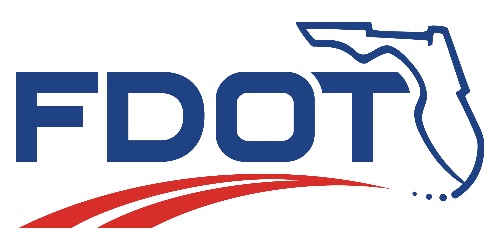
2018

EXHIBIT A



**SCOPE OF SERVICES**

**FOR**

**COMPLETION OF TRANSIT CONCEPT ALTERNATIVES REVIEW (TCAR) AND FEDERAL TRANSIT ADMINSITRATION (FTA) CAPITAL INVESTMENT GRANT (CIG) NEW STARTS PROJECT DEVELOPMENT (PD)**

***<<Insert Project Name with Limits>>***

***<<Insert District Name>>***

***<<Insert County Name>>***

This Scope of Services is an attachment which is incorporated into 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 transit facility described as follows:

***Financial Project ID: <<Insert FPID>>***

***Work Program Item No.: <<Insert WP Item No>>***

***Federal Aid Project No.: <<Insert FAP No.>>***

***ETDM No.: <<Insert ETDM No.>>***

***County Section No.: <<Insert County Section>>***

***Bridge No.: <<Insert all Bridge Nos.>>***

***Rail Road Crossing No.: <<Insert RR Xing Nos.>>***

***Anticipated Class of Action: <<Insert COA>>***

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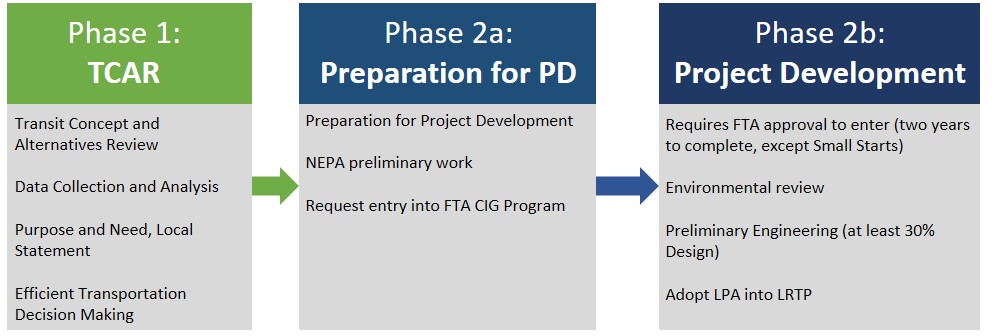
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PURPOSE

The purpose of this Exhibit is to describe the scope of work and the responsibilities of the CONSULTANT and the DEPARTMENT regarding the project planning and environmental studies necessary to comply with Department procedures and potentially to obtain FTA approval for a Capital Investment Grant (CIG) NEW STARTS application for this transit facility.

[*The process covers development of a transit project from initial concept through completion of the FTA’s CIG New Starts PD process. Key steps and decision points are illustrated in the graphic below. Note: FTA requires PD to be completed in two years, except for Small Starts*.]



*[This scope assumes starting with little or no prior planning completed, but in many cases, significant prior project planning has occurred, and it is possible to join the study process part-way through (eliminating some of the tasks and effort below), depending on the level of prior analysis and outreach, and decisions made.]*

This is a two-phase scope of services. In Phase 1, the CONSULTANT will perform analysis to support the DEPARTMENT and satisfy the DEPARTMENT’s guidance on TCAR. In Phase 2, the CONSULTANT will satisfy the FTA’s guidance for the CIG NEW STARTS Program and the DEPARTMENT’s Project Development and Environment (PD&E) requirements. Phase 2, is divided into two parts: In Phase 2a, the CONSULTANT will prepare for and request entrance into the FTA CIG NEW STARTS Program. In Phase 2b, the CONSULTANT will comply with all the FTA CIG NEW STARTS Project Development guidelines and the DEPATMENT’s PD&E requirements. **The DEPARTMENT has the option to terminate the contract if the request for entry into PD is denied by FTA**. In Phase 2b, the CONSULTANT will perform environmental and preliminary engineering analyses for the project sufficient to obtain clearance from FTA pursuant to the National Environmental Policy Act (NEPA). Therefore, CONSULTANT must obtain a written authorization to proceed with Phase 2a and 2b from the DEPARTMENT.

Phase 1 will follow the TCAR Guidance available at <http://www.fdot.gov/transit/Pages/TCARGuidanceFinalNov2016.pdf>. Phase 2 will follow the process outlined in Part 1, Chapter 14 of the DEPARTMENT's PD&E Manual available at <http://www.fdot.gov/environment/pubs/pdeman/pdeman1.shtm> and the FTA Final Interim Policy Guidance for the CIG NEW STARTS Program (available at <https://www.transit.dot.gov/funding/grant-programs/capital-investments/final-capital-investment-grant-program-interim-policy>). As appropriate, tasks identified in this scope of work will be done in accordance with the Department’s PD&E Manual, unless otherwise stated.

The PD&E Manual incorporates all the requirements of the NEPA; Federal law and executive orders; applicable Federal regulations included in the Federal Highway Administration (FHWA) Federal-Aid Policy Guide; FTA Guidelines and applicable State laws and regulations including Chapter 339.155 of the Florida Statutes. As appropriate the Project documentation prepared by the CONSULTANT in accordance with the PD&E Manual will therefore follow all applicable State and Federal laws, executive orders, and regulations.

The CONSULTANT will perform those planning and conceptual engineering services required for CIG NEW STARTS applications, including consideration of all social, economic, environmental effects, and mitigation as required by the FTA, FHWA and/or the Project PD&E Manual, along with the required environmental documents, engineering reports, preliminary plans, public hearing, and right-of-way maps.

The DEPARTMENT will provide contract administration and management services and technical reviews of all work associated with the development and preparation of the engineering/environmental study reports for the transit facility.

INTRODUCTION AND STUDY OBJECTIVE

Provide detailed Project background and preliminary description of study objectives.

PROJECT REQUIREMENTS AND PROVISIONS FOR WORK

The CONSULTANT will conduct the appropriate level of engineering and environmental analyses related to the anticipated Class of Action (COA) for this project, as outlined in the PD&E Manual, the FDOT Design Manual (FDM), and directed by the Project objectives. The level of analysis depends on complexity of the Project, level of controversy, potential for significant impacts, and degree and quality of information / data available. FTA will determine the Class of Action of the Project after completion of TCAR (Phase 1) and prior to the PD process (Phase 2), if it is determined that the recommended alternative will use Federal funds.

The CONSULTANT is fully responsible for all work performed and work products developed under this Scope of Services, including work products prepared by Sub Consultants. The CONSULTANT and Sub Consultants are expected to know the laws and rules, and most current guidance governing their profession and are expected to provide professional services in accordance with current and applicable regulations, codes, ordinances, and standards.

The CONSULTANT will maximize the use of existing information available from State, regional, local agencies, private sources, and its own files. Examples include the Programming Screen Summary Report, Concept Reports, previously completed planning products, listed species reports, Florida Department of Environmental Protection OCULUS Electronic Document Management System, and others as appropriate.

The DEPARTMENT will allow the CONSULTANT to use the DEPARTMENT’s computer facilities upon proper authorization as described in the DEPARTMENT Procedure No. 325-060-401.

# PROJECT MANAGEMENT

*[Project management applies to Phase 1 and Phase 2 that will be tailored to the specific needs of the project as determined by the DEPARTMENT Project Manager. The project management scope will be updated with each phase upon approval from the DEPARTMENT to move into later project phases.]*

## Project coordination meetings

The CONSULTANT will meet with the DEPARTMENT as needed throughout the life of the Project. It is anticipated meetings will occur every XX weeks, for approximately XX meetings during the study period. These meetings will include progress and miscellaneous review and other coordination activities with the DEPARTMENT.

## Project status reporting

The CONSULTANT will conduct regular (at least monthly) progress status meetings with the DEPARTMENT to address completion of scope tasks relative to project schedule and budget resources. (May be conducted together with coordination meetings).

## Quality Control

The CONSULTANT will establish a procedure, acceptable to the DEPARTMENT, for Quality Control and Quality Assurance (QC & QA) covering the completion of all work through this contract. The CONSULTANT will check, review, and conduct surveillance of work activities by objective and qualified individuals who were not directly responsible for performing the initial work. At a minimum, the CONSULTANT Quality Control Plan must include a quality review checklist, and a certification that the CONSULTANT has performed the quality control review for the deliverable.

Within twenty (20) business days from the Notice to Proceed, the CONSULTANT must submit its QC Plan to the DEPARTMENT Project Manager for approval.

## Schedule

Within ten (10) business days after the Notice to Proceed, and prior to the CONSULTANT beginning work, the CONSULTANT shall submit a detailed Project activity / event schedule to the DEPARTMENT. The schedule must indicate all required submittals, critical path activities, and key project milestones/activity codes. The CONSULTANT shall allow for a review period of at least <<Insert Number of Days or Weeks>> for each draft technical report or memorandum submitted for District reviews and/or Agency Review in the schedule.

## Submittals

The CONSULTANT will compile and transmit draft documents identified in this Scope of Services to the DEPARTMENT for review.

After DEPARTMENT review of the draft submittals, the CONSULTANT will address comments, prepare a matrix of comments and responses as applicable, and submit revised documents. The CONSULTANT will assist the DEPARTMENT in resolving the comments received from the environmental resource agencies, local agencies, and the public, including preparation of individual responses.

*[List and specify the format of submittals]*

## Services to be performed by the DEPARTMENT

The DEPARTMENT will provide project data currently on file and available from study partners, such as:

*[Review and Modify this list as appropriate]*

* Efficient Transportation Decision Making (ETDM) Programming Summary Report;
* Advance Notification and all environmental and engineering documents including the Permit Coordination Packages;
* Coordination with the State Historic Preservation Officer;
* Existing FDOT right of way maps and information on existing surplus right of way under ownership by the DEPARTMENT or participating local agency (counties and cities partnering with FDOT for the PD&E Study);
* Recently completed roadway studies for the study area including PD&E studies, access management, intersection plans, design files, and capacity improvements;
* Multimodal or small area studies including freight, interchange, intersection, transit, pedestrian, bicycle, land use and signal priority;
* Previously conducted transit vision plans, transit feasibility studies, comprehensive operations analyses, transit development plans, etc.;
* All information in the possession of the DEPARTMENT pertaining to prior and on-going studies that may affect the project such as existing construction and as-built plans, bridge inspection reports and load ratings, prior environmental studies, existing permit information, existing drainage and geotechnical reports and any agreements with third parties related to the Project corridor;
* 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 is in possession or may become available 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;
* Existing Horizontal Network Control;
* FDOT crash data;
* Available traffic and planning data;
* Proposed right of way cost data

# PUBLIC AND STAKEHOLDER INVOLVEMENT

Public outreach applies to Phase 1 and Phase 2 that will be tailored to the specific needs of the project as determined by the DEPARTMENT Project Manager.Public outreach includes communicating to and receiving information from all interested persons, groups, and government organizations information regarding the development of the Project. The CONSULTANT will coordinate and perform the appropriate level of public involvement for this Project as outlined in Part 1 Chapter 14, Part 1, Chapter 11, and Part 2, Chapter 4 of the PD&E Manual and the following sections.

## Public/Agency Involvement Plan

The CONSULTANT will be responsible for developing a Public Involvement Plan (PIP) consistent with Federal and State requirements that encourages participation, creates opportunities for citizens to provide input, educates, is interactive and produces a uniform Project image. Where possible visualization techniques and other technologies should be used to communicate information and data as needed. The PIP should also include two or three evaluation measures that can be employed to demonstrate the effectiveness of the public involvement activities over the course of the study. At project initiation a schedule of tasks, meetings, presentations and milestones will be developed by the CONSULTANT and reviewed by the DEPARTMENT.

### Transit Coordination Plan

[*This activity applies only for EA and EIS*]

The CONSULTANT will develop a Transit Coordination Plan providing a communication protocol and schedule for coordination with the FTA, the project sponsor, other federal resource agencies, Participating and Cooperating Agencies, stakeholders, and the public during the process of preparing an Environmental Assessment (EA) or an Environmental Impact Statement (EIS) as per Part 1, Chapter 14 of the PD&E Manual**.**

### Identify Roles and Responsibilities, Memorandum of Understanding

The CONSULTANT’s PIP will identify the recommended roles and responsibilities for all stakeholder and partner agencies participating in the study and obtain DPARTMENT confirmation.

The CONSULTANT will develop a Memorandum of Understanding between partner agencies to clarify the involvement and commitments of each agency relating to project planning and funding.

## Partner and Resource Agency Coordination

The CONSULTANT will support the DEPARTMENT, confirming input of the Project into the FDOT Efficient Transportation Decision Making (ETDM) planning screen and coordinating with all impacted resource agencies. This activity will happen in Phase 2.

The CONSULTANT will prepare all information and content necessary for the DEPARTMENT to finalize and submit Advanced Notification for the Project. This activity will occur when early environmental activities are initiated.

## Public/Agency Involvement Activities

The CONSULTANT will support all public involvement activities required for appropriate outreach and information sharing objectives of this Project, including but not limited to briefings, meetings, workshops and media events.

### Stakeholder Coordination

The CONSULTANT will also provide necessary documentation to assist the DEPARTMENT in coordination with resource agencies and other parties to complete the corridor analysis. The CONSULTANT will provide notice of all meetings with these agencies to the DEPARTMENT and will document the minutes of meetings, document and distribute an action list, and follow up accordingly to ensure the appropriate actions are completed in a timely manner.

The CONSULTANT will prepare for and attend presentations to stakeholders, including the Metropolitan Planning Organization (MPO) Board and its advisory committees, the County Commission, and the FTA, as identified by the DEPARTMENT.

### FTA Coordination

The CONSULTANT, in coordination with the partner agencies, shall participate in dialogue with FTA at the completion of TCAR and once the recommended alternative is identified. This dialogue will ensure FTA understands the Project and that the process is consistent with agency guidelines. These meetings will address, but may not be limited to, modeling methodology and adequacy; alternatives that address the project purpose and need; model results, reasonableness of model output and user benefits and capital and operating costs.

### Coordination with other Projects

The CONSULTANT will coordinate work activities with any ongoing and/or planned DEPARTMENT projects that may affect this Project. The DEPARTMENT and CONSULTANT shall coordinate with local governmental entities to ensure Project concepts are compatible with local improvements and right of way activities. The CONSULTANT will inform the DEPARTMENT Project Manager of all coordination activities with other agencies or entities prior to holding such activities.

The CONSULTANT shall coordinate with the following pertinent Projects and studies:

*[Name relevant local projects to be considered.]*

### Project Newsletters, Factsheets and Website

The CONSULTANT will develop all public involvement materials required for appropriate outreach and information sharing objectives of this Project, including but not limited to newsletters, factsheets, advertisements, brochures, handouts, map exhibits, social media content and a Project website or web page. The CONSULTANT shall provide drafts of these materials to the DEPARTMENT for review and approval at least xx business days prior to printing and/or distribution.

### Public Meetings

The CONSULTANT will provide all support necessary for the DEPARTMENT to hold or participate in various public meetings. The CONSULTANT will support the DEPARTMENT in preparation, scheduling, attendance, note-taking, documentation, and follow-up services for each meeting, which may include, but are not limited to: Project Kick-off Meeting(s); Presentations to Local MPO’s (includes associated technical and citizen committees, as applicable); Coordination Meetings with Key Agencies; Corridor Workshop(s) or Public Informational Meeting(s); Alternatives Public Information Meeting(s); Additional Coordination and Consensus Building Meeting(s); Community / Stakeholder Forum(s); Environmental Forum(s) and Other Public and Agency Meetings (Specify agency coordination meetings).

**Phase 1 Transit Concept and Alternatives Review (Tasks 3 – 8)**

# PROJECT DESCIRPTION, PURPOSE AND NEED

## General Problem Description (draft Purpose and Need Statement)

Based on available data (see Section 4.1), the CONSULTANT shall develop a concise definition of the corridor problems that will be refined throughout the course of the study as needed. Consideration will be given to previous studies (corridor studies, regional and strategic plans and other documents to obtain a historical context).

The CONSULTANT will determine any deficiencies in previous information and/or documentation or changes in conditions that impact prior findings and decisions. This will include general identification of the markets served including any special populations such as environmental justice populations or special generators; existing and anticipated travel conditions and congestion levels; land use development plans and economic development initiatives; and sensitive social or natural environmental resources. The outcome of this effort will be a description of the problems that need to be addressed in the corridor and will lay the foundation for the definition and evaluation of alternative solutions later in the study.

The CONSULTANT will evaluate any Purpose and Need Statement prepared through previous efforts and revise as necessary to ensure that it adequately reflects the problems and needs identified in the corridor. The current Project Purpose and Need Statement will consist of:

* Corridor description, including demographic, development, and transportation trends;
* Corridor transportation improvement needs – problems identified;
* Goals and objectives, that are specifically and measurably attached to each of the identified problems; and
* Planning context, that is, the planning and Project development process.

The Purpose and Need Statement will be incorporated as either an attachment or included in the letter requesting entrance into the FTA CIG NEW STARTS program, the PIP, and the Environmental Document.

### Study Area

The CONSULTANT will develop a detailed definition and description of the study area to be used throughout the study. This will address the geographic extent – including logical termini – and the width of the area each side of the corridor right-of-way.

## Goals and Objectives

The CONSULTANT will develop a detailed list of Project Goals and Objectives to address identified corridor problems and support the study process including the comparative evaluation of alternatives.

State goals and objectives of the project.

The CONSULTANT will continue to consider the goals and objectives and may make minor refinements to them through the course of the study based on the evaluation of existing conditions as well as input from public and partner outreach, with any adjustments to be reviewed and approved by the Project Steering Committee.

## Evaluation Framework and Measures

Using the study Goals and Objectives established in Sec. 3.2, the CONSULTANT shall develop measures that can be used to assess how well each alternative address corridor needs. Categories of measures will include, but may not be limited to:

* Effectiveness – the extent to which alternatives address and solve the stated transportation problems in the corridor
* Impacts – the extent to which the alternatives impact nearby natural resources and neighborhoods, air quality, the adjacent transportation network and facilities, land use, local economy, etc.
* Equity – the fair distribution of costs and benefits across different population groups
* Mobility Improvement – the extent that mobility for all users is improved
* Congestion relief – the extent that congestion is relieved
* Environmental benefits, including reduction in vehicle miles travelled and subsequent improvement to the environment
* Transit-supportive land use, including economic development and transportation/housing costs
* Operating efficiencies

Other evaluation measures may be added based on community and stakeholder outreach. This will ensure that locally-defined measures reflecting the values and vision of affected communities and stakeholders – and related to the Federal emphasis on livability and sustainability – are incorporated into the study evaluation process.

A tiered screening of alternative transportation strategies for the corridor may be needed, to eliminate non-viable alternatives early in the evaluation process and to focus more detailed screening on a manageable number of the most promising alternatives. The CONSULTANT shall identify and document the approach to conducting this tiered evaluation.

## Travel Forecasting Methods

The CONSULTANT will develop a travel demand and ridership forecast methodology memorandum for review ultimately by the DEPARTMENT and FTA. The CONSULTANT will assess the potential use of FTA’s Simplified Trips On Project Software (STOPS) model for this Project.

If it is determined there are challenges to the use of STOPS, the memo will detail these issues, and present an alternative methodology for developing travel forecasts. The CONSULTANT will outline the properties of the existing regional travel demand model and request agency approval whether the model can be used “as is” or whether specific modifications to the model or additional travel survey information may be needed prior to using it for demand forecasts in the context of this project.

# EXISTING AND FUTURE CONDITIONS ASSESSMENT

The CONSULTANT will collect data and information to analyze existing transportation conditions and verify transportation deficiencies as they relate to the needs and objectives of this Project.

## Data Collection and Management

The CONSULTANT will obtain and assemble data describing existing conditions and characteristics of the study area, and conduct field observations to review existing field conditions to understand the Project area, assess needs, and identify constraints.

The Consultant will create a data storage and management system to allow for efficient data use and sharing with the DEPARTMENT and other agencies. The CONSULTANT will furnish appropriate data summaries and necessary exhibits for use in the study, such as a Project Location Map, Corridor Maps, and Concept Plans.

### Prior Studies

The CONSULTANT will obtain, assemble and review previous completed (or concurrent) planning studies and other studies that are related to this Project and appropriately incorporate their review results in the analysis of the Project as described in the PD&E Manual. The results or decisions from the previous studies may be adopted or incorporated by reference, as appropriate, in subsequent NEPA document as outlined in Appendix A to 23 CFR Part 450 and required by 23 USC 168(d).

This task includes but is not limited to the following studies:

List known relevant local studies to be reviewed.

### Land Use

The CONSULTANT will assemble and review available land use data for the study area, including but not limited to existing and future local agency land use and zoning maps, subarea plans, significant land use development plans.

### Transit, Roadway, Traffic and Multimodal

The CONSULTANT will obtain and assemble available data and information on transportation operations in the study corridor to assess operating conditions, utilizing GIS data to the extent possible. All relevant prior studies as well as Transportation Improvement Program (TIP), Statewide Transportation Improvement Program (STIP), Long Range Transportation Plan (LRTP), and/or the Transit Development Plan (TDP) shall be reviewed. Data will include:

Corridor Transit Demand

* Existing transit market(s)
* Ridership trend data
* Boarding and alighting activity/farebox data/APC data
* Bus loading profile
* On-board survey data: origin-destination, trip length, satisfaction, rider demographics, frequency of use, purpose, fare payment method, alternatives available
* Transfer activity
* Mode split and trip tables from US Census Journey to Work data or regional model
* Future Projections of transit demand

Corridor Transit Supply

* Service provision: routes, headways, span of service
* Intersecting routes and transfer facilities
* Bus stop facility inventory
* Park-and-ride facilities
* Schedule reliability - headway variability
* Travel time and components of travel time (in motion, dwell, stopped at signals etc.)
* Comparison of auto and bus travel time
* Passenger safety and security
* Customer complaint information
* Operator experience and concerns

Related Transit, Railroad System Data

* Relevant data from connecting transit lines

Street, Traffic and Multimodal Data

* Right-of-way
* Travel lanes and turn lane storage
* Turning movement counts
* Travel time and delay
* Roadway level of service
* Traffic signals
* Posted and 85th percentile speed
* On-Street Parking
* Bicycle and pedestrian facilities
* Lighting conditions
* Programmed roadway and signal improvement Projects
* As-built roadway plans
* Roadway signing/marking plans
* Future Projections of traffic volume and level of service

Land Use and Area Socio-Economic Data

* Zoning
* Existing and future land use
* Designated development zones or planned developments
* Census data including demographics, household incomes, and household auto ownership

### Work Program and Related Projects

The CONSULTANT will obtain and assemble information on Projects included in the FDOT Work Program and the TIP, STIP, LRTP, and/or TDP that have a potential impact on transportation conditions in the study area.

## Data Review and Additional Data Collection

The CONSULTANT will conduct a review of all data collected in prior tasks reflecting existing corridor conditions relating to mobility, congestion, complete streets and safety, and determine the adequacy of existing traffic data assembled to carry out the multimodal analysis of existing conditions for this Project. If there are data gaps, the CONSULTANT will identify these, and work with the DEPARTMENT to collect additional data for the Study Area.

## Existing Conditions Analysis

The CONSULTANT will conduct a comprehensive multimodal analysis of existing transportation conditions for the study area based on all data collected in prior tasks, for time periods agreed with the DEPARTMENT – e.g. all-day and/or commute peak hours.

The analysis will report on the quality of existing multimodal travel conditions in the study including corridor transit services and traffic conditions and, drawing on the outcomes of related studies where possible. Preliminary data analysis shall address: mobility, congestion, accessibility, multimodal accommodation and safety.

### Market Assessment

The CONSULTANT will develop a thorough understanding of existing transit markets as well as potential new markets – people who could be enticed to use transit by making changes to the existing services provided.

The CONSULTANT will utilize existing data sources to document the travel markets in the study area, including but not limited to US Census data including journey to work; regional travel demand model outputs; transit operator data and on-board survey results; MPO transportation and land use data and other studies as available. The market assessment should cover:

* Geographic distribution of households by size, vehicle ownership, income level, number of workers, children, senior citizens, persons with disabilities, minority persons
* Key geographic travel markets such as Central Business District (CBD) commute, reverse commute and suburb-to-suburb or crosstown/circumferential commutes
* Trip volumes by mode and purpose between various districts and major trip attractors
* Regional trip making behavior, including trip production and attraction totals and corresponding densities of trip making by trip purpose
* Non-work travel for medical, shopping, cultural, educational and recreational purposes
* Identification of development zones and vacant and/or underutilized land and buildings within the immediate alignment, together with a general redevelopment analysis based on building age and property values
* Transfer opportunities with other local and regional transit lines
* Park-and-ride facilities, utilization and opportunities

The CONSULTANT will prepare a brief memorandum summarizing existing conditions including the market assessment for presentation to the DEPARTMENT, then the Project Advisory Committee.

## Future Baseline Conditions

The CONSULTANT will perform a comprehensive multimodal analysis of future baseline conditions based on all data collected, and using approved forecasting methods and tools, which may include the regional transportation planning demand model and a calibrated microsimulation model (Specify microsimulation tool) for the study area. The future condition analyses will be performed for daily and peak period(s) and will include opening year and horizon year travel demand. The horizon year will be XX years after opening year.

The CONSULTANT will calculate the measures for the evaluation criteria based on current year inputs of population and employment and the opening year service plan of the proposed project.

## Mobility Improvement Needs

Using the results of the existing and future conditions analyses, findings from prior and related studies, and input from Project partners and the public, the CONSULTANT will define and quantify the anticipated horizon year need for transportation capacity to serve the study area markets.

## Refined Problem Definition

The CONSULTANT will work with the DEPARTMENT and Project partners to develop a refined problem definition statement that draws from the analysis of existing and future conditions and mobility improvement needs. This refined problem definition will form the basis of the Project alternatives to be developed in the next section.

# DEFINITION OF ALTERNATIVES

## Definition of Conceptual Alternatives

The CONSULTANT will refine Project alternatives based on evaluation and public and partner input. The CONSULTANT shall develop a range of conceptual alternatives that are able to address the purpose and need established for the project while considering previously completed planning products. These alternatives will include preliminary information about:

* Alignment and termini
* Mode/vehicle technology
* Traffic Counts
* Ridership
* Mobility Hubs (based on analyses, the CONSULTANT will review the reasonableness and designations of these hub locations)
* Existing/Other Transit Stops, including

stop consolidation and other operational improvements

* Land Use
* Operating strategies (e.g. skip-stop service)
* Environmental Characteristics
* Potential maintenance and storage facilities

In addition to the conceptual alternatives, The CONSULTANT will define the No Build Alternative. The No Build should include planned improvements to the regional transportation network that are contained within the financially-constrained LRTP, and that have a reasonable expectation of being implemented.

The CONSULTANT will document the conceptual alternatives for the public outreach process. These alternatives will be interactively refined throughout the corridor analysis phase of planning.

## Screening of Conceptual Alternatives

By considering Project goals and objectives, purpose and need, and results of ETDM screening results, the CONSULTANT in consultation with the DEPARTMENT and Project stakeholders will develop a matrix-based methodology to conduct a quantitative and qualitative screening analysis of the conceptual alternatives, addressing impacts, performance and costs. The analysis will identify and document alternatives to be eliminated from further detailed study, to be agreed to by project partners. Only viable or feasible alternatives shall be carried forward for detailed study.

The CONSULTANT will conduct a general analysis, using readily available data and information, to populate the matrix arraying the results of the analysis for each alternative against the conceptual alternatives evaluation criteria. Results will be presented to stakeholder groups including the appropriate local and/or regional Citizens and Technical Advisory Committees, and MPO Boards.

## Refinement of Alternatives

The CONSULTANT will refine the alternatives by addressing the following elements [modify the list according to the project context and need]:

* Alignment and termini
* Mode/vehicle technology
* Traffic Counts
* Ridership
* Mobility Hubs (based on analyses, the CONSULTANT will review the reasonableness and designations of these hub locations)
* Existing/Other Transit Stops, including stop consolidation and other operational improvements
* Land Use
* Operating strategies (e.g. skip-stop service)
* Environmental Characteristics
* Potential maintenance and storage facilities

The CONSULTANT will overlay refined alternatives on the base map and prepare descriptive exhibits suitable for presentation to Project partners, elected officials, the public and interested parties.

# EVALUATION OF ALTERNATIVES

The CONSULTANT will prepare a matrix which compares the impacts, performance, and costs of the alternatives evaluated in detail in the corridor study. The matrix will include the performance of the No Build Alternative as the baseline for comparison. The CONSULTANT will address, at a minimum the factors addressed in Section 5.3 as well as all additional measures of effectiveness developed for the Project.

## Ridership Forecasts

The CONSULTANT will conduct a comprehensive evaluation of alternatives under future conditions. Analysis will be completed for the following scenarios:

* Future conditions without Project investment (No Build Alternative)
* Future conditions with Project investment The CONSULTANT will perform Ridership Estimations for each Study analysis year. For the purposes of developing transit ridership forecasts, the CONSULTANT will define transit mode share and demand assumptions applied to the proposed operating plans and fare schemes.

The CONSULTANT will conduct a series of sensitivity tests to determine the change of ridership in response to operational changes, key input variables, and model parameters. The CONSULTANT will modify these assumptions after review of the initial transit usage estimates to accurately match service with demand.

Products of the ridership and revenue forecasts include:

* Estimates for linked and unlinked trips by station to station movements, major market segments, and major movement types.
* Identification of supporting transit service ridership estimates by analysis year.
* Identification of transit mode shift or market share within Study Area.
* Calculation of revenue estimates for each analysis year organized by station to station movements, major market segments, and major movement types.
* Determination of estimated user (road and transit) benefits related to time savings, cost savings, and accident reductions as prescribed by FTA.

The CONSULTANT will document the initial findings from the ridership forecasting to be presented at the earliest practical time to the DEPARTMENT and coordinating agencies. Comments will be requested and taken into consideration when finalizing ridership estimates. The CONSULTANT will document the results of this activity in a separate memorandum.

## Transportation and Mobility Benefits

The CONSULTANT will evaluate potential Project impact on mobility and accessibility regarding all transportation modes (i.e., pedestrian, bicycle, transit and vehicles) in the study area. The results will be documented in a clear manner for the use of decision makers of various levels of technical background, including the public. Tables, graphs, infographics and maps are anticipated necessary products from the analysis of mobility impacts.

It is recommended that benefits are calculated using Untied States Department of Transportation (USDOT) and FTA benefit evaluation guidance.

### Traffic Impact Analysis

The CONSULTANT will complete a detailed traffic impact analysis to quantify traffic-related impacts of the alternatives. It is anticipated that this will require the development and application of a microsimulation model (Specify microsimulation tool). Such model may be available for the study corridor from previous efforts. The CONSULTANT will coordinate with the DEPARTMENT on methodology prior to analysis.

The traffic simulation model will be calibrated for AM and PM peak conditions at the intersection level. Measures of effectiveness such as volumes, travel time, speed, and queue lengths obtained from the data collection effort will be used to replicate existing conditions as much as possible. Both regional and local parameters will be used to calibrate the model as needed and as justified by conditions. A minimum of ten (10) runs will be performed once the traffic simulation model is calibrated to account for any randomness in the results of each individual run. Based on the micro-simulation model, the CONSULTANT will assist the DEPARTMENT in:

* Understanding the critical traffic operational deficiencies, if any, under existing conditions.
* Testing the feasibility of potential long-term roadway and transit improvements on the key intersections.
* Identifying bottleneck locations to implement long-term improvements.
* Conceptualizing ITS requirements of the Project, including transit system command and control, interface with the local County traffic signal system, and rider information, including on-board, at stops, and via mobile devices and the Internet.
* Analyzing the design alternatives for constructability and maintenance of traffic, including identifying any unusual actions/costs that may be needed.
* Coordinating among Project technical staff and partners, required at this stage to ensure that all analyses are using the latest available information and that all analyses are using a consistent Project definition.

## Land Use and Economic Development Impacts and Opportunities

Based on the documented existing land use conditions, the CONSULTANT will evaluate each alternative with respect to its potential for transit supportive development. The CONSULTANT will prepare a summary Land Use and Urban Design Issues Report, including graphics depicting areas of transit supportive land use plans and policies along the corridor. The specific tasks required to complete this summary include:

* Meetings with municipal or county staff to collect goals, objectives and thoughts regarding potential areas of redevelopment. (This information will be utilized during the planning and conceptual design process and will allow the team to understand any current redevelopment-related issues such as rezoning, etc.)
* Identification of livable communities and local economic development initiatives
* Review of the County’s and municipal economic development initiatives and their alignment with transit oriented development
* Identification of demonstrated performance/successes of land use policies and regulations along each corridor
* Identification of exceptional examples of historical, environmental or community preservation or enhancements along each corridor
* Identification of the amount of land that is under public ownership along the corridor
* Identification of the amount of land that is vacant or available for redevelopment and the amount of redevelopment anticipated or permitted along the corridor
* Identification of government supported low-income housing along the corridor
* Identification of current parking policies and pricing strategies along the corridor

This report will identify opportunities to support passenger transit along the corridor per FTA land use criteria and templates and recommend potential land use regulation changes by local municipalities in support of a premium transit investment.

The CONSULTANT will evaluate the Project’s consistency with the physical character of the area and applicable community plans.

### Refined Transit Operating Plans

The CONSULTANT will develop operating plans for each detailed alternative. Included in the plans are revenue service hours by vehicle type, identification of vehicle fleet requirements, supporting bus system requirements.

### Concept of Operations

The CONSULTANT will develop a Concept of Operations (ConOps) document consistent with FDOT guidance for ITS Projects. The ConOps will define the operating plan, requirements of any transit Intelligent Transportation System (ITS) elements included in the alternatives, and maintenance and storage facility.

## Costs, and Proposed Funding Scenarios

### Capital Costs

The CONSULTANT will develop Project capital cost estimates using the DEPARTMENT’s Long Range Estimates (LRE) program and FTA’s standard cost categories (SCC). The CONSULTANT will be responsible for reviewing and updating the cost estimate when scope changes occur, at Project milestones, and during the DEPARTMENT’s annual Work Program update cycle. Construction costs must include traffic management and right of way costs.

### Operating Costs

The CONSULTANT will develop Project operating cost estimates based on the transit service plans developed for alternatives using an operating cost model reflecting FTA guidance and local transit agency operating unit costs including but not limited to vehicles, fuel, materials and labor.

### Cost and Schedule for Project Development

The CONSULTANT will develop a cost estimate for the anticipated/assumed Project Development phase of the study under FTA’ oversight.

## ETDM Screening and Advanced Notification

*[Modify this task if the CONSULTANT will perform ETDM Screening activities]*

The CONSULTANT will gather data and prepare the necessary documentation to conduct ETDM screening of the Project. The CONSULTANT will prepare the Preliminary Environmental Discussion and Advance Notification and transmittal letter as per Part 1, Chapter 3 of the PD&E Manual for the District Environmental Office to submit to the State Clearinghouse.

# RECOMMENDED ALTERNATIVE

The CONSULTANT will assemble all results of the Project alternative analysis and will assist the DEPARTMENT to make a recommendation for a Project recommended alternative that best addresses the purpose and need, and best meets the Project goals, objectives and evaluation criteria. The CONSULTANT will address input received from the public as well as project partners and participating agencies, and will identify trade-offs considered in arriving at the recommended alternative.

### FTA Class of Action

The CONSULTANT will prepare all information and content necessary for the DEPARTMENT to request an environmental class of action determination from the FTA.

# DOCUMENTATION

## Transit Concept and Alternatives Review report

The CONSULTANT will prepare documentation materials to cover prior work tasks in the study, consistent with DEPARTMENT TCAR guidance.

This documentation will include preliminary Project evaluation rating results, consistent with FTA Project evaluation and rating under the FAST Act, with Project results compared to currently understood thresholds for Project ratings e.g. low/medium/high.

**Phase 2 — Project Development – (Tasks 9 – 15)**

This is a two-phase scope of services. In Phase 1, the CONSULTANT will perform analysis to support the DEPARTMENT and satisfy the DEPARTMENT’s guidance on TCAR. In Phase 2, the CONSULTANT will satisfy the FTA’s guidance for the CIG NEW STARTS Program and the DEPARTMENT’s PD&E requirements. In Phase 2a, the CONSULTANT will prepare for and request entrance into the FTA CIG NEW STARTS Program. In Phase 2b, the CONSULTANT will comply with all the FTA CIG NEW STARTS Project Development guidelines and the DEPARTMENT’s PD&E requirements. The DEPARTMENT has the option to terminate the contract if the request for entry into PD is denied by FTA. In Phase 2b, the CONSULTANT will perform environmental and preliminary engineering analyses for the project sufficient to obtain clearance from FTA pursuant to NEPA. Therefore, CONSULTANT must obtain a written authorization to proceed with Phase 2a and 2b from the DEPARTMENT.

**Phase 2a – Preparation for Project Development**

Due to the two-year time limit on the CIG NEW STARTS program, the DEPARTMENT may elect to initiate some preliminary NEPA and Conceptual Engineering work (from the scope below) prior to entry into PD. It should be known that any activities undertaken prior to a project entering PD are not covered by automatic pre-award authority and those activities will not be eligible for future reimbursement from the CIG NEW STARTS program should a construction grant be awarded.

Because of FTA’s desire to ensure the CIG NEW STARTS process moves quickly, FTA believes project sponsors should demonstrate sufficient progress to remain in the program. Thus, FTA requires that project sponsors obtain commitments of at least 50 percent of all non-CIG NEW STARTS funds within three years of a Small Starts project’s advancement into PD and continue to make sufficient progress on advancing the level of design of the project during that time. If a sponsor does not meet these requirements, FTA could withdraw the project from the Small Starts program.

For New Starts, FTA requires that project sponsors obtain commitments of at least 30 percent of all non-CIG NEW STARTS funds and complete all the PD activities within the two-year timeframe.

The CONSULTANT should note that FTA requires a 6 month notice of intent period before the Project makes a request to FTA to enter Engineering, and shall plan accordingly.

# EARLY ENVIRONMENTAL ANALYSIS

This section provides an opportunity to conduct preliminary NEPA environmental analysis before the DEPARTMENT request entry into the FTA’s Project Development process – to comply with CIG NEW STARTS program time limits for New Starts and Core Capacity Projects. Given conditions and constraints on the Project, it may be advisable to advance a portion of NEPA study to address conditions or issues that may be anticipated to impact the Project timeframe.

# CONCEPTUAL ENGINEERING FOR RECOMMENDED ALTERNATIVE

### Conceptual Engineering for Multimodal Improvements

The CONSULTANT will initiate conceptual engineering on the recommended alternative. The conceptual design will provide sufficient definition of infrastructure improvements in the corridor to establish the physical requirements and associated costs, benefits, and impacts.

The CONSULTANT will prepare technology-specific design specifications, transit lane schematics, plan and profile drawings of the alignments and station sites, and cross-sectional drawings of typical and special line segments. The preparation of conceptual plans on Geographical Information Systems (GIS) base mapping and high resolution ortho-photography will enable the study team to identify property requirements, utility relocations, and transportation infrastructure modifications to prepare conceptual cost estimates to aid in decision making.

The CONSULTANT will coordinate infrastructure design requirements with the operating plan concepts and ridership forecasts.

The CONSULTANT will prepare drawings (at 1” = 100.0’ scale) and analyses in electronic and paper formats to support both engineering and capital cost estimating needs. In addition, the engineering products will be produced in formats and scales suitable for public participation activities.

The CONSULTANT will prepare specific activities in the conceptual design which include the following subtasks with deliverables as shown:

* Collect engineering and environmental information.
* Obtain GIS data, including property boundary and wetland layers, and base mapping and ortho-photography.
* As-Built Roadway and Rail Plans – obtain railroad valuation maps, track charts, bridge plans and any available boring logs.
* Right of Way data – right of way lines and property corners for properties along the corridor.
* Existing Utility Plans – public and private major utility installations that can and cannot be built upon, over or under.
* Economic development data sufficient to evaluate differences in the potential of alternatives to generate growth. Some specific analysis may include:
* Socioeconomic data analysis (households and employment characteristics, transportation disadvantaged populations, etc.)
* Jobs-to-housing balance.
* Land use and land development plans and policy evaluation.
* Parking policies, cost, supply, availability and location.
* Parks, recreation facilities and lands - dedicated parks, recreation facilities, land owned by park and recreation districts. Data sources to include, local and regional parks and recreation departments/districts.
* Wetlands, flood plains, drainage facilities - floodplain and floodway boundaries, wetland boundaries, major drainage ways.
* Cultural/historic resources - identification of known properties of historical significance.
* Community resources - identification of major community resources, such as schools, community centers and other facilities; delineation of neighborhood boundaries.
* Economic data - compilation of indicators of economic activity, sufficient to compare the performance and impacts of alternatives. Differences in the economic impact of alignment and station alternatives will be assessed.
* Physical inventory data - photo logs, identification of major intersections/interchanges, major land uses adjacent to rights-of-way and major physical features. To be compiled through windshield survey/fieldwork and from aerial photos.
* Hazardous/Regulated materials sites - identification of Superfund or other documented contaminated sites.
* Noise Sensitive Receptors - Identification of sensitive noise receptors and sites/areas of potential impact.
* Economic Development - Data and analytical techniques necessary to assess differences in ridership and economic development impacts for alignment and station location alternatives.
* Prepare abbreviated design standards and criteria for vehicles, track, guideway, dedicated transit lanes, drainage, signals, communications, other system elements (traction power, Overhead Catenary System (OCS), fare collection, central control and dispatch), stations, maintenance and storage facilities, grade crossings, roadway improvements, utility relocation, bridges and structures, maintenance of roadway and rail traffic.
* Prepare typical sections for dedicated transit lanes.
* Prepare typical plans and sections for grade crossing, stations and maintenance facility.
* Prepare plans for alignment alternatives and design options, including (select from appropriate alternative/options and specify others, such as those to alignment or station location) street-running premium transit lanes. Identify property requirements, structures, and grade crossings.
* Prepare footprint area for mobility hub stations, which include location, access, and circulation requirements.
* Prepare conceptual drawings of prototype mobility hub stations depicting shelters, platforms, ticketing facilities, access for pedestrians, autos, taxis, and buses, and parking and roadway modifications.
* Identify site boundaries and locations for substations and storage and maintenance facilities.
* Prepare typical structure plans and elevations (as needed).

# ENTRY INTO PROJECT DEVELOPMENT

## CIG NEW STARTS Application Letter

The CONSULTANT will prepare a draft of a letter to FTA to Request to Enter Project Development according to the most recent FTA guidance.

### Meeting with FTA

The CONSULTANT will support the DEPARTMENT in developing materials in preparation for a meeting with FTA to discuss the Project, address FTA questions, concerns and suggestions, and request to enter PD.

### Project Plan Assuming No Federal Funding

(OPTIONAL) If the initial findings from the Project ratings results (Sec. 8.1) indicate a low level of likelihood for Federal funding participation for the Project, as agreed with Project partners, and the decision is made to move forward with the Project relying on local funding, the CONSULTANT will work with the DEPARTMENT to develop a plan for forward development of the Project addressing a plan for capital and operating funding commitments and identifying an operator.

**Phase 2b – FTA CIG NEW STARTS Project Development Process**

This analysis will be conducted for only one or two alternatives at the most, using much of what was obtained from completing the TCAR process.

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# RECOMMENDED ALTERNATIVE(S) REFINEMENT

[*Refining the alternative developed in TCAR to a level necessary to gain entry into FTA Engineering. Description of the individual tasks are covered in Phase 1 tasks]*

## Problem Description (refined Purpose and Need)

## Refine Project description

### Define study area

### Goals and objectives

## Evaluation framework and measures

## Existing and Future Conditions Assessment Refinements

## Additional data collection (if required)

## Refinements to travel forecasting methods

### Regional planning model

### STOPS model (required?)

## Mobility Improvement Needs

# EVALUATION OF RECOMMENDED ALTERNATIVE(S)

## Transportation Impacts

The CONSULTANT shall evaluate potential traffic impacts due to the project by analyzing short-term impacts during construction or demolition, existing roadways capacity for increased bus and other vehicular traffic as part of the proposed project, and determining countermeasures required to minimize impacts.

## Topographical Survey

The CONSULTANT will conduct design survey services for this project. All surveying and mapping activities will be done in accordance with the Surveying and Mapping Procedure 550-030-101 and the Surveying and Mapping Handbook.

## Geotechnical Investigation

The CONSULTANT will conduct geotechnical services associated with design activities related to this Project. Before beginning work and after the Notice to Proceed is issued, the CONSULTANT shall submit an investigation plan for approval and meet with the DEPARTMENT’s Geotechnical Engineer or representative to review the project scope and DEPARTMENT requirements.

## Engineering Design

The CONSULTANT will develop typical sections, geometric design (i.e. horizontal alignment), intersections and/or interchanges, access management features, station features. For New Starts, the CONSULTANT will develop engineering and design plans for the recommended alternative(s) up to 30% design and engineering. For Small Starts, The CONSULTANT will develop sufficient engineering and design plans for the recommended alternative(s) to be eligible for a construction grant.

While performing engineering and design analysis, the CONSULTANT will analyze all proposed design components, their relationships and their costs. The CONSULTANT will evaluate the conceptual design of the following:

* Alignments
* Typical Section
* Mode/Technology
* Design standards and criteria
* Transit service plans (operations planning, ITS ConOps)
* Station locations
* Maintenance facilities

The CONSULTANT will also Perform technical studies, develop engineering criteria, and conduct Value Engineering and risk assessment for the recommended alternative(s).

The CONSULTANT will develop concept plans based on functional requirements and safety for the recommended alternative(s). The result of the engineering and design is preliminary plans, elevations, sections, schedule, grading plans, utility plans, drainage plans, landscaping plan, site boundary, and topographic surveys.

## Funding and Financial Plan

The CONSULTANT will prepare a financial capacity analysis for the recommended alternative(s) to comply with FTA’s guidance for transit financial plans. This will include a 20-year cash flow model that incorporates all costs and revenues associated with transit financial commitments in the region. The financial capacity analysis will determine if there are adequate resources to build the alternatives, and to operate and maintain them for a 20-year period within the context of the other existing transit obligations of the region.

### Capital Costs

Capital costs will be refined for the Project recommended alternative(s) per phase, using the capital cost model developed during Initial Screening (using the FTA SCC). At this point, the CONSULTANT will refine the estimates for the more detailed improvements associated with the recommended alternative(s), as well as supporting bus system modifications. The CONSULTANT will prepare estimates of cost for right-of-way acquisition for all alignment segments which fall outside of existing right-of-way, including for proposed station locations. All estimates will be made consistent with DEPARTMENT policy for right-of-way estimating. Estimates will include land area takes, and types of property (including business types) impacted. The costs of relocations and business damages will also be determined.

Present Cost

The CONSULTANT will prepare conceptual (30 percent design) capital costs for the recommended alternative(s), covering final design, construction, and start-up.

Year of Expenditure Costs

The CONSULTANT will use the constructability/phasing plan developed for the recommended alternative(s) to formulate year of expenditure capital costs. These cost estimates are to be developed using the DEPARTMENT’s LRE program, supplemented as necessary to address major transit Project capital costs.

Life Cycle Costs

The CONSULTANT will use life cycle cost comparisons to evaluate the detailed Project alternatives. The life cycle cost analysis will be based on completed documentation from capital and operating cost estimates.

### Operations and Maintenance Costs

The CONSULTANT will develop an operating and maintenance (O&M) cost model, updating factor inputs to reflect current local transit agency cost structures. In accordance with FTA guidelines, the cost model should incorporate specific resource requirements for operation of the recommended alternative(s) and provide a level of detail to accurately estimate the effect on the operating agency’s budget. The model will be used to estimate annual operating costs of the recommended alternative(s) and all other proposed Project-related service improvements for the horizon year, an assumed opening year, and one interim year. The costs for the recommended alternative(s) will be separated from other system-wide Project-related costs. The gross and net operating costs of the Project will be compared to the Baseline Alternative condition.

The O&M cost estimates will be developed using the operating plans defined above. Premium transit system O&M costs are grouped into four cost element categories, including:

* Transportation: Primarily made up of wages and benefits for train operators and operations supervisors, and propulsion power (electricity) or diesel fuel.
* Maintenance of Equipment (vehicles): Primarily made up of wages and benefits for vehicle maintainers and supervisors, parts, contract maintenance work, and shop utilities and supplies.
* Maintenance of Way: Includes wages and benefits for facility maintainers and supervisors, parts, and contract maintenance. This will vary based on special items such as bridges.
* General and Administration: Risk management, liability insurance, and wages and benefits for general management, administrative and legal personnel.

Bus system components of Project alternatives will be estimated based on local experience with the current transit system operator. The CONSULTANT will also consider additional facilities that support bus system operations.

# ENVIRONMENTAL ANALYSIS AND DOCUMENTATION

## Environmental Analysis

The CONSULTANT will perform the appropriate level of environmental analysis as outlined in the PD&E Manual and the following sections. CONSULTANT activities to conduct and prepare environmental analysis and reports shall be done under the direction of the DEPARTMENT Project Manager. Prior to beginning environmental work, the CONSULTANT must review the ETDM Programming Screen Summary Report, summary degree of effect, resource agencies’ comments, permits that may be required, and GIS information from the Environmental Screening Tool (EST). This review will support the CONSULTANT’s ability to adequately assess the potential for Project alternatives to affect known environmental resource issues

The CONSULTANT will collect pertinent environmental data, conduct analyses, and document the results of this analysis within technical reports or memoranda and summarize the results in the Environmental Document. The analyses and reporting will be performed and presented in accordance with the procedures in the PD&E Manual. The CONSULTANT will utilize the Florida Geographic Data Library (FGDL), or other appropriate database that includes all existing features. All database information will be field verified as part of this assessment. This information will be laid on base maps used for public hearing presentations, corridor maps, and alternative concept plans.

The impacts assessment for each area will include an analysis of direct and indirect impact and cumulative impacts as appropriate.

### Sociocultural Effects

The CONSULTANT will perform sociocultural effects evaluation in accordance with Part 2, Chapter 4 of the PD&E Manual, unless otherwise noted.

#### Land Use

The CONSULTANT will evaluate the Project’s consistency with the physical character of the area, current land use plans, future land use plans, and applicable community plans.

The CONSULTANT will identify mitigation strategies to reduce impacts, identify regulatory strategies to address development impacts as needed and identify strategies to avoid or minimize potential impacts to respective community plans, activity centers, major employers, and a community’s social and economic vitality.

The CONSULTANT will identify and assesses potential Project impacts on physical barriers, traffic pattern changes, social pattern changes, and loss of connectivity to community features and facilities.

##### Community Facilities and Services

The CONSULTANT will identify community resources (both formal and informal) including social service agencies, housing for the elderly/retirement centers/special need facilities, hospitals and other medical facilities, senior centers, libraries, community centers, schools, churches, day care facilities, cultural facilities, and emergency services, as well as other resources as identified by the community. Resources and community and neighborhood boundaries will be mapped.

The CONSULTANT will collect data for analysis through interviews with local planning officials, and other stakeholders, local land use data, public involvement information, information from land use analysis and field surveys.

Using the mapped facility information developed in the data analysis, the CONSULTANT will identify and analyze the types of community impacts under each alternative, including:

* Physical or perceptual isolation
* Wall or barrier effects
* Potential community facility displacements, including a description of displacements

The CONSULTANT will identify mitigation strategies to avoid, minimize or reduce impacts to neighborhood/community facilities and service areas.

##### Community Cohesion

The CONSULTANT will define neighborhood boundaries, public service areas, and known formal and informal pedestrian pathways based on interviews with local planning officials and other stakeholders. The CONSULTANT will map this information and include it in the Project GIS database.

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.

##### Environmental Justice

The CONSULTANT will identify the concentrations of minority and low-income populations in the area. In areas where neighborhood fragmentation or barriers become public issues, the CONSULTANT will recommend stakeholder involvement techniques to develop mitigation. Utilizing FTA guidelines on Environmental Justice (EJ) (FTA Circular 4703.1), the CONSULTANT will address the extent to which high and adverse impacts fall disproportionately on environmental justice populations (minority and low-income populations) for each alternative. Information about needs and conditions of EJ communities will be used to develop design options and mitigation measures. This analysis will address both the issues raised during the outreach program and any impacts determined to be significant during the development of the Environmental Document. A draft and final EJ and Title VI Report will be prepared by the CONSULTANT and reviewed by the DEPARTMENT.

The CONSULTANT will conduct a tradeoff analysis for the final recommended alternative that will determine the benefits and burdens of a transportation improvement. Appropriate measures to avoid, minimize and/or mitigate will identified.

##### Acquisitions & Relocations

The CONSULTANT will collect data and perform the analysis required to describe land acquisitions and displacement of residences and businesses. The CONSULTANT will document the results of this analysis in the Conceptual Stage Relocation Plan (CSRP) for the recommended alternative(s). The CSRP will include current use, ownership and the date and type of property transaction (such as lease or purchase). The CONSULTANT will also identify the availability of residential and commercial real estate for sale to accommodate potential relocation needs.

##### Visual and Aesthetic

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 Part 2, Chapter 5 of the PD&E Manual.

##### Economic

The CONSULTANT will assess potential Project impacts to business and employment activity in the project area, including industries with special needs (e.g., freight distributor) or significance (e.g., regional employer), 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.

The CONSULTANT will assess potential Project impacts on the tax base, employment opportunities, and property values.

##### Transportation Impacts

The CONSULTANT will assess the potential transportation impacts based on project type and interaction with the existing transportation network. The CONSULTANT will identify effects of the proposed project on traffic conditions on roadways in the project study area. <<Level of traffic analysis will be considered based on project type and whether there will be in road operations>>. The CONSULTANT will assess potential multimodal effects of the proposed project on parking, bicycle facilities, and pedestrian accommodations.

The CONSULTANT will develop or confirm recommended service plans to understand operations and integration with the existing transit network. Effects of the project on system operations will be determined.

The CONSULTANT will develop or confirm ridership based on the proposed operating plan.

Results of the transportation analysis will be incorporated into the environmental document. If necessary, results may be documented in a separate technical memorandum.

##### Cultural Resources

The CONSULTANT will collect data necessary to completely analyze the impacts to all cultural and historic resources by all recommended alternative(s) and prepare a Cultural Resource Assessment Request Package as described in Part 2, Chapter 8, of the PD&E Manual.

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 CONSULTANT, in consultation with the DEPARTMENT, will develop a recommended Area of Potential Effect (APE), with concurrence from the FTA and State Historic Preservation Office (SHPO). The CONSULTANT will summarize each of the cultural resource issues in the Environmental Document. If noninvolvement for an 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. FTA will conduct all consultations per Section 106 of the National Historic Preservation Act (NHPA). FTA also makes a determination of “No Effect/No Historic Properties” or “No Historic Properties Affected”.

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:

##### Archaeological and Historic Resources

The CONSULTANT will develop a methodology for assessing cultural resources and will coordinate with FTA on methodology prior to initiating surveys. The CONSULTANT will identify and analyze impacts to archaeological sites and historic resources within the Project’s APE. The APE must include potential pond sites. The DEPARTMENT will coordinate with partners to obtain SHPO concurrence of the APE. 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 and in coordination with the DEPARTMENT and FTA. 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 resources issues or comments by SHPO listed in the Programming Screen Summary Report.

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

The CONSULTANT will prepare CRAS documentation detailing the results of the survey and assessments of resource significance, including a Florida Master Site File (FMSF) form. The Research Design and Survey Methodology and the Pond Sites Technical Memo will be included in the CRAS appendix. Coordination with FTA on the appropriate deliverables and coordination with the SHPO will be outlined in the methodology report. A separate Assessment of Effects (AOE) may be needed.

Eligible resources that will be impacted by the project will be assessed and appropriate Section 4(f) documentation will be prepared by the CONSULTANT for each resource affected.

##### Recreational, Section 4(f)

The 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.

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

If required, the CONSULTANT will complete the documentation for Individual or Programmatic Section 4(f) evaluations, as appropriate, in accordance with Part 2, Chapter 7 of the PD&E Manual.

##### Safety & Security

The CONSULTANT will examine the safety and security impacts of the alternatives. The CONSULTANT will collect crime, security and crash statistics from responsible agencies. Crime, security and crash data from existing operations should be used to extrapolate potential problems with candidate transit alternatives.

The CONSULTANT will also assess public safety issues for transit corridors, with focus on potential impacts to emergency services and pedestrian and vehicle crashes. An inventory of Project area emergency service routes and emergency medical service providers will be conducted. Crash data generated in the traffic analysis should be used in the public safety analysis.

The CONSULTANT will identify appropriate security measures for the recommended alternative(s) from the standpoint of passenger safety, overall system security, and applicable Homeland Security measures.

##### Natural Resources

The CONSULTANT will assess and summarize each of the natural resource issues in the Environmental Document. If no involvement for an issue is indicated, then a statement to that effect will be included.

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 following items in the Environmental Document and project file:

##### Wetlands and Surface Waters

The CONSULTANT will identify the type, quality, and function of wetlands, or reference previously completed documentation relevant to the Project. The CONSULTANT will establish Uniform Mitigation Assessment Method (UMAM) for representative wetlands 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 Wetlands Evaluation in the Natural Resources Evaluation (NRE) Report to document all coordination activities with resource agencies, wetland impact assessment, and mitigation analysis.

##### Essential Fish Habitat

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.

##### Wildlife and Habitat

The CONSULTANT will perform research, field reviews, survey, and coordination necessary to determine Project involvement with and 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 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.

##### Natural Resource Evaluation Report

The CONSULTANT will document the results of the Wetlands and EFH, Wildlife and Habitat, evaluations in a NRE report in accordance with Part 2, Chapter 16 of the PD&E Manual.

##### Water Quality

In accordance with Part 2, Chapter 11 of the PD&E Manual, he CONSULTANT will prepare a Water Quality Impact Evaluation (WQIE) for the alternatives under consideration. The evaluation will include sufficient description of design, mitigation measures, and construction controls to demonstrate that local water quality standards and any Federal or local permit requirements can be met. The CONSULTANT will identify the need for National Pollutant Discharge Elimination System (NPDES) permit under the program established pursuant to Section 402 of the Federal Clean Water Act as administered in Florida pursuant to Section 401, or Section 404 permits.

The CONSULTANT will evaluate strategies to mitigate stormwater runoff volumes from the proposed construction.

##### Aquatic preserves, Outstanding Florida Waters, and Wild and Scenic Rivers

In accordance with Part 2, Chapter 10 of the PD&E Manual, respectively, the CONSULTANT will coordinate with the DEPARTMENT to determine if the recommended alternative(s) impact an aquatic preserve. This identification will be done through the same process as the Outstanding Florida Water, as all aquatic preserves are considered Outstanding Florida Waters.

The CONSULTANT will coordinate with the DEPARTMENT to determine if the recommended alternative(s) are in an area designated as an Outstanding Florida Water. If the Project falls within an Outstanding Florida Water area, then the CONSULTANT will identify the Outstanding Florida Water as it relates to each of the alternatives and assess the impacts to the Outstanding Florida Water.

The CONSULTANT will coordinate with the Florida DEP regarding potential impacts and proposed mitigation measures.

In accordance with Part 2, Chapters 12, the CONSULTANT will confirm that the recommended alternative(s) will not impact designated Wild and Scenic Rivers. If there are no impacts to any of the above outlined resources, then the CONSULTANT will document these findings in the Environmental Document.

##### Floodplains

The CONSULTANT will review the Federal Emergency Management Agency (FEMA) maps and studies, including Flood Insurance Rate Maps and/or Flood Hazard Boundary Maps, to identify the base (100-year) floodplain for the Project area. The CONSULTANT will then document, for each alternative under evaluation, the extent of encroachment on the base floodplain in accordance with Part 2, Chapter 13 of the PD&E Manual. The CONSULTANT will assist the DEPARTMENT with coordination with FEMA, state and local agencies as necessary to determine if encroachments to the base floodplain are consistent with, or will require a revision to, the regulatory floodway and document the results of this coordination.

If it is determined that 100-year floodplains exist in the Project study area, the CONSULTANT will analyze the potential impacts associated with each of the alternatives in terms of the potential to substantially increase the risk of flooding or too substantially impact the natural and beneficial values of the floodplain. In addition, the CONSULTANT will determine that the Project design includes consideration of all applicable state and local stormwater management plans to address the need for a flood hazard use permit.

If the proposed alternative encroaches floodplains, the CONSULTANT will include an “Only Practicable Alternative Finding” in accordance with Executive Order 11988, 23 CRF 653, Subpart A, and Part 2, Chapter 13 of the PD&E Manual in the Environmental Document.

##### Coastal Barrier Resources

In accordance with Part 2, Chapter 15 of the PD&E Manual, the CONSULTANT will coordinate with the DEPARTMENT to determine if the recommended alternative(s) impact designated Coastal Barrier Resources. If the recommended alternative(s) do not impact designated resources, then the Environmental Document will provide a statement to that regard. If the recommended alternative(s) do impact a designated resource, then consultation with the USFWS will be initiated regarding potential impacts and mitigation measures. The CONSULTANT will document the impacts and results of the consultation efforts in the Environmental Document.

##### Geologic Resources

The CONSULTANT will identify geology and soil types within the Project area. The CONSULTANT will use existing data available from the United States Geological Survey (USGS) or other appropriate sources. The CONSULTANT will not collect or analyze any soil samples as part of this scope of work.

The CONSULTANT will identify mitigation strategies to reduce negative impacts, identify regulatory strategies to address development impacts as needed, and identify strategies to avoid or minimize potential impacts to groundwater supplies.

##### Identify Permits

The CONSULTANT will identify type of permits required. This task includes the review of maps and data to determine permit related information for the Project. The CONSULTANT will assist the DEPARTMENT to prepare information required by FTA to determine whether a project is exempt from USCG navigation permit.

##### Farmlands

In accordance with Part 2, Chapter 6 of the PD&E Manual, the CONSULTANT will identify designated farmlands in the study area, including farmlands classified as “prime, unique or of Statewide or local importance”. County maps will be used in this analysis. These maps identify prime farmlands, unique farmlands, farmlands of statewide importance and farmlands of local importance. If farmlands are identified, a field inspection will occur to determine if these lands are already urbanized, developed or are being utilized for water storage/irrigation. This information will be mapped as a GIS overlay.

In cooperation with the NRCS, the CONSULTANT will investigate and quantify the effect of the Project alternatives on farmlands, particularly farmlands classified as “prime”. US Department of Agriculture Form No. 1006 will be completed and submitted to the state soil scientist (NRCS).

### Physical Effects

The CONSULTANT will summarize each of the physical effect issues in the Environmental Document. If no involvement for an issue is indicated, then a statement to that effect will be included. The CONSULTANT will identify the physical effect evaluation area. The CONSULTANT will assess the direct and indirect effects and will document the severity of the following:

### Air Quality

The CONSULTANT will perform the air quality analysis by preparing a Screening Test, as specified in Part 2, Chapter 16 of the PD&E Manual. If the recommended alternative(s) fail the screening test, then a full air quality analysis will be required. The computer analysis will be performed by using models which are accepted by FTA and USEPA.

The CONSULTANT will research background air quality levels in the study area and designate air sensitive sites to be representative of unique study areas within the study limits. These sites will be used as receptor site locations during the modeling process. Air quality models will be used to determine peak hour and eight-hour concentrations for the alternatives. Results will be compared to the National Ambient Air Quality Standards for the maximum one-hour and maximum consecutive eight-hour period.

Greenhouse Gas Emissions will be considered at a programmatic level and the CONSULTANT shall follow the guidance from FTA’s Greenhouse Gas Emissions from Transit Projects: Programmatic Assessment (January 2017) to inform the environmental review process.

The CONSULTANT will include a summary of the air quality analysis in the Environmental Document.

### Noise

The CONSULTANT will conduct noise assessment at appropriate level of noise analysis for the project in accordance with FTA’s Noise and Vibration Manual (2006). Based on the results of the noise analysis, the CONSULTANT will evaluate measures necessary to mitigate adverse impacts based on the magnitude and consideration of factors specifically related to the proposed project and affected land use. The decision to include noise mitigation in a project will be made by FTA after public review of the Environmental Document.

### Vibration

The CONSULTANT will perform vibration screening to determine if the project will result into substantial vibration impact to surrounding land use in accordance with FTA’s Noise and Vibration Manual (2006). The CONSULTANT will eliminate further consideration of vibration impact if the screening would not identify any problem areas. If vibration is determined to be a problem, the CONSULTANT will conduct a ground-borne vibration general assessment or detail analysis as appropriate. The CONSULTANT will develop and evaluate measures to minimize the adverse effects that the project ground-borne vibration will have on sensitive land uses

### Hazardous & Regulated Materials

The CONSULTANT will perform contamination screening evaluation for all recommended alternative(s), and complete the Contamination Screening Evaluation Report as described in Part 2, Chapter 20, of the PD&E Manual. The CONSULTANT will recommend steps that will be taken to ensure that human and ecological receptors in the project area are protected from contamination encountered during construction and operation of the project. The steps include Level II (Phase 1) site assessment) and Level III (Phase 2) assessment, where appropriate

### Energy

The CONSULTANT will evaluate the regional energy consumption resulting from vehicular travel for the existing conditions, no build alternatives (if needed), and recommended alternative(s). The analysis will be based on the regional Vehicle Miles Traveled (VMT) derived from the regional travel demand model.

### Utilities

Based on the coordination with the utility companies along the Project the CONSULTANT will prepare a Utility Assessment Package as described in Part 2, Chapter 21 of the PD&E Manual.

### Construction Impact

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. The CONSULTANT will describe the construction plan and identify construction impacts with respect to noise, dust, utility disruption, debris and spoil disposal, air quality, water quality, erosion, safety and security, and disruptions of traffic and access to businesses or residential property. The CONSULTANT will identify steps that will be taken to provide mitigate the impacts of construction.

### Cumulative Effects Evaluation

The CONSULTANT will perform and document cumulative effects evaluation of each resource of concern identified based on context and in consultation with the DEPARTMENT as per the process outlined in the Cumulative Effects Evaluation Handbook. The cumulative effects evaluation should build upon information derived from the direct and indirect effects analyses.

### Commitments

The CONSULTANT will assist the DEPARTMENT in filling out Form No. 700-011-35 Project Commitments Record (PCR) to document project commitments in the Commitments section of the Environmental Document. DEPARTMENT Procedure 700-011-035 will be used by the CONSULTANT for recording the project commitments. The CONSULTANT will forward the completed PCR form to the DEPARTMENT Project Manager

## Environmental Documentation

The CONSULTANT will prepare the Environmental Document as determined by FTA in accordance with the PD&E Manual.

# OPTIONAL SERVICES

At the Department’s option, the Consultant may be requested to provide professional services not explicitly outlined in this Scope of Services. It is anticipated that this contract may be supplemented for additional services above any noted in this Scope of Services. Additional services will require a Supplemental Agreement and Department approval prior to beginning any work efforts. The fee for such services shall be negotiated in accordance with the terms detailed in Exhibit B, Method of Compensation, for a fair, competitive and reasonable cost, considering the scope and complexity of the project. A Supplemental Agreement for the optional services shall be executed in accordance with Section 2 of the Standard Professional Services Agreement Terms. Optional services may include but not limited to the following:

## Environmental Impact Statement Scoping

If FTA determines the Class of Action for the project is Environmental Impact Statement, the CONSULTANT will support the DEPARTMENT with Project Scoping, as required by 40 CFR Section 1501.7 Council on Environmental Quality (CEQ), 23 CFR 771 and Part 1, Chapters 8 and 14 of the PD&E Manual for an EIS. CONSULTANT activities include facilitating a formal scoping meeting to collect public and government agencies comments on the Project’s need. The CONSULTANT will support the DEPARTMENT Project Manager to schedule and conduct <<Insert Number>> formal inter-agency / public Scoping Meetings. Notice for Scoping Meetings will be provided pursuant to Part 1, Chapter 11 of the PD&E Manual. The CONSULTANT will document the results of the scoping meeting(s) and use such results to focus the environmental analysis in the EIS to the relevant issues.

## Notice of Intent

If FTA determines the Class of Action for the project is Environmental Impact Statement, the CONSULTANT will assist the DEPARTMENT in preparing the Notice of Intent to inform the stakeholders of the scope of the project in accordance with Part 1, Chapter 8 of the PD&E Manual.

## Cumulative Impacts Evaluation

The CONSULTANT will perform and document cumulative effects evaluation of each resource of concern identified based on context and in consultation with the DEPARTMENT as per the process outlined in the FDOT Cumulative Effects Evaluation Handbook. The cumulative effects evaluation should build upon information derived from the direct and indirect effects analyses

# LOCALLY PREFERRED ALTERNATIVE

Upon completion of the preliminary engineering, evaluation analysis, and environmental compliance, the CONSULTANT will support the DEPARTMENT’s selection of the Locally Preferred Alternative (LPA).

## LRTP Adoption

The CONSULTANT will assist the DEPARTMENT and Project partners in developing information for and completing a request to have the Project LPA adopted into the MPO’s LRTP.

## FTA CIG NEW STARTS Project Evaluation and Rating

The CONSULTANT will complete all required documentation stipulated by Federal guidance to support the Project in the FTA Project Development process. This may include Federal templates or worksheets for Project evaluation and rating as well as documentation of transit engineering and design activities conducted in the study.

The CONSULTANT will prepare three (3) hard copies of a Draft Project Development submission for review by the DEPARTMENT. Revisions to the submission will be made based on the DEPARTMENT’S comments. A final version of the Project Development submittal will be prepared by the CONSULTANT, and six (6) hard copies provided to the DEPARTMENT for distribution to FTA and internal use.

## FTA Project Management Plan

The CONSULTANT will prepare and submit a Project Management Plan (PMP) as part of the Preliminary Engineering (PE) entry request to FTA, demonstrating the technical capability and capacity (TCC) of the FDOT central office and district staff and consultants to undertake subsequent phases of Project development. In this task, the PMP will specify the approach, policies, and procedures for undertaking PE. Activities and functions covered under the PMP will include the identification of the roles and responsibilities of key participants in the engineering effort; quality control and assurance; design management; real estate and other property acquisition; risk management; safety and security; construction and procurement management; testing and preparation for revenue start-up; human resources, labor relations, and dispute resolution; and legal requirements, assurances, and agreements. The PMP will guide the subsequent PE and final design effort, and will become increasingly detailed as the Project develops through construction and start-up.

## New Starts Report

The CONSULTANT will prepare summary evaluation forms that highlight evaluation criteria, both quantitative and qualitative, and will prepare a trade-off analysis that will focus on the most important costs and benefits of each detailed alternative. The summary will document the alternatives development and screening process, including the selection of the preferred alternative. The summary will identify reasons for the alteration or elimination of any alternatives. The summary document will identify how the selected alternative relates to the Purpose and Need Statement, including that document’s goals and objectives.

The CONSULTANT will prepare three (3) hard copies of a Draft New Starts submission for review by the DEPARTMENT. Revisions to the submission will be made based on the DEPARTMENT’S comments. A final version of the New Starts submittal will be prepared by the CONSULTANT, and six (6) hard copies provided to the DEPARTMENT for distribution to FTA and internal use.

## Risk Assessment, Value Engineering

One tool that FTA uses to help ensure that projects meet their cost, schedule and transportation benefit expectations is a quantitative risk assessment. These risk assessments help project sponsors identify the issues that could affect schedule or cost, as well as the probability that they will do so. Utilizing the risk assessment tool, every project sponsor is required to identify the project’s key cost drivers; identify, quantify, and prioritize based on impact and probability the risks associated with potential cost increases and schedule delays; and develop contingency levels and risk mitigation plans sufficient to assure confidence in the Project cost estimates.

For the recommended alternative(s), the CONSULTANT will identify the potential risks for the Project, estimate the impacts that these risks will have in terms of cost and schedule delay, and determine an appropriate contingency to be added to the costs of the Project for covering this risk. The DEPARTMENT will identify a peer review panel to conduct the risk assessment. The CONSULTANT will include risk contingency in the costs reported in the Environmental Document for the recommended alternative.

The CONSULTANT will assist the peer review panel when conducting risk assessment which will include the ridership projections, baseline and alternative land use scenario. Once the alternative land use scenario is approved by the peer review panel, the CONSULTANT will update the regional travel demand model with the alternative land use data and ridership projections reforecast.

Once a preferred action is identified, the risk assessment will be updated to include a Risk Mitigation Plan that identifies mitigation measures, estimates implementation requirements, prioritizes the risk mitigation strategies, assigns mitigation responsibilities, and allocates the risks the applicable parties. The Risk Mitigation Plan will also include an implementation/monitoring plan that addresses management approvals, funding allocation, design/construction change approaches, construction contracts, field changes, contractor performance and field conditions, and a method for evaluating and implementing corrective changes.

## Request to Enter Engineering

The CONSULTANT will prepare three (3) copies of a Request to Enter Engineering for review by the DEPARTMENT. Revisions to the submission will be made based on the DEPARTMENT’S comments. A final version of the Request to Enter Engineering will be prepared by the CONSULTANT, and six (6) copies provided to the DEPARTMENT for distribution to FTA

## Agreements for Funding Engineering, Construction and Operations

The CONSULTANT will work with the DEPARTMENT to develop template agreements between the Project parties to commit to agreed roles and responsibilities related to project design, engineering, construction and operations.

# 17 METHOD OF COMPENSATION

Payment for the work accomplished will be in accordance with **Exhibit B** of the contract for this project. The DEPARTMENT’s Project Manager and the CONSULTANT will monitor the cumulative invoiced billings to ensure the reasonableness of the billings compared to the study schedule and the work accomplished and accepted by the DEPARTMENT. The DEPARTMENT Project Manager will decide whether work accomplished is of sufficient quality and quantity by comparing the reported Scope of Services percent complete against actual work accomplished.

Payments will not be made that exceed the percentage of work identified in the approved payout curve and schedule provided. 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 occurred and the results are acceptable to the DEPARTMENT.