.

The schedule shall be submitted in an FDOT system-compatible format.

2.20 Submittals

The CONSULTANT shall furnish construction contract documents as required by the DEPARTMENT to adequately control, coordinate, and approve the work concepts. The CONSULTANT shall distribute submittals as directed by the DEPARTMENT. The DEPARTMENT will determine the specific number of copies required prior to each submittal.

Document Submittals are defined as Plan submittals, Engineering Document submittals, Right of Way Map submittals, etc.

The CONSULTANT shall submit all deliverables to the DEPARTMENT electronically in Portable Document Format (PDF), unless notified by the DEPARTMENT's Project Manager. Design files shall be submitted at Phase II and beyond. For each submittal, the CONSULTANT shall include a Transmittal Memorandum that includes, at a minimum, the file name of each PDF file as well as the number of hardcopies (if any) as directed by the DEPARTMENT's Project Manager.

A Google Earth ready KMZ file will be developed and submitted for all plan or roll plot submittals to the DEPARTMENT. The file will have both existing and proposed information for each discipline and shall follow Enterprise KMZ Standards available on Enterprise Design website link https://floridasturnpike.com/business-opportunities/design.

The CONSULTANT shall include a "Notes to Reviewers" plan sheet(s) in order to call attention to conditions, issues, and features unique to the project design in all phase submittals prior to the PS&E submittal.

A preliminary traffic control plan design (45%) must be submitted for review and a traffic control plan workshop with DEPARTMENT production and construction staff must be held following the submission. This workshop will ideally be scheduled about halfway through the DEPARTMENT ERC review period and is intended to facilitate a collaborative discussion of the traffic control plan to work though the proposed design and the complex issues that require DEPARTMENT assistance. The submission will be reviewed in the ERC system and comments will be provided for the EOR's information and consideration. No written responses will be required in ERC for this submittal as they are expected to be addressed in the subsequent Phase submittal.

2.21 Provisions for Work

The services performed by the CONSULTANT must comply with all applicable DEPARTMENT's manuals, procedure, policies, and guidelines. Specifically, the CONSULTANT must comply with DEPARMENT's Project Development and Environmental (PD&E) Manual, FDOT Design Manual (FDM), Structures Manual, and Computer Aided Design and Drafting (CADD) Manual***, and FDOT Survey Handbook***. The DEPARTMENT's manuals and guidelines incorporate, by requirement or reference, all applicable federal and state laws, regulations, and Executive Orders. The CONSULTANT will use the latest editions of the manuals, procedures, and guidelines to perform work for this project.

All work shall be prepared with English units (unless otherwise specified) in accordance with the latest editions of standards and requirements utilized by the DEPARTMENT.

The CONSULTANT must also comply with the Enterprise manuals, procedures, policies, and guidelines that are outlined below:

- ***Enterprise Lane Closure Policy***
  Enterprise U-Turn Policy
- ***Enterprise General Tolling Requirements (GTR)***
- ***Additional Enterprise guidelines, sample documents and templates for design and construction can be found on the Enterprise Design Website link: https://floridasturnpike.com/business-opportunities/design***

3 PROJECT COMMON AND PROJECT GENERAL TASKS

Project Common Tasks

Project Common Tasks, as listed below, are work efforts that are applicable to many project activities, 4 (Roadway Analysis) through 36 (3D Modeling). These tasks are to be included in the project scope in each applicable activity when the described work is to be performed by the CONSULTANT.

Cost Estimates: The CONSULTANT is responsible for producing a construction cost estimate and reviewing and updating the cost estimate when scope changes occur and/or at milestones of the project. Prior to Phase II plans or completion of quantities, the DEPARTMENT's Long-Range Estimate (LRE) system will be used to produce a conceptual estimate, according to ***Enterprise*** policy. Once the quantities have been developed (beginning at Phase II plans and no later than Phase III plans) the CONSULTANT shall be responsible for ***providing*** the category information pay items, and quantities ***to input into*** AASHTOWare Project Preconstruction through the use of the DEPARTMENT's Designer Interface ***for generating the summary of quantities and the FDOT's in-house estimates. A Summary of Pay Items sheet(s) shall be prepared with all required Plans submittals as required.***

Technical Special Provisions: The CONSULTANT shall provide Technical Special Provisions for all items of work not covered by the Standard Specifications for Road and Bridge Construction and the workbook of implemented modifications.

A Technical Special Provision shall not modify the Standard Specifications and implemented modifications in any way.

The Technical Special Provisions shall provide a description of work, materials, equipment and specific requirements, method of measurement and basis of payment. Proposed Technical Special Provisions will be submitted to the District Specifications Office for initial review at the time of the Phase III plans review submission to the DEPARTMENT's Project Manager. This timing will allow for adequate processing time prior to final submittal. The Technical Special Provisions will be reviewed for suitability in accordance with the Handbook for Preparation of Specification Packages. The District Specifications Office will forward the Technical Special Provisions to the District Legal Office for their review and comment. All comments will be returned to the CONSULTANT for correction and resolution. Final Technical Special Provisions shall be digitally signed and sealed in accordance with applicable Florida Statutes.

The CONSULTANT shall contact the appropriate District Specifications Office for details of the current format to be used before starting preparations of Technical Special Provisions.

Modified Special Provisions: The CONSULTANT shall provide Modified Special Provisions as required by the project. Modified Special Provisions are defined in the Specifications Handbook.

A Modified Special Provision shall not modify the first nine sections of the Standard Specifications and implemented modifications in any way. All modifications to other sections must be justified to the appropriate District and Central Specifications Offices to be included in the project's specifications package.

[When toll sites are located within project limits MSPs relating to MOT at toll sites must be included. When milling and resurfacing at a toll facility is included in the project, TEC schedule related MSPs must be included in the project]

Field Reviews: The CONSULTANT shall make as many trips to the project site as required to obtain necessary data for all elements of the project.

Technical Meetings: The CONSULTANT shall attend all technical meetings necessary to execute the Scope of Services of this contract. This includes meetings with DEPARTMENT and/or Agency staff, between disciplines and subconsultants, such as access management meetings, pavement design meetings, local governments, railroads, airports, progress review meetings (phase review), and miscellaneous meetings. The CONSULTANT shall prepare, and submit to the DEPARTMENT's Project Manager for review, the meeting minutes for all meetings attended by them. The meeting minutes are due within five (5) working days of attending the meeting.

Quality Assurance/Quality Control: It is the intention of the DEPARTMENT that design CONSULTANTS, including their subconsultant(s), are held responsible for their work, including plans review. The purpose of CONSULTANT plan reviews is to ensure that CONSULTANT plans follow the plan preparation procedures outlined in the FDOT Design Manual, that state and federal design criteria are followed with the DEPARTMENT concept, and that the CONSULTANT submittals are complete. All subconsultant document submittals shall be submitted by the subconsultant directly to the CONSULTANT for their independent Quality Assurance/Quality Control review and subsequent submittal to the DEPARTMENT. ***Written resolution of review comments shall be input in the DEPARTMENT's Electronic Review Comments (ERC) system.***

It is the CONSULTANT'S responsibility to independently and continually QC their plans and other deliverables. The CONSULTANT should regularly communicate with the DEPARTMENT's Design Project Manager to discuss and resolve issues or solicit opinions from those within designated areas of expertise.

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of all surveys, designs, drawings, specifications and other services furnished by the CONSULTANT and their subconsultant(s) under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all maps, design drawings, specifications, and other documentation prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan shall be one specifically designed for this project. The CONSULTANT shall submit a Quality Control Plan for approval within twenty (20) business days of the written Notice to Proceed and it shall be signed by the CONSULTANT's Project Manager and the CONSULTANT QC Manager. The Quality Control Plan shall include the names of the CONSULTANT's staff that will perform the quality control reviews. The Quality Control reviewer shall be a Florida Licensed Professional Engineer fully prequalified under F.A.C. 14-75 in the work type being reviewed. A marked up set of prints from a Quality Control Review indicating the reviewers for each component (structures, roadway, drainage, signals, geotechnical, signing and marking, lighting, landscape, surveys, etc.) and a written resolution of comments on a point-by-point basis will be required, if requested by the DEPARTMENT, with each phase submittal. The responsible Professional Engineer, Landscape Architect, or Professional Surveyor & Mapper that performed the Quality Control review will sign a statement certifying that the review was conducted and found to meet required specifications.

The CONSULTANT shall, without additional compensation, correct all errors or deficiencies in the designs, maps, drawings, specifications and/or other products and services.

Independent Peer Review: When directed by the DEPARTMENT, a subconsultant may perform Independent Peer Reviews.

Independent Peer Review and a Constructability/Bidability Review for design Phase Plans document submittals are required on this project. These separate reviews shall be completed by someone who has not worked on the plan component that is being reviewed. These could include, but are not limited to a separate office under the Prime's umbrella, a subconsultant that is qualified in the work group being reviewed, or a CEI. It does not include persons who have knowledge of the day to day design efforts. The Constructability/Bidability Review shall be performed by a person with experience working on DEPARTMENT construction projects (CEI, Contractor, etc.).

The Independent Peer Review for design Phase Plans submittals shall ensure the plans meet the FDM, Standard Plans and FDOT CADD Manual. The Constructability/Bidability Review shall ensure the project can be constructed and paid for as designed. Constructability/Bidability Reviews should be conducted prior to the Phase III and Phase IV submittals, using the Phase Review Checklist (Guidance Document 1-1-A) from the Construction Project Administration Manual (CPAM) as a minimum guideline. The CONSULTANT shall submit this checklist, as well as the "marked-up" set of plans during this review, and review comments and comment responses from any previous

Constructability/Bidability reviews. These items will be reviewed by District Design and District Construction.

Supervision: The CONSULTANT shall supervise all technical design activities.

Coordination: The CONSULTANT shall coordinate with all disciplines of the project to produce a final set of construction documents.

Field Reviews: Add language for specific number of field reviews refer to specific discipline section.

Notification of Work: Traffic shall be maintained on all affected roadways throughout the duration of the contract during the performance of any work activity by the CONSULTANT within the Florida's Turnpike Enterprise's Right-of-Way.

Prior to the CONSULTANT beginning work on this Project, a Notification of Work form shall be submitted to the DEPARTMENT's Project Manager for signature. (Note: This notification of work form shall replace the previously used General Use Permit.) A completed and signed copy of the notification of work form shall be carried at all times in any CONSULTANT vehicle while within an assigned project limits and performing work necessary for the assigned project(s). The above shall apply to all members of the CONSULTANT team under contract to the Florida's Turnpike Enterprise, including all sub-CONSULTANTs.

Notification of Work form is available at the following internet website:

http://www.floridasturnpike.com/content/Permits/Forms/FTE%20Notification%20of%20Work%20Form.pdf

Any lane closures on Turnpike system shall be in accordance with the Enterprise Lane Closure Policy.

Project General Tasks

Project General Tasks, described in Sections 3.1 through 3.7 below, represent work efforts that are applicable to the project as a whole and not to any one or more specific project activity. The work described in these tasks shall be performed by the CONSULTANT when included in the project scope.

The CONSULTANT will coordinate and perform the appropriate level of public involvement for this Project as outlined in the applicable chapters of the FDOT Design Manual, PD&E Manual, and the FDOT Public Involvement Handbook.

3.1 Public Involvement

Public involvement includes communicating to all interested persons, groups, and government organizations information regarding the development of the project. The CONSULTANT shall provide to the DEPARTMENT drafts of all Public Involvement documents (e.g., newsletters, property owner letters, advertisements, etc.) associated with the following tasks for review and approval at least ***ten (10)*** business days prior to printing and / or distribution.

3.1.1 Community Awareness Plan

Prepare a Community Awareness Plan (CAP) for review and approval by the DEPARTMENT within 30 calendar days after receiving Notice to Proceed. The objective of the plan is to notify local governments, affected property owners, tenants, and the public of the DEPARTMENT'S proposed construction and the anticipated impact of that construction. The CAP shall address timeframes for each review and shall include tentative dates for each public involvement requirement for the project. The CAP will also document all public involvement activities conducted throughout the project's duration. In addition to the benefits of advance notification, the process should allow the DEPARTMENT to resolve controversial issues during the design phase. This item shall be reviewed and updated periodically as directed by the DEPARTMENT throughout the life of the project.

3.1.2 Notifications – *N/A*

3.1.3 Preparing Mailing Lists – *N/A*

3.1.4 Median Modification Letters – *N/A*

3.1.5 Driveway Modification Letters – *N/A*

3.1.6 Newsletters – *N/A*

3.1.7 Renderings and Fly-Throughs – *N/A*

3.1.8 PowerPoint Presentations – *N/A*

3.1.9 Public Meetings/Hearings Preparations – *N/A*

3.1.10 Public Meeting/Hearing Attendance and Follow-up – *N/A*

3.1.11 Other Agency Meetings

In addition to scheduled public meetings the CONSULTANT may be required to participate in meetings with local governing authorities and/or Metropolitan Planning Organization (MPO). The CONSULTANT's participation may include, but not be limited to, presentations during the meeting, note taking, and summarizing the meeting in a memo to the file. It is estimated for this project there will be ***2*** meetings (as indicated in Section 2.1 above) with local governing authorities and/or MPOs during the design.

The CONSULTANT will coordinate with the appropriate local government agencies and obtain all land use development activities (current and future) within the project area within 60 days of NTP. The CONSULTANT will inform the DEPARTMENT of any impact of the land use changes to the project and recommend strategies to address the impacts.

3.1.12 Web Site – *N/A*

3.2 Joint Project Agreements – *N/A*

3.3 Specifications & Estimates

3.3.1 Specifications Package Preparation

If applicable, identification and development of draft TSPs/MSPs shall begin no later than phase II submittal and shall be submitted for review no later than the Phase III submittal. DEPARTMENT approval of TSPs/MSPs is required prior to any Phase IV submittal. The draft Specifications package shall be submitted for review as part of the Phase IV Submittal.

These submittals do not require signing and sealing and shall be coordinated through the DEPARTMENT's Project Manager. The draft Specifications package submittal shall consist of; (1) the complete specifications package, (2) PDF copy of workbook used to prepare the package, (3) a copy of the final project plans, and (4) completed copy of Turnpike's Specifications QA/QC Checklist available on Plans, Specs and Estimates - Florida's Turnpike (floridasturnpike.com).

Final submittal of the specifications package must occur ***on or prior to the Production*** date ***(date is referenced in Section 2.19)***. This submittal shall be digitally signed, dated, and sealed in accordance with applicable Florida Statutes.

3.3.2 Estimated Quantities Report Preparation

The CONSULTANT shall prepare an Estimated Quantities (EQ) Report in accordance with FDM 902. Includes loading category information, pay items, and quantities into Designer Interface for AASHTOWare Project Preconstruction (PrP), QA/QC efforts associated with AASHTOWare PrP and the EQ Report.

3.4 Contract Maintenance and Project Documentation

Contract maintenance includes project management effort for complete setup and maintenance of files, electronic folders and documents, developing technical monthly progress reports and schedule updates. Project documentation includes the compilation and delivery of final documents, reports or calculations that support the development of the contract plans; includes uploading files to Electronic Document Management System (EDMS) or Project Suite Enterprise Edition (PSEE).

3.5 Value Engineering (Multi-Discipline Team) Review – *N/A*

3.6 Prime CONSULTANT Project Manager Meetings

Includes only the Prime CONSULTANT Project Manager's time for travel and attendance at Activity Technical Meetings and other meetings listed in the meeting summary for Task 3.6 on tab 3 Project General Task of the staff hour forms. Staff hours for other personnel attending Activity Technical Meetings are included in the meeting task for that specific Activity.

Progress Meetings: The CONSULTANT shall attend all progress meetings. 10 number of progress meetings are anticipated for this project. The CONSULTANT shall prepare, and submit to the DEPARTMENT's Project Manager for review, the meeting agenda and notes for all meetings attended by them. The meeting notes are due within five (5) working days of attending the meeting.

3.7 Plans Update – *N/A*

3.8 Post-Design Services

Post-Design Services may include, but not limited to, meetings, construction assistance, plans revisions, shop drawing review, survey services, as-built drawings, and load ratings. Specific services will be negotiated as necessary as a contract amendment.

Post-Design Services are not intended for instances of CONSULTANT errors or omissions.

Enterprise has developed a separate Post Design Services (PDS) scope and Staff Hour Sheet templates.

3.9 Digital Delivery

The CONSULTANT shall deliver final contract plans and documents in digital format. The final contract plans and documents shall be digitally signed and sealed files delivered to the DEPARTMENT on acceptable electronic media, as determined by the DEPARTMENT.

3.10 Risk Assessment Workshop – *N/A*

3.11 Railroad, Transit and/or Airport Coordination

CSX easement coordination

3.11.1 Aeronautical Evaluation

The CONSULTANT shall be responsible for complying with the requirements of Title 14 of the Code of Federal Regulations Part 77 (14 CFR Part 77), and for determining whether it is necessary to file any Notice of Proposed Construction or Alteration (FAA Form 7460-1) with the Federal Aviation Administration (FAA), utilizing the FAA Notice Criteria Tool. Place a copy of all pertinent documentation in the Project Documentation folder structure; e.g., Notice Criteria Tool inquiries and responses; FAA Form 7460-1 filed with the FAA;

Letters of Determination (along with the records demonstrating compliance with the conditions and deadlines). Report any Letters of Determination, designated other than "Does Not Exceed", to the Central Office (Aviation Office, Airspace and Land Use Manager).

3.12 Landscape and Existing Vegetation Coordination – *N/A*

3.13 Other Project General Tasks

The CONSULTANT shall provide engineering assistance in answering bid questions and/or clarifications, as requested by DEPARTMENT′s Project Manager, during Construction Bid solicitation period, award and selection.

The CONSULTANT shall deliver KMZ files for all Phase submittals starting at Phase II in accordance with the Turnpike's KMZ requirements.

3.13.1 DEPARTMENT Owned Underground Facilities

DEPARTMENT owned underground facilities will be designated and located, as needed, by the CONSULTANT. The DEPARTMENT will not locate its underground facilities as the result of a call to Sunshine State One Call. The CONSULTANT may determine the locations of existing DEPARTMENT owned underground facilities using SUE, reviewing as-built plans, field investigations, or by other means.

3.13.2 New Power Services Coordination

The CONSULTANT shall coordinate with lighting, signals, tolls, signs, and ITS to determine the location for service points, the cost to provide power service to the service point locations, and schedules for providing the service.

The CONSULTANT shall review and confirm that the power company's estimate is accurate and includes the required components needed for the individual systems (voltage, transformer size, location, etc.) and provide the cost estimate and a written request to utilize the Do-Not-Bid pay item (639-8-ABC) to the Project Manager and the District Utility Administrator.

4 ROADWAY ANALYSIS

The CONSULTANT shall analyze and document Roadway Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

4.1 Typical Section Package

The CONSULTANT shall prepare a Typical Section Package ***and submit to the DEPARTMENT.***

[When milling and resurfacing occurs at the toll loop pavement area include a typical section for the 100′ of toll lop pavement area centered on the gantry.]

4.2 Pavement Type Selection Report

Pavement Type Selection Reports are required for every project one mile or greater in length where work includes a modification to the base materials. The Pavement Type Selection decision will again be reviewed by FDOT ***Florida Turnpike's*** Design ***Office*** at the time the pavement is designed to warrant reconsideration. A letter to the Project Design File documenting the pavement type decision is required, even if no report is performed ***(to be performed by the DEPARTMENT).***

4.3 Pavement Design Package

The CONSULTANT shall prepare a Pavement Design Package ***and submit to the DEPARTMENT.***

4.4 Cross-Slope Correction

The CONSULTANT shall coordinate with the DEPARTMENT to obtain existing cross slope data, determine roadway limits where cross slope is potentially out of tolerance and determine a resolution.

4.5 Horizontal/Vertical Master Design Files

The CONSULTANT shall design the geometrics using the Standard Plans that are most appropriate with proper consideration given to the design traffic volumes, design speed, capacity and levels of service, functional classification, adjacent land use, design consistency and driver expectancy, aesthetics, existing vegetation to be preserved, pedestrian and bicycle concerns, ADA requirements, Safe Mobility For Life Program, access management, PD&E documents and scope of work. The CONSULTANT shall also develop utility conflict information to be provided to project Utility Coordinator in the format requested by the DEPARTMENT.

Note: When the project includes a 3D Model deliverable, also include Activity 36 3D Modeling.

4.6 Access Management

The CONSULTANT shall incorporate access management standards for each project in coordination with DEPARTMENT staff. The CONSULTANT shall review adopted access management standards and the existing access conditions (interchange spacing, signalized intersection spacing, median opening spacing, and connection spacing). Median openings that will be closed, relocated, or substantially altered shall be shown on plan sheets and submitted with supporting documentation for review with the first plans submittal.

The DEPARTMENT shall provide access management classification information and information derived from PD&E studies and public hearings to be used by the CONSULTANT.

4.7 Roundabout Final Design Analysis

The CONSULTANT shall finalize the design of the roundabout in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall perform a final roundabout operational analysis that recommends a functional geometric layout that is cost effective, safe and meets the needs of the community. A final roundabout design will be recommended for implementation, and all geometric and operational analysis will be documented in a final roundabout report.

4.8 Cross Section Design Files

The CONSULTANT shall establish and develop cross section design files in accordance with the FDOT CADD Manual.

Note: If the Cross Sections are prepared using a 3D model, use Task 36.5 instead of Task 4.9 for the Cross Section Design Files.

4.9 Temporary Traffic Control Plan (TTCP) Analysis

The CONSULTANT shall design a safe and effective TTCP to move vehicular and pedestrian traffic during all phases of construction. The design shall include construction phasing of roadways ingress and egress to existing property owners and businesses, routing, signing and pavement markings, and detour quantity tabulations, roadway pavement, drainage structures, ditches, front slopes, back slopes, drop offs within clear zone, transit stops, and traffic monitoring sites. Special consideration shall be given to the construction of the drainage system when developing the construction phases. Positive drainage must be maintained at all times. The design shall include construction phasing of roadways to accommodate the construction or relocation of utilities when the contract includes Joint Project Agreements (JPAs).

The CONSULTANT shall investigate the need for temporary traffic signals, temporary highway lighting, detours, diversions, lane shifts, and the use of materials such as sheet piling

in the analysis. The Traffic Control Plan shall be prepared by a certified designer who has completed training as required by the DEPARTMENT. Before proceeding with the TTCP, the CONSULTANT shall meet with the appropriate DEPARTMENT personnel. The purpose of this meeting is to provide information to the CONSULTANT that will better coordinate the Preliminary and Final TTCP efforts.

The CONSULTANT shall consider the local impact of any lane closures or alternate routes. When the need to close a road is identified during this analysis, the CONSULTANT shall notify the DEPARTMENT's Project Manager as soon as possible. Proposed road closings must be reviewed and approved by the DEPARTMENT. Diligence shall be used to minimize negative impacts by appropriate specifications, recommendations or plans development. Local impacts to consider will be local events, holidays, peak seasons, detour route deterioration and other eventualities. CONSULTANT shall be responsible to obtain local authorities permission for use of detour routes not on state highways.

4.10 Master TTCP Design Files

The CONSULTANT shall develop master TTCP files showing each phase of the TTCP. This includes all work necessary for designing lane configurations, diversions, lane shifts, signing and pavement markings, temporary traffic control devices, and temporary pedestrian ways.

[This project is primarily Level I with locations of Level I/II at Interchanges, Toll Sites, and any encountered locations of full depth milling & resurfacing.]

4.11 Selective Clearing and Grubbing

Note: Utilize Activities 25 and 26 for Standalone Landscape Projects.

a) Selective Clearing and Grubbing of Existing Vegetation Field Assessment

The CONSULTANT shall review information from the DEPARTMENT and conduct a project field assessment(s) of existing vegetation. At least one field assessment visit is to be attended by the District Landscape Architect.

The Result of the Field Assessment(s) will determine the course of action for Selective Clearing and Grubbing and the extent of the Vegetation Survey under Task 2.10.

b) Selective Clearing and Grubbing Site Inventory Analysis of Existing Vegetation and Cross-Discipline Coordination (OPTIONAL SERVICES)

The CONSULTANT shall coordinate with the District Utility Office, drainage engineers, and traffic engineers to ensure that preservation of existing vegetation is coordinated between all disciplines. Coordinate with the District Landscape Architect.

Based on the field assessment, the CONSULTANT may be required to do a site inventory analysis of existing vegetation and identify opportunities for preservation and protection of existing vegetation, vegetation relocation options, and selective removal of nuisance and/or

non-nuisance vegetation. ***The CONSULTANT will provide an identification and condition rating of existing vegetation and a recommendation for preservation, relocation or removal. Coordinate with the surveyor to have trees tagged and surveyed per tasks 27.28 or 27.29.***

c) Selective Clearing and Grubbing- Existing Vegetation Maintenance Report

The CONSULTANT shall include in the plans instructions for the care and maintenance of the plant preservation areas, and selective clearing and grubbing areas throughout the construction period. The CONSULTANT will coordinate with the District Landscape Architect to ensure that the intent of the plant preservation areas is in alignment with future highway landscape plans. The CONSULTANT should be knowledgeable in arboricultural practices to the extent that they are able to deliver detailed and informed Selective Clearing and Grubbing Plans.

This is an optional services to be considered on a project by project basis.

4.12 Vegetation Disposition Plans

The CONSULTANT will prepare a Vegetation Disposition Plan outlining the requirements for the protection, relocation, or removal of vegetation located within the project boundaries and will utilize the information collected from the Vegetation Survey and information collected under task 4.12 for Selective Clearing and Grubbing.

The Vegetation Disposition Plan will be produced at the scale of the roadway drawings or a scale that best depicts the information. Interchange and detail plans will be shown at no larger than a 1"=50' scale. The Vegetation Disposition Plan will be produced as a roll plot to be utilized in the preparation of the Vegetation Relocation Planting Plan sheets (5.24.1).

4.13 Design Variations and Exceptions

The CONSULTANT shall prepare the documentation necessary to gain DEPARTMENT approval of all appropriate Design Memorandums, Formal Design Variations and/or Design Exceptions.

A Project Design Variation Memorandum (FDM Form 122-B) shall be prepared to document all non-controlling design elements for a project that do not meet DEPARTMENT criteria. Those elements requiring a more detailed analysis, as per FDM Section 122.2, shall be submitted as Formal Design Variations or Design Exceptions.

4.14 Design Report

The CONSULTANT shall prepare all applicable report(s) as listed in the Project Description section of this scope. Reports are to be delivered as a signed and sealed pdf file.

4.15 TTCP Quantities for EQ Report

The CONSULTANT shall determine pay items and quantities and the supporting documentation, including construction days when required.

4.16 Cost Estimate

The CONSULTANT shall submit cost estimates at each phase submittal.

4.17 Technical Special Provisions and Modified Special Provisions

MSPs are required for traffic control adjacent to the toll facilities located within project limits.

4.18 Other Roadway Analyses

4.19 Field Reviews

4.20 Monitor Existing Structures

The CONSULTANT shall perform field observations to visually identify existing structures within the project limits which may require settlement, vibration, or groundwater monitoring by the contractor during construction in accordance with FDM Chapter 307. The CONSULTANT shall identify the necessary pay items to be included in the bid documents to monitor existing structures.

Optional Services (may be negotiated at a later date if needed): The CONSULTANT shall coordinate with and assist the geotechnical engineer and/or structural engineer to develop mitigation strategies (when applicable).

4.21 Technical Meetings

4.22 Quality Assurance/Quality Control

4.23 Independent Peer Review

4.24 Supervision

4.25 Coordination

5 ROADWAY PLANS

The CONSULTANT shall prepare Roadway, TTCP, Utility Adjustment Sheets, plan sheets, notes, and details. The plans shall include the following sheets necessary to convey the intent and scope of the project for the purposes of construction.

5.1 Key Sheet

5.2 Typical Section Sheets

5.2.1 Typical Sections

5.2.2 Typical Section Details

5.3 General Notes/Pay Item Notes

5.4 Project Layout

5.5 Plan/Profile Sheet

5.6 Profile Sheet

5.7 Plan Sheet

5.8 Special Profile

5.9 Back-of-Sidewalk Profile Sheet

5.10 Interchange Layout Sheet

5.11 Ramp Terminal Details (Plan View)

5.12 Intersection Layout Details

5.13 Special Details

[Include details to install toll header curb at the existing toll sites to be resurfaced, as identified in 2.14b above. Only applies to sites with no existing toll header curb.]

5.14 Cross-Section Pattern Sheets

5.15 Roadway Soil Survey Sheets

5.16 Cross Sections

5.17 Temporary Traffic Control Plan Sheets

5.18 Temporary Traffic Control Cross Section Sheets

5.19 Temporary Traffic Control Detail Sheets

Include details for traffic control phasing at each toll facility listed in 2.14b.

[Include details for phased installation of toll header curb.]

[Include details for milling and resurfacing around 4-foot toll header curb segments as identified in 2.14b above.]

5.20 Utility Adjustment Sheets

5.21 Selective Clearing and Grubbing Sheets

5.21.1 Selective Clearing and Grubbing

5.21.2 Selective Clearing and Grubbing Details

5.22 *Vegetation* Disposition Plan Sheets

5.22.1 *Vegetation* Disposition Plan Sheets

Tree Disposition Plan Sheets will be signed and sealed drawings showing the location and vertical/horizontal landscape design of the vegetation to be relocated. The Tree Disposition Plans will be produced at the scale of the roadway drawings or at a scale that best depicts the information. Interchange and details will be shown at no larger than a 1" =50" scale.

5.22.2 *Vegetation* Disposition Plan Tables and Schedules

5.23 Project Control Sheets

5.24 Environmental Detail Sheets

Preparation of detail sheets for potential environmental issues such as, underground fuel tanks and monitoring wells, septic tanks within the proposed right of way. All piping and pumps in association with the above referenced issues shall also be located and identified by the survey. The CONSULTANT shall relay to the DEPARTMENT any findings of contaminated soil, monitoring wells, or any features (particularly springs or sinks) relating to contamination or hazardous material.

Coordination with Permits/Environmental staff and preparing Dredge & Fill Detail sheets where applicable.

5.25 Utility Verification Sheets (SUE Data)

5.26 Quality Assurance/Quality Control

5.27 Supervision

6a DRAINAGE ANALYSIS

The CONSULTANT shall analyze and document Drainage Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall be responsible for designing a drainage and stormwater management system. All design work shall comply with the requirements of the appropriate regulatory agencies and the DEPARTMENT's Drainage Manual.

The CONSULTANT shall coordinate fully with the appropriate permitting agencies and the DEPARTMENT's staff. All activities and submittals should be coordinated through the DEPARTMENT's Project Manager. The work will include the engineering analyses for any or all of the following:

6a.1 Drainage Map Hydrology – *N/A*

6a.2 Base Clearance Calculations

Analyze, determine, and document high water elevations per basin which will be used to set roadway profile grade and roadway materials. Determine surface water elevations at cross drains, floodplains, outfalls and adjacent stormwater ponds. Determine groundwater elevations at intervals between the above-mentioned surface waters. Document findings in ***the Drainage Report and Pavement Design Report.***

6a.3 Pond Siting Analysis and Report – *N/A*

6a.4 Design of Cross Drains

Analyze the hydraulic design and performance of cross drains. Check existing cross drains to determine if they are structurally sound and can be extended. Document the design as required. Determine and provide flood data as required.

6a.5 Design of Ditches

Design roadway conveyance and outfall ditches. This task includes capacity calculations, longitudinal grade adjustments, flow changes, additional adjustments for ditch convergences, selection of suitable channel lining, design of side drain pipes, and documentation. (Design of linear stormwater management facilities in separate task.)

6a.6 Design of Stormwater Management Facility (Offsite or Infield Pond) – *N/A*

6a.7 Design of Stormwater Management Facility (Roadside Treatment Swales and Linear Ponds) – *N/A*

6a.8 Design of Floodplain Compensation – *N/A*

6a.9 Design of Storm Drains – *N/A*

6a.10 Optional Culvert Material – *N/A*

6a.11 French Drain Systems – *N/A*

6a.11.1 Existing French Drain Systems – *N/A*

6a.12 Drainage Wells – *N/A*

6a.13 Drainage Design Documentation Report

Compile drainage design documentation into report format. Include documentation for all the drainage design tasks and associated meetings and decisions, except for stand-alone reports, such as the Pond Siting Analysis Report and Bridge Hydraulics Report.

6a.14 Bridge Hydraulic Report – *N/A*

6a.15 Temporary Drainage Analysis

Evaluate and address drainage to adequately drain the road and maintain existing offsite drainage during all construction phases. Provide documentation.

6a.16 Drainage Quantities for EQ Report

The CONSULTANT shall determine pay items and quantities and the supporting documentation.

6a.17 Cost Estimate

Prepare cost estimates for the drainage components, except bridges and earthwork for stormwater management and flood compensation sites.

6a.18 Technical Special Provisions / Modified Special Provisions

6a.19 Hydroplaning Analysis – *N/A*

6a.20 Existing Permit Analysis – *N/A*

6a.21 Other Drainage Analysis

Includes all efforts for a drainage task not covered by an existing defined task.

6a.22 Noise Barrier Evaluation – *N/A*

6a.23 Erosion Control Plan

Includes analysis and design of the Erosion Control Plan. Includes creating the design file.

6a.24 Field Reviews

6a.25 Technical Meetings

Meetings with DEPARTMENT staff, regulatory agencies, local governments such as meetings with District Drainage Engineer, the Water Management District, FDEP, etc.

6a.26 Environmental Look-Around Meetings – *N/A*

6a.27 Quality Assurance/Quality Control

6a.28 Independent Peer Review

6a.29 Supervision

6a.30 Coordination

6b DRAINAGE PLANS

The CONSULTANT shall prepare Drainage plan sheets, notes, and details. The plans shall include the following sheets necessary to convey the intent and scope of the project for the purposes of construction.

6b.1 Drainage Map (Including Interchanges) – *N/A*

6b.2 Bridge Hydraulics Recommendation Sheets – *N/A*

6b.3 Drainage Structures

6b.4 Lateral Ditch Plan/Profile & Cross Sections – *N/A*

6b.5 Retention/Detention/Floodplain Compensation Pond Details & Cross Sections – *N/A*

6b.6 Erosion Control Plan

6b.7 SWPPP

6b.8 Quality Assurance/Quality Control

6b.9 Supervision

7 UTILITIES

The CONSULTANT shall identify utility facilities and secure agreements, utility work schedules, and plans from the Utility Agency Owners (UAO) ensuring all conflicts that exist between utility facilities and the DEPARTMENT's construction project are addressed. The CONSULTANT shall certify all utility negotiations have been completed and that arrangements have been made for utility work to be undertaken.

The CONSULTANT will identify all existing utilities, perform utility coordination with the Utility Agency Owner(s), and certify there are no utility conflicts within the project limits.

In addition, the CONSULTANT shall determine the locations of all existing DEPARTMENT-owned utility facilities (i.e. power, telephone, water, sewer, roadway lighting, data, and internal communication lines).

LANDSCAPE projects will generally not require utility relocations. The CONSULTANT will identify existing utilities and prepare their design to avoid all utility conflicts, including FTE preferred offset criteria.

The CONSULTANT will perform all of the coordination functions with each utility shown on the roadway plans for this Project. After the CONSULTANT has corrected the Phase I roadway plans per the DEPARTMENT's comments, the CONSULTANT will provide each utility company with a copy of the plans and schedule a meeting with the utility companies. The CONSULTANT shall chair this meeting and provide all attendees with a copy of the minutes of the meeting.

After preparation of the Phase II plans and correction thereof per the DEPARTMENT's comments, the CONSULTANT shall submit a hard copy of the corrected plans to those utility companies that are not computer automated and an electronic copy to those that are automated. The computer files shall be in a format that can be readily adapted by the utility company to their own unique system. In addition, the CONSULTANT shall furnish the DEPARTMENT two (2) sets of corrected plans for use by the DEPARTMENT. At this time, the DEPARTMENT will schedule a utility pre-design conference with the utility companies. The CONSULTANT shall attend this meeting and provide all attendees minutes of the meeting.

At the completion of the Phase III plans and at the time of submission of the plans to the DEPARTMENT, the CONSULTANT shall submit to the DEPARTMENT an electronic copy of the Phase III plans for each utility depicted on the plans.

7.1 Utility Kickoff Meeting

Before any contact with the UAO(s), the CONSULTANT shall meet with the District Utility Office (DUO) to receive guidance, as may be required, to assure that all necessary coordination will be accomplished in accordance with DEPARTMENT procedures. CONSULTANT shall bring a copy of the design project work schedule reflecting utility activities. The

CONSULTANT shall be prepared to discuss the projects applied utility schedule logic and current UAO contact information.

7.2 Identify Existing Utility Agency Owner(s)

The CONSULTANT shall identify all utility Agency Owners (UAOs) in the corridor and within and adjacent to the project limits that may be impacted by the project. Identification shall include the updates UAO contact information. The CONSULTANT shall contact Sunshine 811, perform a field visit, and review prior FDOT utility permits, reports, existing plans, and surveys provided.

7.3 Make Utility Contacts

First Contact: The CONSULTANT shall send letters and plans to each Utility Agency Owner (UAO), one set for the utility office, and one set to the DEPARTMENT Offices as required by the District. Includes contact by phone for meeting coordination. Request type, size, location, easements, and cost for relocation if reimbursement is claimed. Request the voltage level for power lines in the project area. Send UAO requests for reimbursement to FDOT for a legal opinion. Include the meeting schedule (if applicable) and the design schedule. Include typical meeting agenda. If scheduling a meeting, give a 4-week notice.

Second Contact: At a minimum of 4 weeks prior to the meeting, the CONSULTANT shall transmit Phase II plans and the utility conflict information (when applicable and in the format requested by the DEPARTMENT) to each UAO having facilities located within the project limits, and one set to the DEPARTMENT Offices as required by the District.

Third Contact: Identify agreements and assemble packages. The CONSULTANT shall send agreements, letters, the utility conflict information (when applicable and in the format requested by the DEPARTMENT) and plans to the UAO(s) including all component sets, one set for the utility office, one set to construction and maintenance if required. Include the design schedule.

Not all projects will have all contacts as described above.

The CONSULTANT shall utilize Project Suite Enterprise Edition for Utility (PSEE).

7.4 Exception Processing – *N/A*

7.5 Preliminary Utility Meeting – *N/A*

7.6 Individual/Field Meetings

The CONSULTANT shall meet with each UAO as necessary, separately or together, throughout the project design duration to provide guidance in the interpretation of plans, review changes to the plans and schedules, standard or selective clearing and grubbing work, and assist in the development of the UAO(s) marked/RGB plans and work schedules. The

CONSULTANT is responsible for motivating the UAO to complete and return the necessary documents after each Utility Contact or Meeting.

7.7 Collect and Review Plans and Data from UAO(s)

The CONSULTANT shall review UAO marked plans and data individually as they are received for content accuracy, utility type, material, and size. Provide to the EOR (designer) for inclusion in the plans. Forward all requests for UAO reimbursement and supporting documentation to the DUO.

7.8 Subordination of Easements Coordination – *N/A*

7.9 Utility Design Meeting

The CONSULTANT shall schedule (time and place), notify participants, and conduct a Utility meeting with all affected UAO(s). The CONSULTANT shall be prepared to discuss impacts to existing trees/vegetation and proposed landscape, drainage, traffic signalization, temporary traffic control plans (TTCP) (construction phasing), review the current design schedule and letting date, evaluate the utility information collected, provide follow-up information on compensable property rights from FDOT Legal Office, discuss with each UAO the utility work by highway contractor option, discuss any future design issues that may impact utilities, etc., to the extent that they may have an effect on existing or proposed utility facilities with particular emphasis on drainage and TTCP with each UAO. The intent of this meeting shall be to assist the UAOs in identifying and resolving conflicts between utilities and proposed construction before completion of the plans, including utility adjustment details. Also, to work with the UAOs to recommend potential resolution between known utility conflicts with proposed construction plans as may be deemed practical by the UAO. The CONSULTANT shall keep accurate minutes of all meetings and distribute a copy to all attendees within 3 days. See Task 4.5 (Horizontal/Vertical Master Design File) and Task 4.8 (Cross Section Design Files) for utility conflict location identification and adjustments.

7.10 Review Utility Markups & Work Schedules and Processing of Schedules & Agreements

The CONSULTANT shall review utility marked up plans and work schedules as they are received for content and coordinate review with the designer. Send color markups and schedules to the appropriate DEPARTMENT office(s) such as survey, geotechnical, drainage, structures, lighting, roadway, signals, utilities, landscape architecture, municipalities, maintaining agency, and District Traffic Operations for review and comment if required by the District. Coordinate with the District for execution. Distribute Executed Final Documents. Prepare Work Order for UAO(s). The CONSULTANT shall coordinate with the DUO the programming of necessary Work Program funds.

7.11 Utility Coordination/Follow-up

The CONSULTANT shall provide utility coordination and follow up. This includes follow-up, interpreting plans, and assisting the UAOs with completion of their work schedules and agreements. Includes phone calls, face-to-face meetings, etc., to motivate and ensure the UAO(s) complete and return the required documents in accordance with the project schedule. Ensure the resolution of all identified conflicts. The CONSULTANT shall keep accurate minutes of all meetings and distribute a copy to all attendees. This task can be applied to all phases of the project.

The CONSULTANT shall provide monthly UAO's status and activity sheet update.

7.12 Utility Constructability Review – *N/A*

7.13 Additional Utility Services – *N/A*

7.14 Processing Utility Work by Highway Contractor (UWHC) – *N/A*

7.15 Contract Plans to UAO(s)

If requested by the District, the CONSULTANT shall transmit the contract plans as processed for letting to the UAO(s). Transmittals to UAO(s) via electronic delivery or another agreeable format.

This task will be performed by the Florida's Turnpike Enterprise.

7.16 Certification/Close-Out

This includes hours for transmitting utility files to the DUO and preparation of the Utility Certification Letter. The CONSULTANT shall certify to the appropriate DEPARTMENT representative the following:

All utility negotiations (Full execution of each agreement, approved Utility Work Schedules, Technical Special Provisions or Modified Special Provisions written, etc.) have been completed with arrangements made for utility work to be undertaken and completed as required for proper coordination with the physical construction schedule.

OR

An on-site inspection was made and no utility work will be involved.

OR

Plans were sent to the Utility Companies/Agencies and no utility work is required.

7.17 Other Utilities

The CONSULTANT shall provide other utility services. This includes all efforts for a utility task not covered by an existing defined task. Required work will be defined in the scope and negotiated on a case-by-case basis.

8 ENVIRONMENTAL PERMITS and ENVIRONMENTAL CLEARANCES

The CONSULTANT shall notify the DEPARTMENT Project Manager, Environmental Permit Coordinator, and other appropriate DEPARTMENT personnel in advance of all scheduled meetings with the regulatory agencies to allow a DEPARTMENT representative to attend. The CONSULTANT shall copy in the Project Manager and the Environmental Permit Coordinator on all permit related correspondence and meetings. The CONSULTANT shall use current regulatory guidelines and policies for all permits required as identified in Section 2.4.

8.1 Preliminary Project Research

The CONSULTANT shall perform preliminary project research and shall be responsible for regulatory agency coordination to assure that design efforts are properly directed toward permit requirements. The research shall include but should not be limited to a review of the project's PD&E documents including the Environmental Document, Natural Resources Evaluation Report, and Cultural Resources Assessment Survey Report.

The CONSULTANT shall research any existing easements or other restrictions that may exist both within or adjacent to the proposed project boundary. Project research may include but should not be limited to review of available: District Right of Way files and databases; federal, state, and local permit files and databases; and local government information including county and property appraiser data. The CONSULTANT shall determine if any Sovereign Submerged Lands easements need to be modified or acquired. Any applicable information will be shown on the plans as appropriate.

8.2 Field Work

8.2.1 Pond Site Alternatives: *N/A*

8.2.2 Establish Wetland Jurisdictional Lines and Assessments:

The CONSULTANT shall be responsible for, but not limited to, the following activities:

- Determine landward extent of wetlands and other surface waters as detailed in Rule Chapter 62-340, F.A.C., as ratified in Section 373.4211, F.S..; United States Army Corps of Engineers (USACE) Wetland Delineation Manual (Technical Report Y-87-1); Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Atlantic and Gulf Coastal Plain Region (ERD/EL TR-10-20).
- Collect all data and information necessary to determine the jurisdictional boundaries of wetlands and other surface waters as defined by the rules or regulations of each permitting agency processing a DEPARTMENT permit application for the project.
- Set seasonal high-water levels in adjacent wetlands with biological indicators
- Obtain a jurisdictional determination as defined by the rules or regulations of each permitting agency processing a DEPARTMENT permit application for the project.
- Prepare aerial maps showing the jurisdictional boundaries of wetlands and other surface waters. Aerial maps shall be reproducible, of a scale of 1"=400'or more

detailed and be recent photography. The maps shall show the jurisdictional boundaries of each agency. Photo copies of aerials are not acceptable. When necessary, a wetland specific survey will be prepared by a registered professional surveyor and mapper. All surveyed jurisdictional boundaries are to be tied to the project's baseline of survey.

- Prepare a written assessment of the current condition and functional value of the wetlands and other surface waters. Prepare data in tabular form which includes the ID number for each wetland (and other surface water, if necessary) impacted, size of wetland to be impacted, type of impact, and identify any wetland (by ID number and size) within the project limits that will not be impacted by the project.
- Prepare appropriate agency forms to obtain required permits. Forms may include but are not limited to the USACE "Wetland Determination Data Form - Atlantic and Gulf Coastal Plain Region"; the USACE "Request for Corps Jurisdictional Determination"; Uniform Mitigation Assessment Method forms and/or project specific data forms.

8.2.3 Species Surveys:

The CONSULTANT shall conduct wildlife surveys as defined by rules or regulations of any permitting agency, or commenting agency that is processing a DEPARTMENT permit.

8.3 Agency Verification of Wetland Data

The CONSULTANT shall be responsible for verification of wetland and other surface water data identified in Section 8.2 and coordinating regulatory agency field reviews, including finalization of assessments and jurisdictional determinations with applicable agencies.

8.4 Complete and Submit All Required Permit Applications

The CONSULTANT shall collect the data and information necessary to prepare the permit applications and obtain the environmental permits required to construct the project as identified in the Project Description and as described in 8.4.1, 8.4.2, and 8.15 (Other Environmental Permits). The CONSULTANT shall prepare each permit application in accordance with the rules and/or regulations of the regulatory agency responsible for issuing a specific permit and/or authorization to perform work. The permit application packages must be approved by the DEPARTMENT prior to submittal to regulatory agencies.

The CONSULTANT will submit all permit applications, as directed by the DEPARTMENT, and be responsible for payment of all permit and public noticing fees, unless directed otherwise by the DEPARTMENT.

8.4.1 Complete and Submit all Required Wetland Permit Applications:

The CONSULTANT shall prepare, complete, and submit required wetland permit (i.e. ERP, Section 404) application packages to the appropriate regulatory agencies. This includes, but is not limited to, applications submitted to WMDs and/or DEP, and USACE. The application package may include but is not limited to attachments (e.g. project location

map, aerials, affidavit of ownership, pictures, additional technical analysis, etc.), a cover letter with project description as well as completion of applicable agency forms. The CONSULTANT shall prepare and respond to agency Requests for Additional Information (RAIs), including necessary revisions to the application package. All responses and completed application packages must be approved by the District Permit Coordinator prior to submittal to the regulatory agencies. Geotechnical permitting should also be prepared, submitted, and obtained.

8.4.2 Complete and Submit all Required Species Permit Applications:

The CONSULTANT shall prepare, complete and submit required species permit applications to the appropriate agencies. This includes federal and state protected species permit application packages as required. The work includes completion of application package (e.g. project location map, aerials, affidavit of ownership, pictures, additional technical analysis, etc.), and cover letter with project description as well as completion of applicable forms. The CONSULTANT shall respond to agency RAIs, including necessary revisions to the application package. All responses and completed applications must be approved by the District Permit Coordinator prior to submittal to the regulatory agency.

8.5 Coordinate and Review Dredge and Fill Sketches

The CONSULTANT shall review Dredge and Fill Detail sheets to ensure information on the sketch(es) meet the requirements of the regulatory agencies and are appropriate for environmental permit application submittal and acquisition. The CONSULTANT will also provide environmental data/information as needed to support the preparation of the Dredge and Fill sketches.

8.6 Complete and Submit Documentation for Coordination and/or USCG Bridge Permit Application - ***N/A***

8.7 Prepare Water Management District or Local Water Control District Right of Way Occupancy Permit Application - ***N/A***

8.8 Prepare Coastal Construction Control Line (CCCL) Permit Application -*N/A*

8.9 Prepare USACE Section 408 Application to Alter a Civil Works Project -*N/A*

8.10 Compensatory Mitigation Plan - ***N/A***

8.11 Mitigation Coordination and Meetings -*N/A*

8.12 Regulatory Agency Support -*N/A*

8.13 Technical Support to the DEPARTMENT for Environmental Clearances and Re-evaluations (use when CONSULTANT provides technical support only)

The CONSULTANT shall provide engineering and environmental support for the DEPARTMENT to obtain environmental clearances for all changes to the project after the

PD&E study was approved. These changes include but are not limited to pond or mitigation sites identified, land use or environmental changes, and major design changes.

8.13.1 NEPA or SEIR Re-evaluation

During the development of the final design plans, the CONSULTANT shall be responsible for coordinating with the District Project Manager to provide necessary engineering information required in the preparation of the re-evaluation by the DEPARTMENT. The preparation of environmental re-evaluations includes those as listed in Part 1, Chapter 13 of the DEPARTMENT's PD&E Manual: Right of Way, Design Change, and Construction Advertisement.

Re-evaluations will be completed in accordance with Part 1, Chapter 13 of the PD&E Manual. The CONSULTANT shall provide information to update the Project Commitment Record for incorporation into the re-evaluation.

It is the responsibility of the CONSULTANT to provide the District Project Manager with engineering information on major design changes including changes in typical section, roadway alignment, pond site selection, right of way requirements, bridge to box culvert, drainage, and traffic volumes that may affect noise models.

8.13.2 Archaeological and Historical Resources

The CONSULTANT shall provide necessary technical information to the District's Project Manager to analyze the impacts to all cultural and historical resources due to changes in the project in accordance with Part 2, Chapter 8 of the PD&E Manual.

8.13.3 Wetland Impact Analysis

The CONSULTANT shall provide necessary technical information to the District's Project Manager to analyze the impacts to wetlands and other surface waters in accordance with Part 2, Chapter 9 of the PD&E Manual due to changes in the project.

8.13.4 Essential Fish Habitat Impact Analysis

The CONSULTANT shall provide necessary technical information to the District's Project Manager to analyze the impacts to essential fish habitat in accordance Part 2, Chapter 17 of the PD&E Manual due to changes in the project.

8.13.5 Protected Species and Habitat Impact Analysis

The CONSULTANT shall provide necessary technical information to the District's Project Manager to analyze the impacts to all protected species and habitat in accordance with Part 2, Chapter 16 of the PD&E Manual due to changes in the project. The CONSULTANT shall perform the necessary analysis to complete agency consultation in accordance with Section 7 or Section 10 of the Endangered Species Act.

8.14 Preparation of Environmental Clearances and Re-evaluations (use when CONSULTANT prepares all documents associated with a re-evaluation)

The CONSULTANT shall prepare reports and clearances for all the changes to the project that occurred after the PD&E study was approved. These changes could include but are not limited to pond and/or mitigation sites identified, land use or environmental changes, and major design changes.

8.14.1 NEPA or SEIR Re-evaluation

During the development of the final design plans, the CONSULTANT shall be responsible for collecting the data and preparing a re-evaluation in accordance with Part 1, Chapter 13 of the PD&E Manual.

8.14.2 Archaeological and Historical Resources

The CONSULTANT shall collect data necessary to completely analyze the impacts, due to changes in the project or project area, to all cultural and historic resources, and prepare a Cultural Resource Assessment Survey Report, in accordance with Part 2, Chapter 8 of the PD&E Manual.

8.14.3 Wetland Impact Analysis

The CONSULTANT shall analyze the impacts to wetlands due to changes to the project and complete the wetlands section of a Natural Resources Evaluation Report, in accordance with Part 2, Chapter 9 of the PD&E Manual.

8.14.4 Essential Fish Habitat Impact Analysis

The CONSULTANT shall analyze the impacts to essential fish habitat due to changes to the project and complete the Essential Fish Habitat section of a Natural Resources Evaluation Report, in accordance with Part 2, Chapter 17 of the PD&E Manual.

8.14.5 Protected Species and Habitat Impact Analysis

The CONSULTANT shall collect data necessary to prepare the protected species and habitat section of the Natural Resources Evaluation Report and analyze the impacts to protected species and habitat by the changes to the project, in accordance with Part 2, Chapter 16 of the PD&E Manual. The CONSULTANT shall perform the necessary analysis to complete agency consultation in accordance with Section 7 or Section 10 of the Endangered Species Act.

8.15 Other Environmental Permits - *N/A*

8.16 Contamination Impact Analysis

The CONSULTANT shall prepare Contamination Screening Evaluation for the project limits including stormwater ponds and floodplain compensation sites as described in Part 2, Chapter

20, of the PD&E Manual. The appropriate level of analysis and deliverable type will be approved by the DEPARTMENT's Project Manager and District Contamination Impact Coordinator. The draft Level 1 Contamination Screening Evaluation document shall be submitted to the DEPARTMENT's Project Manager and District Contamination Impact Coordinator for review and final approval. The CONSULTANT shall include an evaluation of any new contamination impacts due to changes to the project from the PD&E design concept, if applicable, and any new discharges or new potential contamination impacts not evaluated in any previously completed Contamination Screening Evaluation. The project impacts, conclusions and recommendations, figures, tables and appendices will be provided in a Level I Contamination Screening Evaluation Report.

The DEPARTMENT will provide Level II assessment services. If contamination is identified within the limits of construction, the CONSULTANT shall coordinate with the District Contamination Impact Coordinator to properly mark identified contamination areas in the plans and develop specifications as appropriate.

8.17 Asbestos Survey

The DEPARTMENT will provide asbestos and metal based coatings survey services.

If asbestos or metal based coatings above threshold levels are found on the bridge(s), the CONSULTANT shall coordinate with the District Contamination Impact Coordinator to obtain plan notes, general notes, specifications, pay item notes, and Operation and Maintenance (O&M) plan for any asbestos to remain in place.

8.18 Technical Meetings

8.19 Quality Assurance/Quality Control

8.20 Supervision

8.21 Coordination

9 STRUCTURES - SUMMARY AND MISCELLANEOUS TASKS AND DRAWINGS

The CONSULTANT shall analyze, design, and develop contract documents for all structures in accordance with applicable provisions as defined in Section 2.21, Provisions for Work. Individual tasks identified in Sections 9 through 18 are defined in the Staff Hour Estimation Handbook and within the provision defined in Section 2.21, Provisions for Work. Contract documents shall display economical solutions for the given conditions.

The CONSULTANT shall provide Design Documentation to the DEPARTMENT with each submittal consisting of structural design calculations and other supporting documentation developed during the development of the plans. The design calculations submitted shall adequately address the complete design of all structural elements. These calculations shall be neatly and logically presented on digital media or, at the DEPARTMENT's request, on 8 ½"x11" paper and all sheets shall be numbered. The final design calculations shall be signed and sealed by a Florida-licensed professional engineer. A cover sheet indexing the contents of the calculations shall be included and the engineer shall sign and seal that sheet. All computer programs and parameters used in the design calculations shall include sufficient backup information to facilitate the review task.

9.1 Key Sheet and Index of Drawings - ***N/A***

9.2 Project Layout- ***N/A***

9.3 General Notes and Bid Item Notes - ***N/A***

9.4 Miscellaneous Common Details- ***N/A***

9.5 Incorporate Report of Core Borings

9.6 Standard Plans- Bridges

9.7 Existing Bridge Plans

9.8 Quantities for EQ Report - ***N/A***

9.9 Cost Estimate - ***N/A***

9.10 Technical Special Provisions and Modified Special Provisions

9.11 Field Reviews

9.12 Technical Meetings

9.13 Quality Assurance/Quality Control

9.14 Independent Peer Review- ***N/A***

9.15 Supervision

9.16 Coordination

10 STRUCTURES - BRIDGE DEVELOPMENT REPORT – *N/A*

11 STRUCTURES - TEMPORARY BRIDGE – *N/A*

12 STRUCTURES - SHORT SPAN CONCRETE BRIDGE – *N/A*

13 STRUCTURES - MEDIUM SPAN CONCRETE BRIDGE

The CONSULTANT shall prepare plans for Medium Span Concrete Bridge(s) at the location(s) specified in Section 2.5.

General Layout Design and Plans

13.1 Overall Bridge Final Geometry - *N/A*

13.2 Expansion/Contraction Analysis

13.3 General Plan and Elevation

13.4 Construction Staging - *N/A*

13.5 Approach Slab Plan and Details - *N/A*

13.6 Miscellaneous Details

End Bent Design and Plans

13.7 End Bent Geometry - *N/A*

13.8 Wingwall Design and Geometry - *N/A*

13.9 End Bent Structural Design - *N/A*

13.10 End Bent Plan and Elevation - *N/A*

13.11 End Bent Details - *N/A*

Intermediate Bent Design and Plans

13.12 Bent Geometry - *N/A*

13.13 Bent Stability Analysis - *N/A*

13.14 Bent Structural Design - *N/A*

13.15 Bent Plan and Elevation - *N/A*

13.16 Bent Details - *N/A*

Pier Design and Plans

13.17 Pier Geometry - *N/A*

13.18 Pier Stability Analysis - *N/A*

13.19 Pier Structural Design - *N/A*

13.20 Pier Plan and Elevation - *N/A*

13.21 Pier Details - *N/A*

Miscellaneous Substructure Design and Plans

13.22 Foundation Layout - *N/A*

Superstructure Deck Design and Plans

13.23 Finish Grade Elevation (FGE) Calculation - *N/A*

13.24 Finish Grade Elevations - *N/A*

13.25 Bridge Deck Design - *N/A*

13.26 Bridge Deck Reinforcing and Concrete Quantities - *N/A*

13.27 Diaphragm Design - *N/A*

13.28 Superstructure Plan - *N/A*

13.29 Superstructure Section - *N/A*

13.30 Miscellaneous Superstructure Details - *N/A*

Reinforcing Bar Lists

13.31 Preparation of Reinforcing Bar List - *N/A*

Continuous Concrete Girder Design

13.32 Section Properties - *N/A*

13.33 Material Properties - *N/A*

13.34 Construction Sequence - *N/A*

13.35 Tendon Layouts - *N/A*

13.36 Live Load Analysis - *N/A*

13.37 Temperature Gradient - *N/A*

13.38 Time Dependent Analysis - *N/A*

13.39 Stress Summary - *N/A*

13.40 Ultimate Moments - *N/A*

13.41 Ultimate Shear - *N/A*

13.42 Construction Loading - *N/A*

13.43 Framing Plan - *N/A*

13.44 Girder Elevation, including Grouting Plan and Vent Locations - *N/A*

13.45 Girder Details - *N/A*

13.46 Erection Sequence - *N/A*

13.47 Splice Details - *N/A*

13.48 Girder Deflections and Camber - *N/A*

Simple Span Concrete Design

13.49 Prestressed Beam - *N/A*

13.50 Prestressed Beam Schedules - *N/A*

13.51 Framing Plan - *N/A*

Beam Stability

13.52 Beam/Girder Stability - *N/A*

Bearing

13.53 Bearing Pad and Bearing Plate Design - *N/A*

13.54 Bearing Pad and Bearing Plate Details - *N/A*

Load Rating

13.55 Load Ratings - *N/A*

14 STRUCTURES - STRUCTURAL STEEL BRIDGE

The CONSULTANT shall prepare plans for Structural Steel Bridge(s) at the location(s) specified in Section 2.5.

General Layout Design and Plans

14.1 Overall Bridge Final Geometry - *N/A*

14.2 Expansion/Contraction Analysis

14.3 General Plan and Elevation

14.4 Construction Staging - *N/A*

14.5 Approach Slab Plan and Details - *N/A*

14.6 Miscellaneous Details

End Bent Design and Plans

14.7 End Bent Geometry - *N/A*

14.8 Wingwall Design and Geometry - *N/A*

14.9 End Bent Structural Design - *N/A*

14.10 End Bent Plan and Elevation - *N/A*

14.11 End Bent Details - *N/A*

Intermediate Bent Design and Plans

14.12 Bent Geometry - *N/A*

14.13 Bent Stability Analysis - *N/A*

14.14 Bent Structural Design - *N/A*

14.15 Bent Plan and Elevation - *N/A*

14.16 Bent Details - *N/A*

Pier Design and Plans

14.17 Pier Geometry - *N/A*

14.18 Pier Stability Analysis - *N/A*

14.19 Pier Structural Design - *N/A*

14.20 Pier Plan and Elevation - *N/A*

14.21 Pier Details - *N/A*

Miscellaneous Substructure Design and Plans

14.22 Foundation Layout - *N/A*

Superstructure Deck Design and Plans

14.23 Finish Grade Elevation (FGE) Calculation - *N/A*

14.24 Finish Grade Elevations - *N/A*

14.25 Bridge Deck Design - *N/A*

14.26 Bridge Deck Reinforcing and Concrete Quantities - *N/A*

14.27 Superstructure Plan - *N/A*

14.28 Superstructure Section - *N/A*

14.29 Miscellaneous Bridge Deck Details - *N/A*

Reinforcing Bar Lists

14.30 Preparation of Reinforcing Bar List - *N/A*

Structural Steel Plate Girder Design

14.31 Unit Modeling - *N/A*

14.32 Section Design - *N/A*

14.33 Stiffener Design and Locations - *N/A*

14.34 Cross-frame Design - *N/A*

14.35 Connections - *N/A*

14.36 Bearing Assembly Design and Detailing (With Jacking Analysis) - *N/A*

14.37 Splice Design - *N/A*

14.38 Shear Stud Connectors - *N/A*

14.39 Deflection Analysis - *N/A*

14.40 Framing Plan - *N/A*

14.41 Girder Elevation - *N/A*

14.42 Structural Steel Details - *N/A*

14.43 Splice Details - *N/A*

14.44 Girder Deflections and Camber - *N/A*

Structural Steel Box Girder Design

14.45 Unit Modeling - *N/A*

14.46 Section Design - *N/A*

14.47 Stiffener Design and Locations - *N/A*

14.48 Interior Cross-Frame Design - *N/A*

14.49 Exterior Cross-Frame Design - *N/A*

14.50 Connections - *N/A*

14.51 Bearing Assembly Design and Detailing (with Jacking Analysis) - *N/A*

14.52 Splice Design - *N/A*

14.53 Shear Stud Connectors - *N/A*

14.54 Deflection Analysis - *N/A*

14.55 Framing Plan - *N/A*

14.56 Girder Elevation - *N/A*

14.57 Structural Steel Details - *N/A*

14.58 Splice Details - *N/A*

14.59 Girder Deflections and Camber - *N/A*

Erection Scheme

14.60 Erection Scheme Analysis - *N/A*

14.61 Erection Scheme - *N/A*

Load Rating

14.62 Load Rating - N/A

15 STRUCTURES - SEGMENTAL CONCRETE BRIDGE – *N/A*

16 STRUCTURES - MOVABLE SPAN – *N/A*

17 STRUCTURES - RETAINING WALLS – *N/A*

18 STRUCTURES - MISCELLANEOUS

The CONSULTANT shall prepare plans for Miscellaneous Structure(s) as specified in Section 2.5.

Concrete Box Culverts

18.1 Concrete Box Culverts - ***N/A***

18.2 Concrete Box Culverts Extensions - ***N/A***

18.3 Concrete Box Culvert Data Table Plan Sheets - ***N/A***

18.4 Concrete Box Culvert Special Details Plan Sheets

Strain Poles

18.5 Steel Strain Poles - ***N/A***

18.6 Concrete Strain Poles - ***N/A***

18.7 Strain Pole Data Table Plan Sheets - ***N/A***

18.8 Strain Pole Special Details Plan Sheets - ***N/A***

Mast Arms

18.9 Mast Arms - ***N/A***

18.10 Mast Arms Data Table Plan Sheets - ***N/A***

18.11 Mast Arms Special Details Plan Sheets - ***N/A***

Overhead/Cantilever Sign Structure

18.12 Cantilever Sign Structures - ***N/A***

18.13 Overhead Span Sign Structures - ***N/A***

18.14 Special (Long Span) Overhead Sign Structures - ***N/A***

18.15 Monotube Overhead Sign Structure - ***N/A***

18.16 Bridge Mounted Signs (Attached to Superstructure) - ***N/A***

18.17 Overhead/Cantilever Sign Structures Data Table Plan Sheets - ***N/A***

18.18 Overhead/Cantilever Sign Structures Special Details Plan Sheets - ***N/A***

High Mast Lighting

18.19 Non-Standard High Mast Lighting Structures - ***N/A***

18.20 High Mast Lighting Special Details Plan Sheets - ***N/A***

Noise Barrier Walls (Ground Mount)

18.21 Horizontal Wall Geometry - *N/A*

18.22 Vertical Wall Geometry - *N/A*

18.23 Summary of Quantities - Aesthetic Requirements - *N/A*

18.24 Control Drawings - *N/A*

18.25 Design of Noise Barrier Walls Covered by Standards - *N/A*

18.26 Design of Noise Barrier Walls not Covered by Standards - *N/A*

18.27 Aesthetic Details - *N/A*

Special Structures

18.28 Fender System - *N/A*

18.29 Fender System Access - *N/A*

18.30 Special Structures - *N/A*

18.31 Other Structures - *N/A*

Ancillary Structures Report

18.32 Condition Evaluation of Signal and Sign Structures, and High Mast Light Poles - *N/A*

18.33 Condition Evaluation of Signal and Sign Structures, and High Mast Light Poles (No As built or Design Plans Available) - *N/A*

18.34 Analytical Evaluation of Signal and Sign Structures, and High Mast Light Poles - *N/A*

18.35 Ancillary Structures Report - *N/A*

19 SIGNING AND PAVEMENT MARKING ANALYSIS

The CONSULTANT shall analyze and document Signing and Pavement Markings Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

19.1 Traffic Data Analysis

The CONSULTANT shall review the approved preliminary engineering report, typical section package, traffic technical memorandum and proposed geometric design alignment to identify proposed sign placements and roadway markings. Perform queue analysis.

19.2 No Passing Zone Study - *N/A*

19.3 Signing and Pavement Marking Master Design File

The CONSULTANT shall prepare the Signing & Marking Design file to include all necessary design elements and all associated reference files.

19.4 Multi-Post Sign Support Calculations

The CONSULTANT shall determine the appropriate column size from the DEPARTMENT's Multi-Post Sign Program(s).

19.5 Sign Panel Design Analysis

Establish sign layout, letter size and series for non-standard signs.

19.6 Sign Lighting/Electrical Calculations - *N/A*

The CONSULTANT shall prepare a photometric analysis to be submitted as part of the Lighting Design Analysis Report. An analysis shall be provided for each new and/or modified sign panel which requires lighting.

The CONSULTANT shall submit voltage drop calculations and load analysis for each new and/or modified sign panel which requires lighting.

19.7 Quantities for EQ Report

The CONSULTANT shall determine pay items and quantities and the supporting documentation.

19.8 Cost Estimate

19.9 Technical Special Provisions and Modified Special Provisions

19.10 Other Signing and Pavement Marking Analysis

19.11 Field Reviews

19.12 Technical Meetings

19.13 Quality Assurance/Quality Control

19.14 Independent Peer Review - *N/A*

19.15 Supervision

19.16 Coordination

20 SIGNING AND PAVEMENT MARKING PLANS

The CONSULTANT shall prepare a set of Signing and Pavement Marking Plans in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums that includes the following.

20.1 Key Sheet & Signature Sheet

20.2 General Notes/Pay Item Notes

20.3 Project Layout

20.4 Plan Sheet

20.5 Special Details

20.6 Service Point Details

20.7 Guide Sign Data

20.7 Traffic Monitoring Site

20.8 Cross Sections (Sign Installations)

The CONSULTANT shall provide sign cross sections in the Plans for all proposed overhead sign structures and existing to remain overhead sign structures where overhead sign panels are to be installed or replaced. The CONSULTANT shall provide sign cross sections in the Plans for multi-post Toll Schedule signs.

20.9 Quality Assurance/Quality Control

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of traffic design drawings, specifications and other services furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications and other services prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation, or it may be one specifically designed for this project.

20.10 Supervision

21 SIGNALIZATION ANALYSIS

The CONSULTANT shall analyze and document Signalization Analysis Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

21.1 Traffic Data Collection

The CONSULTANT shall perform all effort required for traffic data collection, including crash reports, 24 hr. machine counts, 8 hr. turning movement counts, 7 day machine counts, and speed & delay studies.

21.2 Traffic Data Analysis

The CONSULTANT shall determine signal operation plan, intersection geometry, local signal timings, pre-emption phasing & timings, forecasting traffic, and intersection analysis run.

21.3 Signal Warrant Study

21.4 Systems Timings

The CONSULTANT shall determine proper coordination timing plans including splits, force offs, offsets, and preparation of Time Space Diagram.

21.5 Reference and Master Signalization Design File

The CONSULTANT shall prepare the Signalization Design file to include all necessary design elements and all associated reference files.

21.6 Reference and Master Interconnect Communication Design File

The CONSULTANT shall prepare the Interconnect Communication Design file to include all necessary design elements and all associated reference files.

21.7 Overhead Street Name Sign Design

The CONSULTANT shall design Signal Mounted Overhead Street Name signs.

21.8 Pole Elevation Analysis

21.9 Traffic Signal Operation Report

[*As defined by the District*]

21.10 Quantities for EQ Report

The CONSULTANT shall determine pay items and quantities and the supporting documentation.

21.11 Cost Estimate

21.12 Technical Special Provisions and Modified Special Provisions

21.13 Other Signalization Analysis

21.14 Field Reviews

The CONSULTANT shall collect information from the maintaining agencies and conduct a field review. The review should include, but is not limited to, the following:

- Existing Signal and Pedestrian Phasing
- Controller Make, Model, Capabilities and Condition/Age
- Condition of Signal Structure(s)
- Type of Detection as Compared with Current District Standards
- Interconnect Media
- Controller Timing Data

21.15 Technical Meetings

21.16 Quality Assurance/Quality Control

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of traffic design drawings, specifications and other services furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications and other services prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation or it may be one specifically designed for this project.

21.17 Independent Peer Review

21.18 Supervision

21.19 Coordination

22 SIGNALIZATION PLANS

The CONSULTANT shall prepare a set of Signalization Plans in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums, which includes the following:

22.1 Key Sheet & Signature Sheet

22.2 General Notes/Pay Item Notes

22.3 Signalization Plan Sheets

22.4 Interconnect Plans

22.5 Traffic Monitoring Site

22.6 Guide Sign Data

22.7 Special Details

22.8 Service Point Details

22.9 Mast Arm/Monotube Tabulation Sheet

22.10 Strain Pole Schedule

22.11 TTCP Signal

22.12 Temporary Detection Sheet

22.13 Quality Assurance/Quality Control

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of traffic design drawings, specifications and other services furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications and other services prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation or it may be one specifically designed for this project.

22.16 Supervision

23 LIGHTING ANALYSIS

The CONSULTANT shall analyze and document Lighting Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall coordinate with the Utility Power Company(ies) for new service primary power extension to and/or modification of existing service equipment to each lighting load center from the nearest existing or proposed Utility power point of presence. The CONSULTANT shall coordinate with ITS & Tolls consultants to ensure that Utility power points of service are shared where possible. The CONSULTANT shall design the primary power extension from the LA R/W to each lighting load center primary transformer, including the utility service routing in the construction documents. The CONSULTANT shall provide an Engineer's Estimate with any Utility's Special Construction costs for the full Utility primary power extension or modification, coordinate with District Specifications & Estimates (as required), and include pay item in the contract plans per DEPARTMENT requirements.

23.1 Lighting Justification Report-*N/A*

23.2 Lighting Design Analysis Report (LDAR)

The CONSULTANT shall prepare a Preliminary Lighting Design Analysis Report in accordance with the requirements of the FDOT Design Manual. The report shall be submitted under a separate cover with the Phase II plans submittal. The report shall provide analyses for each signalized intersection lighting design and each typical section of the mainline, typical section for the ramps (one and/or two lanes), interchanges, underdeck lighting, and arterial roads. Each lighting calculation shall be properly identified as to the area that it covers.

The report shall include all authorized jurisdictional Lighting Design Criteria that will be used. For projects with corridor lighting, the report shall include the evaluation of at least three lighting design alternatives. The report shall provide a recommendation on the alternative to use. Each alternative shall be properly described; the alternatives shall consider different pole heights, lamp wattage, and arm lengths. Each alternative shall be provided with a cost estimate that includes initial cost in addition to operations and maintenance cost for one year.

The report shall also include the lighting calculations for each lighted sign where lighted signs are applicable to the Project.

After approval of the preliminary report, the CONSULTANT shall submit a revised report for each submittal. The Lighting Design Analysis Report shall include, yet not be limited to:

Voltage drop calculations

Load analysis calculations for each branch circuit

Voltage drop calculations

Load analysis calculations for each branch circuit

Luminaire Data

Photometric Data

Photometric analysis

Project coordination correspondence (i.e. utility, FAA, etc.)

23.3 Voltage Drop Calculations

The CONSULTANT shall submit voltage drop calculations showing the equation or equations used along with the number of luminaries per circuit, the length of each circuit, the size conductor or conductors used and their ohm resistance values. The voltage drop incurred on each circuit (total volts and percentage of drop) shall be calculated, and all work necessary to calculate the voltage drop values for each circuit should be presented in such a manner as to be duplicated by the District.

The Voltage Drop Calculations shall be submitted as part of the Lighting Design Analysis Report.

Load analysis calculations shall be submitted for each branch circuit breaker and main breaker.

23.4 FDEP Coordination and Report-*N/A*

23.5 Reference and Master Design Files

The CONSULTANT shall prepare the Lighting Design file to include all necessary design elements and all associated reference files.

23.6 Temporary Highway Lighting-*N/A*

23.7 Design Documentation

The CONSULTANT shall submit a Design Documentation with each plans submittal under a separate cover and not part of the roadway documentation book. At a minimum, the design documentation shall include:

Phase submittal checklist.

- ***Structural calculations for special conventional pole concrete foundations. Submitted as part of the Structural Calculations (Phase III and IV submittals)***

- ***Voltage drop calculations. Submitted as part of the Lighting Design Analysis Report (Phase III and IV submittals)***
- ***Load analysis calculations Submitted as part of the Lighting Design Analysis Report (Phase III and IV submittals)***

23.8 Quantities for EQ Report

The CONSULTANT shall determine pay items and quantities and the supporting documentation.

23.9 Cost Estimate

23.10 Technical Special Provisions and Modified Special Provisions-*N/A*

23.11 Other Lighting Analysis

If applicable, Existing Roadway Conditions Assessment Report (ERCAR) - Report shall be prepared in accordance with FTE's ERCAR Sample Table of Contents.

23.12 Field Reviews

The CONSULTANT shall collect information from the maintaining agencies and conduct a field review. The review should include but is not limited to the following:

- Existing Lighting Equipment
- Load Center, Capabilities and Condition/Age
- Condition of Lighting Structure(s)
- Verification of horizontal clearances
- Verification of breakaway requirements

23.13 Technical Meetings

23.14 Quality Assurance/Quality Control

23.15 Independent Peer Review-*N/A*

23.16 Supervision

23.17 Coordination

24 LIGHTING PLANS

The CONSULTANT shall provide all of the professional services and complete all of the associated tasks necessary to prepare the lighting portion of the construction plans and documents for all work within the Project limits. Anticipate including lighting work in the signal plans.

25 LANDSCAPE ANALYSIS – *N/A*

26 LANDSCAPE PLANS – *N/A*

27 SURVEY

The CONSULTANT shall perform survey tasks in accordance with all applicable statutes, manuals, guidelines, standards, handbooks, procedures, and current design memoranda.

The CONSULTANT shall submit all survey notes and computations to document the surveys. All field survey work shall be recorded in approved media and submitted to the DEPARTMENT. Field books submitted to the DEPARTMENT must be of an approved type, furnished by the CONSULTANT. The field books shall be furnished by the CONSULTANT and certified by the surveyor in responsible charge of work being performed before the final product is submitted. (Note: it is anticipated that PDF copies of the field notes will be submitted in lieu of original field book hard copies with attached certified survey report.)

The survey notes shall include documentation of decisions reached from meetings, telephone conversations or site visits. All like work (such as bench lines, reference points, etc.) shall be recorded contiguously. The DEPARTMENT may not accept field survey radial locations of section corners, platted subdivision lot and block corners, alignment control points, alignment control reference points and certified section corner references. The DEPARTMENT may instead require that these points be surveyed by true line, traverse or parallel offset.

A database of the processed survey data, including control points, benchmarks, and alignments will be provided to the DEPARTMENT as approved by the Florida's Turnpike Enterprise's Surveyor. (Note: it is anticipated that a final surveying package of all survey information will be submitted prior to final construction plan submittal by the Engineer of Record.)

27.1 Horizontal Project Control (HPC)

Establish HPC, for the purpose of establishing horizontal control on the Florida State Plane Coordinate System as approved by the *Florida's Turnpike Enterprise's Surveyor*, and may include primary or secondary control points. Includes analysis and processing of all field collected data, and preparation of forms.

27.2 Vertical Project Control (VPC)

Use 3-wire or comparable to tie new points in 27.1 (above), and includes targets set in 27.4 (if any). Includes analysis and processing of all field collected data, and preparation of forms. Project vertical datum to be NAVD88.

27.3 Alignment and/or Existing Right of Way (R/W) Lines

Establish, recover or re-establish project alignments from Sections 97160-2309, 2310, 2311, and FPID 440897-2 (Central Polk Parkway). Also includes analysis and processing of all field collected data, existing maps, and/or reports for identifying mainline, ramp, offset, or secondary alignments. Depict alignment and/or existing R/W lines (in required format) per DEPARTMENT R/W Maps, platted or dedicated rights of way. No centerline points will be set for this task.

27.4 Aerial Targets

Place and maintain required mobile lidar targets. Placement of the targets will be the responsibility of the Mobile Lidar scanning firm. Horizontal and vertical data will be included in 27.1 and 27.2 above.

27.5 Reference Points – *N/A*

27.6 Topography/Digital Terrain Model (DTM) (3D)

Provide DTM survey of obscured topography ground features and improvements not obtained by Terrestrial Mobile LiDAR only as directed within the limits of the project. This database will be in a 3D Open Roads Workspace. Shoot all break lines, high and low points. Effort includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

27.7 Planimetric (2D)

Locate all above ground features and improvements. Deliver in appropriate electronic format. Effort includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

27.8 Roadway Cross Sections/Profiles

Perform cross sections at approximate 500-ft stations where directed by the EOR. May include analysis and processing of all field-collected data for pavement cross-slope analysis and/or for comparison with DTM.

27.9 Side Street Surveys – *N/A*

27.10 Underground Utilities

Designation includes 2-dimensional collection of existing utilities and selected 3-dimensional verification as needed for designation. Location includes non-destructive excavation to determine size, type and location of existing utility, as necessary for final 3-dimensional verification. Survey includes collection of data on points as needed for designates and locates. Includes analysis and processing of all field collected data, and delivery of all appropriate electronic files.

DEPARTMENT-owned utility lines will be designated and located, as needed, by the CONSULTANT. The DEPARTMENT will not locate its facilities as the result of a call to Sunshine State One-Call.

27.11 Outfall Survey – *N/A*

27.12 Drainage Survey

Locate underground data (XYZ, pipe size, type, condition and flow line) that relates to above ground data. Includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

27.13 Bridge Survey (Minor/Major)

Locate required above ground features and improvements as requested by the EOR for the limits of the bridge. Includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

27.14 Channel Survey – *N/A*

27.15 Pond Site Survey – *N/A*

27.16 Mitigation Survey – *N/A*

27.17 Jurisdiction Line Survey

Perform field location (2-dimensional) of jurisdiction limits as defined by respective authorities, also includes field edits, analysis and processing of all field collected data, preparation of reports.

27.18 Geotechnical Support

Perform 3-dimensional (X,Y,Z) field location, or stakeout, of boring sites established by geotechnical engineer. Includes field edits, analysis and processing of all field collected data and/or reports.

27.19 Sectional/Grant Survey – *N/A*

.

27.20 Subdivision Location – *N/A*

27.21 Maintained R/W – *N/A*

27.22 Boundary Survey – *N/A*

27.23 Water Boundary Survey – *N/A*

27.24 Right of Way Staking, Parcel / Right of Way Line – *N/A*

27.25 Right of Way Monumentation – *N/A*

27.26 Line Cutting

Perform all efforts required to clear vegetation from the line of sight.

27.27 Work Zone Safety

Provide work zone as required by DEPARTMENT standards.

27.28 Vegetation Survey – N/A

27.29 Tree Survey - *N/A*

27.30 Miscellaneous Surveys - *N/A*

27.31 Supplemental Surveys

Supplemental survey days and hours are to be approved in advance by the Turnpike Surveyor. Refer to tasks of this document, as applicable, to perform surveys not described herein.

27.32 Document Research

Perform research of documentation to support field and office efforts involving surveying and mapping.

27.33 Field Review

Perform verification of the field conditions as related to the collected survey data.

27.34 Technical Meetings

Attend meetings as required and negotiated by the Surveying and Mapping Department.

27.35 Quality Assurance/Quality Control (QA/QC)

Establish and implement a QA/QC plan. Also includes subconsultant review, response to comments and any resolution meetings if required, preparation of submittals for review, etc.

27.36 Supervision

Perform all activities required to supervise and coordinate project. These activities must be performed by the project supervisor, a Florida P.S.M. or their delegate as approved by the District Surveying Office.

27.37 Coordination

Coordinate survey activities with other disciplines. These activities must be performed by the project supervisor, a Florida P.S.M. or their delegate as approved by the District Surveying Office.

28 PHOTOGRAMMETRY - *N/A*

29 MAPPING

The CONSULTANT will be responsible for the preparation of control survey maps, right of way maps, maintenance maps, sketches, other miscellaneous survey maps, and legal descriptions as required for this project in accordance with all applicable DEPARTMENT Manuals, Procedures, Handbooks, District specific requirements, and Florida Statutes. All maps, surveys and legal descriptions will be prepared under the direction of a Florida Professional Surveyor and Mapper (PSM) to DEPARTMENT size and format requirements utilizing DEPARTMENT approved software, and will be designed to provide a high degree of uniformity and maximum readability. The CONSULTANT will submit maps, legal descriptions, quality assurance check prints, checklists, electronic media files and any other documents as required for this project to the DEPARTMENT for review at stages of completion as negotiated.

Master CADD File

29.1 Alignment

29.2 Section and 1/4 Section Lines – Graphically depict section and/or quarter section lines.

29.3 Subdivisions / Property Lines - – Depict rights of way line as determined from existing maps.

29.4 Existing Right of Way -– Depict rights of way line as determined from existing maps.

29.5 Topography - ***N/A***

29.6 Parent Tract Properties and Existing Easements - ***N/A***

29.7 Proposed Right of Way Requirements - ***N/A***

29.8 Limits of Construction - ***N/A***

29.9 Jurisdictional/Agency Lines - ***N/A***

Sheet Files – *N/A* (Sheets 29.10 through 29.19)

29.10 Control Survey Cover Sheet

29.11 Control Survey Key Sheet

29.12 Control Survey Detail Sheet

29.13 Right of Way Map Cover Sheet

29.14 Right of Way Map Key Sheet

29.15 Right of Way Map Detail Sheet

29.16 Maintenance Map Cover Sheet

29.17 Maintenance Map Key Sheet

29.18 Maintenance Map Detail Sheet

29.19 Reference Point Sheet

29.20 Project Control Sheet

This sheet depicts the baseline, the benchmarks, the primary and secondary control points and their reference points including the type of material used for each point, their XYZ coordinates, scale factors and convergence angles. This sheet(s) may be included with the Control Survey Map, Right of Way Map and Maintenance Map, ***and may be substituted for the Reference Point Sheet as determined by the Florida's Turnpike Enterprise's Surveyor (may also be called the CTL sheet, to Engineering CADD standards suitable for inclusion in the plans).***

29.21 Table of Ownerships Sheet

Miscellaneous Surveys and Sketches - ***N/A (29.23 thru 29.28)***

29.22 Parcel Sketches

Prepare CSX RR Easements @ MP 17.2

29.23 TIITF Sketches

29.24 Other Specific Purpose Survey(s)

29.25 Boundary Survey(s) Map

29.26 Right of Way Monumentation Map

29.27 Title Search Map

29.28 Title Search Report

29.29 Legal Descriptions

For CSX RR Easements @ MP 17.2

29.30 Final Map/Plans Comparison

The PSM will perform a comparison of the final right of way maps with the available construction plans to review the correctness of the type of parcel to be acquired and the stations/offsets to the required right of way. The PSM will coordinate with the EOR to resolve any conflicts or discrepancies and provide documentation of the review.

29.31 Field Reviews

29.32 Technical Meetings

29.33 Quality Assurance/Quality Control

29.34 Supervision

29.35 Coordination

29.36 Supplemental Mapping

This task is to cover efforts resulting from major design and/or development changes after 60% map development that affect the right of way requirements/parent tract property lines and may include any number of tasks. Request and approval to utilize the Supplemental Mapping hours will be in writing and approved by the District Right of Way Surveyor prior to any work being done under this task.

30 TERRESTRIAL MOBILE LiDAR

The CONSULTANT shall perform Terrestrial Mobile ***(Light Detection and Ranging)*** LiDAR tasks in accordance with all applicable statutes, manuals, guidelines, standards, handbooks, procedures, and current design memoranda.

In addition to the maps and LiDAR products, the CONSULTANT shall submit all computations and reports to support the mapping. This will include documentation of all decisions reached from meetings, telephone conversations, and site visits.

30.1 Terrestrial Mobile LiDAR Mission Planning

Research and prepare materials necessary for the successful execution of the Mobile LiDAR Mission. This includes but is not limited to route and safety planning, GPS /data acquisition scheduling, weather reports, and site terrain research.

30.2 Project Control Point Coordination

All efforts necessary to coordinate the proper placement of project ground control; i.e.g., base stations, transformation control points, and validation points, supporting the Mobile LiDAR survey .

30.3 Terrestrial Mobile LiDAR Mobilization

Prepare the LiDAR sensor and vehicle for project data collection, and get specialized personnel and equipment on site.

30.4 Terrestrial Mobile LiDAR Mission

Perform site calibrations of LiDAR sensor and collect laser survey data, including any simultaneous base station GPS occupations and operation of any necessary safety equipment.

30.5 Terrestrial Mobile LiDAR Processing

Download and post process collected measurement data from Mobile LiDAR vehicle sensors, and any base stations occupied during mission. Analyze Mobile LiDAR measurement points and scan route overlaps. Separate any large point cloud data sets into manageable file sizes with corresponding indexes.

30.6 Terrestrial Mobile Photography Processing

Process, reference, and name digital photographic imagery files collected during Mobile LiDAR mission.

30.7 Transformation / Adjustment

Adjust LiDAR point cloud data to Project Control points. Create point cloud data file(s) in approved digital format. Prepare required reports of precision and accuracy achieved. If this

task is performed by separate firm, or is the final product to be delivered, include effort for Survey Report.

30.8 Classification / Editing

Identify and attribute (classify) point cloud data into requested groups. Classify or remove erroneous points.

30.9 Specific Surface Reporting

Prepare reports, data and/or graphics of specific surface details such as, but not limited to pavement rutting, bridge structure clearance to roadway surface.

30.10 Topographic (3D) Mapping

Produce three dimensional (3D) topographic survey map(s) from collected Mobile LiDAR data. This includes final preparation of Construction Information Management (CIM) deliverable, if applicable.

30.11 Topographic (2D) Planimetric Mapping

Produce two dimensional (2D) planimetric map(s) from collected Mobile LiDAR data.

30.12 CADD Edits

Perform final edit of graphics for delivery of required CADD files. This includes final presentation of CIM deliverable, if applicable.

30.13 Data Merging

Merge Mobile LiDAR survey and mapping files, with other field survey files, and data from other sources.

30.14 Miscellaneous

Other tasks not specifically addressed in this document.

30.15 Field Reviews

Perform on site review of maps.

30.16 Technical Meetings

Attend meetings as required.

30.17 Quality Assurance/ Quality Control

Establish and implement a QA/QC plan.

30.18 Supervision

Supervise all Terrestrial Mobile LiDAR activities. This task must be performed by the project supervisor, a Florida P.S.M.

30.19 Coordination

Coordinate with all elements of the project to produce a final product.

31 ARCHITECTURE DEVELOPMENT – *N/A*

31T TOLL FACILITY DEVELOPMENT – *N/A*

32 NOISE BARRIERS IMPACT DESIGN ASSESSMENT IN THE DESIGN PHASE – *N/A*

33 INTELLIGENT TRANSPORTATION SYSTEMS ANALYSIS

The CONSULTANT shall analyze and document Intelligent Transportations System (ITS) Analysis Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, existing ITS standard operating procedures, ITS master and strategic plans, Florida's SEMP guidelines, National and regional ITS architectures, and current design bulletins.

The CONSULTANT shall coordinate with the Utility Power Company(ies) for the primary power extension to each ITS service point from the Utility's power point of presence. The CONSULTANT shall coordinate with Lighting & Tolls consultants to ensure that Primary power points of service are shared where possible. The CONSULTANT shall provide an Engineer's Estimate with the Utility's Special Construction costs for the full primary power extension.

33.1 ITS Analysis

The CONSULTANT shall review the previously prepared and approved preliminary engineering report(s), typical section package, traffic technical memorandum, adjacent projects programmed by the DEPARTMENT and other local highway agencies, and proposed geometric design alignment to identify impacts to existing ITS components (if applicable) and proposed ITS field device placements. The CONSULTANT shall review the project intelligence files provided by the District's asset maintenance agent(s) related to all previously constructed ITS projects and maintenance documentation for the project corridor to ensure all cited ITS elements are included in this project for replacement and/or restoration.

The CONSULTANT shall provide all of the professional services and complete all of the associated tasks necessary to prepare the ITS portion of the construction plans to address recommendations of the associated ERCAR report.

Systems Engineering Analysis - *N/A*

Design Guidelines

The CONSULTANT shall use applicable DEPARTMENT requirements and guidelines, including, but not limited to, the FDM, Standard Plans, and Standard Specifications for Road and Bridge Construction in the design of ITS. The CONSULTANT design is expected to include the following attributes, facilities, infrastructure, ITS devices, systems, and associated work: ***TPK specific:[Insert project specifics (e.g. TMC facilities; communication system design; SunGuide software system installation or expansion; deployment of ITS device such as DMS, CCTV cameras, vehicle detection systems, etc.)] FTE operates two (2) Traffic Management Centers (TMCs); one (1) in the Turkey Lake Service Plaza, the other within the Pompano Beach Operations Center. In addition, FTE supports the technology needs of the Lake Worth Dispatch Center, which includes a video wall and minor network presence. The system-wide communications system consists of primarily fiber optic backbone along a 10- gigabit Ethernet network composed of layer 2 and layer 3 switches. In addition, the DEPARTMENT utilizes some wireless connections and leased lines to provide device***

connectivity and redundancy. The existing field infrastructure is comprised of power and communications infrastructure as well as a range of ITS devices including Highway Advisory Radio (HAR), Citizens Band Radio Advisory Subsystem (CBRAS), Travel Time System (AVI), Closed Circuit Television (CCTV), Dynamic Message Signs (DMS), Arterial Dynamic Message Signs (ADMS) and Vehicle Detection System (VDS).

33.2 Communications Subsystem Analysis - ***N/A***

33.3 Grounding, Surge Suppression, and Lightning Protection Analysis - ***N/A***

33.4 Power Subsystem - ***N/A***

33.5 Voltage Drop Calculations - ***N/A***

33.6 Design Documentation - ***N/A***

33.7 Existing ITS

The CONSULTANT shall research any required legacy system or system components that may be impacted by new work, such as: existing communications; existing types, numbers, locations, models, manufacturers, and age of ITS devices; as-built plans; existing operating software; existing center-to-field devices; and C2C communications and capabilities.

The project intelligence files provided by the DEPARTMENT and researched by the CONSULTANT may include the following documents:

- Existing ITS field devices compared to the latest FDOT Standards and District requirements: device type, model, manufacturer, capabilities, condition, date installed, and historical maintenance logs. The DEPARTMENT will provide the ITS FM data, when available, to the CONSULTANT upon request.
- Condition of support structure(s), and associated mechanical brackets, and vertical hangers.
- Electrical power related to the existing demand loads, sizes of the main and branch circuit breakers for the service disconnect, underground or overhead service feeder sizes from the power company transformer to the meter base.
- Existing fiber optic allocation as a graphical display of the existing buffer tube for the ITS devices at the Managed Field Ethernet Switch points, the buffer allocated for the existing local communication hubs, given number of connections within a corridor while maintaining the maximum number of physical connection on a specific Local Area Network (LAN), and local hubs to existing master communication hubs.
- A KMZ file of the existing fiber optic pull and splice boxes, ITS devices, local hubs, power service poles with latitudes and longitudes data.
- Underground infrastructure.
- Proximity to utilities.
- Other field reconnaissance as necessary to develop a complete ITS design package.

33.8 Queue Analysis - *N/A*

33.9 Reference and Master ITS Design File - *N/A*

33.10 Reference and Master Communications Design File - *N/A*

33.11 ITS Pole and Overhead structures Elevation Analysis - *N/A*

33.12 DMS Sign Panel Design Analysis - *N/A*

33.13 ITS Quantities for EQ Report

The CONSULTANT shall determine pay items and quantities and the supporting documentation.

33.14 Cost Estimate

The CONSULTANT shall prepare an engineer's cost estimate for the project using historical data from the FDOT or from other Industry sources. The CONSULTANT shall also load the category information pay items and quantities into AASHTOWare Project Preconstruction.

33.15 Technical Special Provisions and Modified Special Provisions - *N/A*

33.16 Other ITS Analyses - *N/A*

33.17 Field Reviews

The CONSULTANT shall conduct a field review for the required phase submittals. The review shall identify necessary data for all elements of the project including, but not limited to, the following:

- Existing ITS Field Devices as compared with the latest FDOT standards and District requirements
- Device Make, Model, Capabilities, Condition / Age, Existence of SunGuide Software Driver
- Condition of Structure(s), cabinets, and other above-ground infrastructure and devices
- Type of Detection as Compared with Current District Standards and preferences.
- Underground Infrastructure
- Proximity of other utilities
- Any other field reconnaissance as necessary to develop a complete ITS design package

33.18 Technical Meetings

The CONSULTANT shall attend meetings as necessary to support the project.

33.19 Quality Assurance / Quality Control

The CONSULTANT shall be responsible for the professional quality, technical accuracy and coordination of designs, drawings, specifications, and other services and work furnished by the CONSULTANT under this contract.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review all design drawings, specifications, and other documentation prepared as a part of the contract. The CONSULTANT shall describe how the checking and review processes are to be documented to verify that the required procedures were followed. The Quality Control Plan may be one utilized by the CONSULTANT as part of their normal operation or may be one specifically designed for this project. The CONSULTANT shall utilize the District's quality control checklist. The responsible Professional Engineer that performed the Quality Control review shall sign a statement certifying that the review was conducted.

The CONSULTANT shall, without additional compensation, correct all errors or deficiencies in their works.

33.20 Supervision

The CONSULTANT shall provide all efforts required to supervise all technical design activities.

33.21 Coordination

The CONSULTANT shall coordinate with Survey, Geotech, Drainage, Structures, Lighting, Roadway Design, Utilities, municipalities, maintaining agencies and Traffic Operations to produce a final set of construction contract documents and to ensure that a high degree of accuracy for the design plans is achieved. The CONSULTANT shall coordinate with the roadway Utility Adjustment Plan to incorporate all ITS support structural foundations symbols drawn to scale in the Utility Adjustment Plans and attend the utility design meetings conveying the information to all utility owners to preserve the location of the proposed foundations and avoid any conflicts.

34 INTELLIGENT TRANSPORTATION SYSTEMS PLANS

The CONSULTANT shall prepare a set of ITS Plans in accordance with the FDOT Design Manual that includes the following:

34.1 Key Sheet - ***N/A***

34.2 General Notes / Pay Item Notes - ***N/A***

34.3 Project Layout - ***N/A***

34.4 Typical and Special Details

The CONSULTANT shall prepare typical and / or special details for conditions in the project not addressed by the DEPARTMENT's Standard Plans for Design, Construction, Maintenance, and Utility Operations on the State Highway System. The CONSULTANT shall prepare special details not addressed by FDOT Standard Plans, including block diagrams, hub cabinets, wiring diagrams, solar power service, and special mounting details, horizontal directional drilling at critical crossings, wireless ethernet equipment for local and broadband communication, Ethernet based Blue Toad, Ramp Signaling System, RSU block diagrams, Power station site plan, Field Equipment Shelters for master hubs, electrical and communication conduit, equipment inside box girders.

34.5 Plan Sheet - ***N/A***

34.6 ITS Communications Plans - ***N/A***

34.7 Fiber Optic Splice Diagrams - ***N/A***

34.8 Grounding and Lightning Protection Plans - ***N/A***

34.9 Cross Sections - ***N/A***

34.10 Guide Sign Work Sheets - ***N/A***

34.11 Special Service Point Details - ***N/A***

34.12 Strain Pole Schedule - ***N/A***

34.13 Overhead / Cantilever Sign Structure - ***N/A***

34.14 Other Overhead Sign Structures (Long Span, Monotube, etc.) - ***N/A***

34.15 Temporary Traffic Control Plans - ***N/A***

34.16 Interim Standards

The CONSULTANT shall adhere to all DEPARTMENT's Interim Standards for ITS applications.

34.17 GIS Data and Asset Management Requirements - *N/A*

34.18 Quality Assurance / Quality Control

The CONSULTANT shall utilize the District's quality control checklist for traffic design drawings in addition to the QC effort described in section three, Project Common and Project General Tasks, herein.

34.19 Supervision

The CONSULTANT shall supervise all technical design activities.

35 GEOTECHNICAL

The CONSULTANT shall, for each project, be responsible for a complete geotechnical investigation. The consultant shall investigate seasonal high groundwater level around US 98 loop Ramp 30. All work performed by the CONSULTANT shall be in accordance with DEPARTMENT standards, or as otherwise directed by the District Geotechnical Engineer. The District Geotechnical Engineer will make interpretations and changes regarding geotechnical standards, policies and procedures and provide guidance to the CONSULTANT.

Before beginning each phase of investigation and after the Notice to Proceed is given, the CONSULTANT shall submit an investigation plan for approval and meet with the DEPARTMENT's Geotechnical Engineer or representative to review the project scope and DEPARTMENT requirements. The investigation plan shall include, but not be limited to, the proposed boring locations and depths, and all existing geotechnical information from available sources to generally describe the surface and subsurface conditions of the project site. Additional meetings may be required to plan any additional field efforts, review plans, resolve plans/report comments, resolve responses to comments, and/or any other meetings necessary to facilitate the project.

The CONSULTANT shall notify the DEPARTMENT in adequate time to schedule a representative to attend all related meetings and field activities.

35.1 Document Collection and Review

CONSULTANT will review printed literature including topographic maps, county agricultural maps, aerial photography (including historic photos), ground water resources, geology bulletins, potentiometric maps, pile driving records, historic construction records and other geotechnical related resources. Prior to field reconnaissance, CONSULTANT shall review U.S.G.S., S.C.S. and potentiometric maps, and identify areas with problematic soil and groundwater conditions.

Roadway

The CONSULTANT shall be responsible for coordination of all geotechnical related field work activities. The CONSULTANT shall retain all samples until acceptance of Phase IV plans. Rock cores shall be retained as directed in writing by the District Geotechnical Engineer.

Obtain pavement cores as directed in writing by the District Geotechnical Engineer.

If required by the District Geotechnical Engineer, a preliminary roadway exploration shall be performed before the Phase I plans submittal. The preliminary roadway exploration will be performed and results provided to the Engineer of Record to assist in setting roadway grades and locating potential problem areas. The preliminary roadway exploration shall be performed as directed in writing by the District Geotechnical Engineer.

CONSULTANT shall perform specialized field-testing as required by project needs and as directed in writing by the District Geotechnical Engineer.

All laboratory testing and classification will be performed in accordance with applicable DEPARTMENT standards, ASTM Standards or AASHTO Standards, unless otherwise specified in the Contract Documents.

35.2 Develop Detailed Boring Location Plan

Develop a detailed boring location plan. Meet with DEPARTMENT Geotechnical Project Manager for boring plan approval. If the drilling program expects to encounter artesian conditions, the CONSULTANT shall submit a methodology(s) for plugging the borehole to the DEPARTMENT for approval prior to commencing with the boring program.

35.3 Stake Borings/Utility Clearance

Stake borings and obtain utility clearance.

35.4 Muck Probing

Probe standing water and surficial muck in a detailed pattern sufficient for determining removal limits to be shown in the Plans.

35.5 Coordinate and Develop TTCP for Field Investigation

Coordinate and develop Temporary Traffic Control Plan (TTCP). All work zone traffic control will be performed in accordance with the DEPARTMENT's Standard Plans Index 102 series.

35.6 Drilling Access Permits

Obtain all State, County, City, and Water Management District permits for performing geotechnical borings, as needed.

35.7 Property Clearances

Notify property tenants in person of drilling and field activities, if applicable. Written notification to property owners/tenants is the responsibility of the DEPARTMENT's Project Manager.

35.8 Groundwater Monitoring

Monitor groundwater, using piezometers.

35.9 LBR / Resilient Modulus Sampling

Collect appropriate samples for Limerock Bearing Ratio (LBR) testing. Deliver Resilient Modulus samples to the District Materials Office or the State Materials Office in Gainesville, as directed by the DEPARTMENT.

35.10 Coordination of Field Work

Coordinate all field work required to provide geotechnical data for the project.

35.11 Soil and Rock Classification - Roadway

Refine soil profiles recorded in the field, based on results of laboratory testing.

35.12 Design LBR

Determine design LBR values from the 90% and mean methods when LBR testing is required by the DEPARTMENT.

35.13 Laboratory Data

Tabulate laboratory test results for inclusion in the geotechnical report, the report of tests sheet (Roadway Soil Survey Sheet), and for any necessary calculations and analyses.

35.14 Seasonal High Water Table

Review the encountered ground water levels and estimate seasonal high ground water levels. Estimate seasonal low ground water levels, if requested.

35.15 Parameters for Water Retention Areas

Calculate parameters for water retention areas, exfiltration trenches, and/or swales.

35.16 Delineate Limits of Unsuitable Material

Delineate limits of unsuitable material(s) in both horizontal and vertical directions. Assist the Engineer of Record with detailing these limits on the cross-sections. If requested, prepare a plan view of the limits of unsuitable material.

35.17 Electronic Files for Cross-Sections

Create electronic files of boring data for cross-sections.

35.18 Embankment Settlement and Stability

Estimate the total magnitude and time rate of embankment settlements. Calculate the factor of safety against slope stability failure.

35.19 Monitor Existing Structures

Provide Roadway EOR guidance on the radius to review existing structures for monitoring.

Optional services (may be negotiated at a later date if needed): Identify existing structures in need of settlement, vibration and/or groundwater monitoring by the contractor during construction and coordinate with the EOR and structural engineer (when applicable) to develop mitigation strategies. When there is risk of damage to the structure or facility, provide recommendations in the geotechnical report addressing project specific needs and coordinate those locations with the EOR. See FDM Chapter 307 and Chapter 9 of the Soils and Foundations Handbook.

35.20 Stormwater Volume Recovery and/or Background Seepage Analysis

Perform stormwater volume recovery analysis as directed by the DEPARTMENT.

35.21 Geotechnical Recommendations

Provide geotechnical recommendations regarding the proposed roadway construction project including the following: description of the site/alignment, design recommendations and discussion of any special considerations (e.g. removal of unsuitable material, consolidation of weak soils, estimated settlement time/amount, groundwater control, high groundwater conditions relative to pavement base, etc.) Evaluate and recommend types of geosynthetics and properties for various applications, as required.

35.22 Pavement Condition Survey and Pavement Evaluation Report

If a pavement evaluation is performed, submit the report in accordance with Section 3.2 of the Materials Manual: Flexible Pavement Coring and Evaluation. Enter all core information into the Pavement Coring and Reporting (PCR) system.

35.23 Preliminary Roadway Report

If a preliminary roadway investigation is performed, submit a preliminary roadway report before the Phase I plans submittal. The purpose of the preliminary roadway report will be to assist in setting road grades and locating potential problems.

- Copies of U.S.G.S. and S.C.S. maps with project limits shown.
- A report of tests sheet that summarizes the laboratory test results, the soil stratification (i.e. soils grouped into layers of similar materials) and construction recommendations relative to Standard Plans Indices 120-001 and 120-002.
- The results of all tasks discussed in all previous sections regarding data interpretation and analysis.
- An appendix that contains stratified soil boring profiles, laboratory test data sheets, sample embankment settlement and stability calculations, design LBR calculation/graphs, and other pertinent calculations.
- The CONSULTANT will respond in writing to any changes and/or comments from the DEPARTMENT and submit any responses and revised reports.

35.24 Final Report

The Final Roadway Report shall include the following:

- Copies of U.S.G.S. and S.C.S. maps with project limits shown.
- A report of tests sheet that summarizes the laboratory test results, the soil stratification (i.e. soils grouped into layers of similar materials) and construction recommendations relative to Standard Plans Indices 120-001 and 120-002.
- The results of all tasks discussed in all previous sections regarding data interpretation and analysis.

- An appendix that contains stratified soil boring profiles, laboratory test data sheets, sample embankment settlement and stability calculations, design LBR calculation/graphs, and other pertinent calculations.
- The CONSULTANT will respond in writing to any changes and/or comments from the DEPARTMENT and submit any responses and revised reports.

35.25 Auger Boring Drafting

Draft auger borings as directed by the DEPARTMENT.

35.26 SPT Boring Drafting

Draft SPT borings as directed by the DEPARTMENT.

Structures

The CONSULTANT shall be responsible for coordination of all geotechnical related fieldwork activities. The CONSULTANT shall retain all samples until acceptance of Phase IV plans. Rock cores shall be retained as directed in writing by the District Geotechnical Engineer.

CONSULTANT shall perform specialized field-testing as required by needs of project and as directed in writing by the District Geotechnical Engineer.

All laboratory testing and classification will be performed in accordance with applicable DEPARTMENT standards, ASTM Standards or AASHTO Standards, unless otherwise specified in the Contract Documents.

The staff hour tasks for high embankment fills and structural foundations for bridges, box culverts, walls, high-mast lighting, overhead signs, mast arm signals, strain poles, buildings, and other structures include the following:

35.27 Develop Detailed Boring Location Plan

Develop a detailed boring location plan. Meet with DEPARTMENT Geotechnical Project Manager for boring plan approval. If the drilling program expects to encounter artesian conditions, the CONSULTANT shall submit a methodology(s) for plugging the borehole to the DEPARTMENT for approval prior to commencing with the boring program.

35.28 Stake Borings/Utility Clearance

Stake borings and obtain utility clearance.

35.29 Coordinate and Develop TTCP for Field Investigation

Coordinate and develop TTCP plan. All work zone traffic control will be performed in accordance with the DEPARTMENT's Standard Plans Index 102 series.

35.30 Drilling Access Permits

Obtain all State, County, City, and Water Management District permits for performing geotechnical borings, as needed.

35.31 Property Clearances

Notify property tenants in person of drilling and field activities, if applicable. Written notification to property owners/tenants is the responsibility of the DEPARTMENT's Project Manager.

35.32 Collection of Corrosion Samples

Collect corrosion samples for determination of environmental classifications.

35.33 Coordination of Field Work

Coordinate all field work required to provide geotechnical data for the project.

35.34 Soil and Rock Classification - Structures

Soil profiles recorded in the field should be refined based on the results of laboratory testing.

35.35 Tabulation of Laboratory Data

Laboratory test results should be tabulated for inclusion in the geotechnical report and for the necessary calculations and analyses.

35.36 Estimate Design Groundwater Level for Structures

Review encountered groundwater levels, estimate seasonal high groundwater levels, and evaluate groundwater levels for structure design.

35.37 Selection of Foundation Alternatives (BDR)

Evaluation and selection of foundation alternative, including the following:

- GRS-IBS
- Spread footings
- Prestressed concrete piling - various sizes
- Steel H- piles
- Steel pipe piles
- Drilled shafts
- Foundation analyses shall be performed using approved DEPARTMENT methods. Assist in selection of the most economical, feasible foundation alternative.

35.38 Detailed Analysis of Selected Foundation Alternate(s)

Detailed analysis and basis for the selected foundation alternative. Foundation analyses shall be performed using approved DEPARTMENT methods and shall include:

- GRS-IBS (including the parameters identified in the Instructions for Developmental Design Standard D6025 to be provided by the CONSULTANT Geotechnical Engineer)
- Spread footings (including soil bearing capacity, minimum footing width, and minimum embedment depth).
- For pile and drilled shaft foundations, provide graphs of ultimate axial soil resistance versus tip elevations. Calculate scour resistance and/or downdrag (negative skin friction), if applicable.
- CONSULTANT shall assist the Engineer of Record in preparing the Pile Data Table (including test pile lengths, scour resistance, downdrag, minimum tip elevation, etc.)
- Provide the design soil profile(s), which include the soil model/type of each layer and all soil-engineering properties required for the Engineer of Record to run the FBPier computer program. Review lateral analysis of selected foundation for geotechnical compatibility.
- Estimated maximum driving resistance anticipated for pile foundations.
- Provide settlement analysis.

35.39 Bridge Construction and Testing Recommendations

Provide construction and testing recommendations including potential constructability problems.

35.40 Lateral Load Analysis (Optional)

Perform lateral load analyses as directed by the DEPARTMENT.

35.41 Walls

Provide the design soil profile(s), which include the soil model/type of each layer and all soil engineering properties required by the Engineer of Record for conventional wall analyses and recommendations. Review wall design for geotechnical compatibility and constructability.

Evaluate the external stability of conventional retaining walls and retained earth wall systems. For retained earth wall systems, calculate and provide minimum soil reinforcement lengths versus wall heights, and soil parameters assumed in analysis. Estimate differential and total (long term and short term) settlements.

Provide wall construction recommendations.

35.42 Sheet Pile Wall Analysis (Optional)

Analyze sheet pile walls as directed by the DEPARTMENT.

35.43 Design Soil Parameters for Signs, Signals, High Mast Lights, and Strain Poles and Geotechnical Recommendations

- Provide the design soil profile(s) that include the soil model/type of each layer and all soil properties required by the Engineer of Record for foundation design. Review design for geotechnical compatibility and constructability.

35.44 Box Culvert Analysis

- Provide the design soil profile(s) that include the soil model/type of each layer and all soil properties required by the Engineer of Record for foundation design. Review design for geotechnical compatibility and constructability.
- Provide lateral earth pressure coefficients.
- Provide box culvert construction and design recommendations.
- Estimate differential and total (long term and short term) settlements.
- Evaluate wingwall stability.

35.45 Preliminary Report - BDR

The preliminary structures report shall contain the following discussions as appropriate for the assigned project:

- Copies of U.S.G.S. and S.C.S. maps with project limits shown.
- Summary of structure background data, S.C.S., U.S.G.S., geologic and potentiometric data.
- The results of all tasks discussed in all previous sections regarding data interpretation and analysis).
- Recommendations for foundation installation, or other site preparation soils-related construction considerations with plan sheets as necessary.
- Any special provisions required for construction that are not addressed in the DEPARTMENT's Standard specification.
- An Appendix which includes SPT and CPT boring/sounding profiles, data from any specialized field tests, engineering analysis, notes/sample calculations, sheets showing ultimate bearing capacity curves versus elevation for piles and drilled shafts, a complete FHWA check list, pile driving records (if available), and any other pertinent information.

35.46 Final Report - Bridge and Associated Walls

The final structures report shall include the following:

- Copies of U.S.G.S. and S.C.S. maps with project limits shown.
- Summary of structure background data, S.C.S., U.S.G.S., geologic and potentiometric data.
- The results of all tasks discussed in all previous sections regarding data interpretation and analysis.

- Recommendations for foundation installation, or other site preparation soils-related construction considerations with plan sheets as necessary.
- Any special provisions required for construction that are not addressed in the DEPARTMENT's Standard specification.
- An Appendix which includes SPT and CPT boring/sounding profiles, data from any specialized field tests, engineering analysis, notes/sample calculations, sheets showing ultimate bearing capacity curves versus elevation for piles and drilled shafts, a complete FHWA check list, pile driving records (if available), and any other pertinent information.

35.47 Final Reports - Signs, Signals, Box Culvert, Walls, and High Mast Lights

The final reports shall include the following:

- Copies of U.S.G.S. and S.C.S. maps with project limits shown.
- Summary of structure background data, S.C.S., U.S.G.S., geologic and potentiometric data.
- The results of all tasks discussed in all previous sections regarding data interpretation and analysis).
- Recommendations for foundation installation, or other site preparation soils-related construction considerations with plan sheets as necessary.
- Any special provisions required for construction that are not addressed in the DEPARTMENT's Standard specification.
- An Appendix which includes SPT and CPT boring/sounding profiles, data from any specialized field tests, engineering analysis, notes/sample calculations, sheets showing ultimate bearing capacity curves versus elevation for piles and drilled shafts, a complete FHWA check list, pile driving records (if available), and any other pertinent information.

Final reports will incorporate comments from the DEPARTMENT and contain any additional field or laboratory test results, recommended foundation alternatives along with design parameters and special provisions for the contract plans. These reports will be submitted to the District Geotechnical Engineer for review prior to project completion. After review by the District Geotechnical Engineer, the reports will be submitted to the District Geotechnical Engineer in final form and will include the following:

- All original plan sheets (11" x 17")
- One set of all plan and specification documents, in electronic format, according to DEPARTMENT requirements
- Two sets of record prints
- Six sets of any special provisions
- All reference and support documentation used in preparation of contract plans package

Additional final reports (up to four), aside from stated above, may be needed and requested for the DEPARTMENT's Project Manager and other disciplines.

The final reports, special provisions, as well as record prints, will be signed and sealed by a Professional Engineer licensed in the State of Florida.

Draft the detailed boring/sounding standard sheet, including environmental classification, results of laboratory testing, and specialized construction requirements, for inclusion in final plans.

35.48 SPT Boring Drafting

Prepare a complete set of drawings to include all SPT borings, auger borings and other pertinent soils information in the plans. Include these drawings in the Final Geotechnical Report. Draft borings, location map, S.C.S. map and U.S.D.A. map as directed by the DEPARTMENT. Soil symbols must be consistent with those presented in the latest Florida Department of Transportation Soils and Foundations Handbook.

35.49 Other Geotechnical

Other geotechnical effort specifically required for the project as determined by the DEPARTMENT, and included in the geotechnical upset limit.

When required, all work shall be performed in accordance with current Florida DEPARTMENT of Environmental Regulation (DER) and Federal OSHA and EPA standards. The following work shall be included, but not limited to:

- ***A minimum of four (4) borings will be required per site***
- ***Soil gas analysis will be required by use of a flame ionization detector; e.g. Organic Vapor Analyzer (OVA)***
- ***Installation of monitoring wells may be required***
- ***Water sampling and laboratory analysis may be required. The State of Florida DEPARTMENT of Health shall certify the laboratory performing the analysis***
- ***Four (4) copies of the draft PCA report will be required for review and comment by the DEPARTMENT. After comments have been addressed, six (6) signed and sealed copies of the final PCA report shall be submitted to the DEPARTMENT. Copies of all documents will be additionally transmitted to the DEPARTMENT in electronic format in accordance with the DEPARTMENT's current standards***

35.50 Technical Special Provisions and Modified Special Provisions

35.51 Field Reviews

Identify and note surface soil and rock conditions, surface water conditions and locations, and preliminary utility conflicts. Observe and note nearby structures and foundation types.

35.52 Technical Meetings

35.53 Quality Assurance/Quality Control

35.54 Supervision

35.55 Coordination

36 3D MODELING

The CONSULTANT shall analyze and document Roadway Tasks in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

The CONSULTANT shall deliver all master design files, 3D surface design models, and all supporting digital files for the development of plans as required in the FDOT CADD Manual.

The CONSULTANT shall prepare a 3D model using the latest FDOT software in accordance with the FDOT CADD Manual. Includes all efforts required for developing files for 3D deliverables supporting automated machine guidance for design models. This includes importing survey data and creation of existing 3D surface features and models and developing proposed corridor models with necessary detail of features to depict the proposed project in 3D to comply with the FDOT CADD Manual.

The CONSULTANT shall add detail to the corridor and design model for 3D design. Includes many elements that contribute to this including but not limited to slope transitions, typical section transitions, changes in pavement depth, berms, swales/ditches, and other feature transitions. Extra corridor structure leads to extra assemblies, extra targeting, etc.

The CONSULTANT shall create an accurate roadway design model which includes modeling the intersections.

The CONSULTANT shall submit .dgn files associated with the 3D Model and their respective components.

36.1 Phase I 3D Design Model

The CONSULTANT shall prepare, submit, and present for review by the DEPARTMENT, Phase I 3D interactive model, comprised of, but not limited to: Existing features (pavement, shoulders, sidewalk, curb/gutter, utilities-if required per scope, drainage - if required per scope) and proposed corridor(s).

36.2 Phase II 3D Design Model

The CONSULTANT shall prepare, submit and present for review by the DEPARTMENT, Phase II 3D model***, and 3D deliverables for review,*** comprised of, but not limited to: Modification of the Phase I model to update the model to comply with changes based on the Phase I review comments and to include the addition of ponds, floodplain compensation sites, retaining walls, barrier walls, guardrail terminals, cross overs, gore areas, side street connections, roundabouts, and driveways.

[List optional services to be included, e.g. 3D deliverables files for review, Curb Ramps, Closed Drainage Network, Bridge Modeling, Bridge Abutment, Overhead sign post/structures

with foundation, Toll gantry and overhead DMS structures with foundation, proposed utilities (pressure pipe/gravity), etc.].

36.3 Phase III 3D Design Model

The CONSULTANT shall prepare, submit and present for review by the DEPARTMENT, Phase III 3D model and 3D deliverables files for review, comprised of, but not limited to: Modification of the Phase II model to update the model to comply with changes based on the Phase II review comments and to further refine areas of transition between templates, detailed grading areas, bridge approaches and end bents, median noses, shoulder transition areas, retaining walls, barrier walls and guardrail.

36.4 Final 3D Model Design

The CONSULTANT shall prepare for review by DEPARTMENT, the Phase IV 3D model and ***3D*** deliverables, comprised of, but not limited to: Modification of the Phase III model to update the model to comply with changes based on the phase III review comments and to accurately generate, export and otherwise prepare the final 3D deliverable files as described in the FDOT CADD Manual.

36.5 Cross Section Design Files

The CONSULTANT shall establish and develop cross section design files in accordance with the FDOT CADD manual and FDOT Design Manual. Includes all work required to establish and utilize intelligent/automated methods for creating cross sections including determining the locations for which all cross sections will be shown, existing and proposed features, cross section refinement, placement of utilities and drainage, soil boxes, R/W lines, earthwork calculations, and other required labeling.

36.6 Template and Assembly Development (Optional) – *N/A*

36.7 Quality Assurance/Quality Control

36.8 Supervision

36.9 Coordination

37 PROJECT REQUIREMENTS

37.1 Liaison Office

The DEPARTMENT and the CONSULTANT will designate a Liaison Office and a Project Manager who shall be the representative of their respective organizations for the Project. While it is expected the CONSULTANT shall seek and receive advice from various state, regional, and local agencies, the final direction on all matters of this project remain with the DEPARTMENT Project Manager.

37.2 Key Personnel

The CONSULTANT's work shall be performed and directed by the key personnel identified in the proposal presentations by the CONSULTANT. Any changes in the indicated personnel shall be subject to review and approval by DEPARTMENT.

37.3 Progress Reporting

The CONSULTANT shall meet with the DEPARTMENT as required and shall provide a written monthly progress report with approved schedule, schedule status, and payout curve or by using the earned value method that describe the work performed on each task. The report will include assessing project risk through monthly documentation of identifying and updating the risk category and approach for monitoring those tasks. Invoices shall be submitted after the DEPARTMENT approves the monthly progress report and the payout curve or with earned value analysis. The Project Manager will make judgment on whether work of sufficient quality and quantity has been accomplished by comparing the reported percent complete against actual work accomplished.

37.4 Correspondence

Copies of all written correspondence between the CONSULTANT and any party pertaining specifically to this contract shall be provided to the DEPARTMENT for their records within one (1) week of the receipt or mailing of said correspondence.

37.5 Professional Endorsement

The CONSULTANT shall have a Licensed Professional Engineer in the State of Florida sign and seal all reports, documents, Technical Special Provisions and Modified Special Provisions, and plans as required by DEPARTMENT standards.

37.6 Computer Automation

The project will be developed utilizing Computer Aided Drafting and Design (CADD) systems. The DEPARTMENT makes available software to help assure quality and conformance with policy and procedures regarding CADD. It is the responsibility of the CONSULTANT to meet the requirements in the FDOT CADD Manual. The CONSULTANT shall submit final documents and files as described therein.

37.7 Coordination with Other Consultants

The CONSULTANT is to coordinate his work with any and all adjacent and integral consultants so as to effect complete and homogenous plans and specifications for the project(s) described herein.

37.8 Optional Services

At the DEPARTMENT's option, the CONSULTANT may be requested to provide optional services. The fee for these services shall be negotiated in accordance with the terms detailed in Exhibit B, Method of Compensation, for a fair, competitive and reasonable cost, considering the scope and complexity of the project(s). Additional services may be authorized by Letter of Authorization or supplemental amendment in accordance with paragraph 2.00 of the Standard Consultant Agreement. The additional services may include Construction Assistance, Review of Shop Drawings, Final Bridge Load Rating, update (Category II) bridge plans electronically (CADD) for the Final "As-Built" conditions, based on documents provided by the DEPARTMENT (CADD Services Only) or other Services as required.

38 INVOICING LIMITS

Payment for the work accomplished shall be in accordance with Method of Compensation of this contract. Invoices shall be submitted to the DEPARTMENT, in a format prescribed by the DEPARTMENT. The DEPARTMENT Project Manager and the CONSULTANT shall monitor the cumulative invoiced billings to ensure the reasonableness of the billings compared to the project schedule and the work accomplished and accepted by the DEPARTMENT.

The CONSULTANT shall provide a list of key events and the associated total percentage of work considered to be complete at each event. This list shall be used to control invoicing. Payments will not be made that exceed the percentage of work for any event until those events have actually occurred and the results are acceptable to the DEPARTMENT.