## EXHIBIT "A" SCOPE OF SERVICES FOR DISTRICT SEVEN COMPLETE STREETS AND MULTIMODAL SAFETY CORRIDOR STUDIES - CONTINUING

Financial Project Nos. 254553 3 12 02 254553 3 22 02 254553 3 32 02

Federal Project Nos. TBD

> Revised: 01/08/21 12/29/20

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## **SCOPE OF SERVICES**

#### **SECTION I. PURPOSE**

The Florida Department of Transportation (FDOT) District Seven (D7), seeks to engage a qualified CONSULTANT to assist with implementation of the Department's Complete Streets Policy and Strategic Highway Safety Plan. The work may involve, but is not limited to, the major and minor services described within this document including preparation of Corridor Safety Action Plans for arterial or collector roadways. Planning efforts completed under this contract shall develop projects to improve the performance and quality of roadways utilizing proven safety countermeasures for focus areas defined in the Florida Strategic Highway Safety Plan, and guided by the FDOT's Complete Streets Policy and Complete Streets Implementation Plan (2015). It will also plan for the design, construction or reconstruction, and operation of a context-sensitive and safe transportation network that works for all modes of travel and promotes economic development in Florida. These action plans will identify cost feasible improvements and strategies within their respective corridors that improve safety, mobility and access, and quality of life for all users of the transportation system.

The CONSULTANT may be required to perform the following technical services: project management; analysis of existing relevant documents, policies and procedures; stakeholder interviews; research and knowledge of best practices, including transportation system analyses and modeling (such as Highway Safety Manual); conduct public outreach activities, including meeting attendance, facilitation and presentation; map development; and preparation of technical memoranda and miscellaneous engineering services required to perform the tasks listed in this contract.

It shall be the CONSULTANT'S responsibility to use its very best engineering judgment, practices and principles possible during the prosecution of the work commissioned under this contract. The CONSULTANT shall be aware that as the project is developed, certain modifications and improvements to the original proposal may be required. The CONSULTANT is to incorporate proposal refinements into the study and will consider this effort to be an anticipated and integral part of the work. This will not be a basis for any supplemental fee request(s). The CONSULTANT shall demonstrate good project management practices while working on this project. These include frequently schedule communication with the DEPARTMENT and others as necessary, management of time and resources, and documentation. Throughout this study, the CONSULTANT shall set up and maintain a contract file in accordance with DEPARTMENT procedures.

NOTE: THE GENERAL AREA FOR THIS STUDY IS ANY OF THE FIVE COUNTIES WITHIN DISTRICT SEVEN (7) INCLUDING ALL CITIES AND MUNICIPALITIES WITHIN ITS BOUNDARIES. WORK EFFORTS INVOLVE STATE, COUNTY, AND CITY ROADS AND MAY INVOLVE MULTI-LEVEL DISCUSSIONS WITH DISTRICT COUNTIES, MUNICIPALITIES, TRANSIT AND LOCAL-REGIONAL PLANNING AGENCIES AND JURISDICTIONS. The DEPARTMENT will provide contract administration, management services, and technical reviews of all work associated with this contract.

The DEPARTMENT will provide job specific information and functions as outlined in this contract.

## **SECTION II. OBJECTIVE**

The general objectives are for the CONSULTANT to provide general planning and engineering services to support implementation of the Department's Complete Streets Policy and Strategic Highway Safety Plan. The overall objective is to assist DEPARTMENT staff in fulfilling the following three main objectives: **promote** the implementation of systemic safety countermeasures through a context-sensitive approach to creating complete streets, **institutionalize** enhancements and practices to create safe, comfortable, accessible, and welcoming bicycle/pedestrian environments, and **encourage** multi-modal activity to generate economic vitality throughout the entire District.

The CONSULTANT shall evaluate and become familiar with common potential known factors and conditions that influence the occurrence of bicycle/pedestrian crashes such as:

- Roadway context mismatch: high-volume, high-speed arterial roadways bisecting higher density community-oriented areas with significant pedestrian and bicycle activity;
- access management: frequent collisions on a high-volume arterial with many driveways;
- availability of safe crosswalks: uncontrolled crosswalk with minimal treatments at offset intersection on a multi-lane, higher speed roadways carrying in excess of 15,000 vehicles per day, heavily used crosswalks with minimally marked treatments, pedestrians entering a roadway outside of a marked or unmarked crosswalk, pedestrians crossing outside a crosswalk with heavy traffic flow with 3-foot wide center divider median, used as a safety zone and opportunity to bridge crossing gaps in traffic movement, causing disruption and distraction in traffic flow; hit and runs: substantial frequencies;
- intersections: right-turn traffic movements, overhead utility lines partially obscuring signal head indications, 4-legged intersection controlled by a fixed time signal with no separate left turn phases, outdated signalization in light of new signalization standards; and associated negative impacts with school zones and bicycle/pedestrian collisions due to traffic circulation, red-light running, speed zones, traffic calming devices, impact of DUI's, and transit stop locations and infrastructure placement.

The CONSULTANT shall seek involvement with public, County MPOs, and modal agencies to gather their input. This involvement must include the consideration for analysis and interpretation of the most recent master plans and safety studies from each of the District's local/regional governmental and transportation planning agencies.

Elements of work shall include, as required, review of internal (FDOT) and external master plan/studies or revision of design of roadways, intersections, traffic control, plans, signing

and pavement markings, signalization, lighting, utility relocation, sidewalk, transit structures, bus stops, bus bays, bus queue jumpers or bicycle lanes, placement criteria for pedestrian bridges/overpasses and resulting presentations to the stakeholders group at the monthly meeting or when requested by the DEPARTMENT, and all necessary incidental items for a complete project.

The study shall be prepared using English units.

# SECTION III. MULTIMODAL CORRIDOR SAFETY STUDIES

## A. Overview

## **General Requirements**

The purpose of this section of the contract is to provide the DEPARTMENT with professional services to study needed improvements related to traffic safety issues as related to the serving of multimodal modes of transportation within an existing facility or system. The analysis and conceptual recommendations produced by the CONSULTANT will provide valuable input into the development of both safety and accessibility improvement projects to be included in the proposed safety study.

A major objective of this section of the contract is to obtain study results as expeditiously as possible while maintaining a high degree of thoroughness and professionalism. Independent study types have been identified and work tasks for each have been specified.

The CONSULTANT shall ensure that all tasks and studies requiring field activities are conducted professionally and in a manner that uses accepted safety methods and practices. The safety of the traveling public and the CONSULTANT's field staff shall be an essential goal of each field study activity.

#### Acronyms

FHWA	Federal Highway Administration
FTA	Federal Transit Administration
HSIPG	Highway Safety Improvement Program Guideline
MUTCD	Manual on Uniform Traffic Control Devices
MUTS	Manual of Uniform Traffic Studies Published by the FDOT
HCM	Highway Capacity Manual
HSM	Highway Safety Manual
MAP21	Moving Ahead for Progress in 21st Century
FAST	Fixing America's Surface Transportation
RSA	Road Safety Audit
DPM	District Project Manager
NCHRP	National Cooperative Highway Research Program
Report 152	(Warrants for Highway Lighting)
CTST	Community Traffic Safety Team
SHSP	Strategic Highway Safety Plan

# **Special Computer Programs**

The CONSULTANT shall be familiar and be able to operate the latest version of the following computer programs that would be required for task assignments:

HCS	Highway Capacity Software
GIS	Geographic Information Systems/Regional Public Transportation Data
	Model
MicroStati	on Official CADD program for FDOT
TBEST	Transit Boardings and Estimation and Simulation Tool
N-TAC/FL	Non-Motorized Trips at Corridor/Facility Level (User's Guide)

## Personnel

The CONSULTANT's work shall be performed and directed by the key personnel identified in the technical/fee proposal presentations by the CONSULTANT. Any changes in the indicated personnel or the CONSULTANT's office in charge of the work as identified in the CONSULTANT's proposal shall be subject to review and approval by the DEPARTMENT.

## Subcontracting

Should the CONSULTANT require the services of a specialist for specialty work, the CONSULTANT is authorized to subcontract these services. Firms selected for subcontracts must be approved in writing and qualified by the DEPARTMENT prior to the CONSULTANT authorizing any such work. The CONSULTANT shall be fully responsible for the satisfactory performance, conclusions and recommendations of all subcontracted work.

## Beginning and Length of Services

The services to be rendered by the CONSULTANT may commence upon execution of this CONSULTANT Agreement. Individual projects shall be assigned for a period of sixty (60) months from the date of this agreement, or until a total accumulated fee of \$5,000,000 is reached. The time of completion for each task work order shall be stated in the Scope of Services for that particular project.

## Issuance of Task Work Orders

The DEPARTMENT shall furnish a Task Work Order to the CONSULTANT for the assignment of individual tasks. The Task Work Order shall identify the assigned project, specify the services to be performed, and state the compensation for the services. The Task Work Order shall be signed by the Department's Procurement Services Manager. No work will be commenced by the CONSULTANT until a Task Work Order has been issued.

# **Preliminary Report**

All tasks shall have a preliminary report submitted to the DPM prior to the submittal of the Final Report.

# **Executive Summary**

The report for each study type shall contain an executive summary providing a general overview of the contents of the report including general comments about the location, purpose, findings, conclusions and recommendations.

## **B.** Index of Study Types

This scope of work contains study types for which the CONSULTANT will be issued work orders. These study types and the work tasks associated with each study type are as follows:

Study Type I – Traffic/Safety Data Collection and Composite Studies

- Task 1 8-Hour Turning Movement Count (with pedestrian and bicycle)
- Task 2 4-Hour Turning Movement Count (with pedestrian and bicycle)
- Task 3 2-Hour Turning Movement Count (with pedestrian and bicycle)
- Task 4 Pedestrian Volume Count
- Task 5 8-Hour Bicycle Count
- Task 6 Bus Stop Location Inventory (Condition Diagram)
- Task 7 Qualitative Assessment of Bus Stop Location/Operation
- Task 8 Development of Alternatives and Recommendations
- Task 9 Preparation and Submission of Report
- Task 10 Safety Research (In-Office Support)
- Task 11 Graphics
- Task 12 Meetings
- Task 13 Construction Cost Estimate
- Task 14 Technical Support to District-Wide Safety Education Campaigns
- Task 15 Road Safety Audit Support (RSA)
- Task 16 Safety Program Briefing
- Task 17 Project Traffic Development
- Task 18 Corridor Traffic Analysis
- Task 19 Feasibility/Special Studies

Study Type II – Corridor Safety Action Plan

#### Study Type III - Corridor Safety Study

Task 1 – Roadway Context Assessment (Complete Street Analysis)

Task 2- Multimodal Operational Safety Analysis

- Sub Task 2.1 Qualitative Assessment
- Sub Task 2.2 Multimodal Field Inventory (Condition Diagram)
- Sub Task 2.3 Conflict Analysis
- Sub Task 2.4 Corridor Review
- Sub Task 2.5 Improvement Recommendations

# Task 3 - Preparation and Report Submittals

Study Type IV – Miscellaneous District-Wide Safety Studies

# C. Description of Study Tasks

This section describes, for each study type included in this scope, the work required in each task and the task product(s). Also, the unit of payment for each task is defined for the purpose of payment, and the period of performance typically expressed as a function of the number of units to be studied by the CONSULTANT.

Supplemental work tasks are set forth in Study Type I, these may be authorized by the DPM for the CONSULTANT to perform in conjunction with the work tasks required for the study type. Payment for supplemental work tasks are in addition to the payment for the study type.

# STUDY TYPE I: TRAFFIC SAFETY DATA COLLECTION & COMPOSITE STUDIES

# Purpose

The composite study is designed to enable the DEPARTMENT to use the services of the CONSULTANT in solving a variety of multimodal safety and operational problems. This study requires flexibility for the DEPARTMENT and CONSULTANT to develop the study design for a particular assignment by selecting appropriate tasks defined herein.

## **Basis of Payment**

This study is designed to be flexible; therefore, each task shall be negotiated individually. Any combination of tasks may be selected for a particular composite study or as a supplement to Study Types I and II. Payment for each composite study will be the summation of the individual tasks.

# Period of Performance

The time period allowed for completion of a composite study shall be based on the types of tasks to be performed. The normal period allowed for other types of studies in this contract should be used as a general guide in determining the period of performance for a particular composite study. The DPM and the CONSULTANT will determine a mutually acceptable performance period and due date.

## Scope of Work

This section specifies the work tasks that may be performed by the CONSULTANT for a particular composite study, the responsibilities of the CONSULTANT and the DEPARTMENT, and the work task products to be developed by the CONSULTANT and delivered to the DEPARTMENT.

# Task 1: 8-HOUR TURNING MOVEMENT COUNT (WITH PEDESTRIAN AND BICYCLIST)

Using procedures in the MUTS, the CONSULTANT shall collect and summarize 8 hours of 15-minute turning movement counts with hourly summaries, at the intersections. The counts shall include AM peak, PM peak and off-peak periods. The specific time frames for each period during which turning movement counts are to be collected shall be determined by the CONSULTANT (based on 7-day directional counts) and approved by the DEPARTMENT. The 8-hour period recorded shall yield the highest total volume of vehicles entering the intersection. Included in this task are 8 hours of pedestrian and bicyclist volume counts and vehicle classification counts.

The CONSULTANT must manually count vehicles, pedestrians and bicyclists. They may use tally sheets or mechanical/electronic turning movement counter boards and must record separately the number of pedestrians and bicyclists along with any other methodology as predetermined and/or mutually acceptable by the DEPARTMENT and the CONSULTANT. A sketch will be made of sufficient detail to show the approach lanes, left and right turn lanes, and whether there is a median or other type of separation. If the intersection is signalized the head arrangement should be shown.

# Task Product:

Eight-hour turning movement volumes with corresponding vehicle classifications. Eight-hour pedestrian and bicyclist volumes.

# Task 1A: Additive

Provide additional person to conduct TMC. One or more additional persons may be authorized by the DPM for the conduct of TMC counts, on an as needed basis.

# Task 2: 4-HOUR TURNING MOVEMENT COUNT (WITH PEDESTRIAN AND BICYCLIST)

Using procedures in the MUTS, the CONSULTANT shall collect and summarize 4 hours of 15-minute turning movement counts with hourly summaries, at the intersections. The counts shall include transit AM peak and/or PM peak activity. The specific time frames for each period during which turning movement counts are to be collected shall be determined by the CONSULTANT (based on 5-day directional counts) and approved by the DEPARTMENT. The 4-hour period recorded shall yield the highest total volume of vehicles entering the intersection. Included in this task are 4 hours of pedestrian and bicyclist volume counts and vehicle classification counts.

The CONSULTANT must manually count vehicles, pedestrians and bicyclists. They may use tally sheets or mechanical/electronic turning movement counter boards and must separately record the number of pedestrians and bicyclists.

Task Product:

Four hour turning movement volumes with corresponding vehicle classifications Four-hour pedestrian and bicyclist volumes

# Task 2A: Additive

Additional person for conduct of TMC: One or more additional persons may be authorized by the DPM for the conduct of TMC counts on an as needed basis.

# Task 3: 2-HOUR TURNING MOVEMENT COUNT (WITH PEDESTRIAN AND BICYCLIST)

Using procedures in the MUTS, the CONSULTANT shall collect and summarize 2 hours of 15-minute turning movement counts with hourly summaries, at the intersections listed. The specific time frames for each period during which turning movement counts are to be collected shall be determined by the DPM. Included in this task are 2 hours of pedestrian and bicyclist volume counts and vehicle classification counts.

The CONSULTANT must manually count vehicles, pedestrians and bicyclists. They may use tally sheets or mechanical/electronic turning movement counter boards and must record separately the number of pedestrians and bicyclists.

Task Product: Two-hour turning movement volumes with corresponding vehicle classifications Two-hour pedestrian and bicyclist volumes

## Task 3A: Additive

Additional person for conduct of TMC: One or more additional persons may be authorized by the DPM for the conduct of TMC counts on an as needed basis.

## Task 4: PEDESTRIAN VOLUME COUNT

A pedestrian volume count shall be made for a total of 8 hours encompassing pedestrians accessing transit during morning and evening peak traffic periods. A mid-block study will be counted and treated as one location. An intersection will be counted and treated as one location.

Task Product: Eight-hour pedestrian volume count

# Task 5: 8-HOUR BICYCLE COUNT

Bicycle volumes shall be collected for a total of 8 hours that includes the morning, noon day and evening peak bicycle periods or during time periods specified by the DPM. The CONSULTANT will present this data on an approved form or format.

Task Product: Eight-hour bicycle volumes

## Task 6: BUS STOP LOCATION INVENTORY (Condition Diagram)

The CONSULTANT shall conduct a field inventory of bus stop location and adjacent intersection under study and prepare a condition diagram on standard DEPARTMENT forms contained in the MUTS or in another format approved by the DEPARTMENT.

Condition diagrams shall include lane assignments, left turn lane lengths, right-of-way, Americans with Disability (ADA) deficiencies, adjacent intersection geometry, all traffic control devices, and other transit access connections to roadway or roadside elements that contribute to the quality of intersection operation. This shall include but not be limited to pertinent features to traffic operations such as driveways, sidewalks, bicycle paths, fixed objects, buildings, bicycle/pedestrian and transit related amenities/infrastructure, utility and signal pole obstructions, stop bar placement, lighting, trees and shrubbery (if they affect visibility), whether there is a median or other type of separation, lines of sight, and etc. that impedes bicycle/pedestrian access to transit. The standard inventory distance from transit stop location to the centerline of the intersection is approximately 350 feet. However, when conditions relevant to the study occur outside this distance, those conditions should also be diagramed, and distances noted.

If the intersection is signalized, the head arrangement should be shown. The sketch will show whether the intersection is a "Tee" or a "Plus" type intersection, any offset, and the approximate skew if one exists.

To supplement the sketch, colored photographs shall be taken of each approach. The photographs shall show the lane configuration and stop bar and shall be taken facing the approaching traffic. A minimum of one photograph shall be taken of each approach. More photos shall be taken if needed to show the physical conditions. Additional photographs shall taken of anv geometric, bicycle/pedestrian and transit related be amenities/infrastructure, traffic, or traffic control aspects about which the District Safety Engineer should be aware.

Task Product: Condition diagram Color photographs

# Task 7: QUALITATIVE ASSESSMENT OF TRANSIT

The CONSULTANT shall visit the intersection under study during the morning and evening peak transit/traffic periods, as determined from the 8 hour traffic counts and also during any period during which a problem was indicated by the work order. The CONSULTANT shall make qualitative assessments of transit/traffic operations, particularly in terms of queue lengths, turning vehicle volumes, delays, bicycle/pedestrian transit access safety issues identified by intercept surveys, conflicts or any operational characteristics that should be considered in evaluating the need for traffic signal for bicycle/pedestrian access enhancements or any other improvements impacting transit and stop operations.

Colored photographs shall be taken of each approach. The photographs shall show street lane configuration and stop bar in context with adjacent transit station location with adjacent bicycle/pedestrian access points and shall be taken facing the approaching traffic. A minimum of one photograph shall be taken of each approach. More photos shall be taken if needed to show the physical conditions.

Additional photographs shall be taken of any geometric, traffic flow, safety or traffic control impediments related to transit access aspects about which the DPM should be aware. The CONSULTANT shall recommend to the DEPARTMENT the need for appropriate supplemental work tasks.

# Task 8: DEVELOPMENT OF ALTERNATIVES AND RECOMMENDATIONS

Using the products from other tasks in a composite study, the CONSULTANT will develop and analyze feasible and appropriate alternatives, which address solutions to the defined problem(s). A minimum of three (3) practical alternatives with benefit to cost analysis will be developed and analyzed for each composite study. If three (3) practical alternatives do not exist, the CONSULTANT shall make a statement to this effect. Based on this analysis the CONSULTANT shall recommend one (1) of the alternatives. This task is based on using a minimum of three (3) other tasks, one of which shall be Task 5, Preparation of Reports.

Task Product: Development of alternatives Analysis of alternatives Recommended alternative

# Task 9: PREPARATION AND SUBMISSION OF REPORT

The CONSULTANT shall document the results and recommendations from all tasks in a Composite Study in a bound, written report. The report will include a benefit cost analysis.

Task Product: Three (3) copies of a study report and one (1) CD containing all final works.

## Task 10: SAFETY RESEARCH

The CONSULTANT shall assign one (1) staff person to work under the direct management and supervision of the DPM. This staff person shall be familiar with the design standards and the special computer programs shown under Section III, A. Overview. The CONSULTANT staff shall perform field reviews; gather local crash data and research DEPARTMENT files and databases and consult with District's transit agencies and any county-wide Bicycle/Pedestrian Master Plans or any other sources of information as directed by the DPM. Research items can include safety concerns identified by management, citizen complaints, study stakeholder group or any pertinent published city/county transportation agency documentation.

Task Product: Miscellaneous Assignments

# Task 11: GRAPHICS

The CONSULTANT shall provide graphic displays to be used by the DEPARTMENT in hearings or meetings. Specific information required on the displays will be coordinated by the DPM. The displays would include board-mounted graphics (40" x 40" maximum) illustrating project corridors, lists, tables, etc. The graphics shall be developed in a CADD or other approved electronic formats.

Task Product: Graphics

## Task 12: MEETINGS

The CONSULTANT shall attend meetings to assist the DEPARTMENT in responding to any transit, bicycle/pedestrian, and traffic operations safety issues addressed in context with this study. The CONSULTANT and DEPARTMENT shall predetermine appropriate level of staff expertise to attend the meeting. The duration of the meeting will be up to four (4) hours each.

Task Product: Meeting attendance

# Task 13: CONSTRUCTION COST ESTIMATE

The CONSULTANT shall estimate the construction costs for the recommended improvements. Cost estimates shall be calculated using the most current publication of the FDOT's Transportation Costs. The costs estimates must be accepted by the District's Estimates Engineer. An electronic version of the Transportation Costs is available on http://www.dot.state.fl.us/planning under Policy Planning.

Task Product: Construction Cost

# Task 14: TECHNICAL SUPPORT TO STAKEHOLDERS STUDY GROUP

The CONSULTANT shall provide technical support to the stakeholders study group. This support may consist of bicycle/pedestrian access to transit analysis of traffic data to document local traffic safety issues. The CONSULTANT shall help to produce the educational materials including the graphic development (newsletters, brochures, charts, graphs, videos, power point presentations) and any bicycle/pedestrian/transit safety campaign/s coordinated through the study group in promoting bicycle/pedestrian access to transit and transit/traffic safety issues in each county. The CTST website will also need to be maintained to support the safety function.

Task Product:

Education/Safety Materials such as newsletters, brochures, tip cards, bookmarks, charts, graphs, videos, power point presentations and other items to be developed Web Site Update and Maintenance

# Task 15: ROAD SAFETY AUDIT SUPPORT (RSA)

The CONSULTANT shall compile the necessary support material for conducting the Road Safety Audits based on FHWA guidelines. The support material consists of three years of the most recent traffic and crash data, obtain signal timings if applicable, Straight line diagram information, work program information, aerial photography, and other necessary items that would be helpful in performing the Road Safety Audits. The CONSULTANT shall also have a team leader that has FHWA training certification to act as the team leader in performing RSAs. The CONSULTANT shall track the actions for RSA recommendations in the tracking database.

Task Product: RSA Reports RSA Tracking Database

# Task 16: SAFETY PROGRAM BREIFING

The CONSULTANT shall assist with providing safety program updates to specialized groups. These may pertain to bicycle/pedestrian/transit safety, highway safety, MUTCD updates, or other related technical focus areas.

Task Product: Program Outline Presentation Materials Graphics Conduct Briefing

# Task 17. Project Traffic Development

Often the implementation of impactful safety improvements must be compared with operational impacts to the state highway system. A proper analysis of the trade-offs of a larger-scale safety improvement (such as a lane reduction or road diet) requires achieving a full understanding of future traffic demands. The CONSULTANT may be required to develop traffic demand forecasts for proposed facility designs associated with proposed major safety projects. The work required for this task may include but is not limited to preparing Design Traffic Reports for Interchange Proposals, Design projects and PD&E Studies. The CONSULTANT will be required to project future Annual Average Daily Traffic (AADT), design hour traffic yolumes, and turning movements using travel demand models (FSUTMS), historical traffic growth, land use data, or other appropriate traffic forecasting methodologies. The CONSULTANT may also be required to projects.

The CONSULTANT may be tasked to review project traffic reports previously completed by the DEPARTMENT or support peer review of other studies. This may involve review of these documents for completeness and technical accuracy. The CONSULTANT may be required to provide an evaluation of previously completed work including review of the age of the collected data, significant changes in travel patterns or demand volumes, land use, or changes in other key study assumptions.

# Task 18. Corridor Traffic Analysis

The CONSULTANT may be required to prepare and/or review various corridor traffic operational studies such as level of service analysis, capacity calculations, and other transportation/traffic studies for Concept Development projects, PD&E studies and Design projects. The CONSULTANT may be required to forecast and analyze demands for all modes of transportation facilities at different horizon years and provide engineering guidance on traffic mitigation analysis to achieve an acceptable level of service. This task may also require the CONSULTANT to analyze potential improvements to current traffic signal system

equipment such as a traffic responsive or transit priority systems. Dynamic traffic simulation or micro-simulation, using CORSIM or other similar traffic simulation software, for operational analysis and presentation purposes may also be required.

## Task 19. Feasibility and Special Studies

The CONSULTANT may be required to develop or review Feasibility Studies and Special Studies including, but not limited to, Lane Elimination, Freeway Managed Lanes and Ramp Metering Studies, Freight Studies, Traffic and Revenue Studies, and Interstate Master Plans. The CONSULTANT may be required to conduct or review Maintenance of Traffic / Lane Closure Analyses, including evaluation of lane and/or roadway/bridge closures or detours on the highway network. This task may also require the CONSULTANT to perform dynamic traffic or microsimulation for operational analysis and presentation purposes.

# **STUDY TYPE II: CORRIDOR SAFETY ACTION PLANNING** Scope of Work

# Task 1: DISTRICT WIDE ACTION PLAN DEVELOPMENT

The CONSULTANT may be required to identify and review candidate corridors for complete street treatments and prioritize the most critical corridors (or portions of critical corridors) for the development of Corridor Safety Action Plans. This work may include:

- identification of candidates based on review of crash data and pedestrian and bicycle network needs;
- review or development of Pedestrian and Bicycle Safety Action Plans;
- identification of transit, pedestrian, and bicycle supportive land use areas;
- screening corridors to identify the best candidate corridors for short-term improvements;
- development and application of methods to rank candidate corridors based on crash data, local plans, and/or Metropolitan Planning Organization (MPO)/Transportation Planning Organization (TPO) performance measures;
- selection of corridors for the development of action plans based on corridor rankings and demonstration of local support.

Deliverable: Prioritized list of corridors for further study

## Task 2: CORRIDOR SAFETY ACTION PLAN

The CONSULTANT may also be required to outline and illustrate recommended, feasible complete street improvements as part of corridor safety action plans with appropriate project phasing and funding strategies.

This work may include but is not limited to:

- Analysis of available safety data and crash information
- public outreach to community stakeholders (property owners, residents, businesses, advocates and government agencies) to identify key issues and needs in the subject corridors;
- analyses of users and roadway characteristics to identify missing complete street components;
- review of local government land development code, land use plans and comprehensive plans to determine corresponding roadway context zone for existing and future conditions
- identification of potential complete streets treatment options;
- development of a "Project Purpose and Need Statement" and for each corridor that addresses safety issues and community concerns;
- feasibility/fatal flaw analyses for corridor improvement options to include a review of right of way availability, access issues, utility impacts, permitting and environmental impacts, constructability issues (specific project concerns) and maintenance of traffic;
- development of project cost estimates, phasing, funding, and feasibility for potential public-private partnership opportunities for candidate projects;
- preparation of Complete Street Action Plans for the respective corridors including a summary of recommended cost feasible complete street improvements/ strategies and associated project phasing and funding which will reference AASHTO's Guide for Geometric Design of Transit Facilities, Guide for Planning, Designing, and Operating Pedestrian Facilities, Guide for the Development of Bicycle Facilities, and National Association of City Transportation Officials' Urban Street Design Guide, Urban Bikeway Design Guide, and Institute of Transportation Engineers' Designing Walkable Urban Thoroughfares: a context sensitive approach, and FHWA's Bicycle Facilities and the Manual on Uniform Traffic Control Devices as appropriate.

This work may include consensus building with project steering committee and local government representatives for each corridor to:

- rank the feasible complete street improvements with an emphasis on projects that improve safety and can be completed in the shot-term (0-5 years);
- prepare cost estimates for the short-term improvements;
- develop maps or graphics to depict the planned complete street improvements;
- identify potential funding sources including opportunities for public-private partnerships; and
- identify project costs, timing, phasing and funding as part of implementation strategies.

Periodic presentations to project steering committees, Technical and Citizen's Advisory Committees and MPO/TPO Boards, and other county and city government entities to review study findings and interim work products and build consensus may be required.

Deliverable: Corridor Safety Action Plan for selected corridor

# **STUDY TYPE III: CORRIDOR SAFETY STUDY** Scope of Work

# Task 1: ROADWAY CONTEXT ASSESSMENT

Corridors that have been designed and constructed without respect for the surrounding roadway context often result in above average crash rates and systemic safety challenges. A context sensitive approach to roadway design and operation is critical to reducing crashes and improving substantive safety. As part of this task, the CONSULTANT may be required to identify, screen, and review candidate corridors for complete street treatment, using sound engineering and planning standards consistent with the Florida Design Manual, chapter 19 of the Florida Green Book, Florida Strategic Highway Safety Plan, and the Complete Streets Implementation Plan – 2015 as appropriate. This work may include but is not limited to:

- public outreach to community stakeholders (property owners, residents, businesses, advocates and government agencies) to identify key issues and needs in the subject corridors;
- analyses of users and roadway characteristics to identify missing complete street components;
- review of local government land development code, land use plans and comprehensive plans to determine corresponding roadway context zone for existing and future conditions
- identification of potential complete streets treatment options;
- development of a "Project Purpose and Need Statement" and for each corridor that addresses safety issues and community concerns;
- feasibility/fatal flaw analyses for corridor improvement options to include a review of right of way availability, access issues, utility impacts, permitting and environmental impacts, constructability issues (specific project concerns) and maintenance of traffic;
- development of project cost estimates, phasing, funding, and feasibility for potential public-private partnership opportunities for candidate projects;
- preparation of Complete Street Action Plans for the respective corridors including a summary of recommended cost feasible complete street improvements/ strategies and associated project phasing and funding which will reference AASHTO's Guide for Geometric Design of Transit Facilities, Guide for Planning, Designing, and Operating Pedestrian Facilities, Guide for the Development of Bicycle Facilities, and National Association of City Transportation Officials' Urban Street Design Guide, Urban Bikeway Design Guide, and Institute of Transportation Engineers' Designing Walkable Urban Thoroughfares: a context sensitive approach, and FHWA's Bicycle Facilities and the Manual on Uniform Traffic Control Devices as appropriate.

# Task 2: MULTIMODAL OPERATIONAL SAFETY ANALYSIS

# Sub Task 2.1: QUALITATIVE ASSESSMENT

The CONSULTANT shall conduct a qualitative assessment during peak periods to identify any availability and condition of roadways, sidewalks, intersections and facilities at or near bus stops and other intermodal connections to determine what improvements would be needed to accommodate roadway users, in a more safe and effective manner. The initial qualitative assessment could include but not be limited to:

- Availability and condition of sidewalks, side paths, intersection pedestrian crossings, signalization and bicycle access surrounding bus stops.
- Traffic conditions such as flow, volumes and speed.
- Lane widths, surface conditions, adjacent on-street parking and pedestrian bridges.
- Traffic mix and related considerations that could adversely create safety impediments for freight, bicycle/pedestrian movement and accessibility to transit.

Peak periods shall be determined by 8-hour traffic counts furnished by the DEPARTMENT or CONSULTANT (as a Task identified in the Study Type III). The CONSULTANT shall recommend to the DPM the need for supplemental work task.

Colored photographs shall be taken of all intersection approaches with emphasis on obtaining visual information that would be of value to the DEPARTMENT during any subsequent project plans preparation activities. For example, sight/triangle obstructions, landscaping, unusual crosswalk/intersection geometrics to transit stop location, deficient pavement markings and signage, etc., should be photographed or detailed. Photos and/or detailed graphics shall be included in the conceptual recommendation report to be developed in Task 3.

Task Product: Multimodal Operational Safety Assessment Color Photographs Recommendations for supplemental work task

## Sub Task 2.2: MULTIMODAL FIELD INVENTORY (Condition Diagram)

The CONSULTANT shall collaborate with District's modal agencies in the documentation and preparation of condition diagrams of any safety impediments adversely impacting freight access/mobility, bicycle/pedestrian movement and accessibility to transit stops and intermodal connections. The inventory should take into consideration sidewalk and roadway crossing facilities in the entire catchment area surrounding a transit stop, not just in the immediate vicinity of the stop location. The inventory should also include freight routes, access points, and operational/safety impediments for freight vehicles. The CONSULTANT will submit such information on standard DEPARTMENT forms contained in the MUTS or in another format approved by the DEPARTMENT. The Conditions diagram shall include intersection geometry. This shall include but not be limited to traffic operations such as driveways, sidewalks, bicycle paths, fixed objects, building, utility and signal poles, street signs, lighting, etc.

Task Product: Condition Diagram Aerial photography Color photographs of all approaches to bus stop location/intersection.

## Sub Task 2.3: CONFLICT ANALYSIS

The CONSULTANT shall collaborate with the District's modal agencies and if necessary with local police departments to analyze and obtain any available supporting conflict documentation for preparation of conflict diagrams where bicycle/pedestrian movement and access impediments may have been evident near transit access points and intermodal connections to determine potential prioritized improvements. Impacted transit access and freight mobility sites should be evaluated comprehensively so that an appropriate combination of bicycle/pedestrian and transit safety treatments can be applied.

Documentation may include but not be limited to: roadway and transit stop characteristics, freight access points, major freight movements, traffic conditions at and near sites of conflict, time of day, driver and pedestrian behavior, land use surrounding conflict site including transit stop locations, and any other contributing circumstances. The diagram shall depict the most recent full 5 years for which data is available. Conflict diagrams shall be drawn on standard DEPARTMENT forms contained in the MUTS or on another DEPARTMENT approved form as indicated by the DPM. A conflict analysis shall be performed based on the prepared conflict diagram and reports.

Task Product: Conflict analysis GIS Conflict diagram.

# Sub Task 2.4: IMPROVEMENT RECOMMENDATIONS

From the results of previous tasks and any supplemental work tasks, the CONSULTANT shall prepare a report that presents prioritized conceptual recommendations on safety measures and factors that could reduce freight/transit/bicycle/pedestrian conflicts. The recommendations shall consider the impacts of access management. At a minimum, the report shall include transit path/crosswalk geometrics, medians, traffic/pedestrian signalization and phasing and any observed traffic operations and signal displays needing improvement. The proposed improvements shall be supported by a sketch, printouts, benefit to cost analysis and explanations of computerized analysis (where applicable) and peak period field investigation.

The CONSULTANT shall submit diagrams of each intersection in an 8 <sup>1</sup>/<sub>2</sub>" x 11" format.

Task Product:

The CONSULTANT shall submit five (5) copies of a conceptual recommendations report(s) and one CD Rom containing all final work.

## Sub Task 2.5: FEASIBILITY REVIEW

The CONSULTANT may be required to conduct detailed evaluation of selected corridors to identify cost feasible facility-specific complete street improvements to address safety, connectivity, mobility and access issues, and community concerns within the respective corridors. This work may include developing analysis methodologies summarizing project information, assumptions, and analysis approach; conducting public outreach to community stakeholders within corridors, e.g., interviews with sample of property owners, businesses and residents to identify key issues and needs; identification of missing complete streets components through an evaluation of roadway users and characteristics which may include a detailed review of:

- traffic operations;
- automobile, pedestrian and bicycle crash trends;
- pedestrian crossing safety;
- bicycle usage and accessibility;
- physical improvements, e.g., sidewalks, bicycle facilities, medians, lighting and landscaping;
- transit locations, amenities, and accessibility;
- linking of existing, programmed, or planned bicycle lanes and multi-use trails; reviewing local land use and transportation plans and recent development activity and trends as applicable to each corridor; developing a "Project Purpose and Need Statement" for each corridor that addresses issues and concerns and identifies general corridor characteristics; identifying complete street treatment options for each corridor using best practices; and conducting feasibility/fatal flaw analyses for corridor improvement options to include a review of:
- rights-of-way availability;
- access issues;
- utility impacts;
- permitting and environmental impacts;
- constructability issues (specific project concerns);
- cost-effectiveness; and
- maintenance of traffic.

The CONSULTANT may be required to develop technical memoranda for the respective corridors documenting:

- existing conditions including identified safety and access issues, as well as community concerns;
- missing complete streets components;
- project Purpose and Need Statement;
- evaluation of complete streets options; and
- feasible corridor improvement options.

The CONSULTANT may be required to conduct or review assessments of the operational and safety effects of proposed geometric design and/or traffic control features for selected corridors. This task may also require the CONSULTANT to prepare Dynamic Traffic Assignment (DTA) simulation and/or micro/mesoscopic simulation, using CORSIM, VISSM, CUBE AVENUE, or other traffic simulation software, for operational analysis and presentation purposes. The CONSULTANT may be required to conduct reevaluations of previously approved Project Development and Environmental (PD&E) documents based on proposed changes in corridor geometry and traffic control features.

# Task 3: PREPARATION AND SUBMISSION OF REPORT

The CONSULTANT shall document the results and recommendations from the Transit Corridor Assessment in an 8<sup>1</sup>/<sub>2</sub> " x 11" report and submit the report to the DPM for review and comment or any other format predetermined by the DPM. The report shall include photos (and graphics), summaries of inventory data, tabulations and collision diagrams, speed studies from bicycle/pedestrian travel time studies, conceptual drawings of recommended improvements with supporting documentation, cost estimates, benefit to cost analysis and a proposed prioritized improvement plan or any other reporting criteria as predetermined by the DPM.

A separate report shall be prepared and submitted to the DPM for review and comment for each conceptual transit corridor assessment and five (5) copies shall be submitted upon completion. To the maximum extent possible, each report shall be organized in such a manner to facilitate disassembly and piecemeal presentation of specific conceptual recommendations to design and plans preparation engineers.

Task Product:

The CONSULTANT will submit five (5) copies of the results and recommendations from the Transit Corridor Assessment and one CD Rom containing all final work.

# STUDY TYPE IV: MISCELLANEOUS DISTRICT WIDE SAFETY STUDIES

To be negotiated and scoped as needed. This study type is to allow for special studies to be performed as needed, i.e., District Wide Pedestrian Safety Study.

Task Product: To be determined

## STUDY TYPE V: PLANS PREPARATION

The DEPARTMENT desires to obtain assistance from the CONSULTANT for performance of miscellaneous bicycle/pedestrian and transit access and safety services including but not limited to revision and/or updating of previously completed construction plans.

## Items to Be Furnished by the DEPARTMENT

The DEPARTMENT will furnish any or all of the following items as appropriate, for performance of the required services:

- 1. All previously completed field surveys as required.
- 2. Any roadway and structure foundations of way maps, studies and other available information pertinent to the project.
- 3. All available traffic information.
- 4. Right-of-way maps and legal descriptions that are not part of the CONSULTANT's work effort, when required.
- 5. Numbered standard survey books for survey data when survey services are required.
- 6. Pavement Design when necessary.