

Exhibit “A” Scope of Services**TRAFFIC FORECAST AND ANALYSIS SUPPORT
- CONTINUING SERVICES CONTRACT****I. Overview and Purpose**

The Department requires professional planning and engineering consultant services of traffic forecast and analysis to support the Department's projects of Project Development and Environment (PD&E), Design, Interchange Access Request, and Concept Development.

The tasks to be performed by the Consultant include traffic data collection, traffic forecast and capacity/LOS analysis, interchange access report development, and conceptual design preparation. The tasks may also include feasibility or special studies. These studies could be multi-disciplinary and involve corridor transportation planning, conceptual engineering and sketch designs, assessments of right-of-way needs, transit amenities, Intersection Control Evaluation (ICE), safety analysis and access classification. Other consultant tasks may include the review of above-mentioned studies, analyses and similar reports produced by others.

Work assignments will be initiated as needed and issued on a task work order basis.

II. Summary of Services

The Consultant will be required to perform professional transportation planning, preliminary engineering, and technical analysis, and produce specified deliverables as defined below in **Section III. Potential Consultant Tasks** of this Scope of Services.

The Consultant's work will be managed by the Department Project Manager. The Department Project Manager shall outline the scope of services and inform the Consultant the intent of the task work order (TWO). The Consultant shall submit a draft proposal and staff hours. The Consultant Project Manager and the Department Project Manager shall negotiate and mutually agree to the contents of the final TWO scope of services, staff hours, and level of assigned staff prior to its issuance. The task work order shall include the requirements of staff, schedule, deliverable(s), documentation, and total allowable task costs. The agreed upon task work order will be signed and issued per the Department's standard TWO issuance process.

III. Potential Consultant Tasks

The following potential consultant tasks are not listed in any priority order. Individual TWOs will define selected task(s) of this section.

1. Existing Roadway Characteristics

Compile physical features and characteristics of the location to be studied from the Department's internal data sources -- roadway characteristics inventory, project files, as-built plans, right-of-way maps, bridge logs, straight-line diagrams, computer programs files, drainage maps, historical traffic data and previous studies, and/or from data sources of local governments or field observation.

2. Traffic Data Collection

Conduct traffic counts at location(s) using the most cost-effective methodologies at specified intervals and in accordance with the *Manual on Uniform Traffic Studies* (MUTS). The counts may include volume counts, vehicle classification counts, turning movement counts, right-turn-on-red counts, and/or pedestrian/bicyclist counts for any duration (period of time) as required by the Department.

Ensure the quality and accuracy of the data by comparing newly collected data to the comparable historical or other data sets. Provide electronic files for the collected data as appropriate and necessary for subsequent processing.

Document the data collection effort and provide the documentation and collected data to the Department. The document shall specify each of the count locations and its condition at the time of the counts. Whenever applicable, the document should also include but not be limited to the geometric features, such as number of lanes, lengths of storage and taper of turn/merge lanes, type of traffic control, timing of traffic signals, and presence of signal boxes and/or loop detectors.

3. Travel Data Collection

Define methodologies and perform data collection for trip making characteristics, travel mode choices, utilization of transportation facilities, or other transportation-related data. The types of data collection activities may include:

- Travel time and delay survey
- Spot speed survey
- Origin-destination survey
- Saturation flow rate survey
- Trip generation rate survey
- Transit ridership survey
- Transit boarding/alighting survey
- Census data compilation
- Zonal data development
- Stated or Revealed Preference survey
- Parking inventory
- Parking facility/Park-and-ride lot usage study
- Draw bridge closing/boat volume survey
- Traveler intercept survey
- Crash data compilation

4. Travel Demand Forecast and Analysis

Produce multimodal travel demand forecasts and analyses as needed for PD&E or other types of projects, to determine the feasibility and/or the scale of transportation facilities/services. The task may include defining forecast methodologies, performing forecasts, analyzing facility/service needs, and producing documents/presentations for transporting passengers

and/or freight-and-goods. The forecasts and analyses may include either or both motorized and non-motorized modes on mode-specific, mixed-mode, and/or mode-transfer facilities.

5. Traffic Forecast and Analysis

Produce traffic forecasts for proposed facility designs. The task includes project future Annual Average Daily Traffic (AADT) and design hour traffic volumes using the latest approved travel demand forecast models, historical traffic growth trend, land use data, or other appropriate traffic forecasting methodologies, as agreed upon by the District 4 Planning and Environmental Management Office. For juncture facilities, the production includes forecast and balance intersection turning movement volumes using the Department's latest approved tools such as TmTool and TURNS5, following the Department's *Project Traffic Forecasting Handbook*.

Prepare traffic operation analyses, such as capacity calculations, Level of Service (LOS) evaluation, signal timing optimization, queue length estimation, work zone maintenance of traffic operation evaluation, or other types of traffic analyses, in accordance with the *Highway Capacity Manual* and the *FDOT's Quality/LOS Handbook*. The analyses would be for existing conditions and future no-build and build scenarios of roadways, intersections, roundabouts, and/or interchanges.

For intersection analysis, applying the Intersection Control Evaluation (ICE) process may be required to identify the feasibility and effectiveness of alternative intersection designs. Also, the Roundabout Screening Steps 1 and 2 should be carried out for all proposed new or to modify existing signalized intersections.

For build scenarios, the analysis should complete with engineering guidance on geometry and operation measures, to achieve acceptable level of service or other performance measures agreed upon by the Department.

The analyses may be performed by applying macroscopic, mesoscopic, or microscopic analysis software to analyze and evaluate the performance of transportation facilities. The selection of analysis and software including input variables, such as peak hour factor (PHF), truck percentages, and lane utilization factors should be agreed upon by the Department and documented in the analysis methodology.

The forecast and analysis should be compiled and documented as the Traffic Memorandum in compliance with the *PD&E Manual* and *Traffic Analysis Handbook*. 18-Kips report for pavement design may be prepared as a stand-alone report or as a part of the Traffic Memorandum.

6. Interchange Access Request Development

Perform work related to the proposals of Interchange Access Requests (IAR) for new or modifications to existing interchanges such as producing Interchange Justification Reports, System Interchange Modification Reports, Interchange Modification Reports, or Interchange Operational Analysis Reports, per the Department's *Interchange Access Request User's Guide* (IAR Users Guide).

Produce alternative design concepts of interchange configurations as requested by the Department or prepare IAR reevaluations, as stipulated by the IAR Users Guide, for previously approved documents.

7. Safety Analysis

Analyze and evaluate safety needs for selected transportation facilities as requested by the Department. The task requires obtaining at least five years of crash data, summarizing crash patterns in crash diagrams and statistical measures, evaluating benefits of safety needs by applying crash modification factors and following processes in the *Highway Safety Manual User Guide*.

8. Prepare Conceptual Design Plans

Prepare alternative conceptual design plans, including structural concepts in accordance with the *FDOT Design Manual and FDOT Structures Manual*, as necessary. Identify potential design exceptions and variations needed for proposed alternatives.

The concept plans, at a minimum, shall include a key sheet, existing and proposed typical sections, and roadway plans, incorporate Transportation Systems Management and Operations (TSM&O) and multimodal bike and pedestrian improvements as required. The conceptual designs plans should be prepared using Department-approved CADD software.

9. Feasibility/Special Studies

Perform feasibility or special studies as requested by the Department to address specific topics, which may include traffic and revenue of managed lanes, feasibility of ramp metering, transit alternative analysis, freight modeling and truck traffic studies, Intersection Control Evaluation (ICE), lane closure analysis for work zones, planning for roadway/bridge closures or detours, etc.

10. Document Reviews and Consistency Checks

Review documents as requested by the Department, in accordance with the federal and Department standards, guidelines, and procedures. Reviews shall include attention to detail and accuracy of data and adhere to applicable handbooks, guidelines, methodologies, and applicable memorandum letters of understanding, consistency with adopted plans and work programs, and logicalness of outcomes. Reviews and consistency checks shall be completed by producing review comments, with source references cited.

IV. Responsibilities of the Department

1. The Department shall provide a Project Manager who shall be responsible for all coordination with the Consultant pertaining to all contractual matters, invoicing, and reporting. The Department may also designate a Task Work Order manager for each task work order, who shall be responsible for conferring with the Consultant to define the

specific work to be performed and the schedule to complete the work, the Consultant staffing to be provided, and the cost. The Department Project Manager shall be responsible for approval of any additional staffing to be provided, including through the addition of sub-consultants (approval must be coordinated with the Procurement Office). The Department Project Manager also shall be responsible for approving all products and services.

2. The Department shall approve, prior to the initiation of any tasks described in this Scope of Services, a specific task work order defining the work to be accomplished and the total reimbursement due to the Consultant. The task work order shall specify the Department Task Work Order Manager, which may be different from the Department Project Manager.
3. The Department shall furnish, without charge, the following services and data to the Consultant for the performance of the requested services:
 - a. All criteria and full information as to the Department's requirements for the Consultant's services, including objectives, constraints, budgetary limitations, and time restraints.
 - b. All Department rules, policies, procedures, standards, and other information applicable to the services.
 - c. All drawings, specifications, schedules, reports, and other information prepared by and/or for the Department by others which are available to the Department and which the Department considers pertinent to the Consultant's responsibilities described herein.
 - d. Computer access (mainframe and PC), if needed by Consultant staff to perform assigned tasks. Specific computer access requirements will be specified in task work orders.

V. Responsibilities of the Consultant

1. The Consultant shall provide a Project Manager, acceptable to the Department, who will be the primary point of contact with the Department for the scope, schedule, staff coordination, and completion of all task work orders. The Consultant Project Manager shall appoint, with the concurrence of the Department and individual Department Task Work Order Managers, individual Consultant Task Work Order Managers. The Consultant Project Manager shall meet with the Department on a regular basis as determined by the Department Project Manager. The Consultant shall provide monthly progress reports in a mutually agreeable format, by task work order, unless a time frame other than monthly is specifically and agreed by the Department Project Manager. These progress reports shall be the basis for evaluation and for processing invoices, unless otherwise stated in the task work order.
2. The Consultant shall provide and maintain an up-to-date list of staff with agreed-to classifications and approved salary rates (subject to the contract Exhibit "B"), that would be available to be assigned to specific task work orders. No consultant staff, except

those specifically identified in a task work order, shall charge time to that particular task work order. The Consultant shall provide and maintain a list of staff for the following categories for this contract:

- Chief Engineer
 - Designer
 - Engineer Intern
 - Engineering Technician
 - Engineer 1
 - Engineer 2
 - Planner
 - Project Manager
 - Project Planner
 - Secretary/Clerical
 - Senior Designer
 - Senior Engineer 1
 - Senior Engineer 2
 - Senior Planner
 - Transportation Data Anylyst
 - Transportation Data Technician
3. The Consultant must obtain approval from the Department Project Manager for any modifications or additions to the list of available staff prior to the task work order initiation. If applicable, new job classifications may be added to the contract via a contract amendment. The Consultant shall submit a copy of the resume and payroll registers, if/when staff is added.
 4. The Consultant shall provide sufficient staff at defined levels of expertise as agreed to by the Department Task Work Order Manager, in a timely manner to complete all assigned work. If, at any time, the Department Task Work Order Manager determines that the number or expertise of staff assigned to a specific task is inadequate, the Department Project Manager and the Task Work Order Manager shall coordinate with the Consultant Project Manager to ensure adequate staff with the proper level of expertise is made available to ensure timely completion of the work.
 5. The Consultant shall provide all agreed to services, products, and documentation within the required time schedule as defined in task work orders.
 6. The Consultant shall verify to the Department Project Manager that all computers used by Consultant staff have a resident anti-virus program acceptable to the Department.
 7. The Consultant shall ensure that all documents and support forms have been prepared in format(s) approved by the Department. A sequential naming convention should be applied to the files and documentation provided to the Department. Specific project documentation requirements will be specified in the respective task work orders.

VI. Personnel Qualifications

The Consultant shall assign only competent technical and professional personnel qualified by the necessary experience and education to perform assigned work. The Consultant is responsible for ensuring that staff assigned to work under this Agreement has the training established by the Department as a prerequisite for consultant staff to perform work. If the required training is such that it can be applied by the trainee to work on other contracts, (regardless of whether or not the trainee would work on other agreements), the cost of the trainee's time and expenses associated with the training is not directly billable to the Department on this contract and shall only be recoverable thru overhead for the Consultant firm.

VII. Subconsultant Services

Services assigned to any subconsultants must be approved in writing and in advance by the Department Project Manager, Procurement Office, and the Consultant Project Manager in accordance with this Agreement. All subconsultants must be technically qualified by the Department to perform all work assigned to them. Additional subconsultants with specialized areas of expertise may be required to complete specific task work order assignments. Any subconsultant to be hired, all work assignments to be performed, and all rates of compensation shall be agreed to by the Department Project Manager, Procurement Office, and the Consultant Project Manager and documented in the contract file prior to any work being performed by the subconsultant.

VIII. Computing Requirements

The Consultant is required to have access to the following software or tools for use as needed:

- Latest version of the Highway Capacity Software, Synchro and SimTraffic, SIDRA, CORSIM, VISSIM, LOSPLAN, and other traffic analysis software
- FSUTMS scripts and software platform on Windows Operating Systems
- ESRI's ArcGIS geographic information systems
- Model scripting and data manipulation languages including R, SQL, Python, and JAVA
- Microstation CADD/Geopak
- Any other traffic operations or planning software as indicated in task work orders.

The Department is not responsible for providing proprietary software packages to the Consultant. Computations or graphics based on computer programs other than the Department's must conform to the formats approved by the Department.

IX. Consultant Not Employee or Agent

The Consultant and its employees, agents, representatives, or subconsultants/subcontractors are not employees of the Department and are not entitled to the benefits of State of Florida employees. Except to the extent expressly authorized herein, the Consultant and its employees, agents, representatives, or subconsultants/subcontractors are not agents of the Department or the State for any purpose or authority, and therefore

shall not represent or act on the behalf of the Department or the State. The Department shall not be bound by any unauthorized acts or conduct of the Consultant.

X. Ownership of Intellectual Property, including Works of Authorship and Inventions

The Department shall have full ownership of any works of authorship, inventions, improvements, ideas, data, processes, computer software programs, and discoveries (hereafter called intellectual property) conceived, created, or furnished under this contract, with no rights of ownership to the Consultant or any subconsultants/subcontractors. The Consultant and subconsultants/subcontractors shall fully and promptly disclose to the Department all intellectual property conceived, created, or furnished under this contract. The Consultant or subconsultant/subcontractor hereby assigns to the Department the sole and exclusive right, title, and interest in and to all intellectual property conceived, created, or furnished under this contract, without further consideration. This contract shall operate as an irrevocable assignment by the Consultant and subconsultants/subcontractors to the Department of the copyright in any intellectual property created, published, or furnished to the Department under this contract, including all rights thereunder in perpetuity. The Consultant and subconsultants/subcontractors shall not patent any intellectual property conceived, created, or furnished under this contract. The Consultant and subconsultants/subcontractors agree to execute and deliver all necessary documents requested by the Department to affect the assignment of intellectual property to the Department or the registration or confirmation of the Department's rights in or to intellectual property under the terms of this contract. The Consultant agrees to include this provision in all its subcontracts under this contract.