EXHIBIT A

SCOPE OF SERVICES

FOR

FINANCIAL PROJECT ID(S) 436680-1-22-01 & 436680-1-32-01

DISTRICT One

Sarasota COUNTY
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SCOPE OF SERVICES FOR PROJECT DEVELOPMENT AND ENVIRONMENT STUDY AND DESIGN SERVICES

HIGHPAY 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 _________________________________ (hereinafter referred to as the CONSULTANT) relative to the transportation facility described as follows:

Financial Project ID: 436680-1-22-01

436680-1-32-01

Federal Aid Project No.: N/A

ETDM No.: 14384

County Section No.: 17030000

Description: SR 789 from Bird Key Drive to Sarasota Harbor West

MP 1.206 TO MP 1.947, Sarasota County

Bridge No(s).: 170022, 170951

Railroad Crossing No.: N/A

Lead Agency: Office of Environmental Management acting as FHWA

Context Classification: TBD

1 PURPOSE AND PROJECT DESCRIPTION

The purpose of this Exhibit is to describe the scope of work and the responsibilities of the CONSULTANT and the DEPARTMENT regarding the Project Development and Environment (PD&E) Study, 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: 9999 – PD&E Study

Major work groups include:

- 2.0 PD&E Studies
- 3.1 Minor Highway Design
- 3.2 Major Highway Design
- 4.2.1 Major Bridge Design – Concrete

Minor work groups include:

- 4.1.1 Miscellaneous Structures
- 4.1.2 Minor Bridge Design
- 6.1 Traffic Engineering Studies

1a PURPOSE
6.2 Traffic Signal Timing
6.3.1 ITS Analysis and Design
6.3.2 Intelligent Transportation Systems Implementation
6.3.3 Intelligent Transportation Traffic Engineering Systems Communications
7.1 Signing, Pavement Marking and Channelization
7.2 Lighting
7.3 Signalization
8.1 Control Surveying
8.2 Design, Right of Way Construction Surveying
8.3 Photogrammetric Mapping
8.4 Right of Way Mapping
9.1 Soil Exploration
9.2 Geotechnical Classification Lab Testing
14.0 Architect
15.0 Landscape Architect

Known alternative construction contracting methods include: N/A

The general objective is for the CONSULTANT to conduct a PD&E study and 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. The PD&E Study will enable the DEPARTMENT to obtain the Location and Design Concept Acceptance (LDCA) for the project concurrent with preparation of Phase II R design plans. The contract documents will be used by the contractor to build the project and test the project components. The 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 PD&E Manual, FDOT Design Manual (FDM), and other pertinent manuals are specifically prescribed to accomplish the work included in this contract and indicates which items of work will be the responsibility of the CONSULTANT and/or the DEPARTMENT.

The CONSULTANT shall be aware that as a project is developed, certain modifications and/or improvements to prior (planning) 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 PD&E Study and design of the project a contract file in accordance with DEPARTMENT procedures.

The CONSULTANT is 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 approval of the environmental document, and 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 Scope of Services.
1.1 Project Description

The CONSULTANT shall investigate replacement alternatives for the Little Ringling bridges in Sarasota, on SR 789 over Coon Key waterway. Development of PD&E documents shall be concurrent with design activities. The anticipated class of action is TYPE II CE. The project is not anticipated to add additional through travel lanes. Bicycle and pedestrian accommodations shall be incorporated into the design.

1.2 Project General (Activities 2, 3, 4, and 5)

Public Involvement: The CONSULTANT shall prepare a Public Involvement Plan, incorporating the requirements for a level 4 CAP, at the beginning of the contract. It is anticipated there will be two public information meetings.

Other Agency Presentations/Meetings: Present at two points during the project to the Sarasota/Manatee MPO Board and advisory committees. Meet with the City of Sarasota regularly throughout the life of the contract.

Joint Project Agreements: N/A

Specification Package Preparation: Standard

Value Engineering: The initial estimated project cost exceeds $25 million. The CONSULTANT will be required to attend 2 meetings related to the Value Engineering study.

Risk Assessment Workshop: N/A

Plan Type: Plan and Profile

Typical Section: The typical section shall be determined during the project. It is anticipated there will be 4 lanes, with bicycle and pedestrian accommodations. Anticipate needing a bridge and a roadway typical section.

Pavement Design: One anticipated

Pavement Type Selection Report(s): N/A

Cross Slope: TBD

Access Management Classification: 05

Transit Route Features: There are no transit stops within the project limits, however routes 4, 18, and 18S traverse the project limits.

Major Intersections/Interchange: N/A

Roadway Alternative Analysis: N/A

Level of TCP Plans: The CONSULTANT shall develop Level III Traffic Control Plans (TCP) for this project. The CONSULTANT shall schedule a meeting before Phase II
to present the Maintenance of Traffic phasing with District Construction Office. The consultant shall prepare Roll Plots 1”=100’ to discuss the phasing in a workshop.

Temporary Lighting: Needed for MOT

Temporary Signals: TBD

Temporary Drainage: Existing drainage patterns to be maintained.

Design Variations/Exceptions: TBD

Back of Sidewalk Profiles: To be provided where sidewalk profile deviates from roadway profile.

1.3 PD&E Study (Activities 2, 3, 4, 6a, 7, 10, and 32)

Participating and Cooperating Agencies: US Coast Guard - Cooperating; Additional agencies with be evaluated/invited during ETDM screening

Anticipated Class of Action: Type II CE

Environmental Resource Involvement: Anticipated involvement with Manatee, seagrass, wood stork, piping plover, mangroves, environmentally sensitive shoreline, Paddle Sarasota Blueway, west MURT Bird Key/Coon Key, John Ringling Trail, Bird Key Park, Bird Key Park (South), Historic Bridge No. 170951, contamination, navigation

Previously Studied Project Alternatives: Development of alternatives will consider previously completed planning products. Refer to Barrier Island Traffic Study for considerations regarding this bridge.

Environmental Analysis: Prior to beginning environmental work, the CONSULTANT must review the ETDM Programming Screen Summary Report, resource agencies’ comments, permits that may be required, and GIS information from the Environmental Screening Tool (EST). CONSULTANT activities to conduct and prepare environmental analysis and reports shall be done under the direction of the DEPARTMENT Project Manager.

Preliminary Engineering Analysis: The CONSULTANT shall perform engineering activities essential to develop and evaluate Project alternatives as outlined in Part 2 Chapter 3 of the PD&E Manual. Based on engineering analysis, the public involvement process, and environmental analysis, the DEPARTMENT will recommend a preferred design concept to advance to final design plans. Some of the tasks under Activity 4 Roadway Analysis, Activity 6a Drainage Analysis, Activity 7 Utilities, and Activity 10 Bridge Development Report will be used to perform preliminary engineering analysis for this project.

1.4 Drainage (Activities 6a and 6b)

System Type: The CONSULTANT shall develop the PD&E (preliminary design) and final design of a stormwater management system including but not limited to open conveyance ditches and swales, closed storm sewer systems, cross drains,
retention/detention ponds, exfiltration systems and floodplain compensation sites as required to satisfy the regulations and criteria of the DEPARTMENT and permitting agencies. The stormwater management systems shall be accurately depicted in the contract documents to the extent required for successful implementation by the contractor.

[Describe expected systems, i.e., open, closed, ditches, ponds, exfiltration, floodplain involvement, etc.]

**Pond Siting:** [List number of stormwater management facility sites to be studied per basin].

**Location Hydraulics:** [List number of cross drains].

**Bridge Hydraulics:** 170022, 170951

All existing cross drains that are to remain shall be videoed and analyzed for structural sufficiency. The CONSULTANT shall be responsible for desilting the cross drains prior to video inspection. The CONSULTANT shall check the condition of all existing cross-drain pipe for possible lining or replacement.

### 1.5 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 will assist the 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’s 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 with FDOT, FHWA, and AASHTO standards, policies, procedures, and design criteria.

- Assisting the Engineer of Record (EOR) in identifying all existing utilities and coordinating any new installations. Assisting the EOR with resolving utility conflicts, including new services (power, water, sewer, communications, etc.) serving DEPARTMENT owned facilities.

- 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 matrices 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.

- Reviewing and certifying to the District Utilities Administrator that all Utility Work Schedules are correct and in accordance with the DEPARTMENT’s standards, policies, and procedures.

- Preparing, reviewing and processing all utility related reimbursable paper work inclusive of betterment and salvage determinations.

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.

[List utilities anticipated on the project]

1.6 Environmental Permits, Complings, and Clearances (Activity 8)

Permits are anticipated from the United States Army Corps of Engineers (USACOE), the Southwest Florida Water Management District (SWFWMD), the United States Coast Guard (USCG) and the Florida Department of Environmental Protection (FDEP).

Mitigation activities shall be coordinated with the District Environmental Permits Coordinator.

1.7 Structures (Activities 9 – 18)

Bridge(s): 170022, 170951 – East and Westbound SR 789. Typical section and length to be determined.

1b PROJECT DESCRIPTION
Type of Bridge Structure Work:

- BDR
- Temporary Bridge
- Short Span Concrete
- Medium Span Concrete

Retaining Walls: Temporary retaining walls are anticipated for phased bridge construction. Permanent retaining walls are anticipated to accommodate proposed adjustments to the existing bridge profile.

Noise Barrier Walls: N/A

Miscellaneous: Lighting foundations may be required outside of the limits of the bridge.

1.8 Signing and Pavement Markings (Activities 19 & 20)

[List number and location of sign structures (i.e., cantilevers, overhead, etc.) or N/A]

The CONSULTANT shall prepare signing and marking plans in accordance with DEPARTMENT criteria.

Design should reflect FDOT – District One Signing & Pavement Marking Policies and Procedures as indicated in the latest Signing and Marking Updates folder located at web address https://ftp.fdot.gov/file/d/traffops/Signing%20and%20Marking/. This folder also contains additional items useful in designing Signing and Pavement Marking components plans in District One.

1.9 Signalization (Activities 21 & 22)

Intersections: The intersection of SR 789 and Bird Key Drive is included in the project limits. Impacts to this intersection will be determined by this contract.

Traffic Data Collection: Data will be collected and analyzed under Activity 3 PD&E Study

Traffic Studies: To be determined by a Traffic Methodology Meeting

Traffic Monitoring Sites: 175078 – John Ringling Causeway, 175026 – John Ringling Boulevard

1.10 Lighting (Activities 23 & 24)

[Provide limits and proposed type of lighting. Describe lighting reports required or N/A].

All roadway sections that currently have street lights shall retain street lighting within the same limits. All signalized intersections shall have street lighting in accordance with DEPARTMENT criteria/guidelines.
The CONSULTANT shall also coordinate with the power utility company the design and costs of utility infrastructure as required for new power service points proposed for lighting facilities in the construction documents.

1.11 Landscape Architecture (Activities 25 & 26)

Include coordination with existing and/or proposed underground utilities including but not limited to FDOT lighting, drainage and ITS. Landscape coordination with ITS shall include both underground conflicts and above ground impacts to existing and/or proposed ITS coverage. The CONSULTANT shall closely coordinate with the Department’s ITS units to ensure that all conflicts are identified, addressed and mitigated in the Contract Documents.

Planting Plans: [List project length and location (name of street and limits, median, roadside), landscape intensity (rural, suburban, urban) and landscape type (buffer, xeric, gateway, native, restoration, mitigation, tree relocation, streetscape, etc.) or N/A].

Irrigation Plans: [List applicable local codes and ordinance, system type (spray, subsurface, low volume, etc.), water source (potable, re-use water, well, metering, backflow type), power source (electrical, solar, battery), control options (local, satellite, manual, etc.) and provide for sleeve location coordination or N/A].

Hardscape Plans: [Indicate if plans include the following: street furniture (litter-receptacles, benches, bus shelters, bollards, tree grates and guards, etc.), specialty lighting (street poles and fixtures, landscape lighting, bridge lighting, etc.), specialty paving (concrete, brick or asphalt pavers, stamped, colored concrete or asphalt, etc.), sidewalks, plazas, steps, fountains, walls, pedestrian bridges and any non-regulatory signs or project graphics or N/A].

Outdoor Advertising: [Indicate if view zones of legally permitted outdoor advertising signs are within the project limits. List the number of sign structures, the number of sign faces (single, double, triple faced), and the number of sign permittees that must be contacted for coordination with the landscape architect or N/A].

1.12 Survey (Activity 27)

Design Survey: [Provide limits and description or N/A].

Subsurface Utility Exploration: SUE 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. (SUE locations will be negotiated by the DUA or their Designee) (See D1 SUE Policy Direction)

Right of Way Survey: [Provide limits and description or N/A].

Vegetation Survey: [Provide limits and description or N/A].

1.13 Photogrammetry (Activity 28)

[Provide limits and describe type or N/A].

1b PROJECT DESCRIPTION
1.14 Mapping Activity (Activity 29)

Control Survey Map: [Provide limits or N/A].
Right of Way Map: [Provide limits or N/A].
Legal Descriptions: [Provide number or N/A].
Maintenance Map: [Provide limits or N/A].
Miscellaneous Items: [List items or N/A].

1.15 Terrestrial Mobile LiDAR (Activity 30)

[Provide limits and describe type or N/A].

1.16 Architecture (Activity 31)

[Provide description of work and add project specific scope language or N/A].

Leadership in Energy and Environmental Design (LEED)

The intent of the LEED Green Building Rating System is the promotion of the design, construction and maintenance of buildings that are durable, healthy, affordable, and environmentally sound. This is achieved through an approach that looks not only at the building but also includes the surrounding area. Among the elements LEED includes are access to public transportation, energy usage, daylighting and views, indoor air quality, transportation, water usage, stormwater runoff, recycling and renewable resources.

Prerequisites and credits are the two types of tasks required by LEED to rate a building’s environmental impact. Prerequisites are mandatory and must be achieved for a building to meet any certification level; however, no points are earned for their completion. Points are earned for each credit that is achieved with points varying from credit to credit. Not all credits will be achievable due to external conditions while other credits will be too involved or costly to pursue. This is where the design team and the FDOT must determine what credits are to be pursued and the level of certification to strive to meet.

The State has set “Certified” as the minimum target level of certification for buildings, though several DEPARTMENT projects have strived for a LEED Green Building Rating of “Silver”.

Hours include the efforts to design and receive certification for buildings. These hours include all disciplines involved in the effort.

1.17 Noise Barriers (Activity 32)

[Provide description of work and add project specific scope language or N/A]

1.18 Intelligent Transportation Systems (Activities 33 & 34)
There is no existing Advanced Traffic Management System (ATMS) within the limits of this project. To allow future expansion to the Barrier Islands for the local ATMS conduit will be requested within this project. The local ATMS is operated and maintained by Sarasota using the Trafficware software ATMS.now from the Sarasota-Manatee County STMC located at 2101 47th Terrace East, Bradenton, FL. The consultant is responsible for avoiding and/or redesigning all ATMS infrastructure that may be impacted by this project.

The Federal Highway Administration issued Rule 940 entitled Intelligent Transportation Systems (ITS) Architecture and Standards to ensure new projects conform to the National ITS Architecture and standards as well as with regional ITS architecture developed to reflect the local needs, issues, problems, and objectives for implementation.

For all projects with ITS activities, the CONSULTANT shall follow the Rule 940 requirements and use a Systems Engineering approach for determining the requirements for the project. The CONSULTANT shall develop all necessary documents to support the Rule 940 requirements like Concept of Operations (ConOPS), Systems Engineering Management Plan (SEMP), Requirements Traceability Verification Matrix (RTVM) and others as deemed necessary by the Department.

The ITS shall operate from the Sarasota/Manatee STMC TMC located at 2101 47th Terrace East, Bradenton, FL using the Trafficware Software ATMS now.

Interchanges: N/A

Traffic Data Collection: N/A

Geographical Information System (GIS) Requirements: CONSULTANT shall include in the design the GIS data collection requirements and deliverables for integration with SunGuide software and other Department GIS based asset management applications like ITS FM software.

All design efforts shall be based on deploying “open architecture” subsystems while remaining fully compatible with previous designs (as applicable) and the FDOT ITS Specifications. All ITS field devices and support systems shall be designed and located outside of the clear zone, or behind protective barrier, within the right of way. This includes cabinets, poles, and support hardware. Utility conflicts shall be identified and resolved during the design phase. The location of design elements will be coordinated with the District Landscape Architect to optimize landscape opportunities. The design shall minimize theft and vandalism. The CONSULTANT shall include in the design vandal resistant mechanisms to minimize theft. The CONSULTANT shall provide additional redundant power and communications systems to minimize system downtime due to vandalism.

The CONSULTANT shall design the project subsystems such that they will be monitored and controlled from the FDOT’s TMC facilities located at Sarasota/Manatee STMC located at 2101 47th Terrace East, Bradenton, FL. The CONSULTANT shall ensure that all ITS field devices and ancillary components comply with the FDOT’s Approved Product List (APL) and are supported within the SunGuide software or other specified software, unless otherwise approved by the DEPARTMENT.
The CONSULTANT shall include in the design any required upgrade to the TMC central hardware, equipment racks, and equipment wiring as directed by the FDOT project manager, to make the subsystems fully operational from the TMC facilities.

For projects with existing ITS, the CONSULTANT shall include in the design any required upgrade to existing ITS equipment to meet the latest FDOT standards, NEC requirements or as directed by the FDOT project manager and to make the subsystems fully operational from the TMC facilities.

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.

1.19 Geotechnical (Activity 35)

[Define geotechnical responsibilities: i.e., CONSULTANT]

[List types of borings and unique lab tests, i.e., roadway, structures, ponds, lighting, etc.]

1.20 3D Modeling (Activity 36)

[Describe level of effort or N/A].

1.21 Project Schedule

Within ten (10) days after the Notice-To-Proceed, and prior to the CONSULTANT beginning work, the CONSULTANT shall meet with the DEPARTMENT for a Project Schedule Definition Meeting, for the purpose of providing 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 the [FILL IN DISTRICT SCHEDULE INFORMATION]. The anticipated date for final approval of the Environmental Document is [Month 00, 20XX]. The current production date is [Month 00, 20XX]. The schedule shall be accompanied by an anticipated payout and fiscal progress curve. For the purpose of scheduling, the CONSULTANT shall allow for a [fill in blank] week review time for each phase submittal, Environmental Document, and any other submittals as appropriate.

The schedule shall indicate, at a minimum, proposed dates for Public Hearing, LDCA, Phase I plans, Phase II plans, Phase III plans, and Phase IV plans and all other appropriate milestones, required submittals, and project deliverables.

The schedule shall reflect project-specific input from each affected DEPARTMENT discipline, including Permits, Utilities, and Right-of-Way. The CONSULTANT shall be responsible for ensuring that such input is received and reviewed with the DEPARTMENT Project Manager.

All fees and price proposals are to be based on the negotiated schedule of [XX] months for final construction contract documents. However, the contract deadline is [XX] months from the Notice to Proceed.
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.

When Phase II plans are complete and approved, if the project includes federal funds or involves interstate right of way, the CONSULTANT shall await DEPARTMENT approval before proceeding to Phase III plans. If the project is state-funded, the CONSULTANT can proceed to Phase IV plans as directed by the DEPARTMENT.

Throughout the course of production, unless directed otherwise by the DEPARTMENT, the CONSULTANT shall meet all Project Schedule Early-Start dates and Early-Finish dates for each project schedule activity.

The CONSULTANT shall maintain and update the Project Schedule by providing Project Schedule Activity Updates to the DEPARTMENT within one (1) work day after the occurrence of any of the following events:

1. Activity Start Date
2. Activity Finish Date
3. Expected Finish Date Change – For any activity in progress, if and when the Expected Finish Date changes from the original schedule the CONSULTANT shall provide an updated Expected Finish Date for that activity.

Project schedule updates shall be provided electronically utilizing the DEPARTMENT provided update system. In the event the DEPARTMENT’s system is not available, the CONSULTANT shall email the update to the DEPARTMENT Project Scheduler and copy the DEPARTMENT Project Manager. Updates as described above shall be required for all Project Schedule activities for which the CONSULTANT has been delegated responsibility. If any finish dates do not meet the original agreed upon early-finish dates in the baseline project schedule, the CONSULTANT will show how this time will be made up in the CONSULTANT successor activities. Upon the DEPARTMENT’s approval of the CONSULTANT’s requested changes to the schedule, a new baseline schedule will be approved.

1.22 Submittals

The CONSULTANT shall furnish the technical reports and the Environmental Document as required by the PD&E Manual. Additionally, the CONSULTANT will prepare or upload all final submittals and appropriate supporting project files to the StateWide Environmental Project Tracker (SWEPT) upon completion of technical reports and Environmental Document and as directed by the DEPARTMENT.

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.

One (1) week prior to each Phase Plans document submittal, the CONSULTANT shall submit, for the DEPARTMENT Project Manager’s review and approval, one (1) electronic and one (1) hard copy of the Phase Plans document submittal. The CONSULTANT shall not submit the remaining electronic and hard copy of the Phase Plans document submittal to the DEPARTMENT until the DEPARTMENT Project Manager provides written approval to submit the remaining copies of the Phase Plans document submittal.

Each CONSULTANT document submittal shall be accompanied by a completed Quality Control Checklist form indicating the document submittal items that have been checked and back-checked, and shall be signed by the Project Manager, Quality Control Checker, and the Quality Control Back-checker. Each SUBCONSULTANT document submittal shall be checked by a Quality Control Independent Peer Review by the CONSULTANT. The Project Manager and the responsible Professional Engineer, Landscape Architect, or Professional Surveyor that performed the Quality Control Peer Review will sign a statement certifying that the review was conducted. All of the above documents will be provided to the DEPARTMENT in both a hard copy format and a pdf file format.

For each Plans Phase submittal, the electronic submittal shall be provided on a CD or DVD in a format to be provided by or approved by the DEPARTMENT. This CD or DVD shall contain not only all of the electronic design files for each Plans Phase submittal, it shall also contain all of the document pdf files for each document submittal to the DEPARTMENT to date, to include the above mentioned Quality Control Certification and Checklist forms, in a format to be provided or approved by the DEPARTMENT. The submittal CD or DVD should contain the following information:

- **Current Submittal**
- **Previous Submittals**
- **Contract Documents**
- **Project Management**
  - Field Reviews & Photos
  - Meeting Minutes
  - Progress Reports

Prior to each Phase Plans or document submittal, the CONSULTANT shall verify with the DEPARTMENT Project Manager the number of CD’s / DVD’s and hardcopies required.
For all other submittals, the CONSULTANT shall provide the electronic file(s) to the DEPARTMENT as an email file attachment, or if file size does not allow, either the DEPARTMENT File Transfer Appliance or the FDOT FTP system.

1.23 Provisions for Work

The services performed by the CONSULTANT must comply with all applicable DEPARTMENT manuals and guidelines. 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 (identified in this Section) 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, which include, but are not limited to, publications such as:

- General
  - 29 C.F.R. 1926.1101 – Asbestos Standards for Construction, OSHA
  - 40 C.F.R. 61, Subpart M – National Emission Standard for Hazardous Air Pollutants (NESHAP), Environmental Protection Agency (EPA)
  - 40 C.F.R. 763, Subpart E – Asbestos-Containing Materials in Schools, EPA
  - 40 C.F.R 763, Subpart G – Asbestos Worker Protection, EPA
  - Americans with Disabilities Act (ADA) Standards for Accessible Design
  - AASHTO – A Policy on Design Standards Interstate System
  - AASHTO – Roadside Design Guide
  - AASHTO – Roadway Lighting Design Guide
  - AASHTO – A Policy for Geometric Design of Highways and Streets
  - AAHSTO – Highway Safety Manual
  - Rule Chapter 5J-17, Florida Administrative Code (F.A.C.), Standards of Practice for Professional Surveyors and Mappers
  - Chapter 469, Florida Statutes (F.S.) – Asbestos Abatement
  - Rule Chapter 62-257, F.A.C., Asbestos Program
  - Rule Chapter 62-302, F.A.C., Surface Water Quality Standards
  - Code of Federal Regulations (C.F.R.)
  - Florida Administration Code (F.A.C.)
  - Chapters 20, 120, 215, 455, Florida Statutes (F.S.) – Florida Department of Business & Professional Regulation Rules
  - Florida Department of Environmental Protection Rules
  - FDOT Basis of Estimates Manual
  - FDOT Computer Aided Design and Drafting (CADD) Manual
  - FDOT Standard Plans
  - FDOT Flexible Pavement Design Manual
  - FDOT – Florida Roundabout Guide
  - FDOT Handbook for Preparation of Specifications Package
  - FDOT Standard Plans Instructions
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- FDOT Materials Manual
- FDOT Pavement Type Selection Manual
- FDOT Design Manual
- FDOT Procedures and Policies
- FDOT Procurement Procedure 001-375-030, Compensation for Consultant Travel Time on Professional Service Agreement
- FDOT Project Development and Environment Manual
- FDOT Project Traffic Forecasting Handbook
- FDOT Public Involvement Handbook
- FDOT Rigid Pavement Design Manual
- FDOT Standard Specifications for Road and Bridge Construction
- FDOT Utility Accommodation Manual
- Manual on Speed Zoning for Highways, Roads, and Streets in Florida
- Federal Highway Administration (FHWA) – Manual on Uniform Traffic Control Devices (MUTCD)
- FHWA Roadway Construction Noise Model (RCNM) and Guideline Handbook
- Florida Fish and Wildlife Conservation Commission – Standard Manatee Construction Conditions 2005
- Florida Statutes (F.S.)
- Florida’s Level of Service Standards and Guidelines Manual Planning
- Model Guide Specifications – Asbestos Abatement and Management in Buildings, National Institute for Building Sciences (NTBS)
- Quality Assurance Guidelines
- Safety Standards
- Any special instructions from the DEPARTMENT

- Roadway
  - FDOT – Florida Intersection Design Guide
  - FDOT – Project Traffic Forecasting Handbook
  - FDOT – Quality/Level of Service Handbook
  - Florida’s Level of Service Standards and Highway Capacity Analysis for the SHS
  - Transportation Research Board (TRB) – Highway Capacity Manual

- Permits
  - Chapter 373, F.S. – Water Resources
  - US Fish and Wildlife Service Endangered Species Programs
  - Florida Fish and Wildlife Conservation Commission Protected Wildlife Permits
  - Bridge Permit Application Guide, COMDTPUB P16591.3C
  - Building Permit

1b PROJECT DESCRIPTION
A-19
• Drainage
  - FDOT Bridge Hydraulics Handbook
  - FDOT Culvert Handbook
  - FDOT Drainage Manual
  - FDOT Erosion and Sediment Control Manual
  - FDOT Exfiltration Handbook
  - FDOT Hydrology Handbook
  - FDOT Open Channel Handbook
  - FDOT Optional Pipe Material Handbook
  - FDOT Storm Drain Handbook
  - FDOT Stormwater Management Facility Handbook
  - FDOT Temporary Drainage Handbook
  - FDOT Drainage Connection Permit Handbook
  - FDOT Bridge Scour Manual

• Survey and Mapping
  - All applicable Florida Statutes and Administrative Codes
  - Applicable Rules, Guidelines, Codes and authorities of other Municipal, County, State and Federal Agencies.
  - FDOT Aerial Surveying Standards for Transportation Projects Topic 550-020-002
  - FDOT Right of Way Mapping Handbook
  - FDOT Surveying Procedure Topic 550-030-101
  - Florida Department of Transportation Right of Way Procedures Manual
  - Florida Department of Transportation Surveying Handbook
  - Right of Way Mapping Procedure 550-030-015

• Traffic Engineering and Operations and ITS
  - AASHTO – An Information Guide for Highway Lighting
  - AASHTO – Guide for Development of Bicycle Facilities
  - FHWA Standard Highway Signs Manual
  - FDOT Manual on Uniform Traffic Studies (MUTS)
  - FDOT Median Handbook
  - National Electric Safety Code
  - National Electric Code

• Florida’s Turnpike Enterprise
  - Florida’s Turnpike Plans Preparation and Practices Handbook (TPPPH)
  - Florida’s Turnpike Lane Closure Policy
  - Florida’s Turnpike Drainage Manual Supplement
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FPID(S): 436680-1-22-01, 436680-1-32-01  

- Rigid Pavement Design Guide for Toll locations with Electronic Toll Collection  
- Flexible Pavement Design Guide for Toll Locations with Electronic Toll Collection  
- Florida’s Turnpike General Tolling Requirement (GTR)  
- Additional Florida’s Turnpike Enterprise standards, guides, and policies for design and construction can be found on the FTE Design Website: http://design.floridasturnpike.com  

- Traffic Monitoring  
  - American Institute of Steel Construction (AISC) Manual of Steel Construction, referred to as “AISC Specifications”  
  - American National Standards Institute (ANSI) RP-8-00 Recommended Practices for Roadway Lighting  
  - AASHTO AWS D1.1/ANSI Structural Welding Code – Steel  
  - AASHTO D1/5AWS D1.5 Bridge Welding Code  
  - FHWA Traffic Detector Handbook  
  - FDOT General Interest Roadway Data Procedure  
  - FHWA Traffic Monitoring Guide  
  - FDOT’s Traffic/Polling Equipment Procedures  

- Structures  
  - AASHTO Load and Resistance Factor Design (LFRD) Bridge Design Specifications and Interims  
  - AASHTO LRFD Movable Highway Bridge Design Specifications and Interims  
  - AASHTO Standard Specifications or Structural Supports for Highway Signs, Luminaires and Traffic Signals, and Interims  
  - AASHTO/AA-W/D1.5M/D1.5: An American National Standard Bridge Welding Code  
  - AASHTO Guide Specifications for Structural Design of Sound Barriers  
  - AASHTO Manual for Condition Evaluation and Load and Resistance Factor Rating (LFFR) of Highway Bridges  
  - FDOT Bridge Load Rating Manual  
  - FDOT Structures Manual  
  - FDOT Structures Design Bulletins (available on FDOT Structures website only)  

- Geotechnical  
  - FHWA Checklist and Guidelines for Review of Geotechnical Reports and Preliminary Specifications  
  - Manual of Florida Sampling and Testing Methods  
  - Soils and Foundation Handbook
• Landscape Architecture
  o Florida Department of Agriculture and Consumer Services Grades and Standards for Nursery Plants

• Architectural
  o Building Codes
  o Florida Building code
    ▪ Building
    ▪ Fuel Gas
    ▪ Mechanical
    ▪ Plumbing
    ▪ Existing Building
  o Florida Accessibility Code for Building Construction
  o Rule Chapter 60D, F.A.C., Division of Building Construction
  o Chapter 553, F.S. – Building Construction Standards
  o ANSI A117.1 2003 Accessible and Usable Building and Facilities
  o Titles II and III, Americans with Disabilities Act (ADA), Public Law 101-336, and the ADA Accessibility Guidelines (ADAAG)

• Architectural – Fire Codes and Rules
  o NFPA 70 – National Electrical Code
  o NFPA 101 – Life Safety Code
  o NFPA 10 – Standard for Portable Fire Extinguishers
  o NFPA 11 – Standard for Low-Expansion Foam System
  o NFPA 11A – Standard for High and Medium Expansion Foam Systems
  o NFPA 12 – Standard for Carbon Dioxide Extinguishing Systems
  o NFPA 13 – Installation of Sprinkler Systems
  o NFPA 30 – Flammable and Combustible Liquid Code
  o NFPA 54 – National Gas Fuel Code
  o NFPA 58 – LP-Gas Code
  o Florida Fire Prevention Code as adopted by the State Fire Marshal – Consult with the Florida State Fire Marshal’s Office for other frequently used codes.

• Architectural – Extinguishing Systems
  o NFPA 10 – Fire Extinguishers
  o NFPA 13 – Sprinkler
  o NFPA 14 – Standpipe and Hose System
  o NFPA 17 – Dry Chemical
  o NFPA 20 – Centrifugal Fire Pump
  o NFPA 24 – Private Fire Service Mains
  o NFPA 200 – Standard on Clean Agent Fire Extinguishing Systems
Architectural – Detection and Fire Alarm Systems
  o NFPA 70 – Electrical Code
  o NFPA 72 – Standard for the Installation, Maintenance and Use of Local Protective Signaling Systems
  o NFPA 72E – Automatic Fire Detectors
  o NFPA 72G – Installation, Maintenance, and Use of Notification Appliances
  o NFPA 72H – Testing Procedures for Remote Station and Proprietary Systems
  o NFPA 74 – Household Fire Warning Equipment
  o NFPA 75 – Protection of Electronic Computer Equipment

Architectural – Mechanical Systems
  o NFPA 90A – Air Conditioning and Ventilating Systems
  o NFPA 92A – Smoke Control Systems
  o NFPA 96 – Removal of Smoke and Grease Laden Vapors from Commercial Cooking Equipment
  o NFPA 204M – Smoke and Heating Venting

Architectural – Miscellaneous
  o NFPA 45 - Laboratories Using Chemicals
  o NFPA 80 – Fire Doors and Windows
  o NFPA 88A – Parking Structures
  o NFPA 105 – Smoke and Draft-control Door Assemblies
  o NFPA 110 – Emergency and Standby Power Systems
  o NFPA 220 – Types of Building Construction
  o NFPA 241 – Safeguard Construction, Alternation, and Operations
  o Rule Chapter 69A-47, F.A.C., Uniform Fire Safety for Elevators
  o Rule Chapter 69A-51, F.A.C., Boiler Safety

Architectural – Energy Conservation
  o Rule Chapter 60D-4, F.A.C., Rules for Construction and Leasing of State Buildings to Insure Energy Conservation
  o Section 255.255, F.S. Life Cycle Costs

Architectural – Elevators
  o Rule Chapter 61C-5, F.A.C., Florida Elevator Safety Code
  o ASME A-17.1, Safety Code for Elevators and Escalators

Architectural – Floodplain Management Criteria
o Section 255.25, F.S., Approval Required Prior to Construction or Lease of Building
o Rules of the Federal Emergency Management Agency (FEMA)

• Architectural – Other
  o Rule Chapter 64E-6, F.A.C., Standards for On Site Sewage Disposal Systems (Septic Tanks)
  o Rule Chapter 62-600, F.A.C., Domestic Wastewater Facilities
  o Rule Chapter 62-761, F.A.C., Underground Storage Tank Systems
  o American Concrete Institute
  o American Institute of Architects – Architect’s Handbook of Professional Practice
  o American Society for Testing and Materials – ASTM Standards
  o Brick Institute of America
  o DMS – Standards for Design of State Facilities
  o Florida Concrete Products Association
  o FDOT – ADA/Accessibility Procedure
  o FDOT – Building Code Compliance Procedure
  o FDOT – Design Build Procurement and Administration
  o LEED – (Leadership in Energy and Environmental Design) Green Building Rating Systems
  o National Concrete Masonry Association
  o National Electrical Code
  o Portland Cement Association – Concrete Masonry Handbook
  o United States Green Building Council (USGBC)

1.24 Services to be Performed by the DEPARTMENT

When appropriate and/or available, the DEPARTMENT will provide project data including:

• Numbers for field books.
• Preliminary Horizontal Network Control.
• Access for the CONSULTANT to utilize the DEPARTMENT’s Information Technology Resources.
• All Department agreements with Utility Agency Owner (UAO).
• All certifications necessary for project letting.
• Building Construction Permit Coordination (Turnpike)
• All information that may come to the DEPARTMENT pertaining to future improvements.
• All future information that may come to the DEPARTMENT during the term of the CONSULTANT’s Agreement, which in the opinion of the DEPARTMENT is necessary for the prosecution of the work.
• Available traffic and planning data.
• All approved utility relocations.
• Project utility certification to the DEPARTMENT’s Central Office.
• Any necessary title searches.
• Engineering standards review services.
• All available information in the possession of the DEPARTMENT pertaining to utility companies whose facilities may be affected by the proposed construction.
• All future information that may come to the DEPARTMENT pertaining to subdivision plans so that the CONSULTANT may take advantage of additional areas that can be utilized as part of the existing right of way.
• Project traffic for Design Year, with K, D, and T factors.
• Previously constructed Highway Beautification or Landscape Construction Plans.
• Landscape Opportunity Plan(s).
• Existing right of way maps.
• Existing cross slope data for all RRR projects.
• Existing pavement evaluation report for all RRR projects.
• Design Reports.
• Letters of authorization designating the CONSULTANT as an agent of the DEPARTMENT in accordance with F.S. 337.274.
• Phase reviews of plans and engineering documents.
• Regarding Environmental Permitting Services: Approved Permit Document when available, and Approval of all contacts with environmental agencies
• General philosophies and guidelines of the DEPARTMENT to be used in the fulfillment of this contract. Objectives, constraints, budgetary limitations, and time constraints will be completely defined by the Project Manager.
• Appropriate signatures on application forms.
• Lead and participate in coordination efforts with Public Transit Office, Office of Environmental Management, Federal Transit Administration, environmental resource and regulatory agencies, the public and other stakeholders, as appropriate.
• Efficient Transportation Decision Making (ETDM) Programming Summary Report
• Crash data
• Traffic counts
• Review of technical reports and Environmental Document
• Right of Way cost estimates
2a PROJECT COMMON AND PROJECT GENERAL TASKS

2a.1 Project Common Tasks

Project Common Tasks, as listed below, are work efforts that are applicable to many project activities, 3 (PD&E Study) 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 shall be responsible for producing a construction cost estimate and reviewing and updating the cost estimate at a minimum of two (2) times per year and/or when scope changes occur and/or at milestones of the project. Prior to Phase II Plans and completion of quantities, the CONSULTANT shall prepare cost estimates for the comparison of alternatives. The CONSULTANT will use the DEPARTMENT’s Long-Range Estimate (L.R.E.) system to develop construction cost estimates. The CONSULTANT will obtain right of way cost from the DEPARTMENT for use in the comparison of alternatives.

Once the quantities have been developed (beginning at Phase II Plans and no later than Phase III Plans) the CONSULTANT shall be responsible for inputting the pay items and quantities 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 shall be prepared with all required Phase II, III, and IV Plans submittals.

Technical Special Provisions: The CONSULTANT shall provide Technical Special Provisions for all items of work not covered in 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.

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. [Identify and list out number of anticipated field visits; i.e. preliminary, 60% / 90% plans in hand review]

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 environmental resource agencies meetings, access management meetings, pavement design meetings, local governments meetings, railroads coordination meetings, airports coordination meetings, 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 the CONSULTANT, including their subconsultant(s), are held responsible for their work, including plans review. The purpose of CONSULTANT plan reviews is to ensure that the PD&E study and contract plans are prepared in accordance with the PD&E Manual and the plan preparation procedures outlined in the FDOT Design Manual. 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.

It is the CONSULTANT’S responsibility to independently and continually QC their plans, Environmental Document, and other deliverables. The CONSULTANT should regularly communicate with the DEPARTMENT’s 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 technical reports, surveys, designs, drawings, specifications and other services furnished by the CONSULTANT and their subconsultant(s) under this contract. The CONSULTANT will independently and continually review deliverables for accuracy and completeness.

The CONSULTANT shall provide a Quality Control Plan that describes the procedures to be utilized to verify, independently check, and review the Environmental Document, technical reports, 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 for engineering reports and design plans shall be a Florida Licensed Professional Engineer, Landscape Architect, or Professional Surveyor and Mapper fully prequalified under F.A.C. 14-75, F.A.C 5J-17, or 61G10-15.001 in the work type being reviewed. A marked up set of prints from a Quality Control Review indicating the reviewers for each component (PD&E, 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 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 environmental document, 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/Biddability 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/Biddability 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 for Road and Bridge Construction, and CADD Manual. The Constructability/Biddability Review shall ensure the project can be constructed and paid for as designed. Constructability/Biddability 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/Biddability reviews. These items will be reviewed by District Design and District Construction Offices.

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. The CONSULTANT shall coordinate with other segments within the corridor to establish design consistency within the corridor.

Communication: The default method of communication with the DEPARTMENT for the project is email. The CONSULTANT shall use the phone and/or letters for communication with the DEPARTMENT only for urgent and/or sensitive issues, or
issues that cannot be efficiently communicated by email.

All emails sent by the CONSULTANT to the DEPARTMENT shall conform to the following subject line format: FPID: 999999-1 \ Description \ County – Subject.

The CONSULTANT shall provide, within one (1) work day, an email response to each email request for services and/or information received from the DEPARTMENT, and shall include in that response an acknowledgment of receipt, understanding of the request, and an estimated time for delivery for the services and/or information requested. Whenever possible, the CONSULTANT shall provide a response to the email request for services from the DEPARTMENT using the option “Reply with History – To All Copied”.

2a.2 Project General Tasks

Project General Tasks, described in Sections 2.2.1 through 2.2.13, 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.

2a2.1 Joint Project Agreements

When the Joint Project Agreement (JPA) deliverable is not prepared by the CONSULTANT, services may include all coordination, meetings, etc., required to ensure compatibility, include JPA documents in the contract plans package and include the JPA documents in the digital delivery package.

2a2.2 Specifications Package Preparation

The CONSULTANT shall prepare and provide a specifications package in accordance with the DEPARTMENT’S Procedure Topic No. 630-010-005 Specifications Package Preparation and the Specifications Handbook. The CONSULTANT shall provide the DEPARTMENT names of at least two team members who have successfully completed the Specifications Package Preparation Training and will be responsible for preparing the Specifications Package for the project. The Specifications Package shall be prepared using the DEPARTMENT’s Specs on the Web application. The CONSULTANT shall be able to document that the procedure defined in the Handbook for the Preparation of Specifications Packages is followed, which includes the quality assurance/quality control procedures. The specifications package shall address all items and areas of work and include any Mandatory Specifications, Modified Special Provisions, and Technical Special Provisions.

The specifications package must be submitted for review to the District Specifications Office at least 30 days prior to the contract package to Tallahassee or District due date, or sooner if required by the District Specifications Office. This submittal does not require signing and sealing and shall be coordinated through the District’s Project Manager. The CONSULTANT shall coordinate with the DEPARTMENT on the submittal requirements, but at a minimum, shall consist of (1) the complete specifications package, (2) a copy of the marked-up workbook used to prepare the package, and (3) a copy of the final project plans.
Final submittal of the specifications package must occur at least 10 working days prior to the contract package to Tallahassee due date. This submittal shall be digitally signed, dated, and sealed in accordance with applicable Florida Statutes.

2a.2.3 Contract Management

The CONSULTANT is responsible for maintaining Project files, including copies of submittals and underlying data, electronic folders and documents, calculations, information and supporting project documentation. The CONSULTANT is responsible for preparing monthly progress reports and schedule updates.

2a.2.4 Value Engineering (Multi-Discipline Team) Review

_The design for this project will be subjected to a Value Engineering (VE) review._ The VE review will be conducted by a multi-disciplined independent team of DEPARTMENT and CONSULTANT personnel for the purpose of improving the value of the project.

The CONSULTANT shall develop the project using sound value engineering practices to the fullest extent possible, in order to evaluate impacts and support appropriate design decisions in producing the contract plans for the most efficient and economical design.

Value Engineering is an event-related activity and should occur at a time when it will provide the greatest opportunity for value improvement, as determined by the Department Project Manager and Value Engineering Coordinator. The VE study will be performed during preparation of Phase I design plans and prior to completion of Draft Environmental Documents. VE recommendations shall be included in the PD&E’s comparative alternatives evaluation and the Environmental Document.

Activities required by the CONSULTANT in support of the VE team are:

The CONSULTANT shall allow ample time for the appropriate knowledgeable members of their staff to present alternatives development, design documentation and data to the VE team.

The Consultant Project Manager and other key members of the project team shall meet with the VE team to explain the development of the recommended alternative and design features and how and why they were selected. The information will be provided in the form of a personal verbal presentation and the submittal of a package containing current plans and other documentation. This presentation will take place at the location of the VE study and may be followed up with additional meetings, written communications and phone enquiries.

Information and data that should be available to the VE Team include, but is not limited to the following:

- One copy of the Draft Environmental Document
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- One copy of the Draft Preliminary Engineering Report and all technical reports used to prepare the Environmental Document
- Three sets of all plan drawings
- Drainage alternatives information
- One copy of Bridge Development Reports
- One copy of the Pavement Design Package
- One copy of other miscellaneous reports
- Project Cost Estimate

The Project Cost Estimate shall include a tabulation of estimated construction costs for the recommended alternative and proposed design feature. This list shall, at a minimum, contain a breakdown of costs for each major element of the design.

The CONSULTANT shall provide, in the form of a matrix, criteria and weighted impacts used in arriving at decisions for the selection of specific design features. These criteria must include Safety, Operation, Environment, Maintenance and Public Acceptance.

All reports provided by the CONSULTANT will be returned after the VE review has been completed. However, copies of plans and drawings may be kept by the VE team.

2a.2.5 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 2a.2.5 on tab 2a -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.

For all meetings attended, the CONSULTANT will be responsible for developing agenda, sign-in sheets and preparation and submittal of the meeting minutes to the DEPARTMENT’s Project Manager for review.

2a.2.6 Plans Update

The effort needed for Plans Update services will vary from project to project, depending on size and complexity of the project, as well as the duration of time spent “on the shelf”.

Specific services will be negotiated as necessary as a contract amendment.

2a.2.7 Post Design Services

Post Design Services may include, but not limited to, meetings, site visits, construction assistance, plans revisions, shop drawing review, survey services, as-built drawings, and load ratings. Specific services will be defined and negotiated at a later date as necessary as a contract amendment.
Post Design Services are not intended for instances of CONSULTANT errors and/or omissions.

2a.2.8 Digital Delivery

As directed by the DEPARTMENT, the CONSULTANT will upload all final submittals and appropriate project files that support the Environmental Document to the StateWide Environmental Project Tracker (SWEPT).

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.

2a.2.9 Risk Assessment Workshop

This project will be subject to Risk Assessment (RA) and Management for the purpose of identifying, quantifying and managing the potential cost and schedule risks of the project. The RA for this project will be managed by the DEPARTMENT Project Manager and supported by a multi-disciplined team (RA Team) of DEPARTMENT and CONSULTANT personnel and subject-matter experts (SMEs). The DEPARTMENT Project Manager will be the lead for the RA Team.

There will be a Risk Assessment (RA) Workshop and workshop related meetings during the development of the project. The Workshop will generally occur before completion of Phase I design plans (right after the recommended alternative is identified), but may occur at any time during the development of a project as determined by the DEPARTMENT Project Manager. The DEPARTMENT Project Manager will develop a Risk Register following the Workshop, and utilize the Risk Register throughout the life of the project to mitigate and manage the risks.

The CONSULTANT (and key subconsultant(s) if applicable), and other key members of the design team will attend and participate in the Risk Assessment Workshop for this project. This will involve a Risk Preparatory Session (half-day to 1 day plus information assessment), a Risk Assessment Workshop (1 to 3 days), and Risk Follow-Up Meeting (half-day to 1 day).

The CONSULTANT and other key members of the design team will attend and participate in associated follow-up RA meetings (approximately one meeting every three to six months as deemed necessary) with the DEPARTMENT Project Manager (and RA team if applicable) to discuss the risks, mitigation strategies and any updates to the Risk Register. This includes written communications and phone inquiries. The CONSULTANT will coordinate with subconsultants who need to attend the Workshop and associated meetings.

CONSULTANT shall provide the RA Team meeting materials that are deemed necessary by the Department Project Manager to conduct the Workshop and associated meetings. The meeting materials include the following:
One copy of the Draft Environmental Document
One copy of the Draft Preliminary Engineering Report and all technical reports used to prepare the Environmental Document
Three sets of all plan drawings
Drainage alternatives information
One copy of Bridge Development Reports
One copy of Pavement Design Package
One copy of other miscellaneous reports
Project Schedule
Project Cost Estimate

Project Cost Estimate shall include a tabulation of estimated construction costs for the proposed design, and a breakdown of costs for each major element of the design, such as Right of Way, Design, CEI, Utilities, JPA/LAP funds, etc.

The CONSULTANT shall allow ample time for the appropriate knowledgeable members of their staff to prepare and provide current design documentation and data. All reports provided by the CONSULTANT will be returned after the RA Workshop has been completed; however, copies of plans and drawings may be kept by the RA team. The CONSULTANT will be responsible for providing follow-up actions as necessary.

2a.2.10 Railroad, Transit and/or Airport Coordination

[Provide project specific information or N/A]

2a.2.11 Landscape and Existing Vegetation Coordination

 Coordinate to ensure preservation and protection of existing vegetation. Relocation of existing vegetation may be necessary in some cases. Space for proposed landscape should be preserved and conflicts with drainage, utilities, ITS, and signage should be minimized. Coordination with the District Landscape Architect may be necessary as defined in 4.12. Additionally, coordination with the Florida Scenic Highways program should be included to ensure any requirements of the FSH program are met.

2a.2.12 Other Project General Tasks

[Describe other project general tasks or N/A]
2b PUBLIC INVOLVEMENT

Public involvement includes communicating to and receiving input from all interested persons, groups, and government organizations information regarding the development of the project. Public involvement activity covers both PD&E and Design phases of the Project. The CONSULTANT shall provide to the DEPARTMENT drafts of all Public Involvement documents (i.e., newsletters, property owner letters, advertisements, etc.) associated with the following tasks for review and approval at least 10 business days prior to printing and/or distribution.

2b.1 Public Involvement Plan

The CONSULTANT will prepare the Public Involvement Plan (PIP) in accordance with Part 1, Chapter 11 of the PD&E Manual using existing work developed by the DEPARTMENT as a starting reference. The PIP must include a public involvement schedule and identify potentially affected stakeholders and communities near the Project area, and establish the appropriate outreach methods. This includes consideration of the demographics of the Project area and any reasonable accommodations including, but not limited to, disabled, transit-dependent, limited English proficient (LEP), elderly, low income, or minority. The CONSULTANT will review and attach the Sociocultural Data Report (SDR) to the PIP. A sample template for the PIP is located in Part 1, Chapter 11 of the PD&E Manual.

The PIP should be updated throughout the PD&E and design for use during the construction phase in accordance with FDM Chapter 104. At the conclusion of the PD&E phase, the CONSULTANT will update the PIP to include the following:

- Community concerns/issues
- Discussion of construction schedule and maintenance of traffic.
- Public involvement level
- Proposed public involvement activities during construction

2b.2 Public Involvement Data Collection

The CONSULTANT will assist the DEPARTMENT in collecting data specific to the public involvement process and preparing responses to any public inquiries received throughout the development of the Project. The Consultant will maintain and regularly update the public involvement file, which will document a record of all public involvement activities for this Project.

The CONSULTANT will work with the DEPARTMENT to generate or obtain mailing labels of property owners using the ETDM Environmental Screening Tool (EST) and the County Property Appraiser’s Offices. At the beginning of the project, the CONSULTANT shall prepare a mailing list of all such entities and shall update the mailing list as needed during the life of the project. The CONSULTANT shall also prepare and maintain an email list for those who do not provide a postal address.

The CONSULTANT shall identify and include in the Project mailing list all impacted property owners and tenants located within a minimum of 300 feet of either side of the
centerline of each Project alternative. The CONSULTANT also will identify and include in the Project mailing list local elected and appointed public officials; interested parties (any person or institution expressing an interest in the project); local citizens who may be impacted by the project; and potential permit and review agencies.

2b.3 Scheduled Public Meetings

The CONSULTANT will assist the DEPARTMENT in conducting various public meetings, which may be conducted during weekends or after normal working hours. The CONSULTANT will support the DEPARTMENT in preparation, scheduling, attendance, note taking, documentation, and follow-up services for each meeting.

It is estimated there will be [2] Public meetings (not including the public hearing) during development of the project. The following public meetings are anticipated to be scheduled to support PD&E phase for this Project:

- Alternatives Public Meeting
- Final Design Public Meeting

The CONSULTANT will investigate potential meeting locations to advise the DEPARTMENT of their suitability. The DEPARTMENT will ultimately approve the meeting location. The CONSULTANT will pay the cost for renting meeting venue and insurance (if required).

The CONSULTANT will be responsible for logistics associated with setting up the meeting. The DEPARTMENT will approve the meeting format developed by the Consultant.

For any of the listed meetings, the CONSULTANT will prepare the following:

- Agenda
- PowerPoint slides and presentation scripts
- Handouts
- Graphics (creative design exhibits) for presentation
- Meeting equipment set-up and tear-down
- Display advertisements (Local Newspaper and Florida Administrative Register)
- Display boards (and/or use of Smart Screens)
- Letters for notification of elected and appointed officials, and other interested parties. The letters will be prepared by the CONSULTANT. The DEPARTMENT will send them by email.
- Meeting announcements/newsletters to be sent to all listed on the project’s mailing list
- News releases or project fact sheets. The DEPARTMENT must review new releases and fact sheets at least two (2) weeks before the meeting or mail out
- Meeting summaries provided to the DEPARTMENT no earlier than ten (10) calendar days after the meeting
- Response letters for DEPARTMENT signature on public comments

Any materials prepared by the CONSULTANT for such meetings as listed above are subject to review and approval by the DEPARTMENT. The CONSULTANT shall
provide the DEPARTMENT with a draft of any proposed materials at least ten (10) business days prior to the meeting.

The CONSULTANT will assist the DEPARTMENT when facilitating the public meetings or workshops to present Project results and obtain comments related to the Project. The CONSULTANT will attend such meetings or workshops with a suitable number of personnel with appropriate technical expertise (based on project issues), as authorized by the DEPARTMENT Project Manager.

The CONSULTANT will participate in briefing meetings with the DEPARTMENT staff related to the scheduled public meetings.

The DEPARTMENT may request the CONSULTANT to identify the effect of the Project to individual properties on aerial maps or plans in response to requests from property owners. The DEPARTMENT may also request the CONSULTANT to meet with individual property owners with DEPARTMENT representative in attendance as well.

2b.4 Other Public and Agency Meetings or Informal Meetings

In addition to scheduled public meetings the CONSULTANT may be required to participate in meetings with local governing authorities, Metropolitan Planning Organization (MPO), environmental resources agencies, Homeowner Association, and Key Stakeholders. 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 that there will be [15] meetings with agencies for both PD&E and design phases for this project.

2b.5 Median Modification Letters

The CONSULTANT shall prepare a median modification letter to be sent to property owners along the corridor. In addition, the CONSULTANT shall prepare a sketch of each proposed median modification for inclusion in the letter. The letters will be sent on DEPARTMENT letterhead by the [CONSULTANT].

2b.6 Driveway Modification Letters

The CONSULTANT shall prepare a driveway modification letter to be sent to property owners along the corridor. In addition, the CONSULTANT shall prepare a sketch of each proposed driveway modification for inclusion in the letter. The letters will be sent on DEPARTMENT letterhead by the [CONSULTANT].

2b.7 Public Hearing

The CONSULTANT will send notifications to the Lead Agency, local governments, and regulatory agencies at least 25 but no more than 30 calendar days prior to the public hearing date.

The CONSULTANT will prepare the public hearing notifications on the DEPARTMENT’s letterhead for DEPARTMENT review and signature 15 days prior to mailing or as directed by the DEPARTMENT. The CONSULTANT will first prepare an
initial sample draft notification for review and approval by the DEPARTMENT prior to submitting all notifications for review.

[Modify this paragraph (elected official notification) to match District process]

Notifications to elected officials will be signed by the District Director of Transportation Development. All other notifications may be signed by the District Environmental Manager or DEPARTMENT Project Manager. The DEPARTMENT will send the notification letters by email.

The CONSULTANT will prepare newsletters to notify the mailing list about the public hearing for DEPARTMENT review and signature 15 days prior to mailing or as directed by the DEPARTMENT. After the DEPARTMENT approves the newsletters, the CONSULTANT will send them by First Class US Mail. The CONSULTANT will obtain a list of names and addresses of property owners from the Environmental Screening Tool (EST) and/or Property Appraisers’ Offices. The newsletters must have the DEPARTMENT’s return address. The CONSULTANT will send notification letters to property owners at least 17 to 24 calendar days prior to the public hearing.

The CONSULTANT will provide the following:

- Public Hearing Notice and publication in the Florida Administrative Register
- Information for the DEPARTMENT’s Project Manager to fill out the notification on the Department’s Public Notice webpages through the District Public Information Officer
- Identification of the website(s) and/or locations where the technical reports and Environmental Documents will be available for public view
- Voiceover Presentation with script
- Moderator script
- Proposed typical sections and aerials depicting alternative corridors and alternative alignments, as specified by the DEPARTMENT using display boards and/or Smart Screens
- Hard copies of technical reports and Environmental Document
- Meeting location signs
- Brochures or handouts
- Title VI compliance signs
- NEPA Assignment compliance signs
- Security (off-duty law enforcement), if needed
- Display advertisements; any press releases and/or advertisements will indicate that the meeting is a DEPARTMENT activity; the CONSULTANT will pay the cost of publishing
- Expenses associated with arranging for a court reporter to be present and obtaining transcripts of comments made during the Public Hearing
- Response to public comments

The CONSULTANT will participate in briefing and debriefing meetings with the DEPARTMENT related to the Public Hearing. The CONSULTANT will prepare response letters for DEPARTMENT signature for all public comments. Any such response letters would need to be reviewed and approved by the DEPARTMENT Project Manager.
2b.8 Comments and Coordination Report

The CONSULTANT will prepare Comments and Coordination Report containing Public Hearing transcript, errata, and signed certification, as well as documentation for all public involvement activities conducted to support preliminary design and the PD&E study, in accordance with Part 1, Chapter 11 of the PD&E Manual.

During Final Design phase of the project, the CONSULTANT will prepare an addendum to the Comments and Coordination Report that will contain all public involvement activities conducted throughout the Design phase.

2b.9 Notification of Approved Environmental Document

The CONSULTANT shall prepare a display advertisement for the notification of the Approved Environmental Document. The CONSULTANT will pay for the cost of publishing. The DEPARTMENT must review and approve the notice prior to publication.

2b.10 Communication Aids

The CONSULTANT shall prepare materials to be used in the following communication aids:

Newsletters: The CONSULTANT shall prepare newsletters for distribution to the project mailing list. The letters will be sent by the CONSULTANT via First Class US Mail.

Rendering and fly through: The CONSULTANT shall prepare renderings and fly-throughs for use in public meetings

Simulation videos and visualizations: The CONSULTANT shall prepare simulation videos and visualization for use in public meetings

Frequently Asked Questions (FAQ): The CONSULTANT shall prepare FAQ for use in various public involvement activities per the DEPARTMENT direction.

Social media: The CONSULTANT shall create materials that will be uploaded by the DEPARTMENT to social media to facilitate project communication per the DEPARTMENT direction.

Web Site: The CONSULTANT will develop public involvement materials using the DEPARTMENT’s approved website template and submit the information to be uploaded to the DEPARTMENT’s project website. The CONSULTANT will provide updates for the website content as necessary, and at the approval of the DEPARTMENT. Content updates are usually completed on a set schedule, at project milestones, or when new information becomes available that should be made available to the public. The DEPARTMENT is responsible for approving content updates, and posting to the website as part of the website maintenance.

Radio/television: At the request of the DEPARTMENT, the CONSULTANT will be required to developed public informational materials for use in radio and television advertisements.
2b.11 Additional Public Involvement Requirements

The CONSULTANT will assist the DEPARTMENT on the following public involvement tasks:

[TBD].
The CONSULTANT shall perform preliminary engineering and environmental analysis tasks required to obtain the approval of the Environmental Document in accordance with the PD&E Manual and all applicable procedures and guidelines. The PD&E Manual satisfies state and federal processes and incorporates the requirements of the National Environmental Policy Act (NEPA); federal law, regulations, and Executive Orders included in the FHWA Federal-Aid Policy Guide; and applicable state laws and regulations including Section 339.155 of the Florida Statutes and Rule Chapter 14 of the Florida Administrative Code.

3a.1 Existing Conditions

3a.1.1 Previous Studies

The CONSULTANT shall review and summarize previously completed or concurrent planning studies and other studies that are related to this Project and appropriately incorporate their results in the analysis of the Project as described in the PD&E Manual.

The following studies were conducted for this project: [Barrier Island Traffic Study]

The CONSULTANT will review the adequacy of existing traffic data from planning studies to carry out traffic analysis for this project. If there are data gaps, the CONSULTANT must collect additional data for the Study Area.

The CONSULTANT will review and document the location and condition of existing pedestrian, bicycle, and public transit accommodations and freight services in the study area. This activity includes reviewing existing plans, reports, and studies that outline strategies or define projects associated with each alternative.

3a.1.2 Existing Conditions Analysis

The CONSULTANT will conduct field observations to review existing field conditions, verify desktop data, and obtain additional data required to understand the Project area, assess Project needs, identify physical and environmental constraints, develop and analyze Project alternatives, and assess constructability issues.

The CONSULTANT will collect data describing existing conditions and characteristics of the project including roadway geometrics, typical section elements, signalization other operational features, access features, and right of way requirements, and other data applicable to modes and sub-modes of transportation including walking/pedestrians, bicyclists, public transit users (including transit vehicles and riders), paratransit users, freight (including loading/unloading and parking, emergency response vehicles, service vehicles, and freight handler vehicles.)
The CONSULTANT will analyze the existing conditions to identify and verify current transportation deficiencies as they relate to the needs and objectives of this Project.

### 3a.1.3 Base Maps

The CONSULTANT will produce a base map of the project area using the DEPARTMENT’s CADD standards.

The base map will contain an aerial photo and existing characteristics for the project. The base map must show location of environmental issues that are specific to the Study Area such as cemeteries, wetlands, historic properties, drainage, contamination sites, public parks, and property lines.

### 3a.2 Travel Demand Forecasting

The CONSULTANT shall collect data according to the DEPARTMENT Project Traffic Forecast procedure.

The development of future forecast volumes will use the most currently adopted version of the District 1 Regional Planning Model (D1RPM). The DEPARTMENT will validate the travel demand model at a subarea level using the data collected by the CONSULTANT.

No-Build Volumes; The DEPARTMENT will develop opening year and design year hourly volumes for the No-Build Alternative in accordance with the Project Traffic Forecasting Procedure, Topic No. 525-030-120. The need for interim year analysis will be determined in the traffic analysis methodology. Build Alternatives Volumes: The DEPARTMENT will develop opening year and design year design hour volumes only for viable or feasible Build Alternatives.

### 3a.3 Traffic Analysis

The CONSULTANT shall collect traffic data for existing conditions, forecast future year volumes, and analyze safety and operational characteristics of the Project alternatives according to the DEPARTMENT procedures.

#### 3a.3.1 Traffic Analysis Methodology

The CONSULTANT will perform traffic analysis in accordance with guidance from the PD&E Manual, Traffic Analysis Handbook, and Project Traffic Forecasting Handbook. The CONSULTANT will prepare a project traffic analysis methodology as agreed upon by the DEPARTMENT prior to beginning any analysis. The methodology will state the type of documentation, Project Study Area to be analyzed and method and assumptions that will be used to analyze existing and future traffic conditions.

Capacity analysis will be based on the latest Highway Capacity Manual (HCM) procedures. Use of micro-simulation traffic analysis software may be required for this project. Calibration and validation are required when a microscopic
A simulation approach is used. Data should be gathered in accordance with the Traffic Analysis Handbook.

Traffic analysis methodology will include an approach or procedure to evaluate safety performance of the project alternatives.

All traffic analysis documentation must be written in plain language and in a format that can be easily followed. The CONSULTANT must submit all traffic analysis files for assumptions, inputs, outputs, network data, calculation, and results to the DEPARTMENT.

3a.3.2 Traffic Counts

The CONSULTANT will work with the DEPARTMENT’s Systems Planning Office to prepare a traffic methodology to determine requirements for traffic data collection.

3a.3.3 Vehicle Classification Counts on Roadway Segments and Ramps

The CONSULTANT will work with the DEPARTMENT’s Systems Planning Office to prepare a traffic methodology to determine requirements for traffic data collection.

3a.3.4 Pedestrian, Bicycle, and Other Multimodal Data

The CONSULTANT will work with the DEPARTMENT’s Systems Planning Office to prepare a traffic methodology to determine requirements for traffic data collection.

3a.3.5 Speed and Delay Studies

The CONSULTANT will work with the DEPARTMENT’s Systems Planning Office to prepare a traffic methodology to determine requirements for traffic data collection.

3a.3.6 Calibration and Validation Data

The CONSULTANT will collect calibration and validation data for the Project analysis in accordance with the PD&E Manual and Traffic Analysis Handbook

3a.3.7 Existing Traffic Operational Analysis

The CONSULTANT will conduct existing (base year) traffic operational analysis and report the operational performance measures as agreed upon in the analysis methodology. The analysis must include bicycle, pedestrian, and transit (if applicable) operations. The manual count data will be used to obtain the existing design hourly volumes using historical and seasonal adjustments as appropriate. All existing design hourly volumes must be balanced before being used in the analysis. Oversaturated conditions and locations with complex geometry or operations may require microsimulation.

3a.3.8 Calibration and Validation

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If microsimulation is determined to be required, the CONSULTANT will calibrate and validate the microsimulation model using data and methodology as agreed upon in the analysis methodology.

3a.3.9 No-Build Analysis

The CONSULTANT will analyze the operational performance of the No-Build Alternative for the analysis years to identify deficiencies related to the purpose and need for the project. The CONSULTANT will evaluate the operational effectiveness of the No-Build Alternative using agreed upon performance measures of effectiveness (MOEs). The analysis should include multimodal evaluation for pedestrian, bicycle, freight, and transit modes, as appropriate.

3a.3.10 Development and Screening of Alternatives

The CONSULTANT will prepare design controls and criteria for developing Project alternatives according to the FDM.

The CONSULTANT will identify, develop, assess, and screen preliminary or potential alternatives that would meet the purpose and need for this Project in accordance with Part 2, Chapter 3 of the PD&E Manual. The CONSULTANT will prepare concept plans for all viable Project alternatives in appropriate scales overlaid on the base map to show important design features, right of way requirements, and environmental and geometric design constraints. The CONSULTANT shall include in the sketches only the minimum information needed to establish feasibility of each design concept as a Project alternative.

By considering Project purpose and need, results of ETDM Programming screening event, and constructability issues, the CONSULTANT in consultation with the DEPARTMENT will identify and document (in the alternatives evaluation memorandum) unfeasible alternatives to be eliminated from further detailed analysis. Only viable or feasible alternatives should be carried forward for detailed analysis.

3a.3.11 Operational Evaluation of Build Alternatives

The CONSULTANT will analyze the operational performance of viable or feasible alternative(s) for opening and design years and any interim years as appropriate. The analysis must include multimodal evaluation for pedestrian, bicycle, and transit modes, as appropriate. The analysis will also include evaluation of access management and refinement of design concepts in relation to traffic safety and operational efficiency within the Study Area. The CONSULTANT will evaluate the operational effectiveness of Build Alternatives using agreed upon performance MOEs.

3a.3.12 Project Traffic Analysis Report

The CONSULTANT will prepare a Project Traffic Analysis Report as described in Part 2, Chapters 2 and 6 of the PD&E Manual.

3a.4 Interchange Access Request
3a.5 **Traffic Data for Noise Study**

The CONSULTANT will provide the following data for each road segment (i.e. intersection to intersection), ramps, cross streets, and frontage roads, for the existing year, opening year, and the design year for Build and No-Build alternatives:

- LOS C directional hourly volumes
- Demand peak hourly volumes (peak and off-peak directions)
- Existing and proposed posted speed
- Percentage of heavy trucks (HT) in the design hour
- Percentage of medium trucks (MT) in the design hour
- Percentage of buses in the design hour
- Percentage of motorcycles (MC) in the design hour

3a.6 **Traffic Data for Air Quality Analysis**

The CONSULTANT will collect traffic data required for the air quality analysis which will include the following:

- Intersection type and approach speed
- Intersections – peak hour volumes for each approach

3a.7 **Traffic Analysis near Railroad Crossings**

- N/A

3a.8 **Tolling Concepts**

- N/A

3a.9 **Safety Analysis**

3a.9.1 **Crash Data**

The CONSULTANT will obtain the most recent five (5) years of available data from the DEPARTMENT’s crash database and other local sources for this project. The crash data will include the number and type of crashes, crash locations, number of fatalities and injuries, and estimates of property damage and economic loss.

3a.9.2 **Data Driven Safety Analysis**

The CONSULTANT will perform safety analysis in accordance with Part 2, Chapter 2 of the PD&E Manual. Based on the information obtained from the crash data, the CONSULTANT will identify project safety needs associated with the existing and future conditions. The CONSULTANT will use the Highway

**3a PRELIMINARY ENGINEERING ANALYSIS**
3a.9.3 Safety Analysis Documentation

The CONSULTANT will document the results of the safety analysis in the PTAR or a standalone Safety Analysis Memorandum.

3a.10 Alternatives Evaluation

The CONSULTANT will analyze Build Alternative to a level of detail sufficient to evaluate and compare their performance against the No Build Alternative. Preliminary engineering analysis of the Build Alternative is covered in Activity 4.

3a.10.1 Comparative Alternatives Evaluation

The CONSULTANT will establish evaluation criteria at the beginning of the Project, which must be agreed upon with the DEPARTMENT before use in the comparative evaluation of alternatives. After developing the viable alternatives, analyzing alternatives and estimating costs, the CONSULTANT will prepare a matrix which compares the impacts, performance, and costs of the alternatives evaluated in detail in the PD&E Study. The matrix will include the performance of the No-Build Alternative as the baseline for comparison.

3a.10.2 Selection of Recommended Alternative(s)

The DEPARTMENT will select a recommended alternative based on review and analysis of engineering, environmental, and public involvement issues related to this Project.

3a.11 Alternatives Analysis Documentation

The CONSULTANT will document the results of alternatives analysis in the Preliminary Engineering Report (PER) that will be signed and sealed by a Professional Engineer. The CONSULTANT shall inform the DEPARTMENT on content and progress as necessary during development of the PER. The PER will be uploaded in SWEPT and included in the project design documentation.

The CONSULTANT shall include (in the project file) sufficient backup information comprising of all computer programs, calculations, and parameters used in the analyses to facilitate the review of the alternatives and progression of the recommended alternative to final design phase of the Project.
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Tasks described within this section are work efforts applicable to the environmental analysis and documentation for this Project. The CONSULTANT will analyze all viable Build Alternatives and the No Build Alternative with respect to impacts to natural, cultural, social and physical resources and document all analyses. Wherever appropriate the CONSULTANT will describe proposed measures to avoid, minimize, or mitigate project impacts on environmental resources. Additionally, the CONSULTANT will summarize results of the environmental analysis in the Environmental Document. The consultant will summarize in the Environmental Document the results of analysis of environmental resources that were completed as part of another study or performed by others concurrent with this project.

3b.1 Sociocultural Effects

The CONSULTANT will conduct a Sociocultural Effects (SCE) evaluation in accordance with Part 2, Chapter 4 of the PD&E Manual. The CONSULTANT will document the results of the SCE evaluation in the Environmental Document and in the Project file or in a stand-alone SCE report if required. If no involvement for a particular issue is indicated, then standard statements to that effect from Part 2, Chapter 4 of the PD&E Manual will be included in the Environmental Document.

3b.1.1 Social

- Community Cohesion: The CONSULTANT will identify and assess potential Project impacts on physical barriers, traffic pattern changes, social pattern changes, and loss of connectivity to community features and facilities.
- Special Community Designation: The CONSULTANT will identify and assess potential Project impacts on schools, churches, parks, emergency facilities, social services, daycare facilities, retirement centers, community centers, and retail locations.
- Safety/Emergency Response: The CONSULTANT will identify and assess potential Project impacts on the creation of isolated areas; emergency response time changes; and location of police, fire, emergency medical services, healthcare facilities, and government offices.
- Demographics: The CONSULTANT will identify and assess potential Project impacts on minority, LEP persons, disabled persons, low-income populations, and/or special populations within the Project area.
- Community Goals and Quality of Life: The CONSULTANT will identify and assess potential Project impacts on social value changes and compatibility with community goals and vision.

3b.1.2 Economic
o Business and Employment: The CONSULTANT will assess potential Project impacts to business and employment activity in the project area, including industries with special needs or significance, economic-oriented land use, economic development plans, special designations, and community development priorities. Assessment will also include identification of changes to routes, access, parking, or visibility that could benefit or impair businesses, employment centers, community facilities, or population.

o Property Values and Tax Base: The CONSULTANT will assess potential Project impacts on the tax base, employment opportunities, and property values.

3b.1.3 Land Use

The CONSULTANT will evaluate the Project’s consistency with the physical character of the area, state-managed lands, and applicable community plans.

3b.1.4 Mobility

The CONSULTANT will evaluate potential Project impact on mobility and accessibility regarding all transportation modes (i.e. pedestrian, bicycle, transit, freight and vehicle) in the Study Area.

3b.1.5 Aesthetics

The CONSULTANT will evaluate and summarize the Project’s effect on viewshed and vista, community focal points, historic structures, landmarks, and community character in accordance with the PD&E Manual.

3b.1.6 Relocation Potential

The consultant will identify residences, businesses, and institutional or community facilities that may require relocation to accommodate the Project. It is estimated that [0] parcels will require relocation. The CONSULTANT will obtain additional site-specific information needed to evaluate the effect of each Project alternative on the displacement of residences and businesses.

The CONSULTANT will collect the data and perform the analysis necessary to complete a Conceptual Stage Relocation Plan (CSRP) for the proposed alternatives according to Chapter 9 of the Right of Way Procedures Manual.

3b.1.7 Farmland

If applicable, the CONSULTANT will evaluate the data and document potential farmland impacts in accordance with Part 2, Chapter 6 of the PD&E Manual.

3b.2 Cultural Resources

The CONSULTANT will prepare a Research Design and Survey Methodology for the project, to be submitted to the DEPARTMENT for approval prior to the initiation of field
work. The CONSULTANT shall identify and map out the zones of probability for the Project Study Area, and identify any previously recorded resources. The Area of Potential Effect (APE) will be determined (including pond sites). The CONSULTANT will summarize each of the cultural resource issues in the Environmental Document. If no involvement for a particular issue is indicated, then a statement to that effect will be included. The CONSULTANT will use a professional qualified under the provisions of 36 CFR 61 in compliance with the national Historic Preservation Act of 1966 (Public Law 89-665, as amended) and the implementing regulations (36 CFR 800), as well as with the provisions contained in Chapter 267, Florida Statutes, to perform all work in this task.

The CONSULTANT will assess the direct and indirect effects and will document the severity of the following items in the Environmental Document and project file:

3b.2.1 Archaeological and Historic Resources

The CONSULTANT will identify and analyze impacts to the archaeological sites and historic resources within the Project’s Area of Potential Effect (APE). The APE must include potential pond sites. The CONSULTANT will prepare a research design methodology and perform a Cultural Resources Assessment Survey (CRAS) in accordance with Part 2, Chapter 8 of the PD&E Manual. All work will be documented and coordinated with appropriate agencies as per Part 2 Chapter 8 of the PD&E Manual and the DEPARTMENT’s Cultural Resource Management Handbook. In addition, attendance at public meetings may be required. The CONSULTANT will review and address any resource issues or comments by the State Historic Preservation Officer (SHPO) listed in the programming Screen Summary Report. The CONSULTANT will assist the DEPARTMENT in preparing documents for tribal coordination, if needed.

The CONSULTANT will assist the DEPARTMENT in meetings by providing technical support in Section 106 Meetings, such as the Cultural Resource Committee Meeting.

The CONSULTANT will prepare a CRAS detailing the results of the survey and assessments of resource significance, including a Florida Master Site File (FMSF) form.

3b.2.2 Recreational Section 4(f)

CONSULTANT will complete the documentation and coordination required for a Section 4(f) Determination of Applicability in accordance with Part 2, Chapter 7 of the PD&E Manual.

The CONSULTANT will prepare Section 4(f) “de minimis” documentation in accordance with Part 2, Chapter 7 of the PD&E Manual.

The CONSULTANT will complete the documentation for Section 4(f) requirements in accordance with Part 2 Chapter 7 of the PD&E Manual.

3b.3 Natural Resources
The CONSULTANT will assess and summarize each of the natural resource issues in the Environmental Document. The CONSULTANT will identify the natural resource evaluation area. The CONSULTANT will assess the direct and indirect effects and will document the severity of the impact of environmental resources in the Natural Resources Evaluation (NRE), Environmental Document and project file.

3b.3.1 Protected Species and Habitat

The CONSULTANT will perform research, field reviews, surveys during appropriate season, and coordination necessary to determine Project involvement with and any potential impacts to federal and state protected, threatened or endangered species and their habitats. Additionally, the CONSULTANT will develop a study design (which will be approved by the DEPARTMENT) to evaluate the magnitude of Project involvement with wildlife and their habitat. If required, the CONSULTANT will prepare the Biological Assessment as a part of the NRE.

The CONSULTANT will assess project’s potential impacts to wildlife and habitat in accordance with Part 2, Chapter 16 of the PD&E Manual. The CONSULTANT will assist the DEPARTMENT in agency consultations, if required.

The DEPARTMENT Project Manager will provide a description of the habitat conservation measures to be considered. The CONSULTANT will provide an analysis of wildlife and habitat conservation measures and mitigation plan.

3b.3.2 Wetlands and Other Surface Waters

The CONSULTANT will identify the type, quality, and function of in accordance with Rule 62-345, F.A.C., Uniform Mitigation Assessment Method for representative wetlands and other surface waters in accordance with Part 2, Chapter 9 of the PD&E Manual. The CONSULTANT will evaluate alternatives that avoid wetland impacts and, where unavoidable, identify practicable measures to minimize impacts. Any impact to wetlands requires development of a Conceptual Mitigation Plan. The CONSULTANT will document the results of a Wetlands Evaluation in the Natural Resources Evaluation (NRE) to document all coordination activities with resource agencies, wetland impact assessment and mitigation analysis.

During final design, the CONSULTANT shall collect all data and information necessary to determine the boundaries of wetlands and other surface waters defined by the rules or regulation of each agency processing or reviewing a permit application necessary to construct the project.

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

- Determine landward extent of wetlands and other surface waters as defined in Rule Chapter 62-340 F.A.C. as ratified in Section 373.4211, F.S.

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o Determine the jurisdictional boundaries and obtain a jurisdictional determination of wetlands and other surface waters as defined by rules or regulations of any permitting authority that is processing a DEPARTMENT permit application.

o Prepare aerial maps showing the jurisdictional boundaries of wetlands and surface waters. Aerial maps shall be reproducible, of a scale no greater than 1"=200’ and be recent photography. The maps shall show the jurisdictional limits of each agency. Photo copies of aerials are not acceptable. All jurisdictional boundaries are to be tied to the project’s baseline of survey. When necessary, a wetland specific survey will be prepared by a registered surveyor and mapper.

o 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 impacted, size of wetland to be impacted, type of impact, and identify any wetland within the project limits that will not be impacted by the project.

o Prepare appropriate Agency Forms to obtain required permits. Forms may include but are not limited to the United States Army Corps of Engineers (USACE) “Wetland Determination Data Form – Atlantic and Gulf Coastal Plain Region”; the USACE “Approved Jurisdictional Determination Form”; Uniform Mitigation Assessment Method forms and/or project specific data forms.

3b.3.3 Essential Fish Habitat

If applicable the CONSULTANT will conduct field review, survey, and appropriate coordination with resource agencies to assess impacts to essential fish habitat (EFH) in accordance with Part 2, Chapter 17 of the PD&E Manual. The CONSULTANT will prepare the EFH Assessment as a component of the NRE to document potential adverse effects to EFH and measures to address those effects. The CONSULTANT will assist the DEPARTMENT in consultations, if required.

3b.3.4 Natural Resource Evaluation (NRE) Report

The CONSULTANT will document the results of the Wetlands, EFH, and Wildlife and Habitat evaluations in the Natural Resources Evaluation (NRE) report in accordance with Part 2, Chapter 9, Chapter 16 and Chapter 17 of the PD&E Manual.

3b.3.5 Water Quality

The CONSULTANT will evaluate and document project impact on water quality in the Water Quality Impact Evaluation (WQIE) Checklist in accordance with Part 2, Chapter 11 of the PD&E Manual.

3b.3.6 Special Designations
The CONSULTANT will evaluate and document the following special designations if applicable: Scenic Highways, Aquatic Preserves, Outstanding Florida Waters, Wild and Scenic Rivers, and Coastal Barrier Resources, in accordance with Part 2, Chapter 5, 10, 12, and 15 of the PD&E Manual.

3b.3.7 Permit Needs

The CONSULTANT will review the Programming Screen Summary Report and identify permits required for the project.

The CONSULTANT will perform activities that will inform and accelerate the environmental permitting process, including activities to acquire permits during PD&E (as required by the DEPARTMENT).

Anticipated environmental permits: [List anticipated permits]

3b.4 Physical Effects

The CONSULTANT will identify the physical effect evaluation area. The CONSULTANT will summarize each of the physical effect issues in the Environmental Document. The CONSULTANT will assess the direct and indirect effects and will document the severity of the following:

3b.4.1 Air Quality

The CONSULTANT will gather data, perform the air quality screening analysis, and prepare the Air Quality Technical Memorandum to document the results of the screening analysis in accordance with Part 2, Chapter 19 of the PD&E Manual.

3b.4.2 Construction Impact Analysis

The CONSULTANT will evaluate and document the potential impacts of construction of the Project alternatives in accordance with Part 2, Chapter 3 of the PD&E Manual.

3b.4.3 Contamination

The CONSULTANT will gather data, review data, and investigate contamination issues within the limits of the project and identify potentially contaminated sites in accordance with Part 2, Chapter 20 of the PD&E manual.

The CONSULTANT will document data reviewed, findings, risk ratings of potential contamination sites, and recommendations for additional assessment actions in the Contamination Screening Evaluation Report (CSER).

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.

3b.4.4 Asbestos and Metal Based Coating

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.

3b.4.5 Navigation

The CONSULTANT will collect data that will assist the department to evaluate project potential impacts to navigation according to the PD&E Manual.

3b.5 Cumulative Effects Evaluation

N/A

3b.6 Project Commitments Record

The CONSULTANT will provide a list of project commitments to include in the Commitments Section of the Environmental Document. The CONSULTANT will assist the DEPARTMENT in filling out Form No. 700-011-35 Project Commitments Record (PCR) in accordance with FDOT Procedure 700-011-035.
3c ENVIRONMENTAL DOCUMENT

3c.1 Environmental Document

The CONSULTANT will assist the DEPARTMENT in completing the Type 2 Categorical Exclusion Determination Form, Topic No. 650-000-001, and all attachments in accordance with Part 1 Chapter 5 of the PD&E Manual.

3c.2 Planning Consistency

3c.2.1 Review of Transportation Plans and Programs

The CONSULTANT will coordinate with the DEPARTMENT to obtain and review transportation plans and programs applicable to this Project.

3c.2.2 Documentation

The CONSULTANT will assist the DEPARTMENT in the preparation of the Planning Consistency documentation.

3c.3 PD&E Re-evaluation

3c.3.1 Technical Support for Environmental Clearances and Re-evaluations

The CONSULTANT shall provide environmental support for the DEPARTMENT to complete re-evaluation of the Type 2 Categorical Exclusion for all changes to the project made after the PD&E study is completed and LDCA granted.

3c.3.1.1 Type 2 Categorical Exclusion Re-evaluation:

During the development of the final design plans, the CONSULTANT shall be responsible for coordinating with the DEPARTMENT’S 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 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 DEPARTMENT 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.

3c.3.1.2 Archaeological and Historical Features:

3c ENVIROMENTAL DOCUMENT
The CONSULTANT shall provide necessary technical information to the DEPARTMENT’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.

**3c.3.1.3 Wetland Impact Analysis:**

The CONSULTANT shall provide necessary technical information to the DEPARTMENT’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.

**3c.3.1.4 Essential Fish Habitat Impact Analysis:**

The CONSULTANT shall provide necessary technical information to the DEPARTMENT’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.

**3c.3.1.5 Protected Species and Habitat Impact Analysis:**

The CONSULTANT shall provide necessary technical information to the DEPARTMENT’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.

**3c.3.2 Preparation of Environmental Clearances and Re-evaluations**

During the development of the final design plans, the CONSULTANT shall complete re-evaluation form and associated supporting information in accordance with Part 1 Chapter 13 of the PD&E Manual. The CONSULTANT will review environmental commitments that were included in the Type 2 Categorical Exclusion and document updates to the status of the commitments.

**3c.3.2.1 Type 2 Categorical Exclusion Re-evaluation:**

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

**3c.3.2.2 Archaeological and Historical Features:**

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 Report, in accordance with Part 2, Chapter 8 of the PD&E Manual.

**3c.3.2.3 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 Report, in accordance with Part 2, Chapter 9 of the PD&E Manual.

3c.3.2.4 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 Report, in accordance with Part 2, Chapter 17 of the PD&E Manual.

3c.3.2.5 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, 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.
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 Design Controls and Criteria

The CONSULTANT shall prepare design controls and criteria for developing Project alternatives and designing roadway geometric and other roadway elements according to the DEPARTMENT standards.

4.2 Typical Section

4.2.1 Typical Section Analysis

The CONSULTANT will develop conceptual typical sections for the Project alternatives which address project purpose and needs and roadway context classification. Development of typical sections must consider Context Sensitive Solutions and Complete Streets approaches and the needs of all Project users.

4.2.2 Typical Section Package

The CONSULTANT shall provide an approved Typical Section Package prior to the first plans submittal.

4.3 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 Design 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.

4.4 Pavement Design Package

The CONSULTANT shall provide an approved Pavement Design Package prior to the Phase II plans submittal date.

4.5 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 [or N/A].

4.6 Geometric Design

4.6.1 Development of Design Options
The CONSULTANT will develop the build alternative, screened in Task 3.3.11, to a level of geometric design sufficient to identify and evaluate alignment (horizontal and vertical) constraints; nonstandard design features that will require Design Variation or Exception; potential environmental impact mitigation measures; traffic flow and safety characteristics; drainage; structures; drainage and stormwater management; right of way needs; multimodal accommodation; constructability; maintenance of traffic during construction; and construction cost factors.

### 4.6.2 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, concepts from previous studies and scope of work. The CONSULTANT shall also develop utility conflict information to be provided to the project Utility Coordinator in the format requested by the DEPARTMENT, and shall review Utility Work Schedules.

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

### 4.6.3 Alternatives Concept Plans

The CONSULTANT will prepare concepts by overlaying viable alternatives evaluated in detail on the base map. The concept plan must show potential location for bridges, culverts, retaining walls, right of way lines (existing and proposed), environmental issues, major utility facilities, intersection, critical driveways, and median openings, among other roadway elements, at an appropriate scale according to the DEPARTMENT CADD Manual.

### 4.7 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 in the Intersection Analysis Report as described below and 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.

The consultant shall use the 8-hour turning movement counts obtained during the PD&E study. Turning movement counts would have been conducted at all un-signalized median openings, side streets, commercial and/or any large traffic generating driveways such as...
sub-division entrances (excluding single family residences). If turning movement counts are not available or are not up to date as determined by the DEPARTMENT, then updated 8-hour turning movement counts shall be obtained by the CONSULTANT for this project.

The Consultant shall review existing and design year traffic conditions to determine if the proposed median plan can adequately accommodate existing and design year traffic needs. Additionally, median openings shall be recommended at locations that will improve safety and operational characteristics of the State roadway.

The Consultant shall make recommendations for right turn lanes within the project limits based upon the warranting volumes and conditions outlined in the Department’s Driveway Information Handbook.

The Consultant shall make recommendations for left turn lane storage lengths at intersections including queue, braking distance, and taper length. The queue length shall be identified separate from the total storage length. Left turn lanes at unsignalized intersections may be recommended using HCS or Synchro software. A 100-foot minimum queue in urban/suburban areas or 50-foot queue in rural areas should be used.

The Consultant shall review truck traffic data and existing land uses along the project corridor to determine if additional pavement (bulb out) areas are needed to accommodate u-turns. Auto turn analysis shall be provided.

The turning movement counts, traffic analysis, and recommendations for the Access Management plan shall be provided to the Department in an Intersection Analysis Report. The Intersection Analysis Report shall be provided to the Access Management, Signals, and Intermodal Systems Development Departments for review in paper form. An electronic copy of the Intersection Analysis Report shall be provided to the Design Project Manager in order for it to be loaded into the ERC.

Prior to completion of the Intersection Analysis Report an Access Management Kick-Off meeting shall be held to discuss the proposed recommendations.

The CONSULTANT shall submit a Driveway Summary Matrix in a format to be provided by or approved by the DEPARTMENT.

4.8 Intersections and Interchanges

4.8.1 Intersection and Interchange Concepts Evaluation

The CONSULTANT will develop intersection and interchange concepts/layouts based on the results of traffic operational analysis. The layouts will include through lanes, turn lanes, ramp, auxiliary lanes, storage lengths, ramp terminals, ramp junctions, and other geometric details.

The CONSULTANT will propose appropriate intersection controls and intersection/interchange footprint at the following intersections:

List intersections/interchanges

4.8.2 Roundabout Final Design Analysis
If a roundabout is selected through the ICE process, 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.

4.9 Cross Section Design Files

The CONSULTANT shall establish and develop cross section design files in accordance with the DEPARTMENT’s 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.

4.10 Traffic Control Analysis

During development of the Build Alternative, the CONSULTANT will evaluate constructability issues and the ability to maintain traffic during construction according to Part 2, Chapter 3 of the PD&E Manual. The CONSULTANT will include the estimated cost to maintain traffic in the construction cost estimate in the comparative alternatives evaluation.

The CONSULTANT shall design a safe and effective Traffic Control Plan 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, transit features (e.g. bus stops), routing, signing and pavement markings, and detour quantity tabulations, roadway pavement, drainage structures, ditches, front slopes, back slopes, drop offs within clear zone 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 Utility Work by Highway Contractor (UWHC).

The CONSULTANT shall investigate the need for temporary traffic signals (including temporary timing and temporary signal detection), temporary lighting, alternate detour roads, 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 Traffic Control Plan, 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 Traffic Control Plan 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 closures 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, emergency vehicle response time, holidays, peak seasons, detour route deterioration, transit agency routes and other eventualities. CONSULTANT shall be responsible to obtain local authorities permission for use of detour routes not on state highways.

The CONSULTANT will prepare Transportation Management Plan in accordance with as per Part 2, Chapter 3 of the PD&E Manual and FDM.

4.11 Master TCP Design Files

The CONSULTANT shall develop master Traffic Control Plan (TCP) files (for Level II and Level III only) showing each phase of the Traffic Control Plan.

4.12 Selective Clearing and Grubbing

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 and Cross-Discipline Coordination (OPTIONAL SERVICES)

The CONSULTANT shall coordinate with utility companies, 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, opportunities for preservation and protection of existing vegetation, relocation options, and selective removal of nuisance and/or non-nuisance vegetation. Coordinate with surveyor to have trees tagged and surveyed, as necessary.

c. Selective Clearing and Grubbing- Maintenance Report

The CONSULTANT shall include in the plans instructions for the care and maintenance of the tree 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 tree preservation areas is in alignment with future highway landscape plans. It is understood the contractor will be responsible for coordination with an arborist for the care of vegetation during construction and during root and branch pruning, however, 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.

4.13 Tree Disposition Plan
Consultant will prepare a Tree Disposition Plan outlining the requirements for the removal, relocation, and remaining trees located within the project boundaries. Will utilize the information collected from the Vegetation Survey and information collected under task 4.12 for Selective Clearing and Grubbing.

4.14 Design Variations and Exceptions

The CONSULTANT shall prepare the documentation necessary to gain DEPARTMENT approval of all appropriate Design Variations and/or Design Exceptions before the first submittal.

4.15 Design Report

The CONSULTANT shall prepare all applicable report(s) as listed in the Project Description section of this scope.

The CONSULTANT shall submit to the DEPARTMENT design notes, data, and calculations to document the design conclusions reached during the development of the contract plans.

The design notes, data and computations shall be recorded on size 8½”x11” sheets, fully titled, numbered, dated, indexed and signed by the designer and the checker. Computer output forms and other oversized sheets shall be folded to 8½”x11” size. The data shall be in a hardback folder for submittal to the DEPARTMENT.

4.16 Quantities

The CONSULTANT shall develop accurate quantities and the supporting documentation, including construction days when required.

4.17 Cost Estimate

The DEPARTMENT will develop construction cost estimates using the Department’s Long Range Estimate (LRE) program. The CONSULTANT will be responsible for providing quantities for the initial estimate, and reviewing and updating the cost estimate when scope changes occur, at project milestones, and during the DEPARTMENT’s annual Work Program development cycle. Construction costs must include traffic management and right of way costs.

The CONSULTANT will compare the existing right of way width with the proposed right of way requirements to estimate the amount of right of way that the DEPARTMENT must acquire. The CONSULTANT will submit concept plans for the Build Alternative that include the parcel identification number, existing right of way lines, proposed right of way lines and acreage of property required. Additionally, the CONSULTANT will provide a spreadsheet with the following parcel information: owner, address, acreage of parent parcel and required amount of property for the Project, estimated business damages and right of way property costs. The DEPARTMENT will provide right of way cost estimates.
The DEPARTMENT’s Right of Way Office staff and CONSULTANT will conduct an interactive field trip to review conditions in the corridor as they pertain to actual conditions that might impact the cost of right of way acquisition for the Project.

The CONSULTANT will develop engineer’s estimates of the probable cost and provided required updates.


4.19 Other Roadway Analyses

4.20 Field Reviews

The CONSULTANT should be aware that Water Management District permit reviewers routinely request survey information up to 100-ft outside of the right-of-way line. The CONSULTANT shall be prepared to provide this information through means other than additional field survey work (i.e. either aerial contour maps or LiDar topography, where available).

4.21 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).

4.22 Technical Meetings

4.23 Quality Assurance/Quality Control

4.24 Independent Peer Review

4.25 Supervision

4.26 Coordination
5 ROADWAY PLANS

The CONSULTANT shall prepare Roadway, Traffic Control, 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 Summary of Pay Items Including Quantity Input

5.3 Typical Section Sheets
   5.3.1 Typical Sections
   5.3.2 Typical Section Details

5.4 General Notes/Pay Item Notes

5.5 Summary of Quantities Sheets

5.6 Project Layout

5.7 Plan/Profile Sheet

5.8 Profile Sheet

5.9 Plan Sheet

5.10 Special Profile

5.11 Back-of-sidewalk Profile Sheet

5.12 Interchange Layout Sheet

5.13 Ramp Terminal Details (Plan View)

5.14 Intersection Layout Details

5.15 Special Details

5.16 Cross-Section Pattern Sheet(s)

5.17 Roadway Soil Survey Sheet(s)

5.18 Cross Sections

5.19 Temporary Traffic Control Plan Sheets

5.20 Temporary Traffic Control Cross Section Sheets
5.21 Temporary Traffic Control Detail Sheets

5.22 Utility Adjustment Sheets

5.23 Selective Clearing and Grubbing Sheet(s)
   5.23.1 Selective Clearing and Grubbing Sheet(s)
   5.23.2 Selective Clearing and Grubbing Detail Sheets

5.24 Tree Disposition Plan Sheet(s)
   5.24.1 Tree Disposition Plan Sheet(s)
   5.24.2 Tree Disposition Plan Tables and Schedules

5.25 Project Network Control Sheet(s)

5.26 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 Permit/Environmental staff and preparing Dredge & Fill sheets where applicable.

5.27 Utility Verification Sheet(s) (SUE Data)

5.28 Quality Assurance/Quality Control

5.29 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 latest requirements of the appropriate regulatory agencies and the DEPARTMENT’s Drainage Manual and Stormwater Management Facility Handbook.

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.

6a.1 Drainage Map Hydrology

Accurately delineate drainage basin boundaries to be used in defining the system hydrology. Basin delineation shall incorporate existing survey and/or LiDAR and shall be supplemented, as necessary, with other appropriate data sources (such as permitted site plans) and field observations. Basin delineations shall also include any existing collection systems in a logical manner to aid in the development of the hydraulic model. Prepare the Drainage Maps in accordance with the FDM.

6a.2 Base Clearance Calculations and Report

The CONSULTANT will analyze, determine, and document high water elevations per basin which will be used to set roadway profile grade and roadway materials. The CONSULTANT will determine surface water elevations at cross drains, floodplains, outfalls and adjacent stormwater ponds. This will include determining groundwater elevations (e.g. Seasonal High Groundwater Table elevations) at intervals between the above-mentioned surface waters. The CONSULTANT will document findings in a Base Clearance Report.

6a.3 Pond Siting Analysis and Report

The CONSULTANT will calculate the stormwater quality and attenuation requirements (for the requisite storm events), and estimate the stormwater management facility needs for each roadway alternative.

The CONSULTANT will schedule an Environmental Look-Around (ELA) meeting (See Part 2, Chapter 24 of the PD&E Manual) with DEPARTMENT staff, regulatory agencies, local governments, and other stakeholders to discuss regional stormwater needs and design and permitting approaches that benefit the watershed as a whole. During the meeting, the CONSULTANT will document the meeting notes in the project file.

If the ELA reveals no regional pond sites within the Study Area, the CONSULTANT will identify practical pond sites in each basin for each project alternative, estimate construction cost, compare the sites, and identify (in coordination with the DEPARTMENT) a preferred pond site for each basin.
(Identify the number of alternative sites to be evaluated for each pond)

Additionally, the CONSULTANT will identify inflow and outfall access and easement requirements for each pond site. If additional pond sites are revealed, they will be used as a potential option. The CONSULTANT will evaluate pond sites using a preliminary hydrologic analysis. The CONSULTANT will document the results and coordination for all the project’s pond site analyses in accordance with the Drainage Manual and Stormwater Management Facility Handbook. The CONSULTANT will prepare Pond Siting Report which shall document all right-of-way, existing and proposed, that is needed to accomplish the required storm water treatment and attenuation, floodplain compensation that may be required for the project.

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. Analysis should consider age of the existing cross drain and the number of times it has been extended.

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)

Design stormwater management facilities to meet requirements for stormwater quality treatment, attenuation and aesthetics. Develop proposed pond layout (contributing drainage basin, shape, contours, slopes, volumes, tie-ins, aesthetics, etc.), perform routing, pollutant/nutrient loading calculations, recovery calculations, design the outlet control structure and buoyancy calculations for pond liners when necessary.

6a.7 Design of Stormwater Management Facility (Roadside Treatment Swales and Linear Ponds)

Design stormwater management facilities to meet requirements for stormwater quality treatment, attenuation and aesthetics. Develop proposed pond layout (contributing drainage basin, shape, contours, slopes, volumes, tie-ins, etc.), perform routing, pollutant loading calculations, recovery calculations and design the outlet control structure.

6a.8 Floodplain and Environmental Permit Drainage Data Collection

The CONSULTANT will gather floodplain data from FEMA Flood Insurance Rate Maps, and other drainage related data needed to perform stormwater management analysis and obtain permits from relevant sources including local government, local agencies, and regulatory agencies. The CONSULTANT will identify practical floodplain compensation sites for each floodplain impacted for each project alternative, estimate construction cost, compare the sites, and identify (in coordination with the DEPARTMENT) a preferred floodplain compensation site for each floodplain.
Additionally, the CONSULTANT will identify inflow/outfall and access easement requirements for each floodplain compensation site. If additional floodplain compensation sites are revealed, they will be used as a potential option.

6a.9 Floodplain Compensation Siting and Design

The CONSULTANT will determine base floodplain elevations (i.e. 100 year, 24-hour rainfall events) from the floodplain data and determine floodplain encroachments, coordinate with regulatory agencies, and develop proposed compensation area layout (shape, contours, slopes, volumes, etc.). Document the design following the requirements of the regulatory agency. The CONSULTANT will also document floodplain compensation site requirements into the Pond Siting Report.

6a.10 Design of Storm Drains

Delineate contributing drainage areas, determine runoff, inlet locations, and spread. Calculate hydraulic losses (friction, utility conflict and, if necessary, minor losses). Determine design tailwater and, if necessary, outlet scour protection. Analysis should consider age of the existing storm sewer and the number of times it has been modified when being incorporated into the design.

6a.11 Optional Culvert Material

Determine acceptable options for pipe materials using the Culvert Service Life Estimator.

6a.12 French Drain Systems

Design French Drain Systems to provide stormwater treatment and attenuation. Identify location for percolation tests and review these, determine the size and length of French Drains, design the control structure/weir, and model the system of inlets, conveyances, French Drains, and other outfalls using a routing program.

6a.12.1 Existing French Drain Systems

Include this task if French Drains are proposed and the existing systems must be analyzed for a pre- versus post comparison of the peak stages and discharges.

6a.13 Drainage Wells

Design the discharge into deep wells to comply with regulatory requirements. Identify the location of the well, design the control structure/weir, and model the system using a routing program.

6a.14 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.15 Location Hydraulics Report
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The CONSULTANT will prepare a Location Hydraulics Report for the project in accordance with Part 2, Chapter 13 of the PD&E Manual.

6a.16 Bridge Hydraulic Report

The CONSULTANT will perform hydrology analysis and evaluate bridge hydraulics to determine the hydraulic length and low member elevation of the bridge or the length and low member elevation necessary to meet the minimum hydraulic opening requirement. The CONSULTANT will evaluate deck drainage, scour, and appropriate counter measures. Prepare report and the information for the Bridge Hydraulics Recommendation Sheet.

6a.17 Temporary Drainage Analysis

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

6a.18 Cost Estimate

*Provide computations to summarize the drainage quantities necessary for the Long Range Estimate (LRE) and Trans*Port cost estimates.*


*As needed to document the use of specialty products related to erosion control and the proposed drainage systems.*

6a.20 Hydroplaning Analysis

Perform a hydroplaning analysis to assist in the determination of the appropriate roadway geometry for all necessary locations (both typical sections and critical cross sections) as needed. See the FDOT Hydroplaning Guidance and FDOT FDM Chapter 210 and 211 for more information.

6a.21 Existing Permit Analysis

Data gathering including desktop analysis of local, state and federal Drainage permits.

6a.22 Other Drainage Analysis

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

6a.23 Field Reviews

*The CONSULTANT shall video all existing cross drains along the current [SR] for structural stability to be used for analysis for widening or replacement.*

*The CONSULTANT should be aware that Water Management District permit reviewers routinely request survey information up to 100-ft outside of the Right-of-Way line. The CONSULTANT shall be prepared to provide this information.*
through means other than additional field survey work (i.e. either aerial contour maps or LiDAR topography, where available).

6a.24 Technical Meetings

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

6a.25 Quality Assurance/Quality Control

6a.26 Independent Peer Review

6a.27 Supervision

6a.28 Coordination
STAGE 1
March 2019

FPID(S): 436680-1-22-01, 436680-1-32-01

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)
6b.2 Bridge Hydraulics Recommendation Sheets
6b.3 Summary of Drainage Structures
6b.4 Optional Pipe/Culvert Material
6b.5 Drainage Structure Sheet(s) (Per Structure)
6b.6 Miscellaneous Drainage Detail Sheets
6b.7 Lateral Ditch Plan/Profile
6b.8 Lateral Ditch Cross Sections
6b.9 Retention/Detention Ponds Detail Sheet(s)
6b.10 Retention Pond Cross Sections
6b.11 Erosion Control Plan Sheet(s)

Erosion Control Plan sheets do not have to be prepared for projects permitted with the Southwest Florida Water Management District, however erosion control quantities need to be prepared.

6b.12 SWPPP Sheets(s)
6b.13 Quality Assurance/Quality Control
6b.14 Supervision
7 UTILITIES AND RAILROADS

[Modify this task if the DEPARTMENT is responsible for Utility Coordination]

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.

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.

It is anticipated that the following Utility Agency Owners (UAOs) are within or adjacent to the Project, but it is the responsibility of the CONSULTANT to determine the final list of UAOs within the project area:

List UAOs

7.2 Identify Existing Utility Agency Owner(s) (UAO(s))

The Consultant shall identify all utilities within and adjacent to the project limits that may be impacted by the project.

7.3 Make Utility Contacts

**Preliminary Concept Report:** Notify each utility owner of the upcoming project. Send appropriate letters, straight line diagrams and scope of work to each utility identified within the Design Ticket (and other known utility owners within limits of project). Request utility involvement and contact person for each utility located within project limits.

**First Contact (Phase I):** The CONSULTANT shall prepare and transmit an initial statutory contact package to all utility companies/agencies that may have existing facilities within the project limits. This package shall include two sets of plans (hard copy, disk or electronic files) with the statutory letter. An established time frame should be allowed for the utility companies to respond back with marked plans showing the type, size and location of existing facilities, or written confirmation that they have no facilities in the project area, copies of “as built” plans, claims for reimbursement, and whether the UAO elects to participate in a Utility Work by Highway Contractor (UWHC) Agreement. The CONSULTANT will obtain a written commitment from the appropriate maintaining agency(s) or execute a Highway Lighting Maintenance Agreement.
for maintenance of the additional facilities when lighting plans have been developed.

Second Contact (Revised Phase II): The CONSULTANT shall transmit the second Statutory contact letter with the necessary agreements, and documents to each utility company/agency as required. Two complete sets of plans (hard copy, disk or electronic files) and a Conflict Matrix (if necessary) shall be furnished to each involved utility company/agency. One plan set will be color coded by the utility company showing proposed relocation and returned to the CONSULTANT with the utility work schedules and agreements as appropriate to be transmitted to the DUA or designee.

Third Contact (Revised Phase III): The CONSULTANT shall transmit the third Statutory contact letter to each utility company/agency as required. Two complete sets of plans (hard copy, disk or electronic files), a Conflict Matrix and List of Plan Changes shall be furnished to each involved utility company/agency. Revised plans will be marked by the utility company and returned to the CONSULTANT with revised utility work schedules to be transmitted to the District Utility Administrator or designee.

Final Contact (Phase IV): Send one set of Phase IV plans (hard copy, disk or electronic files) to each of the involved UAO(s).

Not all projects will have all contacts as described above.

7.4 Exception Processing

The CONSULTANT shall be responsible for transmitting/coordinating the appropriate design reports including, but not limited to, the Resurfacing, Restoration and Rehabilitation (RRR) report, Preliminary Engineering Report, Project Scope and/or the Concept Report (if applicable) to each UAO to identify any condition that may require a Utility Exception. The CONSULTANT shall identify and communicate to the UAO any facilities in conflict with their location or project schedule. The CONSULTANT shall assist with the processing of design exceptions involving Utilities with the UAO and the DEPARTMENT. Assist with processing per the UAM.

7.5 Preliminary Utility Meeting

The CONSULTANT shall schedule the meeting (time and place), notify participants, and conduct a preliminary utility meeting with all affected UAO(s) having facilities located within the project limits for the purpose of presenting the proposed drainage for the project, review the current design schedule, evaluate the utility information collected, provide follow-up information on compensable interest requests and property rights from the FDOT Legal Office, discuss the utility work by highway contractor option with each utility, and discuss any future design issues that may impact utilities. This is also an opportunity for the UAO(s) to present proposed facilities. The CONSULTANT shall keep accurate minutes and distribute a copy to all attendees and utilities within the project limits. The CONSULTANT shall display the project plans onto a screen so that all attendees can view the items being discussed and have a uniform consensus.
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) 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 utility marked plans and data individually as they are received for content. Ensure information from the UAO (utility type, material and size) is sent to the designer for inclusion in the plans. Forward all requests for utility reimbursement and supporting documentation to the DUO.

7.8 Subordination of Easements Coordination

The CONSULTANT, if requested by the DEPARTMENT, shall transmit to and secure from the UAO the executed subordination agreements prepared by the appropriate DEPARTMENT office. The CONSULTANT shall coordinate with the DUO the programming of the necessary work program funds to compensate the UAO.

7.9 Utility Design Meeting

The CONSULTANT shall schedule the meeting (time and place), notify participants, and conduct a utility design 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, maintenance of traffic (construction phasing), review the current design schedule and letting date, evaluate the utility information collected. Discuss, 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 maintenance of traffic with each UAO. The intent of this meeting shall be to identify and resolve conflicts between utilities and proposed construction prior to completion of the plans, including utility adjustment details and provide conflict matrix. 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 and utilities within the project limits within 3 days. The Consultant shall display the project plans onto a screen so that all attendees can view the items being discussed and have a uniform consensus. See Task 4.5 (Horizontal/Vertical Master Design File) and Task 4.9 (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 utility work schedules individually as they are received for content and coordinate review with the Engineer of
Record. Send color markups and utility work schedules to the appropriate DEPARTMENT office(s) such as survey, geotechnical, drainage, structures, lighting, roadway, signals, utilities, landscape architecture, municipalities, maintaining agency, and District and Resident Construction Offices for review and comment. Collect and review Utility Work Schedules, Permits, Utility Work Agreements, Utility Work by Highway Contractor (UWHC) Agreements, Memorandum of Agreements and other pertinent documents and coordinate with the DUO for execution. This will require coordination with the EOR for review and concurrence. The CONSULTANT will be responsible for providing documented QA/QC with each utility deliverable that will include written review comments and resolution.

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 known 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.

7.12 Utility Constructability Review

The CONSULTANT shall review utility schedules against construction contract time, and phasing for compatibility. Coordinate with and obtain written concurrence from District and Resident construction offices as to the constructability of proposed utility installation and road construction.

7.13 Additional Utility Services

The CONSULTANT shall provide additional utility services. Additional services will be determined when the services are required and requested. This item is not usually included in the scope at the time of negotiation. It is normally added as a supplemental agreement when the need is identified.

7.14 Processing Utility Work by Highway Contractor (UWHC)

This includes coordination of utility design effort between the DEPARTMENT and the UAO(s). Determine and discuss the DEPARTMENT's cost participation, if any, with the DUO. This effort includes additional coordination meetings, preparation, and processing the agreements, review of tabulation of quantities, perform UWHC constructability and biddability review, review of pay items, cost estimates and Technical Special Provisions (TSP) prepared by the UAO. This does not include utility the utility design effort. This item is not usually included in the scope at the time of negotiation. It is normally added as a supplemental agreement when the need is identified. Effort for the EOR is not included in this task, see Roadway Analysis Task Group 4. The CONSULTANT shall coordinate with the DUO to establish a Financial Project Number for the UAO(s) proposed work. The CONSULTANT will be responsible to verify the loading of the correct pay item numbers with quantities into the DEPARTMENT’s computer system for each UWHC.
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) may be by certified mail, return receipt requested.

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.

7.18 Railroad Impacts Review

N/A
8 ENVIRONMENTAL PERMITS

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, and Cultural Resources Assessment Survey.

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: 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 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 defined in Rule Chapter 62-340, F.A.C., as ratified in Section 373.4211, F.S.

- 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

- 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 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 United States Army Corps of Engineers (USACE) “Wetland Determination Data Form – Atlantic and Gulf Coastal Plain Region”; the USACE “Approved Jurisdictional Determination Form”; Uniform Mitigation Assessment Method forms and/or project specific data forms.

8.2.2 **Species Surveys:**

The CONSULTANT shall conduct wildlife surveys during appropriate season as defined by rules or regulations of any permitting agency, or commenting agency that is processing a DEPARTMENT permit. If species survey was completed under Task 3b.3.1, the CONSULTANT shall update species surveys as necessary to prepare species permit applications to the appropriate agencies.

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 all of 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 8.12 (Other 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.

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 (i.e. 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.

Upon request by the DEPARTMENT the CONSULTANT shall be responsible for preparation and payment of a legal advertisement of “Final Agency Action”. Legal advertisement shall be published one time in a newspaper that meets the notification requirements of the water management district.

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 (i.e. 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

Dredge and Fill Sketches should be provided in 8.5-in x 11-in format. Color aerials and color highlighting are not recommended since the agencies typically copy the sheets with black and white copiers for distribution to commenting agencies and the general public.

The CONSULTANT is responsible for providing the DEPARTMENT with electronic CADD files depicting the final permitted impacted wetlands for the DEPARTMENTS records.

8.6 Prepare USCG Permit Application

8.7 Prepare Water Management District or Local Water Control District Right of Way Occupancy Permit Application

8.8 Prepare Coastal Construction Control Line (CCCL) Permit Application

The CONSULTANT shall be responsible for the preparation of the CCCL permit application and acquire the final “Notice to Proceed” authorization from the Florida Department of Environmental Protection (FDEP). Legal advertisements shall be published one time in a newspaper that meets the notification requirements of the FDEP.

8.9 Prepare Tree Permit Information
8.10 Compensatory Mitigation Plan

If impacts cannot be avoided, the CONSULTANT shall prepare a mitigation plan to be included as a part of the applications.

Prior to the development of mitigation alternatives, the CONSULTANT shall meet with the Project Manager and District Environmental Permitting Specialist to determine the DEPARTMENT’s policies in proposing mitigation. The CONSULTANT shall develop a mitigation plan based upon the general guidelines provided by the DEPARTMENT.

The CONSULTANT will be directed by the DEPARTMENT to investigate the mitigation options that meet federal and state requirements in accordance with section 373.4137, F.S. Below are mitigation options:

- Purchase of mitigation credits from a mitigation bank
- Payment to DEP/WMD for mitigation services
- Monetary participation in offsite regional mitigation plans
- Creation/restoration of wetlands

In the event that physical creation or restoration is the only feasible alternative to offset wetland impacts, the CONSULTANT shall collect all of the data and information necessary to prepare mitigation plans acceptable to all permitting agencies and commenting agencies who are processing or reviewing a permit application for a DEPARTMENT project.

Prior to selection of a final creation/restoration mitigation site, the CONSULTANT will provide the following services in the development of a mitigation plan:

- Preliminary jurisdictional determination for each proposed site
- Selection of alternative sites
- Coordination of alternative sites with the DEPARTMENT/all environmental agencies
- Written narrative listing potential sites with justifications for both recommended and non-recommended sites.

8.11 Mitigation Coordination and Meetings

The CONSULTANT shall coordinate with DEPARTMENT personnel prior to approaching any environmental permitting or commenting agencies. Once a mitigation plan has been reviewed and approved by the DEPARTMENT, the CONSULTANT will be responsible for coordinating the proposed mitigation plan with the environmental agencies. The CONSULTANT will provide mitigation information needed to update the FDOT Environmental Impact Inventory.

8.12 Other Environmental Permits
8.13 Technical Meetings

8.14 Quality Assurance/Quality Control

Prior to the final project plans being mailed to Tallahassee, the CONSULTANT shall compare all approved environmental permits with the final contract plans to ensure that there are no differences between the plans and the permits. If differences are noted which affect the acquired permits, the CONSULTANT shall be responsible for obtaining permit modifications which resolve the differences.

8.15 Supervision

8.16 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 1b.21, Provisions for Work. Individual tasks identified in Section 9 through 18 are defined in the Staff Hour Estimation Guidelines and within the provision defined in Section 1b.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 8½”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
9.2  Project Layout
9.3  General Notes and Bid Item Notes
9.4  Miscellaneous Common Details
9.5  Incorporate Report of Core Borings
9.6  Standard Plans – Bridges
9.7  Existing Bridge Plans
9.8  Assemble Plan Summary Boxes and Quantities
9.9  Cost Estimate
9.11  Field Reviews
9.12  Technical Meetings
9.13  Quality Assurance/Quality Control
9.14  Independent Peer Review
9.15  Supervision
9.16 Coordination
10 STRUCTURES - BRIDGE DEVELOPMENT REPORT

The Consultant shall prepare a Bridge Development Report (BDR). This task includes evaluating various bridge concepts and estimating bridge limits, span lengths, vertical and horizontal clearance requirements, and bent locations. The CONSULTANT shall coordinate with the District Structures Design office regarding conceptual location and design recommendations for each bridge alternative, including cost and any benefit-cost analyses used for selecting or recommending structure alternatives.

The BDR shall be submitted as part of the Phase I Roadway Submittal, General Requirements.

General Requirements

10.1 Bridge Geometry

The CONSULTANT will evaluate conceptual vertical and horizontal geometry, navigation requirements, and clearance requirements for the bridges. If the project involves replacement of a bridge that is considered historic, or has substantial community value, the CONSULTANT will include a rehabilitation or repair alternative.

The CONSULTANT will develop typical sections options for the bridges. These will include the DEPARTMENT’s standard typical sections, and any typical sections that may result in minimizing right of way and environmental impacts.

10.2 Ship Impact Data Collection

10.3 Ship Impact Criteria

Superstructure Alternatives

10.4 Short-Span Concrete

10.5 Medium-Span Concrete

10.6 Long Span Concrete

Not applicable

10.7 Structural Steel

Foundation and Substructure Alternatives

10.8 Pier/Bent

10.9 Shallow Foundations / GRS Abutments

10.10 Deep Foundations

Movable Span
10.11 Data Collection and Design Criteria
10.12 Movable Span Geometries and Clearances
10.13 Deck System Evaluation
10.14 Framing Plan Development
10.15 Main Girder Preliminary Design
10.16 Conceptual Span Balance/Counterweight
10.17 Support System Development
10.18 Drive Power Calculations
10.19 Drive System Development
10.20 Power and Control Development
10.21 Conceptual Pier Design
10.22 Foundation Analysis (FL PIER)
10.23 Tender Visibility Study

Other BDR Issues

10.24 Aesthetics
10.25 TCP/Staged Construction Requirements
10.26 Constructability Requirements
10.27 Load Rating for Damaged/Widened Structures
10.28 Quantity and Cost Estimates
10.29 Quantity and Cost Estimates (Movable Span)
10.30 Wall Type Justification

Report Preparation

The CONSULTANT will document structural design calculations and design assumptions used in the analysis which will be later used in the Bridge Development Report (BDR).

10.31 Exhibits
10.32 Exhibits (Movable Span)
Not applicable

10.33 Report Preparation

10.34 Report Preparation (Movable Span)
Not applicable

10.35 BDR Submittal Package

Preliminary Plans

When ONLY 30% plans are final deliverable, use Task Nos. as shown for applicable bridge types for project Activities 12 thru 16. Staff hours to be negotiated and scaled appropriately.
11 STRUCTURES – TEMPORARY BRIDGE

The CONSULTANT shall prepare plans for Temporary Bridge(s) at the location(s) specified in Section 2.5. The CONSULTANT shall contact FDOT Office of Maintenance to determine the type and availability of temporary bridge before deciding on the temporary bridge type to be used.

General Layout Design and Plans

11.1 Overall Bridge Final Geometry

11.2 General Plan and Elevation

11.3 Miscellaneous Details

   End Bent Design and Plans

11.4 End Bent Structural Design

11.5 End Bent Details

   Intermediate Bent Design and Plans

11.6 Intermediate Bent Structural Design

11.7 Intermediate Bent Details

   Miscellaneous Substructure Design and Plans

11.8 Foundation Layout
12 STRUCTURES – SHORT SPAN CONCRETE BRIDGE

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

General Layout Design and Plans

12.1 Overall Bridge Final Geometry
12.2 Expansion/Contraction Analysis
12.3 General Plan and Elevation
12.4 Construction Staging
12.5 Approach Slab Plan and Details
12.6 Miscellaneous Details

End Bend Design and Plans

12.7 End Bend Geometry
12.8 End Bend Structural Design
12.9 End Bend Plan and Elevation
12.10 End Bend Details

Intermediate Bend Design and Plans

12.11 Bent Geometry
12.12 Bent Stability Analysis
12.13 Bent Structural Design
12.14 Bent Plan Elevation
12.15 Bent Details

Miscellaneous Substructure Design and Plans

12.16 Foundation Layout

Superstructure Design and Plans

12.17 Finish Grade Elevation Calculation
12.18 Finish Grade Elevations
   Cast-In Place Slab Bridges

12.19 Bridge Deck Design

12.20 Superstructure Plan

12.21 Superstructure Sections and Details
   Prestressed Slab Unit Bridges

12.22 Prestressed Slab Unit Design

12.23 Prestressed Slab Unit Layout

12.24 Prestressed Slab Unit Details and Schedule

12.25 Deck Topping Reinforcing Layout

12.26 Superstructure Sections and Details
   Reinforcing Bar Lists

12.27 Preparation of Reinforcing Bar List
   Load Rating

12.28 Load Rating
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
13.2  Expansion/Contraction Analysis
13.3  General Plan and Elevation
13.4  Construction Staging
13.5  Approach Slab Plan and Details
13.6  Miscellaneous Details

End Bent Design and Plans

13.7  End Bent Geometry
13.8  Wingwall Design and Geometry
13.9  End Bent Structural Design
13.10  End Bent Plan and Elevation
13.11  End Bent Details

Intermediate Bent Design and Plans

13.12  Bent Geometry
13.13  Bent Stability Analysis
13.14  Bent Structural Design
13.15  Bent Plan and Elevation
13.16  Bent Details

Pier Design and Plans

13.17  Pier Geometry
13.18  Pier Stability Analysis
13.19 Pier Structural Design

13.20 Pier Plan and Elevation

13.21 Pier Details

Miscellaneous Substructure Design and Plans

13.22 Foundation Layout

Superstructure Deck Design and Plans

13.23 Finish Grade Elevation (FGE) Calculation

13.24 Finish Grade Elevations

13.25 Bridge Deck Design

13.26 Bridge Deck Reinforcing and Concrete Quantities

13.27 Diaphragm Design

13.28 Superstructure Plan

13.29 Superstructure Section

13.30 Miscellaneous Superstructure Details

Reinforcing Bar Lists

13.31 Preparation of Reinforcing Bar Lists

Continuous Concrete Girder Design

13.32 Section Properties

13.33 Material Properties

13.34 Construction Sequence

13.35 Tendon Layouts

13.36 Live Load Analysis

13.37 Temperature Gradient

13.38 Time Dependent Analysis

13.39 Stress Summary
13.40 Ultimate Moments
13.41 Ultimate Shear
13.42 Construction Loading
13.43 Framing Plan
13.44 Girder Elevation, Including Grouting Plan and Vent Locations
13.45 Girder Details
13.46 Erection Sequence
13.47 Splice Details
13.48 Girder Deflections and Camber
   Simple Span Concrete Design
13.49 Prestressed Beam
13.50 Prestressed Beam Schedules
13.51 Framing plan
   Beam Stability
13.52 Beam/Girder Stability
   Bearing
13.53 Bearing Pad and Bearing Plate Design
13.54 Bearing Pad and Bearing Plate Details
   Load Rating
13.55 Load Ratings
14 STRUCTURES – STRUCTURAL STEEL BRIDGE (NOT APPLICABLE)

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
14.2 Expansion/Contraction Analysis
14.3 General Plan and Elevation
14.4 Construction Staging
14.5 Approach Slab Plan and Details
14.6 Miscellaneous Details

End Bent Design and Plans

14.7 End Bent Geometry
14.8 Wingwall Design and Geometry
14.9 End Bent Structural Design
14.10 End Bent Plan and Elevation
14.11 End Bent Details

Intermediate Bent Design and Plans

14.12 Bent Geometry
14.13 Bent Stability Analysis
14.14 Bent Structural Design
14.15 Bent Plan and Elevation
14.16 Bent Details

Pier Design and Plans

14.17 Pier Geometry
14.18 Pier Stability Analysis
14.19 Pier Structural Design

14.20 Pier Plan and Elevation

14.21 Pier Details

Miscellaneous Substructure Design and Plans

14.22 Foundation Layout

Superstructure Deck Design and Plans

14.23 Finish Grade Elevation (FGE) Calculation

14.24 Finish Grade Elevations

14.25 Bridge Deck Design

14.26 Bridge Deck Reinforcing and Concrete Quantities

14.27 Superstructure Plan

14.28 Superstructure Section

14.29 Miscellaneous Bridge Deck Details

Reinforcing Bar Lists

14.30 Preparation of Reinforcing Bar Lists

Structural Steel Plate Girder Design

14.31 Unit Modeling

14.32 Section Design

14.33 Stiffener Design and Locations

14.34 Cross-frame Design

14.35 Connections

14.36 Bearing Assembly Design and Detailing (with Jacking Analysis)

14.37 Splice Design

14.38 Shear Stud Connectors

14.39 Deflection Analysis
14.40 Framing Plan
14.41 Girder Elevation
14.42 Structural Steel Details
14.43 Splice Details
14.44 Girder Deflections and Camber
   Structural Steel Box Girder Design
14.45 Unit Modeling
14.46 Section Design
14.47 Stiffener Design and Locations
14.48 Interior Cross-Frame Design
14.49 Exterior Cross Frame Design
14.50 Connections
14.51 Bearing Assembly Design and Detailing (with Jacking Analysis)
14.52 Splice Design
14.53 Shear Stud Connectors
14.54 Deflection Analysis
14.55 Framing Plan
14.56 Girder Elevation
14.57 Structural Steel Details
14.58 Splice Details
14.59 Girder Deflections and Camber
   Erection Scheme
14.60 Erection Scheme Analysis
14.61 Erection Scheme

Load Rating

14 STRUCTURES – STRUCTURAL STEEL BRIDGE
A-94
14.62 Load Rating
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15 STRUCTURES – SEGMENTAL CONCRETE BRIDGE (NOT APPLICABLE)

The CONSULTANT shall prepare plans for Segmental Concrete Bridge(s) at the locations(s) specified in Section 2.5.

General Layout Design and Plans

15.1 Final Bridge Geometry
15.2 Casting Geometry Calculation
15.3 Finish Grade Geometry Calculation
15.4 Finish Grade Elevations
15.5 Construction Schedule
15.6 General Plan and Elevation
15.7 Approach Slab Plan and Details
15.8 Miscellaneous Details
15.9 Existing Bridge Plans

End Bent Design and Plans

15.10 End Bent Geometry
15.11 Wingwall Geometry and Design
15.12 End Bent Structural Design
15.13 End Bent Plan and Elevation
15.14 End Bent Details

Pier Design and Plans

15.15 Pier Geometry
15.16 Pier Stability Analysis
15.17 Pier Construction Loads
15.18 Pier Structural Design
15.19 Pier Plan and Elevation
15.20 Pier Details
15.21 Foundation Layout

Longitudinal Analysis

15.22 Section Properties

15.23 Material Properties

15.24 Superimposed Dead Loads

15.25 Construction Sequence

15.26 Tendon Layouts

15.27 Live Load Analysis

15.28 Temperature Gradient

15.29 Time Dependent Analysis

15.30 Stress Summary

15.31 Ultimate Moments

15.32 Ultimate Shear

15.33 Construction Loading

Transverse Analysis

15.34 Time Dependent Analysis

15.35 Live Load Analysis

15.36 Temperature Gradient

15.37 Stress Summary

15.38 Ultimate Moments

15.39 Construction Loading

Superstructure Design

15.40 Typical Segment

15.41 Pier Segment
15.42 Expansion Joint Segment
15.43 Blister Details
15.44 Deviator Blocks
15.45 Bearings
15.46 Expansion Joints
15.47 Special Analysis

Superstructure Plans

15.48 Typical Section
15.49 Finish Grade Elevations
15.50 Segment Layout/Designations
15.51 Typical Segments
15.52 Variable Depth Segments
15.53 Pier Segments
15.54 Expansion Joint Segments
15.55 CIP Closure Joint Details
15.56 Casting Geometry

15.57 Integrated 3-D Drawings

Post Tensioning Details

15.58 Bulkhead Details
15.59 Transverse Tendon Layout
15.60 Longitudinal Tendon Layout
15.61 Temporary Post Tensioning
15.62 Quantities and Stressing Schedule
15.63 Future Post-Tensioning
15.64 Anchorage Blisters
15.65 Deviation Blocks

15.66 PT Grouting Plan Details

Miscellaneous Details

15.67 Erection Sequence and Details

15.68 Access Opening Details

15.69 Bearings

15.70 Expansion Joints

15.71 Vermin Screen Details

15.72 Railing Details

15.73 Lighting and Luminaries

15.74 Architectural Details

15.75 Special Systems

Reinforcing Bar Lists

15.76 Preparation of Reinforcing Bar Lists

Load Rating

15.77 Load Rating (LRFR)
16 STRUCTURES – MOVABLE SPAN (NOT APPLICABLE)

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

Final Design Bascule Pier

16.1 Pier Deck

16.2 Leaf/Pier Clearance Diagrams

16.3 Load Shoe Columns

16.4 Trunnion Columns

16.5 Foundations

16.6 Footing

16.7 Seal

16.8 Back Wall (Approach Span Bearings) Closed Piers only

16.9 Bascule Pier Deck Elevations

Bascule Pier Dimension – Detailing

16.10 Pier Plan View

16.11 Pier Elevations Views

16.12 Pier Sections

Bascule Pier Reinforcing Details

16.13 Pier Reinforcing

Bascule Pier Miscellaneous Details

16.14 Pier Barrier Details

16.15 Stair Details

16.16 Handrail Details

16.17 Ladder and Hatch Details

16.18 Pier Equipment
16.19 Bascule Pier Notes and Summary of Quantities

16.20 Miscellaneous Details

   Bascule Leaf Design

16.21 Deck Design

16.22 Sidewalk Design

16.23 Stringer Design

16.24 Typical Floorbeam Design

16.25 End Floorbeam Design

16.26 Deep Floorbeam Design

16.27 Sidewalk Bracket Design

16.28 Roadway Bracket Design

16.29 Main Girder Influence Lines

16.30 Main Girder Design

16.31 Trunnion Girder Design

16.32 Main Girder Camber Data

16.33 Leaf Lateral Bracing Design

16.34 Counterweight Design

16.35 Live Load Shoe Design

16.36 Barrier Design

16.37 Deck Elevations

16.38 Balance Calculations

   Bascule Leaf Detailing

16.39 Bascule GP&E

16.40 Bascule Leaf Notes

16.41 Framing Plan
16.42 Flooring Plan and Details
16.43 Typical Section and Finish Grade Elevations
16.44 Girder Elevations
16.45 Girder Details
16.46 Camber Layouts
16.47 Floor Beams
16.48 Counterweight Girder/Box
16.49 Trunnion Girder
16.50 Cylinder Girder
16.51 Lateral Bracing Details
16.52 Counterweight Bracing Details
16.53 Joint Details
16.54 Traffic Barrier Details
16.55 Pedestrian Rail and Support Details
16.56 Curb and Sidewalk Details
16.57 Barrier and Sidewalk Bracket Details
16.58 Counterweight Details
16.59 Stress Table or Influence Lines
          Mechanical Design
16.60 Final Power Requirements
16.61 Trunnion Assembly
16.62 Span Locks
16.63 Sump Pumps
          Mechanical Drive Design

Drive Shafts, Couplings, Keys, Bearings, and Supports
16.64 Rack and Pinion, Bearings and Supports
16.65 Drive Train
16.66 Motor Brakes and Machinery Brakes

Hydraulic Drive Design

16.67 Hydraulic Drive

Machinery Detailing

16.68 Machinery Layout
16.69 Machinery Elevation
16.70 Machinery Section
16.71 Trunnion Assembly
16.72 Drive Details
16.73 Span Locks

Electrical Design

16.74 Load Analysis
16.75 Power Distribution
16.76 Drive Equipment
16.77 Bridge Controls
16.78 Grounding
16.79 Lighting and Surge Suppression
16.80 Pier Lighting

Electrical Detailing

16.81 Electrical Plan and Elevation
16.82 Electrical Symbols and Abbreviations
16.83 Single/Three Line Diagram
16.84 Panel Board and Light Fixture Schedules
16.85 Wire and Conduit Schedules and Diagrams
16.86 Control Desk/Panel Layout
16.87 Control Schematics
16.88 PLC Logic
16.89 Communication System
16.90 Navigation Lighting Details
16.91 Pedestrian Gate, Traffic Gate, and Barrier Details
16.92 Submarine Cable
16.93 Miscellaneous Details

   Control House
16.94 Architectural Design
16.95 Architectural Details
16.96 Structural Design
16.97 Structural Details
16.98 HVAC/Plumbing Design
16.99 HVAC/Plumbing/Electrical Cables

   Reinforcing Bar Lists
16.100 Preparations of Reinforcing Bar Lists

   Load Rating
16.101 Load Rating
17 STRUCTURES – RETAINING WALLS

The CONSULTANT shall prepare plans for Retaining Wall(s) as specified in Section 2.5

General Requirements

17.1 Key Sheet

17.2 Horizontal Wall Geometry

Permanent Proprietary Walls

17.3 Vertical Wall Geometry

17.4 Semi-Standard Drawings

17.5 Wall Plan and Elevations (Control Drawings)

Details

Temporary Proprietary Walls

17.7 Vertical Wall Geometry

17.8 Semi-Standard Drawings

17.9 Wall Plan and Elevations (Control Drawings)

Details

Cast-In Place Retaining Walls

17.11 Design

17.12 Vertical Wall Geometry

17.13 General Notes

17.14 Wall Plan and Elevations (Control Drawings)

17.15 Sections and Details

17.16 Reinforcing Bar List

Other Retaining Walls and Bulkheads

17.17 Design

17.18 Vertical Wall Geometry
17.19 General Notes, Tables, and Miscellaneous Details

17.20 Wall Plan and Elevations

17.21 Details
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

18.2 Concrete Box Culvert Extensions

18.3 Concrete Box Culvert Data Table Plan Sheets

18.4 Concrete Box Culvert Special Details Plan Sheets

Strain Poles

18.5 Steel Strain Poles

18.6 Concrete Strain Poles

18.7 Stain Pole Data Table Plan Sheets

18.8 Strain Pole Special Details Plan Sheets

Mast Arms

18.9 Mast Arms

18.10 Mast Arms Data Table Plan Sheets

18.11 Mast Arms Special Details Plan Sheets

Overhead/Cantilever Sign Structure

18.12 Cantilever Sign Structures

18.13 Overhead Span Sign Structures

18.14 Special (Long span) Overhead Span Sign Structures

18.15 Monotube Overhead Sign Structure

18.16 Bridge Mounted Signs (Attached to Superstructure)

18.17 Overhead and Cantilever Sign Structures Data Table Plan Sheets

18.18 Overhead and Cantilever Sign Structures Special Details Plan Sheets
High Mast Lighting

18.19 Non-Standard High Mast Lighting Structures

18.20 High Mast Lighting Special Details Plan Sheets

  Noise Barrier Walls (Ground Mount)

18.21 Horizontal Wall Geometry

18.22 Vertical Wall Geometry

18.23 Summary of Quantities – Aesthetic Requirements

18.24 Control Drawings

18.25 Design of Noise Barrier Walls Covered by Standards

18.26 Design of Noise Barrier Walls not Covered by Standards

18.27 Aesthetic Details

  Special Structures

18.28 Fender System

18.29 Fender System Access

18.30 Special Structures

18.31 Other Structures

  Ancillary Structures Reports

18.32 Condition Evaluation of Signal and Sign Structures, and High Mast Light Poles

18.33 Condition Evaluation of Signal and Sign Structures, and High Mast Light Poles (No As Built or Design Plans Available)

18.34 Analytical Evaluation of Signal and Sign Structures, and High Mast Light Poles

18.35 Ancillary Structures Report
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 Reference and 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

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

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 new modified sign panel which requires lighting.

19.7 Quantities

19.8 Cost Estimate


19.10 Other Signing and Pavement Markings Analysis
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19.11 Field Reviews
19.12 Technical Meetings
19.13 Quality Assurance/Quality Control
19.14 Independent Peer Review
19.15 Supervision
19.16 Coordination
20 SIGNING AND PAVEMENT MARKINGS 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

20.2 Summary of Pay Items Including Designer Interface Quantity Input

20.3 Tabulation of Quantities

20.4 General Notes/Pay Item Notes

20.5 Project Layout

20.6 Plan Sheet

20.7 Typical Details

20.8 Guide Sign Worksheet(s)

20.9 Traffic Monitoring Site

20.10 Cross Sections

20.11 Special Service Point Details

20.12 Special Details

20.13 Interim Standards

20.14 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 part of the contract. The CONSULTANT shall describe how the check 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 specifically designated for this project.

20.15 Supervision
21 SIGNALIZATION ANALYSIS

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

21.1 Traffic Data Collection

The CONSULTANT shall perform all efforts 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 Timespace 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 Interconnection 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

21.11 Cost Estimate

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 Conditions/Age
- Controller Cabinet Make, Model, and load bay type
- Condition of Signal Structure(s)
- Type of Detection as Compared with Current District Standards
- Interconnection Media
- Controller Timing Data
- Presence of LED Vehicular and Pedestrian Signal Indicators
- Presence of Signal Backplates
- Presence of Pedestrian Countdown Type Heads
- Presence of Accessible vs Standard Pedestrian Detectors

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 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 designated 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 include the following:

22.1 Key sheet
22.2 Summary of Pay Items Including Designer Interface Quantity Input
22.3 Tabulation of Quantities
22.4 General Notes/Pay Item Notes
22.5 Plan Sheet
22.6 Interconnect Plans
22.7 Traffic Monitoring Site
22.8 Guide Sign Worksheet
22.9 Special Details
22.10 Special Service Point Details
22.11 Mast Arm/Monotube Tabulation Sheet
22.12 Strain Pole Schedule
22.13 TCP Signal (Temporary)
22.14 Temporary Detection Sheet
22.15 Utility Conflict Sheet
22.16 Interim Standards
22.17 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 check 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.

22.18 Supervision
23 LIGHTING ANALYSIS

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

23.1 Lighting Justification Report

The CONSULTANT shall prepare a Lighting Justification Report. The report shall be submitted under a separate cover with the Phase I plans submittal, titled Lighting Justification Report. The reports shall provide analyses for mainlines, interchanges and arterial roads and shall include all back-up data such that the report stands on its own. Back up data shall include current ADT’s, general crash data average cost from the Florida Highway Safety Improvement Manual, crash details data from the last three years, and preliminary lighting calculations.

The report shall address warrants to determine if lighting warrants are met, and shall include a benefit cost analysis to determine if lighting is justified. The report shall include calculations for the night-to-day crash ratio as well as a table summarizing the day-time and the night time crashes. The report shall follow the procedures outlined in the FDOT Manual on Uniform Traffic Studies (MUTS) which utilizes ADT, Three Year Crash Data, night/day crashes ratio, percentages of night ADT, etc.

23.2 Lighting Design Analysis Report

The CONSULTANT shall prepare a Preliminary Lighting Design Analysis Report. 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 the Lighting Design Criteria that will be used. For project with corridor lighting, the report shall include the elevation 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 cost estimate that includes initial cost in addition to operations and maintenance cost for one year.

The report shall also include lighting calculations for each lighted sign.

After approval of the preliminary report, the CONSULTANT shall submit a revised report for each submittal. The lighting Design Analysis Report shall include.

Voltage drop calculations

Load analysis calculation for each branch circuit

23.3 Aeronautical Elevation
The CONSULTANT shall prepare an Aeronautical Evaluation/Airspace Analysis Report for those projects within [XX] miles of an airport. It shall be submitted for approval by the DEPARTMENT and by FAA prior to Phase II plans submittal.

The report shall include an evaluation of the glide slope of all adjacent airport runways (including future runways) and the preparation of the required FAA forms and special lighting calculations based on NO PENETRATION of the approach or transitional surfaces and coordination with the Airport Manager. The FAA’s Online Notice Criteria tool shall be used to determine preliminary notice requirements and coordination with local authorities having jurisdiction may also be required. See FAA tool link below. https://oeaaa.faa.gov/oeaaa/external/gisTools/gisAction.jsp?action=showNoNoticeRequiredToolForm

The report shall include a profile drawing for each condition affected by the runway approach and transitional surfaces. This drawing(s) shall show the roadway profile grade line at the edge of the shoulder pavement with proper baseline stations, the FAR Part 77-50:1 (or 34:1) approach surface line and the 7:1 transitional surface line. The scale of this drawing shall be 1”=100’ horizontal and 1’=10’ vertical. The proposed location of each lighting pole shall be properly shown at the respective station to clearly indicate that no penetration to either the approach surface or to the transitional surface is anticipated.

23.4 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.

23.5 FDEP Coordination and Report

23.6 Reference and Master Design File

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

23.7 Temporary Lighting

The CONSULTANT shall provide temporary lighting requirements for all affected phases of construction to light roadways in areas where required. The temporary lighting shall be included with the Traffic Control Plans with proper notes, illumination and uniformity criteria and details.

23.8 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).
- Structural calculations for the high mast pole foundations. Submitted as part of the Structural Calculations (Phase III and IV submittals).
- Correspondence with the power company concerning new electrical service and/or modifications to existing circuits, existing loads, and fault currents - Submitted as part of the Lighting Design Analysis Report (Phase IV submittal).
- 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).
- Arc flash hazard analysis - Submitted as part of the Lighting Design Analysis Report (Phase III and IV submittals).
- Short circuit analysis and device coordination - Submitted as part of the Lighting Design Analysis Report (Phase III and IV submittals).

23.9 Quantities

23.10 Cost Estimate


23.12 Other Lighting Analysis

The CONSULTANT shall perform a power design analysis for each new load center and shall include the analysis in the Lighting Design Analysis Report.

23.13 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

23.14 Technical Meetings

23.15 Quality Assurance/Quality Control

23.16 Independent Peer Review
23.17 Supervision

23.18 Coordination
24 LIGHTING PLANS

The CONSULTANT shall prepare a set of Lighting Plans in accordance with all applicable manuals, guidelines, standards, handbooks, procedures, and current design memorandums.

24.1 Key Sheet
24.2 Summary of Pay Item Sheet Including Designer Interface Quantity Input
24.3 Tabulation of Quantities
24.4 General Notes/Pay Item Notes
24.5 Pole Data, Legend and Criteria
24.6 Service Point Details
24.7 Project Layout
24.8 Plan Sheet
24.9 Special Details
24.10 Temporary Lighting Data and Details
24.11 Traffic Control Plan Sheets
24.12 Interim Standards
24.13 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 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 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.

24.14 Supervision
25 LANDSCAPE ARCHITECTURE ANALYSIS

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

25.1 Data Collection

All research required to collect data necessary to complete the initial design analysis. Includes identifying local ordinances and collection of other project data.

25.2 Site Inventory and Analysis for Proposed Landscape

Includes identification of opportunities and constraints for the proposed landscape project based on existing site conditions. Identify available planting areas for nursery landscape material. Summary of analysis, if required, is included in conceptual design.

25.3 Planting Design

Conceptual Design: Includes delineation of all proposed types, scheme development and preliminary costs and reports. The design shall be submitted with the Phase I plans.

Final design: Includes identifying the species/type, size, location, spacing, and quality of all plants.

25.4 Irrigation Design

Feasibility Report: Includes analysis of methods, materials, and operation costs associated with proposed irrigation system design.

Conceptual Design: Typically not done in master design file. Includes determination of water and power sources. Phase I design level.

Final Design: Includes all work in master design files. Irrigation Design includes, but is not limited to, the locations and sizes of pumps, pump stations, mainlines, lateral lines, irrigation heads, valves, backflow and control devices.

25.5 Hardscape Design

Conceptual design – scheme development and preliminary costs. Typically, not done in master design file. Delineation of areas and elements to be included in design. Select cut sheets, prepare image boards. Includes report, if required.

Final Design: Includes all work in master design files. Hardscape Design includes, but is not limited to, sidewalks, plazas, steps, foundation, walls, pedestrian bridges, non-regulatory signs and project graphics, roadway aesthetics, site furnishings.

25.6 Plan Summary Boxes.

25.7 Cost Estimates

25.9 Other Landscape Architecture

25.10 Outdoor Advertising

Includes all work required to determine locations of all outdoor advertising permitted within the roadway project limits. Includes all work required to determine the proposed view zones and the supporting documentation.

25.11 Field Reviews

25.12 Technical Meetings/Public Meetings

25.13 Quality Assurance/Quality Control

25.14 Independent Peer Review

25.15 Supervision

25.16 Project Coordination

25.17 Interdisciplinary Coordination
26 LANDSCAPE ARCHITECTURE PLANS

The CONSULTANT shall prepare a set of Landscape Plans which includes the following:

26.1 Key Sheet
26.2 Tabulations of Quantities
26.3 General Notes
26.4 Tree and Vegetation Inventory, Protection and Relocation Plans
26.5 Planting Plans for Linear Roadway Projects
26.6 Planting Plans for Interchanges and Toll Plazas
26.7 Plant Details and Notes

   The CONSULTANT shall include a written or graphic guide for care and maintenance of the irrigation system after the warranty period. This Maintenance Plan will be developed in coordination with the local government entity who assumes the maintenance obligation.

26.8 Irrigation Plans for Linear Roadway Project
26.9 Irrigation Plans for Interchange and Toll Plazas
26.10 Irrigation Details and Notes
26.11 Hardscape Plans
26.12 Hardscape Details and Notes
26.13 Maintenance Plan

   The CONSULTANT shall include a written plan for care and maintenance of the plants and beds, hardscape, and irrigation system after the warranty period. The landscape maintenance plan will be developed in performance based language and will be in coordination with the local government entity who assumes the maintenance obligation.

26.14 Cost Estimate
26.15 Quality Assurance/Quality Control
26.16 Supervision
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. The field books shall be certified by the surveyor in responsible charge of work being performed before the final product is submitted.

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 or Global Positioning System (GPS) procedures.

27.1 Horizontal Project Control (HPC)

Establish or recover HPC, for the purpose of establishing horizontal control on the Florida State Plane Coordinate system or datum approved by the District Surveyor (DS) or District Location Surveyor (DLS); 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)/Bench Line

Establish or recover VPC, for the purpose of establishing vertical control on datum approved by the District Surveyor (DS) or the District Location Surveyor (DLS); may include primary or secondary vertical control points. Includes analysis and processing of all field collected data, and preparation of forms.

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

Establish, recover or re-establish project alignment. Also includes analysis and processing of 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.

27.4 Aerial Targets

Place, locate, and maintain required aerial targets and/or photo identifiable points. Includes analysis and processing of all field collected data, existing maps, and/or reports. Placement of the targets will be at the discretion of the aerial firm.

27.5 Reference Points
Reference Horizontal Project Network Control (HPNC) points, project alignment vertical control points section, ¼ section, center of section corners and General Land Office (G.L.O.) corners as required.

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

Locate all above ground features and improvements for the limits of the project by collecting the required data for the purpose of creating a DTM with sufficient density. 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 or profiles. May include analysis and processing of all field-collected data for comparison with DTM.

27.9 **Side Street Surveys**

Refer to task of this document as applicable.

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.

*The CONSULTANT shall SUE 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.). The expectation is for the CONSULTANT to know exactly where all existing underground utilities and infrastructure are located in areas that work will be performed to properly design for any new underground infrastructure or earthwork excavation that will be constructed on the project.*

*The CONSULTANT’s approach to practicing SUE shall be consistent with the American Society of Civil Engineers (ASCE) Standard (CI/ASCE 38-02) entitled “Standard Guideline for the Collection and Depiction of Existing Subsurface Utility Data” as follows:*
• Identify utility owners that have facilities on, or may be affected by, the project limits. Contact these utility owners (face to face meetings recommended) and provide them with information about the proposed project and schedule periodic follow-up meetings. (ASCE Quality Level D).

• Review all information that can be obtained and plot on utility composite drawing (CADD file to be furnished). (ASCE Quality Level D).

• Make field observations to identify visible above-ground utility features. Provide all information in field sketches so surveyor can prepare a complete survey and plot a rectilinear grid. (ASCE Quality Level C)

• Use appropriate surface geophysical methods (i.e., pipe and cable locators, terrain conductivity methods, resistively measurements, metal detectors, Ground Penetrating Radar, etc.) to designate existing subsurface utilities or to trace a particular utility system. This provides two-dimensional horizontal information. Place paint marks on the ground. Place identification flags or stakes on the paint marks or coding on the pavement and survey to project controls. Depict resulting information via computer aided design and drafting (CADD). Provide notes and sketches to designer of record and/or on-site engineer. Nontonable (non-metallic) utilities will be discussed at this time with the designer of record and/or on-site engineer. (ASCE Quality Level B).

• Meet with designer of record and/or on-site engineer to determine utility conflicts and ASCE Quality Level A test hole locations.

• Expose selected subsurface utilities to obtain three-dimensional information. Use minimally intrusive excavation methods, such as vacuum excavation and Air-Lance. Depict resulting information. Resolve differences between all information gathered. Provide test hole data sheets (THDS) to designer of record and/or on-site engineer. All test holes are to be be back-filled as described below. (ASCE Quality Level A).

• Collect and store utility location and condition information in a database for asset management. Provide a detailed report of utility locations, depths, size, type, etc. All information shall be provided in the format requested by the DEPARTMENT.

27.11 Outfall Survey

Locate all above ground features and improvements for the limits of the project by collecting the required data for the purpose of a DTM. Survey with sufficient density of shots. Shoot all break lines, high and low points. Includes field edits, analysis and processing of all field collected data, existing maps, and/or reports.

27.12 Drainage Survey

Locate underground data (XYZ, pipe size, type, condition and flow line) that relates to the 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 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

Locate all topographic features and improvements for the limits of the project by collecting the required data. Includes field edits, analysis and processing of all field collected data, maps, and/or reports.

27.15 Pond Site Survey

Refer to tasks of this document as applicable.

27.16 Mitigation Survey

Refer to tasks of this document as applicable.

27.17 Jurisdiction Line Survey

Perform field location (2-dimensional) of jurisdiction limits as defined by respective authorities, also includes fields 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, or 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

Perform field location/placement of section corners, ¼ section corners, and fractional corners where pertinent. Includes analysis and processing of all field collected data and/or reports.

27.20 Subdivision Location

Survey all existing recorded subdivision/condominium boundaries, tracts, units, phases, blocks, street R/W lines, common areas. Includes analysis and processing of all field collected data and/or reports. If unrecorded subdivision is on file in the public records of the subject county, tie existing monumentation of the beginning and end of unrecorded subdivision.

27.21 Maintained R/W

Perform field location (2-dimensional) of maintained R/W limits as defined by respective authorities, if needed. Also includes field edits, analysis and processing of all field collected data, preparation of reports.
27.22 Boundary Survey

Perform boundary survey as defined by DEPARTMENT standards. Includes analysis and processing of all field-collected data preparation of reports.

27.23 Water Boundary Survey

Perform Mean High Water, Ordinary High Water and Safe Upland Line surveys as required by DEPARTMENT standards.

27.24 Right of Way Staking, Parcel/Right of Way Line

Perform field staking and calculations of existing/proposed R/W lines for on-site review purposes.

27.25 Right of Way Monumentation

Set R/W monumentation as depicted on final R/W maps for corridor and water retention areas.

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 Miscellaneous Surveys

Refer to tasks of this document, as applicable, to perform surveys not described herein. The percent for Supplemental will be determined at negotiations. This item can only be used if authorized in writing by the District Surveyor (DS), District Location Surveyor (DLS) or their representative.

27.29 Supplemental Survey

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

27.30 Document Research

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

27.31 Field Review

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

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

27.33 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.

27.34 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.

27.35 Coordination

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

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

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

28.1 Flight Preparation

Review record data, create target diagrams, and plan the mission.

28.2 Control Point Coordination

Determine photo identifiable control points, and mark contact prints.

28.3 Mobilization

Perform pre-and post-flight aircraft inspection, prepare the aircraft and camera for the mission.

28.4 Flight Operations

Operate the aircraft, aerial camera, and other instruments to obtain aerial photography.

28.5 Film Processing

Process, check, and annotate the aerial film.

28.6 Photo Products

Prepare contact prints, contact diapositives, and photo enlargements.

28.7 Scanning

Scan photographic images

28.8 LiDAR

Includes data acquisition, post processing of LiDAR data to XYZ coordinates for “bare earth” classification.

28.9 Aerial Triangulation

Measure and adjust control within aerial images.

28.10 Surfaces

Includes collection of break lines and spot elevations.
28.11 Ortho Generation

Includes creation of final images.

28.12 Rectified Digital Imagery (Georeferenced)

Create the rectified digital image.

28.13 Mosaicking

Create the mosaic.

28.14 Sheet Clipping

Create plot files for sheets from the database.

28.15 Topographics (3D)

Prepare topographic maps including surface and planimetrics (Photogrammetrist will not propose hours for Surfaces and Topographics).

28.16 Planimetrics (2D)

Prepare 2D planimetric map.

28.17 Drainage Basin

Includes preparing drainage basin maps in clipped “sheet” format.

28.18 CADD Edit

Perform final edit of graphics for delivery of required Microstation dgn, CADD and Geopak files.

28.19 Data Merging

Merge photogrammetric files, field survey files, and data from other sources.

28.20 Miscellaneous

Other tasks not specifically addressed in this document.

28.21 Field Review

Perform on site review of maps.

28.22 Technical Meetings

Attend meetings as required.

28.23 Quality Assurance/Quality Control
Establish and implement a QA/QC plan.

28.24 Supervision

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

28.25 Coordination

Coordinate with all elements of the project to produce a final photogrammetric product.
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 by this project to the DEPARTMENT for review at stages of completion as negotiated.

Title search reports furnished by the Consultant, will be done in accordance with the District’s Title Search "Scope of Services, Exhibit "A", Right of Way Mapping Procedure Topic No.: 550-030-015-e and the Right of Way Mapping Handbook. All title search work will be performed by a qualified title company or abstractor licensed to do business in the State of Florida. The Consultant’s selection of a qualified title company or abstractor shall be closely coordinated with the Department’s Mapping Abstractor. The consultant shall be required to submit to the Department, copies of each title search report upon receipt from the title company.

Master CADD File

29.1 Alignment

29.2 Section and ¼ Section Lines

29.3 Subdivision/Property Lines

29.4 Existing Right of Way

29.5 Topography

29.6 Parent Track Properties and Existing Easements

29.7 Proposed Right of Way Requirements

At the Preliminary Right of Way Review stage (Activity-Event 210) the ENGINEER OF RECORD (EOR) will provide to the PSM, the proposed (preliminary) requirements along with the intended use or purpose of any easements. The EOR will provide the final requirements in approved CADD format to the PSM along with Phase II roadway plans and or Final Pond Siting Report. The PSM is responsible for calculating the final geometry. Notification of Final Right of Way Requirements (Activity-Event 322) along with the final purpose and duration of any easements, will be accomplished via letter to the PSM with copies to the DEPARTMENT’S Project Manager and District Right of Way Surveyor.

29.8 Limits of Construction
The limits of construction DGN file as provided by the EOR will be imported or referenced to the master CADD file. Additional labeling will be added as required. The PSM is required to advise the EOR of any noted discrepancies between the limits of construction line and the existing/proposed right of way lines, and for making adjustments as needed when a resolution is determined.

29.9 Jurisdictional/Agency Lines

The lines may include, but are not limited to, jurisdictional, wetland, water boundaries, and city/county limit lines.

Sheet Files

29.10 Control Survey Cover Sheet

29.11 Control Survey Key Sheet 1"=400’

29.12 Control Survey Detail Sheets 1"=40’

29.13 Right of Way Map Cover Sheet

29.14 Right of Way Map Key Sheet 1"=400’

29.15 Right of Way Map Detail Sheet 1"=40’ (Includes Right of Way Monumentation Symbols)

29.16 Maintenance Map Cover Sheet (If Applicable)

29.17 Maintenance Map Key Sheet (If Applicable)

29.18 Maintenance Map Detail Sheet (If Applicable)

29.19 Reference Point Sheet

This sheet(s) will be included with the Control Survey Map, Right of Way Map and Maintenance Map.

29.20 Project Network 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.

29.21 Table of Ownership Sheet – Right of Way Map Only

Miscellaneous Surveys and Sketches

29.22 Parcel Sketches (If Applicable)
29.23 TIITF Sketches (If Applicable)
29.24 Other Specific Purpose Survey(s) (If Applicable)
29.25 Boundary Survey(s) Map (If Applicable)
29.26 Right of Way Monumentation Map (If Applicable)
29.27 Title Search Map – N/A
29.28 Title Search Report
29.29 Legal Descriptions

CONSULTANT will provide (GeoPak Legals Only).

29.30 Final Maps/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. The PSM will submit along with the 100% Right of Way Map, a confirmation letter from the EOR that the Maps have been compared to and are in agreement with the construction plans.

29.31 Field Reviews

Perform verification of the field conditions as related to the mapping data.

29.32 Technical meetings

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

29.33 Quality Assurance/Quality Control

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

An independent peer review of the, thirty percent (30%) and the ninety (90%) percent Right of Way Maps provided by a Surveying and Mapping sub consultant that is not responsible for the original Mapping efforts. All peer review comments will accompany each respective submittal to the Department. Note: Consultant must submit mark-ups of office copies of QA/QC.

29.34 Supervision

29.35 Coordination
The CONSULTANT shall provide, by email, a monthly mapping progress update report to the District Right of Way Surveyor, and shall provide a copy of the email to the DEPARTMENT Project Manager.

29.36 Supplemental Mapping (If Applicable)

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 LiDAR tasks in accordance with all applicable statutes, manuals, guideline, 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., 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 the 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 digitation 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 maps(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

Order 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.
ARCHITECTURE DEVELOPMENT

Phase I – 30% DESIGN Development

After receipt of written authorization to proceed from the DEPARTMENT and based on the approvals and any authorized adjustments to the Project Scope, Project Schedule or Budget, the Design Professional shall prepare, submit and present for approval by the DEPARTMENT, Phase I (30%) documents, comprised of, but not limited, to the following:

Documents

- Architectural and Civil site plan(s) showing, in addition to site survey requirements, landscaping, drainage, water retention ponds, sewage disposal and water-supply system, chilled water supply and return piping and such physical features that may adversely affect or enhance the safety, health welfare, visual environment, or comfort of the occupants.

- A statement on the site plan signed and dated by the Design Professional or his designated subconsultant, including identifying the number of existing trees, the number and size of required trees, and the number of proposed trees to be planted, and other relevant features.

- Soil testing results including a copy of the Geotechnical Engineer’s report on the site, and proposed method of treatment when unusual soil conditions or special foundation problems are indicated.

- Review of anticipated LEED points and certification level; adjust attempted points as needed to meet target certification level.

Drawing(s) to include as a minimum, the following deliverables:

- Floor plans drawn at an architectural scale that will allow the entire facility to be shown on one sheet, without break lines, and which indicates project phasing as applicable to the Scope.

- Floor plans drawn at 3/32 inch or larger scale showing typical occupied spaces or special rooms with dimensions, sanitary facilities, stairs, elevators, identification of accessible areas for the disabled and other program requirements.

- Floor plans drawn at 3/32 inch or larger scale showing typical spaces or special rooms with dimensions, indicating door and window layouts and other relevant features.

- For alterations or additions to an existing facility: Indicate the connections and ties-ins to the existing facilities, including all existing spaces, exits, plumbing fixtures and locations and any proposed changes thereto. Distinguish between new and existing areas for renovation, remodeling, or an addition and show demolition plans of areas to be removed.

- Furniture and Equipment plans draw at 1/8 inch or larger scale showing typical spaces or special rooms with dimensions, major lighting equipment and ceiling panel layouts.

- Reflected ceiling plans drawn at 3/32 inch or larger scale showing typical spaces or specials room with dimensions, major lighting equipment and ceiling panel layouts.
Roof and miscellaneous plans to be drawn at 3/32 inch or larger scale showing dimensioned features, penetrations, equipment and other relevant features.

Plumbing fixture locations and fixture unit calculations, isometrics, one-line diagram and riser details, schedule of common fixtures and other relevant features.

All exterior building elevations to illustrate and indicate the scale, finish, size and fenestration of the facility.

Sufficient building and wall sections to show dimensions, proposed construction material, and relationship of finished floor to finished grades.

Preliminary Structural drawings to include plans and sections indicating systems, connections and foundations.

Mechanical Drawings to include ceiling plans with a single line duct layout, location of grease trap(s), LP gas tank location, natural gas piping to existing utilities. Provide narrative description to include a description of proposed HVAC system equipment including the chiller, pumps, AHUs, cooling tower, electric duct heaters and other relevant features.

Electrical Drawings include plans with lighting layouts for outdoors and major interior spaces and electrical outlets for all major spaces. Show location of electrical rooms, transformers, emergency generator. Also show locations of mechanical equipment such as chillers, compressors and air handler units and their respective electrical connections and other relevant features.

Equipment and Furnishing Schedules to indicate major equipment that will be provided by the Contractor and those that will be provided by the DEPARTMENT or others.

Life-Safety plans to show exit strategy, rated doors, emergency wall openings, range and fume hoods, eye wash, emergency showers, ramps, vertical lifts, and other relevant features.

By symbol, indicate fire extinguishers, fire alarm equipment, smoke vents, master valves and emergency disconnects, emergency lighting, emergency power equipment, fire sprinklers, exit signs, smoke and fire dampers, and other life-safety equipment relevant to the facility.

By symbol, indicate connections and tie-ins to existing equipment.

For existing facilities where remodeled or renovated spaces are required and where an ADA and code conforming ramp cannot be utilized, document proposed vertical platform lifts or inclined wheelchair lifts and provide the following documents as part of or in addition to the required life safety plans:

Floor plans of proposed vertical platform lifts including layout drawings showing corridor widths and exiting from the affected facility.

Sketches of proposed inclined wheelchair lift to include layout drawings showing clear and affected areas of the following conditions: stairway width in the folded and unfolded position, the upper and lower platform storage locations, and the means of egress from the affected areas of the facility.

31 ARCHITECTURE DEVELOPMENT
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Outline Specifications

- Organized to conform to the formats for outline specifications as established by the Construction Specification Institute’s current edition of Master Format on the date of execution of the Contract.

- Complete the Divisions 2 through 16 finishes, material, and systems including structural, HVAC, electrical, plumbing and specialty items, including fire sprinklers, alarm systems, electronic controls and computer networking components.

Other Requirements

- Provide a Life-Cycle Cost Analysis (LCCA) for review and approval. LCCA shall be by a commercially available life-cycle cost analysis program and as required by the State of Florida and the DEPARTMENT.

- Design to meet or exceed Florida Energy Efficiency Code for Building Construction (FEEC). Submit completed FEEC forms, including, calculations for mechanical systems, documenting energy efficiency ratio rating of HVAC equipment electrical systems, insulation, and building envelope shall be submitted to the DEPARTMENT for review and approval.

- The Design professional shall advise the DEPARTMENT of any adjustments to the budget and shall submit a fully detailed Phase I estimate of probable construction costs, projected to the expected time of bid and containing sufficient detail to provide information necessary to evaluate compliance with the Construction Budget set for this project. Format estimate and provide detail matching the organization and content of the project’s Outline Specifications complete for division 2 through 16.

- Provide an updated Project Development Schedule reflecting development and anticipated schedules for all subsequent project activities.

- Preliminary color boards to review two color election schemes.

Staff from each of the Design Professional’s major technical disciplines, and subconsultant’s shall attend coordination, review and presentation meetings with the Owner to explain the design concept and technical resolutions of their respective building or site systems.

The Design Professional shall submit five (5) sets of all documents required under this phase without additional charge, for approval by the Owner. The Design professional shall not proceed with the next phase until the completion of all required presentations and reports and receipt of a written Authorization to Proceed with the next phase.

**PHASE II – 60% DOCUMENTS:**

After written Authorization to Proceed from DEPARTMENT and based on the approved Phase I documents, and any adjustments in the scope or quality of the project or in the Fixed Limit of Construction cost authorized by DEPARTMENT, the Design Professional shall prepare for approval by DEPARTMENT, Phase II (60% Construction) Documents setting forth in detail the requirements for the construction of the Project. The Design Professional is responsible for the full compliance of the design with all applicable codes. Phase II documents comprised of, but not limited to, the following:

Documents
Updated Florida Energy Efficiency Code for Building Construction (FEEC) compliance forms.

Calculations: Provide preliminary calculations for structural, mechanical and electrical systems.

Review of anticipated LEED points and certification level; adjust attempted points as needed to meet target certification level.

Drawings

Site Plan(s) and detailing which, in addition to the Phase I requirements, indicate the following:

- Spot elevations, based on the civil grading plan for the perimeter of the new construction, sidewalk, or any other areas pertinent to the drainage of rainwater.
- Location of storm water services for new construction roof drainage.
- Parking lot lighting poles, location and type.
- Final location for manholes, handholds, and pull boxes.
- Layout of underground distribution systems (normal power emergency power, fire alarm, master clock, intercommunication, television, telephone, security, control and spares).
- Location of all site improvements, playground and equipment, street furniture, planters and other features.
- Details of all curbing, typical parking spaces (regular and handicap accessible), handicap ramps, directional signage, site lighting, flagpole and fence foundations, and any other site conditions pertinent to the scope of work.

A plan to delineate staging areas, site barriers, and other area designations to control the public from construction activities and traffic.

Landscape plans and details including, a plant list clearly noted and cross referenced, details for shrub and tree plantings, identification of plants and trees to remain, to be removed or relocated, and other necessary documentation.

Irrigation plans and details delineating the entire area of the project, and addressing necessary connections, alterations, repair or replacement of any existing irrigation.

Floor plans to include the following:

- All dimensions and any cross references explaining the extent of work, wall types, or other component, assembly or direction regarding the Construction.
- Wall chases, floor drains and rainwater leaders.
- Show structural tie columns and coordinate with the floor plan.
- Cross referenced interior elevations.
- Delineate and note all built-in cabinetry or equipment.
- Identify room and door numbers with all doors having individual numbers.

Demolition Plans

Indicate required demolition activities.

- Provide separate demolition plan(s) and other drawings (elevations, sections, etc.) if the scope of work includes demolition which is too excessive to indicate in drawings depicting new construction.
Indicate notes on the extent of the demolition: address dimensions at location where partial walls are being removed or altered, existing room names and numbers, existing partition, equipment, plumbing, HVAC or electrical elements.

Include notes dealing with protection of existing areas as a result of demolition.

Delineate any medications to existing building involving structural elements within the structural documents rather than on the architectural.

Building elevations developed further than a Phase II and including delineation of building joints (including dimensionally located stucco control joints), material locations, elevation height, and other building features.

Building and wall sections to establish vertical controls and construction types. Include clear graphic, and notes on construction assemblies and systems to be used, dimensions, heights. Provide associated detailing to delineate solutions for difficult connections.

Reflected ceiling plans to indicate ceiling types, heights, ceiling grid layout, light fixture types, mechanical diffuser and return location, and sprinkler heads if area is sprinklered. Delineate and detail any dropped soffits or joint conditions between different materials. Coordinate with architectural, electrical, mechanical, and plumbing disciplines.

Roof Plans

Indicate all roof penetrations, including drains, scuppers, exhaust fans, and any other equipment on the roof. Show direction of roof slopes with elevations at the high and low points, type of roofing system to be used, expansion joints, typical parapet, and flashing details.

Provide dimension to locate all penetrations and cross-reference details.

Large scale building details as appropriate to this level of document development and as required to establish vertical controls for the Project. Include clear graphics and notes on construction assemblies and systems to be used, and dimensions and heights. Provide associated detailing to delineate solutions for difficult connections.

Interior elevations of all rooms including cross references of cabinetry details, dimensions and heights, notes indicating type of equipment (and whether equipment is in or out of contract), wall materials, finishes, and classroom equipment, and accessories.

Details of casework as necessary to appropriately delineate custom or pre-manufactured casework. Provide appropriate schedules referencing manufacturer’s numbers or catalogs, finishes, hardware, and other construction characteristics.

Details of the following:

- Door jamb, head and sill conditions.
- Wall and partition types
- Window head, sill and jamb conditions, and anchorage methods shown, in lieu of referencing manufacturer’s standards.
- Interior signage to include classroom and building identification, emergency exiting and equipment signs, and any other items pertinent to the identification of the project. Coordinate with electrical discipline.
- Interior and exterior expansion control connections.
• Any other specialized items necessary to clearly express the intent of the project design.

Room finishes and door schedules coordinated with the floor plans, developed to 60% completion.

Structural foundation and framing plans, with associated diagrams, schedules, notes, detailing and section drawings completed sufficiently to communicate the design intent and coordination with other disciplines.

Mechanical Drawings.

• Provide double line ductwork layout and HVAC equipment layout drawings with related diagrams and schematic diagrams, schedules, notes, detailing and section drawings completed sufficiently to communicate the design intent and coordination with other disciplines.
• Provide plumbing equipment, and fixture drawings with related diagrams, schedules, notes, detailing and section drawings completed sufficiently to communicate the design intent and coordination with other disciplines.
• Provide dimensioned ½ inch scale plans, elevations and sections of the mechanical rooms showing service, clearance, room openings, nominal equipment size, ceiling height, duct clearance between bottom of joist and top of ceiling and any ceiling mounted lighting fixtures, electrical equipment or other building assembly or components etc.

Electrical

Provide drawings for the following systems:

• Lighting including circuiting and luminaire identification and switching. Also provide illuminance computer print-out for all indoor typical spaces and parking lots.
• Convenience outlets and circuiting, special outlets and circuiting, and power systems and equipment. Provide riser diagrams for all electrical systems including master clock, intercom, fire alarm, ITV, computer networking/telephone. Also, provide emergency and normal power distribution. Provide light fixture schedule.
• Panel schedule may be in preliminary form but circuitry must be included.
• Applicable installation details.
• General legend and list of abbreviations.
• Voltage drop computations for all main feeders.
• Short circuit analysis.
• Provide ½ inch scale floor plan and wall elevations for all electrical rooms.
• Indicate surge protection for main switchboard and electrical panels.

Structural

• Provide preliminary Project Manual including front-end documents. Completion of fill-in items in Bidding documents and other “Division 0” documents is not required.
• Provide a preliminary Division 1 based upon the standard documents provided by the Owner and edited by the Design Professional after consultation with the Owner to establish project specific requirements.
• Include progress set of all other Sections in Division 2-16 with each section developed to demonstrate to the Owner an understanding of the project and an appropriate level of developmental progress comparable to that of the drawings.

• Specification sections shall be organized to follow the Construction Specification Institute’s (CSI) current edition of Master Format with each section developed to include CSIs standard 3-part section and page formats with full paragraph numbering.

An updated Project Development Schedule, formatted as a preliminary construction schedule reflecting continued Project Development and illustrating anticipated schedules for all subsequent project activities including permitting submittal coordination with all agencies having jurisdiction of the Project, project phasing, site, mobilization, temporary facilities, general construction sequencing, anticipated substantial completion dates, DEPARTMENT occupancy, and all other signficate Project events.

Color boards illustrating color selections, finishes, textures and aesthetic qualities for all finish materials for final review and approval by the DEPARTMENT, and to establish a final palette of material selections for development of subsequent specifications, schedules and other requirements for incorporation into the Contract Documents.

A letter from the Design Professional and each of the major technical disciplines and any necessary subconsultants or explaining how each previous comment concerning the project has been addressed or corrected.

Staff from each of the Design Professional’s major technical disciplines, and subconsultants shall attend coordination, review and presentation meetings with the Owner to explain the design concept and technical resolution of their respective building or site systems.

The Design Professional’s major technical disciplines and subconsultants shall attend coordination, review and presentation meetings with the Owner to explain the design concept and technical resolution of their respective building or site systems.

The Design Professional shall submit five (5) sets of all documents required under this phase without additional charge, for approval by the Owner. The Design Professional shall not proceed with the next phase until the completion of all required presentations and reports and receipt of a written Authorization to Proceed with the next phase.

**PHASE III – 100% CONSTRUCTION DOCUMENTS SUBMITTAL**

After written Authorization to Proceed from DEPARTMENT and based on the approved Phase II documents and any adjustments in the scope of quality of the project or in the Fixed Limit of Construction Cost authorized by DEPARTMENT, the Design Professional shall prepare for approval by the DEPARTMENT, Phase III (100% Construction) Documents setting forth in detail the requirements for the construction of the Project. The Design Professional is responsible for the full compliance of the design with all applicable codes. Phase III documents are to be comprised of, but not limited to, the following.

**General Requirements**

Updated Florida Energy Efficiency Code for Building Construction (FEEC) compliance forms. Submit five (5) copies signed and sealed by a State of Florida registered design professional.
Signed and Sealed/Statements of Compliance: Only complete documents, properly signed and sealed by the Project Consultant and respective subconsultants, will be accepted for review. In addition, the documents shall contain a statement of compliance by the architect or engineer of record as follows: “To the best of my knowledge and belief these drawings and the project manual are complete, and comply with the Department of Transportation Requirements”.

Submit engineering calculations for mechanical, electrical, and structural systems in a separately bound manual.

Review of anticipated LEED points and certification level; adjust attempted points as needed to meet target certification level.

Drawings

The drawings shall include all previous phase review requirements, and the Phase III 100% document requirements specified above, along with the following:

- Site plans including, but not limited to, area location maps, legal description of property demolition, excavation, utilities, finish grading, landscaping, mechanical, electrical, civil/structural, and architectural site plans.
- Drawings include at a minimum, the following:
  - Key sheets including a table of contents and statement of compliance by the design professional. Each discipline shall have a list of abbreviations, schedule of material indications, and schedule of notations and symbols at the beginning of their section of the plans.
- Architectural drawings including floor plans, door, window and finish schedules, roof plans, elevations, sections, and details.
- Civil/Structural drawings including paving, traffic loops, service drives, parking, drainage, foundation plans, floor plans, roof plans, structural plans, structural plans sections, details, and pipe, culvert, beam and column schedules.
- Mechanical drawings, including floor plans, sections, details, riser diagrams, kitchen exhaust hoods, and equipment, fan and fixture and schedules.
- Electrical drawings including floor plans, section, details, riser diagrams, and fixture and panel schedules.
- The drawings should indicate that the approved mechanical/electrical systems, from the previous phases FEEC/LCCA analysis, have been incorporated into the documents.

Staff from each of the Design Professional’s major technical disciplines, and subconsultants shall attend coordination, review and presentation meetings with the Owner to explain the design concept and technical resolution of their respective building site systems.

The Design Professional shall submit five (5) sets of all documents required under this phase without additional charge, for approval by the Owner. The Design Professional shall not proceed with the next phase until the completion of all required presentations and reports and receipt of a written Authorization to Proceed to the next phase.

**PHASE IV FINAL CONSTRUCTION DOCUMENTS SUBMITTAL:**

After written Authorization to Proceed from the DEPARTMENT and based on the approved Phase III documents and any adjustments in the scope or quality of the project or in the Fixed Limit of Construction Cost authorized by the DEPARTMENT, the Design Professional shall
prepare for approval by the DEPARTMENT, Phase IV (Final Construction) Documents setting forth in detail the requirements for the construction of the Project: The Design Professional is responsible for the full compliance of the design with all applicable codes. Phase IV documents are to be comprised of, but not limited to, the following:

General Requirements

- This submittal is the official record set and shall be the bid documents.
- Signed and Sealed/Statements of Compliance: Only complete documents, properly signed and sealed by the Project Consultant and respective subconsultants, will be accepted for review. In addition, these documents shall contain a statement of compliance by the architect or engineer of record as follows: “To the best of my knowledge and belief these drawings, and the project manual are complete, and comply with the DEPARTMENT of Transportation Requirements”.
- Submit engineering calculations for mechanical, electrical, and structural systems in a separately bound manual.
- Update anticipated LEED points and certification level; adjust attempted points as needed to meet target certification level.

Drawings

- The drawings shall include all previous phase review requirements, and the Phase IV final documents requirements specified above, along with the following:
- Site plans including, but not limited to, area location map, legal description of property, demolition, excavation, utilities, finish grading, landscaping, mechanical, electrical civil/structural, and architectural site plans:
- Drawings include at a minimum, the following:
  - Key Sheets including table of contents and statement of compliance by the Design Professional. Each discipline shall have a list of abbreviations, schedule of material indications, and schedule of notations and symbols at the beginning of their section of the plans.
  - Architectural drawings including floor plans, door, window and finish schedules, roof plans, elevations, sections and details.
  - Structural drawings including foundation plans, floor plans, roof plans, structural plan, section, detail, and beam and column schedules.
  - Mechanical Drawings including floor plans, sections, details, riser diagrams, kitchen exhaust hoods, and equipment, fans, and fixture schedules.
  - Electrical drawings, including floor plans, sections, details, riser, diagrams, and fixture and panel schedules.
  - The drawings should indicate the approved mechanical/electrical systems, from the previous phases FEEC/LCCA analysis, have been incorporated into the documents.

Upon completion of the Final Construction Documents, the Design Professional shall submit to the Owner five (5) copies of the Drawings, Specifications, reports, programs, a final updated Project Development Schedule, a final updated State of Probable Construction Cost and such other documents as reasonably required by Owner.

All documents for this phase shall be provided in both hard copy and in electronic media. The DEPARTMENT will approve Phase IV documents for submission to the DEPARTMENT for review and approval.

31 ARCHITECTURE DEVELOPMENT
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Architectural Plans.

31.1 Architectural Program Review/Verification
31.2 Key Sheet and Index of Sheets
31.3 General Notes, Abbreviations, Symbols, and Legend
31.4 Life Safety Plan(s)
31.5 Site Plan(s)
31.6 Floor Plan(s) (Small Scale)
31.7 Floor Plan(s) (Large Scale)
31.8 Exterior Elevation(s)
31.9 Roof Plan(s)
31.10 Roof Details
31.11 Interior Elevations(s)
31.12 Rest Room Floor Plan(s) (Enlarged)
31.13 Rest Room Elevations(s)
31.14 Building Section(s)
31.15 Stair Section, Enlarged Stair Plan and Details
31.16 Reflective Ceiling Plan(s)
31.17 Room Finish Schedule or Finish Plan
31.18 Door and Window Finish Schedule
31.19 Door Jamb Details(s) and Window Details
31.20 Exterior Wall Section(s)
31.21 Interior Wall Section(s)
31.22 Overhead Door Detail(s)
31.23 Curtain Wall Detail(s)
31.24 Fascia, Soffit and Parapet Details
31.25  Signage Detail(s)
31.26  Miscellaneous Detail(s)
31.27  Repetitive Sheets
31.28  Design Narrative Reports
31.29  Permitting
31.30  Other Pertinent Project Documentation
31.31  Cost Estimate
31.32  Technical Special Provisions and Modified Special Provisions Packages
31.33  Field Reviews
31.34  Technical Meetings
  FDOT
  Local Government (cities)
  Local Governments (counties)
  Other Meetings
  Progress Meetings
  Phase Review Meetings
31.35  Quality Assurance/Quality Control
31.36  Meeting with Independent Peer Review
31.37  Supervision

Structural Plans
31.38  General Notes, Abbreviations, Symbols, and Legend
31.39  Foundation Plan(s) (Small Scale)
31.40  Foundation Plan(s) (Large Scale)
31.41  Slab Plan(s) (Small Scale)
31.42  Slab Plan(s) (Large Scale)
31.43 Slab Placement Plan(s)
31.44 Slab Placement Details
31.45 Foundation Section(s)
31.46 Foundation Detail(s)
31.47 Slab Section(s)
31.48 Slab Detail(s)
31.49 Roof Framing Plan(s) (Small Scale)
31.50 Roof Framing Plan(s) (large Scale)
31.51 Roof Loading Plan(s) and Detail(s)
31.52 Roof Section(s)
31.53 Roof Details(s)
31.54 Bearing Wall Section(s)
31.55 Bearing Wall Detail(s)
31.56 Column Section(s)
31.57 Column Detail(s)
31.58 Miscellaneous Sections
31.59 Repetitive Sheets
31.60 Other Pertinent Project Documentation
31.61 Cost Estimate
31.62 Technical Special Provisions and Modified Special Provisions Packages
31.63 Fields Reviews
31.64 Technical Meetings

FDOT
Local Government (cities)
Local Governments (counties)
Other Meetings
Progress Meetings
Phase Review Meetings

31.65 Quality Assurance/Quality Control
31.66 Independent Peer Reviews
31.67 Supervision

Mechanical Plans

31.68 General Notes, Abbreviations, Symbols, Legend, and Code Issues
31.69 Plan(s) (Small Scale)
31.70 Plan(s) (Large Scale)
31.71 Details(s)
31.72 Section(s)
31.73 Piping Schematic(s)
31.74 Control Plan(s)
31.75 Schedule(s)
31.76 HVAC Calculations
31.77 Life Cycle Cost Analysis
31.78 Repetitive Sheets
31.79 Other Pertinent Project Documentation
31.80 Cost Estimate
31.81 Technical Special Provisions and Modified Special Provisions Packages
31.82 Field Reviews
31.83 Technical Meetings

FDOT
Local Government (cities)
Local Governments (counties)

Other Meetings

Progress Meetings

Phase Review Meetings

31.84 Quality Assurance/Quality Control

31.85 Independent Peer Review

31.86 Supervision

   Plumbing Plans

31.87 General Notes, Abbreviations, Symbols, Legend, and Codes Issues

31.88 Plan(s) (Small Scale)

31.89 Plans(s) (Large Scale)

31.90 Isometric(s) (Large Scale)

31.91 Riser Diagram(s)

31.92 Details(s)

31.93 Repetitive Sheets

31.94 Other Pertinent Project Documentation

31.95 Cost Estimate

31.96 Technical Special Provisions and Modified Special Provisions Packages

31.97 Field Reviews

31.98 Technical Meetings

   FDOT

   Local Governments (cities)

   Local Governments (counties)

   Other Meetings

   Progress Meetings

   Phase Review Meetings

31 ARCHITECTURE DEVELOPMENT
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31.99 Quality Assurance/Quality Control

31.100 Independent Peer Review

31.101 Supervision

Fire Protection Plans

31.102 General Notes, Abbreviations, Symbols, Legend, and Code Issues

31.103 Fire Protection Plan

31.104 Riser Diagram, Details, and Partial Plans

31.105 Hydraulic Calculation

31.106 Repetitive Sheets

31.107 Other Pertinent Project Documentation

31.108 Cost Estimate

31.109 Technical Special Provisions and Modified Special Provisions Packages

31.110 Field Reviews

31.111 Technical Meetings

Local Governments (cities)

Local Governments (counties)

Other Meetings

Progress Meetings

Phase Review Meetings

31.112 Quality Assurance/Quality Control

31.113 Independent Peer Review

31.114 Supervision

Electrical Plans

31.115 General Notes, Abbreviations, Symbols, Legend, and Code Issues

31.116 Electrical Site Plan

31 ARCHITECTURE DEVELOPMENT
A-154
31.117 Lighting Plan(s)
31.118 Lighting Fixtures Schedule(s)
31.119 Lighting Fixtures Detail(s)
31.120 Lighting Protection Plan(s)
31.121 Lighting Protection Details
31.122 Power Plan(s)
31.123 Power Distribution Riser Diagram(s)
31.124 Panel Board Schedule(s)
31.125 Data Plan(s)
31.126 Data Detail(s)
31.127 Communication Plan(s)
31.128 Communication Detail(s)
31.129 Security Alarm System Plan(s)
31.130 Miscellaneous Detail(s)
31.131 Repetitive Sheets
31.132 Energy Analysis
31.133 Other Pertinent Project Documentation
31.134 Cost Estimate
31.135 Technical Special Provisions and Modified Special Provisions Packages
31.136 Fields Reviews
31.137 Technical Meetings

FDOT
Local Governments (cities)
Local Governments (counties)
Other Meetings
Progress Meetings

Phase Review Meetings

31.138 Quality Assurance/Quality Control

31.139 Independent Peer Review

31.140 Supervision

31.141 LEED Certification

31.142 Coordination

31.143 Building Information Modeling (BIM)
32 NOISE ANALYSIS AND NOISE BARRIER DESIGN

32.1 Noise Study

The CONSULTANT will perform this task to enable the DEPARTMENT to obtain the Project’s LDCA. If the Project is determined to be a Type III project (based on 23 CFR §772.5), the CONSULTANT will state that in the Environmental Document.

The CONSULTANT shall perform noise analysis, noise abatement evaluation, and assessment of construction noise and vibration in accordance with the Part 2, Chapter 18 of the PD&E Manual and the Department’s Traffic Noise Modeling and Analysis Practitioners Handbook. Analysis of special use locations shall be performed using the DEPARTMENT’s “A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations” document and shall be coordinated with the District Environmental Management Office.

The CONSULTANT will attend a noise study methodology meeting with the DEPARTMENT prior to beginning analysis.

The CONSULTANT will document methodology and results of noise analysis and noise abatement evaluation in the Noise Study Report (NSR). The CONSULTANT will provide an electronic copy of the NSR, in PDF format, as well as all TNM input/output files, and “readme” file that support the information documented in the report.

32.2 Noise Barrier Evaluation

After LDCA is granted and during preparation of final design plans, the CONSULTANT shall review the PD&E commitments regarding feasible and reasonable noise barriers. The CONSULTANT will coordinate with the DEPARTMENT Project Manager and the District Environmental Management Office, prior to initiating any noise analysis to discuss possible effects of design changes on the validity of the PD&E noise study commitments.

The CONSULTANT shall perform a land use review to identify noise sensitive sites that may have received a building permit subsequent to the PD&E noise study but prior to the Date of Public Knowledge (DPK), or to identify areas where the land use may have changed or is subject to change. The CONSULTANT shall perform a noise analysis on new noise sensitive sites meeting DPK requirements that were not considered during the PD&E noise study.

After coordination with the District Environmental Management Office, the CONSULTANT shall perform analysis of special use using the DEPARTMENT’s “A Method to Determine Reasonableness and Feasibility of Noise Abatement at Special Use Locations” document.

The CONSULTANT shall identify any design changes that would affect noise barrier feasibility and reasonableness determination documented in the Environmental Document and NSR. The CONSULTANT will evaluate proposed noise barriers (locations, barriers heights and lengths) to identify any engineering conflicts or constraints.
The CONSULTANT shall re-analyze noise barrier(s) for feasibility and reasonableness and re-establish barrier height and length if design constraints require alteration in a barrier's location or dimensions. In addition, the CONSULTANT will also consider the overall visual appearance in relation to the existing and proposed site conditions. This includes smoothing the profile along the top of a noise barrier to the extent possible while minimizing any loss in the amount of noise reduction provided and extending the ends of a noise barrier to cover additional receivers. Extending the ends of a noise barrier will not exceed the cost criteria and will only be performed when it is appropriate and in the public interest. The CONSULTANT will document in the NSR Addendum any resolutions to engineering conflicts or issues that require modification to or preclude construction of a noise barrier.

After reestablishing the recommended height and length of the barrier(s), the CONSULTANT shall coordinate with design engineers and the District Environmental Management Office to include the barrier(s) on the roadway plan and detail sheets.

### 32.3 Public Involvement

If noise barriers are determined to be feasible and cost reasonable, the CONSULTANT shall carry out the public involvement and surveys necessary to report to the DEPARTMENT whether the majority of the impacted and/or benefited receptors desire the construction of a noise barrier. Input shall also be obtained from the public regarding barrier aesthetics (color and texture) on one or both sides of the barrier. The CONSULTANT shall be responsible for coordinating with local government officials.

As a minimum, the following tasks shall be completed by the CONSULTANT for public involvement purposes:

- Identification of impacted and/or benefited property owners
- Identification of renters and non-residing property owners (for a property that may be rented)
- Preparation of a mailing list (property owners, renters and non-residing property owners)
- Preparation of a summary package (including an information letter, aerial showing the noise barrier location, and a survey form to document the recipient’s position) to be sent to property owners, and occupants/non-residing property owners informing them of the proposed noise barrier
- If necessary, preparation of additional mailings and/or door-to-door/telephone surveys until a majority decision is obtained or until directed by the District Noise Specialist
- Tallying of survey results
- Noise barrier aesthetics coordination
- Public meetings logistics (including arranging the meeting location, advertisements, displays, etc.)
- Responding to public inquiries on an individual basis in coordination with the DEPARTMENT

The CONSULTANT shall bring to the attention of the DEPARTMENT unforeseen conditions and issues which are relevant to the project decision. Other than noise barrier length, height and location, the CONSULTANT shall abstain from indicating preferences.
for any of the barrier options prior to or during contact with the property owners unless specifically requested to do so by the DEPARTMENT. Following the public involvement process, the CONSULTANT shall produce a final noise barrier recommendation that identifies the starting and ending points for all noise barriers, the top elevation(s), and the aesthetic elements to be provided (e.g., color, texture, graphics).

32.4 Outdoor Advertising Identification

The CONSULTANT shall identify potential noise barriers that may block the view of an existing lawfully erected sign that is governed by and conforms to state and federal requirements for land use, size, height, and spacing consistent with the requirements of Florida Statute (FS) 479.25 and the FDOT Noise Policy (Part 2, Chapter 18 of the PD&E Manual). The CONSULTANT shall notify the Department’s Project Manager of a potential noise barrier(s) that may affect the visibility of a legally permitted outdoor advertising sign. Resolution of the potential conflict shall be documented in the NSR, NSR Addendum, and summarized in the environmental document, as appropriate.

32.5 Noise Study Report (NSR) Addendum

The results of noise barrier evaluations performed by the CONSULTANT shall be documented in the NSR Addendum, in accordance with Chapter 264 of the FDOT Design Manual (FDM). The NSR Addendum shall include the results of the computer modeling (submitted electronically), public involvement activities and final noise abatement commitments.

32.6 Technical Meetings

Prior to proceeding with the noise barrier analysis, the CONSULTANT shall discuss and coordinate with the appropriate District Project Manager and the District Environmental Management Office staff. The purpose of this discussion will be for the DEPARTMENT to provide the CONSULTANT with all pertinent project information and to confirm the methodologies to be used to conduct the noise analysis. This meeting is mandatory and should occur after the Notice to Proceed is given to the CONSULTANT. It is the responsibility of the CONSULTANT to undertake the necessary action (i.e., phone calls, meetings, correspondence, etc.) to ensure that District Project Manager and the District Environmental Management Office staff is kept informed of the noise analysis efforts so that these tasks are accomplished in a manner that will enhance the overall success of the project.

32.7 Quality Assurance/Quality Control

QA/QC reviews will be performed for all NSR Addendums submitted to the DEPARTMENT. Documentation of the QA/QC will be provided to the District Project Manager.

The CONSULTANT shall ensure that the noise barrier(s) location(s), length, height, and aesthetics as shown on the final design plans are consistent with the results of the noise barrier evaluation and recommendation documented in the original NSR and/or the NSR Addendum.

32.8 Supervision
The noise impact analysis and barrier evaluation shall be performed under the supervision of a person(s) who has attended and is certified through the Department’s Traffic Noise Analysis training course or has attended and successfully completed the National Highway Institute’s Highway Traffic Noise Course (FHWA-NHI-142051).

32.9 Coordination
INTELLIGENT TRANSPORTATION SYSTEMS ANALYSIS

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

ITS work includes the application of sensor, computer, electronics and communication technologies and management strategies, in an integrated manner, to improve the safety and efficiency of the surface transportation system. ITS includes, but is not limited to, Advanced Traffic Management Systems (ATMS), Advanced Traveler Information Systems (ATIS), Advanced Rural Transportation Systems (ARTS), Advanced Public Transportation Systems (APTS), Advanced Highway Systems (AHS), Commercial Vehicle Operation (CVO) and Electronic Toll Collection (ETC) Systems.

In instances where the CONSULTANT performs analysis or prepares the design packages for the deployment of ITS, the CONSULTANT will not be allowed to compete as a proposing firm, or participate as a subconsultant to a proposing firm during subsequent advertisements involving work performed under this contract.

33.1 ITS Analysis

The CONSULTANT shall review the approved preliminary engineering report, typical section package, traffic technical memorandum and proposed geometric design alignment to identify impacts to existing ITS components (if applicable) and proposed ITS field device placements. The CONSULTANT shall review all related District ITS plans and documentation for the project corridor to ensure all cited ITS elements are included in this project, and develop a Concept of Operations (ConOps), Project System Engineering Management Plan (PSEMP), RTVM, and other documents as necessary for conformance with Federal Highway Administration (FHWA) requirements. The CONSULTANT shall use all 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.

- **Add conduit inside new bridge structure**

CCTV camera system shall provide 100 percent coverage of all mainline lanes, entrance and exit ramps, interchanges (includes view of crossing arterials), blind spots (such as those caused due to existing and proposed bridges, existing and proposed signage, vegetation, and horizontal and vertical curvatures). Cameras shall be spaced to meet the Project requirements, guidance from ConOps and as approved by the DEPARTMENT.

Vehicle detection devices shall be spaced as required to meet the Project requirements (speed, volume, and occupancy detection), guidance from the ConOps and as approved by the DEPARTMENT.

Both expressway and arterial dynamic message signs (DMS) shall be located to meet the Project requirements, guidance from the ConOps, and as approved by the DEPARTMENT. All FDOT FDM requirements shall be met for DMS locations. DMS locations shall be designated in conjunction with the Project’s master signage design.
The CONSULTANT shall review the existing TMC Operations and develop additional incident management service requirements as necessary to support during the Construction Phase of the Project. The CONSULTANT shall coordinate with District’s Traffic Operations ITS Office for additional information regarding existing Incident Management and TMC Operational Procedures (if desired by the District).

All ITS devices shall be compatible with the latest version of the National Transportation Communications for ITS Protocol (NTCIP) and compatible with SunGuide software platform.

The CONSULTANT shall design the project such that all ITS field devices and ancillary components comply with FDOT’s Approved Product List (APL) and are supported within the SunGuide software or other software approved by the DEPARTMENT.

33.2 Communications Plan Analysis

The CONSULTANT shall be responsible for the development of a communication plan to determine the optimal communications medium for the project corridor. The plan shall be developed prior to submittal of Phase I plans. The plan shall identify communications media alternatives and provide a cost estimate that includes initial, operations and maintenance cost for the life cycle of the communications network. The plan shall ensure that video, voice, and data will be communicated in real-time between center-to-field and center-to-center (C2C) nodes as applicable. The communications system design must utilize non-proprietary, open-architecture, standards-based, robust, scalable, and proven technology. The communication plan analysis shall address communication and connections between field devices, communications and connections between field devices and the TMC, center-to-center communications between the TMCs, and any other communication links or connections required to meet the project goals. The plan must include bandwidth analysis and recommendations, needs assessment, and provide recommendations regarding minimum requirements, media, network devices, protocols, network topology, communication redundancy, future needs, spare capacity, and any communications or data sharing with other agencies.

After approval of the plan, the CONSULTANT shall submit a revised plan including a detailed design analysis for each submittal. The CONSULTANT’s communication design shall include multiple redundant paths for each location, which allows for automatic switching of communications path onto a secondary path, if the primary path is impacted (if desired by the District).

The communications system components shall be in accordance with Sections 630, 633, and 635 of the latest FDOT Standard specifications for Road and Bridge Construction (online edition).

33.3 Grounding and Lightning Protection – N/A

33.4 Power Subsystem – N/A

33.5 Voltage Drop Calculations – N/A

33.6 Design Documentation

33 INTELLIGENT TRANSPORTATION SYSTEMS ANALYSIS
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The CONSULTANT shall submit a Design Documentation Book with each plan submittal under separate cover and not part of the roadway documentation book. At a minimum, the design documentation book shall include:

- Computation books for all applicable items on plans
- Phase submittal checklist
- Three-way quantity check list
- Structural calculations for all structures
- Voltage drop calculations
- Load analysis calculations

### 33.7 Existing ITS System

The CONSULTANT shall research any required legacy system or system components that may be impacted by 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.

### 33.8 Queue Analysis – N/A

### 33.9 Reference and Master ITS Design File

The CONSULTANT shall prepare the ITS design file to include all necessary design elements and the reference files for topo, R/W roadway, utilities files, etc. This effort includes the design and layout of proposed ITS devices, including but not limited to: CCTV/Detection poles, DMS, detection devices, advanced traffic controllers, conduit, cabinet-related pull boxes, service points, fiber optic sizing, and communications hubs. All existing ITS infrastructure shall be referenced to the new ITS plan sheets (if applicable).

### 33.10 Reference and Master Communications Design File

The CONSULTANT shall prepare the communication design file to include all necessary design elements and all associated reference files as well as reference files of topo, R/W, roadway, utilities files, existing ITS communications infrastructure, etc. This effort includes design and layout of proposed communications, conduit, cabinet, pull boxes, splice boxes, standard route markers, communications plan overview, fiber optic splicing, connections communications hubs, etc.

### 33.11 Pole Elevation Analysis – N/A

### 33.12 Signal Panel Design Analysis – N/A

### 33.13 Quantities

The CONSULTANT shall include all work required to determine the quantities for all items, including ITS structures and devices, interconnect, and infrastructure (such as conduits, pull boxes, splice boxes, fusion splices, splice enclosures, etc.). This work effort shall include generating accurate quantities for computing the engineer’s estimate.

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**33 INTELLIGENT TRANSPORTATION SYSTEMS ANALYSIS**

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as required by the District. Use digital submittal of plans as required by the DEPARTMENT.

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 pay items and quantities into AASHTOWare Project Preconstruction for generating the Summary of Pay Items and the FDOT’s in-house estimates.


The CONSULTANT shall develop Technical Special Provisions (TSP) and Modified Special Provisions (MSP) for the specific items or conditions of the project that are not addressed in the FDOT’s Standard Specifications, Supplemental Specifications and Special Provisions.

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 Drive
- Condition of Structure(s), cabinets, and other above-ground infrastructure and devices.
- Type of Detection as Compared with Current District Standards
- Underground Infrastructure
- Proximity of other utilities
- Traffic Operations
- 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 documents and to ensure that a high degree of accuracy for the design plans is achieved.
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

The CONSULTANT shall prepare a key sheet in accordance with the latest format depicted in the FDOT Design Manual.

MUTCD

Standard Specs

Standard Plans

34.2 Summary of Pay Items Including Designer Interface Quantity Input

The CONSULTANT shall include quantity input into Designer Interface and create the CADD generated sheet.

34.3 Tabulation of Quantities

The CONSULTANT shall place pay item numbers, description, quantities and grand totals on the tabulation sheet(s) and provide updating of the tabulation of quantities sheets during the design period.

34.4 General Notes/Pay Item Notes

The CONSULTANT shall include all pertinent general notes and pay item notes as deemed fit and as established by the District.

34.5 Project Layout

The CONSULTANT shall prepare plan sheet(s) with an overview of the entire project that include stations and offsets, project limits, intersection locations, devices, device identification using SunGuide nomenclature and plan sheet coverage.

34.6 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 Operation 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.

34.7 Plan Sheet

The CONSULTANT shall prepare the ITS plan sheets utilizing the Design file to include all necessary information related to the project design elements and all associated
reference files. The plan sheets shall include general and pay item notes and pay items. The plans shall depict the locations of pull boxes, splice boxes, conduit runs and device locations with setbacks from the travel way. Devices shall be located by station and offset.

34.8 ITS Communications Plans

The CONSULTANT shall prepare plans for the communications network. These plans shall consist of block diagrams, splicing diagrams, port assignments, wiring diagrams, and all other information necessary to convey the design concept to the contractor. These plans shall be included in the ITS plan set and be prepared in a manner consistent with immediately adjacent ITS project installations (planned or installed).

The communication system shall be an open architecture, non-proprietary, real-time multimedia communications network. The communication systems design must be compatible and completely interoperable with the existing systems.

The CONSULTANT’s design shall include protecting and maintaining the existing ITS infrastructure. For locations where existing ITS infrastructure is impacted, the CONSULTANT’S design shall include mitigation to minimize the downtime of existing system as per the District’s requirements.

The CONSULTANT is responsible for the design of the communication infrastructure and its integration with the DEPARTMENT’s communication system. Additionally, the CONSULTANT shall determine the most cost effective, best performing, communication connectivity option. The communication system must allow command and control as well as data and video transmission between the field devices and the TMCs at [insert location].

Conduit paths shall be selected to provide a continuous duct system on one side of the road unless otherwise required by the FDOT. The various components of ITS development will be located on both sides of the freeway and therefore under pavement bore and lateral conduits will be necessary to access equipment locations.

The CONSULTANT shall produce fiber optic cable splicing diagrams to show the connectivity of the fiber optic cable from its termini at field devices to the TMC. The diagrams shall denote new and existing fiber routes, splices and terminations involved in the work. The diagrams shall identify cables by size, tube color/number and stand colors/numbers. All cables shall be identified either by numbering system on the plans or by bounding devices. The diagram shall denote the types of connectors in the patch panels.

34.9 Fiber Optic Slice Diagram – N/A

34.10 Lightning Protection Plans – N/A

34.11 Cross Sections

The CONSULTANT shall prepare cross sections for ITS devices.

34.12 Guide Sign Work Sheet(s) – N/A
34.13 Special Service Point Details

The CONSULTANT shall design any special service point and electrical distribution system beyond the electric utility company’s service point. The plan shall depict with pay items, general and plan notes the locations of transformers, switches, disconnects, conduits, pull boxes and power conductors. The plans shall identify the location of underground and overhead service points with identifying pole and transformer numbers.

34.14 Strain Pole Schedule – N/A

34.15 Overhead/Cantilever Sign Structure – N/A

34.16 Other Overhead Sign Structures (Long Span, Monotube, etc.) – N/A

34.17 Traffic Control Plans – N/A

34.18 Interim Standards

The CONSULTANT shall adhere to all Department’s Interim Standards for ITS applications.

34.19 GIS Data and Asset Management Requirements.

The CONSULTANT is responsible for providing Geographic Information System (GIS) spatial data, for the ITS components design. This information is required to integrate ITS components to the SunGuide software. A coordinate point compatible with the Florida Plane System or FDOT’s current coordinate plane systems shall be collected for all ITS components as part of the Project design. All GIS information provided shall be compatible with the FDOT’s ITS FM asset management software.

The information shall be transferred to the as-built plans and submitted to the District in electronic format along with the as-built plans.

The Global Positioning System (GPS) unit shall be provided by the CONSULTANT and used to collect data with a minimum accuracy of three (3) meters when differentially corrected. The CONSULTANT shall collect spatial data points and physical address locations for:

- DMS locations (mainline and arterial)
- Vehicle detection pole locations
- CCTV camera pole locations
- Ground mounted cabinets
- Fiber operatic cable path (fiber backbone)
- Communications hubs
- Standard route markers
- Lateral fiber optic cable connections
- Lateral power cable connections
- Pull boxes (power and fiber)
- Splice boxes
- Power drops (service point and cable path)
34.20 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.

34.21 Supervision

The CONSULTANT shall supervise all technical design activities.
35 GEOTECHNICAL

The CONSULTANT shall, for each project, be responsible for complete geotechnical investigation. 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 Engineers or representative to review the project scope and DEPARTMENT requirements. The investigation plan shall include, but not be limited to, the proposed borings 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 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 directing 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 directing 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 MOT Plans for Field Investigation

Coordinate and develop Maintenance of Traffic (MOT) plan. All work zone traffic control will be performed in accordance with the DEPARTMENT’s Roadway and Traffic 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 of 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 ground water 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 (i.e. removal of unsuitable material, consolidation of weak soils, estimated settlement time/amount, groundwater control, high groundwater conditions relative to pavement bases, 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 report 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 sheets that summarizes the laboratory test results, the soil stratification (i.e. soils grouped into layers of similar materials) and construction recommendations relative to Standard Plan 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 be 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 Road 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 the 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 task for high embankment fills and structural foundations for bridges, box culverts, walls, high mast lighting, overhead signs and mast arm signals, strain poles, building and other structures include the following:

35.27 Develop Detailed Boring Location Plan

Develop a detailed boring location plan. Meet with the 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 MOT Plans for Field Investigation
Coordinate and develop MOT plan. All work zone traffic control will be performed in accordance with the DEPARTMENT’s Roadway and Traffic 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 classification.

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

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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 Alternative(s)

Detailed analysis and bases 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 Development Design Standard D6025 to be provide by the 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 conventual 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 and project limits shown.
- 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).

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.
- The results of all tasks discussed in all previous sections regarding data interpretation and analysis.

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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 borings/sounding profiles, data from any specialized field test, 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 – Sign, 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 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 fields 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 during records (if available), 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 a final form and will include the following:

• All original plan sheets (11’x17’’)
• 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 plan 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.

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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 specially required for the project as determined by the Department, and included in the geotechnical upset limit.

35.50 Technical Special Provisions and Modified Special Provisions

35.51 Fields 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 DEPARTMENT’s 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 development proposed corridor models with necessary detail of features to depict the proposed project in 3D to comply with the DEPARTMENT 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. Dynamic relationships must be maintained. Frequency must be increased to achieve a useable model.

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

The CONSULTANT shall provide sufficient detail in the 3D model to account for driveways, Guardrail Terminal Locations, etc., and other graded areas where surface triangles are delivered as break lines.

### 36.1 Phase I 3D Design Model (30% Plans)

The CONSULTANT shall prepare, submit for approval by the DEPARTMENT, 30% complete 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 (60% Plans)

The CONSULTANT shall prepare, submit and present for approval by the DEPARTMENT, 60% complete 3D model, comprised of, but not limited to: Modification of 30% model to update the model to comply with changes based on 30% 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 service to be included, i.e. 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 (90% Plans)

The CONSULTANT shall prepare, submit and present for approval by the DEPARTMENT, 90% complete 3D model, comprised of, but not limited to:
Modification of 60% model to update the model to comply with changes based on 60% 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 (100% Plans)

The CONSULTANT shall prepare for approval by DEPARTMENT, 100% complete 3D model, comprised of, but not limited to: Modification of 90% model to update the model to comply with changes based on 90% review comments and to accurately generate, export and otherwise prepare the final 3D deliverable files as described in the DEPARTMENT’s CADD Manual.

36.5 Cross Section Design Files

The CONSULTANT shall establish and develop cross section design files in accordance with DEPARTMENT’s 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)

The CONSULTANT shall prepare for approval by DEPARTMENT, specialty templates or assemblies needed to develop the features required to deliver the 3D model.

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. The CONSULTANT shall assign a Deputy Project Manager who shall be the representative in the absence of the Project Manager.

37.3 Progress Reporting

The CONSULTANT shall meet with the DEPARTMENT as required and shall provide a written monthly progress report and approved schedule, schedule status, and payout curve or by using the earned value method that describes 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 contact 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 of the DEPARTMENT’s CADD Manual. The CONSULTANT shall submit final documents and files as described therein.

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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 fair, competitive and reasonable costs, 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 re-evaluation of previous PD&E studies, cumulative impact evaluation, support the DEPARTMENT in preparation of Design-Build package, 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. The CONSULTANT shall not submit the monthly electronic Invoice until notification from the DEPARTMENT Project Manager the Progress Report and the draft Invoice are both approved. The CONSULTANT shall submit a monthly electronic Invoice, in a format prescribed by the DEPARTMENT, within one (1) work day after notification of the approval of the Progress Report and the draft Invoice, as specified in Section 33.3. Concurrent with the submittal of the electronic Invoice to CITS, the CONSULTANT shall send an email notification to the DEPARTMENT Project Manager advising the electronic submittal to CITS has occurred.

The CONSULTANT shall submit a final electronic Invoice for design services up to and including the Mail Date of the project and shall notate on the invoice, the following capitalized words, “FINAL INVOICE FOR DESIGN SERVICES”

The CONSULTANT shall submit, in a format to be provided by the DEPARTMENT, a request for a Supplemental Amendment for Post Design Services on the Production Date of the project. 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.