

Date: February 15, 2019

To: Gary T. Hartfield, Director
Small Business Development Division
Internal Services Department

ALC

From: Alfredo E. Munoz, P.E.
Acting Supervisor, Capital Improvements Division
Department of Transportation and Public Works

Subject: Notice of General Engineering Consultant
Services for Traffic Signal Operations:
DTPW Project No. 20190029
Project No. E19-DTPW-01
Request to Advertise for Professional Service
Agreement for General Engineering Consultant
Services for Traffic Signal Operations.

RECOMMENDATION

It is recommended that The Internal Service Department's Small Business Development Division (SBD) review and approve the attached Small Business Enterprise - Architecture & Engineering (SBE-AE) contract measures for **Project No. E19-DTPW-01, a Professional Service Agreement (PSA) for General Engineering Consultant Services for Traffic Signal Operations Project No. 20190029**. Department of Transportation and Public Works (DTPW), Capital Improvements staff has evaluated the subject project and recommends a 10% measure for SBE-AE based on the project scope and applicable requirements. The cost estimate for this project is approximately **\$13,125,000.00**. Attached please find the DTPW project measure analysis, and recommendation findings, along with other supporting documents for your consideration.

SCOPE OF WORK

DTPW has the need to establish a PSA for General Engineering Consultant Services for Traffic Signal Operations as stated on the attached DTPW Project Measure Analysis and Recommendation.

If any additional information is needed, please call me at (305) 375-4891, or James P. Ferreira, P.E. at (305) 375-3267.

AM/am


Attachments (2)

C: Laurie Johnson, ISD/SBD Pedro Nunez, P.E., DTPW Darlene Fernandez, DTPW
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Miami-Dade County Department of Transportation and Public Works
Contract/Project Measure Analysis and Recommendation

RPQ 20190029

To: Gary T. Hartfield, Director
Internal Services Department
Small Business Development Division

From: Alfredo E. Munoz, P.E. 
Acting Supervisor, Capital Improvements Division
Department of Transportation and Public Works

Date: Friday, February 15, 2019

Department: Transportation and Public Works (DTPW)

Contract Type: Professional Service Agreement for General Engineering Consultant Services for
Traffic Signal Operations

DTPW Project No.: 20190029; ISD Project No. E19-DTPW-01

RTA No.: 20190029

Re-submittal: Yes

No

Project Title: General Engineering Consultant Services for Traffic Signal Operations

Estimated Project Cost: \$13,125,000.00

Funding Source: Road Impact Fees

Method of Award: Task Work Order Driven

Scope of Work: See Attached Exhibit A

RPQ 20190029

Consultant Selection: Technical Certification Categories:

<u>TYPE</u>	<u>MDC CODE</u>	<u>DESCRIPTION</u>	<u>PERCENTAGE</u>
Prime	3.04	Traffic Engineering Studies	5%
Prime	3.07	Traffic Signal Timing	20%
Prime	3.08	Intelligent Transportation System Analysis, Design, and Implementation	25%
Prime	3.11	Signalization	15%
Prime	17.00	Engineering Construction Management	25%
Sub	11.00	General Structural Engineering	3%
Sub	13.00	General Electrical Engineering	2%
Sub	15.01	Land Surveying	1%
Sub	16.00	General Civil Engineering	3%
Sub	19.03	Value Analysis and Life-Cycle Costing- Highway Systems	1%

<u>TYPE</u>	<u>FDOT CODE</u>	<u>DESCRIPTION</u>	
Prime	6.1	Traffic Engineering Studies	N/A
Prime	6.2	Traffic Signal Timing	N/A
Prime	6.3.1	Intelligent Transportation Systems Analysis and Design	N/A
Prime	6.3.2	Intelligent Transportation Systems Implementation	N/A
Prime	6.3.3	Intelligent Transportation Systems Communications	N/A
Prime	6.3.4	Intelligent Transportation Systems Software Development	N/A
Prime	7.3	Signalization	N/A
Prime	10.1	Roadway Construction Engineering Inspection	N/A
Sub	4.1.1	Miscellaneous Structures	N/A

Comments:

- Consultant shall be represented by a registered professional engineer licensed to practice in the State of Florida at meetings of any official nature concerning the project, including but not limited to scope of meetings, review meetings, pre-bid meetings, and pre-construction meetings.
- Consultant services must be performed with the same degree of care, skill and diligence as is ordinarily possessed and exercised by members of its same profession, currently practicing, under similar circumstances. No other warranty, express or implied, is included in this agreement or in any drawing, specification, report, opinion, or other instrument of service, in any form or media, produced in connection with the Services.
- Technical Certification category 17.00, 3.04, 3.07, 3.08, and 3.11, are the only Technical Categories that the Prime must hold.
- Consistent with Conflict of Interest Related to Section 2-11.1 of the Code of Miami-Dade County, any firm or its sub-consultants that have previously performed any design or design management work that is in any way related to any work orders to be issued under the agreement resulting from the referenced solicitation shall be precluded from participating in this competitive process.

RPQ 20190029

Contract Measure Recommendation:

- No Measure
- Set-Aside
- Trade Set-Aside
- Aggregate Set-Aside
- SBE-AE 10% Goal
 - Sub 11.00 General Structural Engineering 3%
 - Sub 13.00 General Electrical Engineering 2%
 - Sub 15.01 Land Surveying 1%
 - Sub 16.00 General Civil Engineering 3%
 - Sub 19.03 Value Analysis and Life-Cycle Costing-Highway Systems 1%
 - Total: 10%**
- CWP
- DBE Subcontractor Goal

Reason for Recommendation:

Staff has met with SBD who advised that a sufficient number of SBE A/E Firms to fill for the subs selected above.

Comments:

In accordance with the Miami-Dade County Code, DTPW attached its Project Measure Analysis and Recommendation findings along with other supporting documents for consideration of small business participation.

Based on the analysis of factors contained in Implementing Order 3-32, DTPW suggests the following contract measure recommendation: SBE-AE 10%Goal.

Areas used to meet subcontractor goal (Awarded Contractor): N/A

Similar Projects previously submitted for SBD Action: 20160236



**DEPARTMENT OF TRANSPORTATION AND PUBLIC WORKS
TRAFFIC SIGNALS AND SIGNS DIVISION**

**GENERAL ENGINEERING CONSULTANT SERVICES
FOR TRAFFIC SIGNAL OPERATIONS
SCOPE OF SERVICES**

SOLICITATION NO E19-DTPW-01

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SCOPE OF SERVICES

GENERAL ENGINEERING CONSULTANT SERVICES

1.0 PURPOSE

Miami-Dade County Department of Transportation and Public Works (County) requires professional services of a General Engineering Consultant (Consultant) for a wide range of engineering, inspection, technical, management and administrative services as needed to assist with project oversight and on-going traffic signal operations.

The Consultant will primarily support the Traffic Signals and Signs Division (TSS) with the Advanced Traffic Management System (ATMS) Project, herein after referred to as the "ATMS Project", by providing Project Management Support and Construction Management Services to ensure the successful execution and delivery of the project. The Project consists of a countywide upgrade of its existing ATMS and traffic signal controllers; fully-actuating all signalized intersections; and implementation of traffic engineering solutions such as Adaptive and Traffic Responsive Signal Control. The ATMS Project is separated into the following interrelated TASK GROUPS:

A. TASK GROUP 1: ATMS and Traffic Signal Controller Migration

Work includes complete migration and integration of all signalized intersections in the County to the proposed ATMS, local controller software, and Caltrans Model 2070LX controllers.

B. TASK GROUP 2: Full Actuation of Signalized Intersections

Work includes engineering and construction work necessary for adding per lane vehicle detection at signalized intersections to support fully-actuated signal operations. In addition, this Task Group includes the engineering and construction support for adding other types of vehicle detection zones necessary for supporting Transit Signal Priority and Adaptive Signal Timing operations.

C. TASK GROUP 3: Miscellaneous Engineering Implementation

Work includes engineering services necessary to develop, provide and integrate additional traffic signal operational features and functions such as implementing adaptive signal control technology, implementing traffic responsive control, updating System Engineering Documents, optimizing existing traffic signal parameters and timing plans to enable implementation of system solutions, and design and development of other miscellaneous operational functions.

The complete Scope of Work (subject to change) for the aforementioned ATMS Project is provided as Exhibit A (Scope of Work for RFP No. 1058 – Advanced Traffic Management System) to this document.

Additional work under this contract may include, but is not limited to, the following:

- Contract Management

- Traffic Engineering Support
- Intelligent Transportation System (ITS)
- Public Involvement Support
- Plans Review
- Minor Design Services
- In-House Operational Support

The Consultant will supplement County resources by providing highly qualified technical and professional personnel to perform the duties assigned under the terms of this agreement. The Consultant shall minimize the use of County resources when performing assignments issued by the County.

The County may request Consultant services on an as needed basis through the issuance of a Task Work Order for the required work. There is no guarantee that any or all of the services described in this Contract will be assigned during the term of this Contract.

The County may elect to have any of the services set forth herein performed by other consultants or County staff. The County may elect to expand, reduce, or delete the extent of each work element described in this Scope of Services.

The Consultant shall have a field office for all key personnel assigned to the ATMS contract. It is critical for the ATMS contract staff to have presence at the MDC Traffic Signals and Signs Division. The aforementioned office shall be at or within close proximity of the DTPW Traffic Signals and Signs Division facility.

2.0 DEFINITIONS

The following words and expressions used in this Scope of Services shall be construed as follows, except when it is clear from the context that another meaning is intended

1. Agreement: The Professional Services Agreement between the County and the Consultant setting forth the obligations of the parties thereto, including but not limited to the performance of the work, furnishing of services, and the basis of payment.
2. Contractor: The ATMS consultant, contractor, or company contracting with the County for performance of work for the County.
3. Construction Contract: The written agreement between the County and the Contractor setting forth the obligations of the parties thereto, including but not limited to the performance of the work, furnishing of labor and materials, and the basis of payment.
4. County: Miami-Dade County Department of Transportation and Public Works or Miami-Dade County, a political subdivision of the State of Florida.
5. Consultant: The Consulting firm under contract to the County for administration of Construction Engineering and Inspection services.
6. CEI Project Administrator: The employee assigned by the Consultant to be in charge of providing Construction Contract administration services for one or more Construction Projects.

7. County Project Manager: The County employee assigned to administer and manage the Consultant, ATMS Construction Project and represent the County during the performance of the services covered under this Agreement.
8. Days: Calendar Days.
9. Engineer of Record: The Engineer noted on the Construction plans as the responsible person for the design and preparation of the plans.

3.0 SCOPE

The following types of work elements may be assigned under the terms of this Agreement.

A. Project Management and Support for the ATMS Project

Consultant support for Project Management tasks required to ensure the successful execution and delivery of the ATMS Project. This includes, but is not limited to, supporting the County with the following project management responsibilities:

1. Review and track project schedule

The project schedule is intended to be a working document used by the Contractor to plan and direct the project. The project schedule is a management and communications tool that will be used to anticipate and prevent problems from occurring. These issues are to be discussed during monthly progress meetings. The following scheduling tasks are to be performed.

- a. Review Contractor proposed work schedule and ensure accordance with contract documents. The following items should be checked:
 - i. The schedule reflects the phases in the MOT plan
 - ii. Activities are broken-out by phase/task
 - iii. Phases are in correct sequence
 - iv. Order of the activities is logical
 - v. The schedule contains all milestones specified
 - vi. Utility work is shown
 - vii. Activity durations appear reasonable
 - viii. Level of detail reflects the complexity of the project
 - ix. Complete and concise description of the Work and Deployment Plan
 - x. Submittals are complete as per the contract documents and contain preparation (Contractor's time) review and approval (County's time)
 - xi. Activities include procurement time for material including shop drawing submittal and approval process.
 - xii. All non-workdays are shown.
 - xiii. Check constrained activities.
- b. Analyze Contractor schedule(s) and provide a written review identifying significant omissions, improbable or unreasonable activity durations, errors in logic, and any other concerns

- c. Track project scheduling requirements and major milestone events for engineering/construction activities such as the following:
 - i. Design
 - ii. Permits
 - iii. Right of Way
 - iv. Utility and railroad relocations
 - v. Construction
 - vi. Intelligent Transportation Systems (ITS)
 - d. Evaluate physical progress of design activities versus schedule progress and report significant variances.
 - e. Prepare and issue periodic status reports on project progress and document problems and delays.
2. Provide periodic status reports
 3. Coordinate progress meetings
 4. Ensure Standards and Requirements are met
 5. Enforce Contract requirements
 6. Permits support (ensure submission of applications and approvals required)
 7. Manage review process (ensure comments are addressed and implemented in plans and engineering documents)
 8. Coordinate with projects that overlap with the ATMS Project. Coordination effort includes, but is not limited to:
 - a. Identify on-going and future projects and evaluate impacts to ATMS Project.
 - b. Develop a plan of action that will minimize impacts to ATMS Project.
 - c. Coordinate implementation of plan of action with appropriate agency.
 - d. Incorporate ATMS infrastructure needs in on-going and future projects.
 - e. Document and track coordination efforts.
 9. Conduct and facilitate project meetings. Provide appropriate staff to attend and participate in project meetings. Keep records of all project meetings and meeting minutes. Review meetings minutes and provide comments to make sure that pending items are followed up and resolved.

B. ATMS Project Construction Engineering and Inspection (CEI) Services

Consultant support for CEI tasks required to ensure the successful execution and delivery of the ATMS Project. This includes, but is not limited to, supporting the County with the following CEI responsibilities:

1. The Consultant must provide project oversight for the complete migration and integration of all signalized intersections in the County to the proposed ATMS, local controller software, and Caltrans Model 2070LX controllers.
2. The Consultant must provide oversight support for the conversion of all traffic signal timing databases to the new local controller software (Data Conversion and Migration).

3. The Consultant must provide oversight for all System Construction activities required to build, test, and validate the new System.
4. The Consultant must provide oversight support for all System Acceptance activities required to validate the system's accuracy and functionality in order to proceed to System Implementation. This includes review of the acceptance test plan to ensure appropriate procedures have been designed to rigorously test the system software, hardware and integration.
5. The Consultant must provide oversight support for all System Implementation activities which include, but are not limited to, placing the newly developed system into production, confirming that all data required at the start of operations is available and accurate, and validating that business functions that interact with the system are functioning properly.
6. The Consultant must provide Construction Oversight for the following:
 - a. Task Group 1 - Controller deployment and field installation
 - b. Task Group 2 - Vehicle detection construction/installation
7. On-site Inspection
 - a. Monitor on-site construction activities and inspect materials entering into the work in accordance with the plans, specifications, and special provisions for the Contract to ensure that projects are constructed in reasonable conformity with such documents.
 - b. Maintain detailed accurate records of the Contractor's daily operations and of significant events that affect the work.
8. Develop a quality assurance/quality control (QA/QC) program to review and evaluate contractor performance in accordance with County procedures and specifications.
9. Monitor and provide technical support to the County's Project Manager for the project construction QA/QC program with regard to:
 - a. Conformance
 - b. Reliability
 - c. Acceptance
 - d. Rejection of work requiring: Rework, Repair, Replacement, Re-verification
 - e. Documenting quality control
 - f. Testing and testing surveillance of ATMS components
10. Review and ensure proper MOT
11. Prepare and submit a monthly reports to the County Project Manager.
12. Provide digital photo log or video of project activities, with heavy emphasis on potential claim items/issues and on areas of real/potential public controversy.
13. Photographs shall be taken the day prior to the start of construction and continue as needed throughout the project. Photographs shall be taken the days of Partial and Final Acceptance.

14. The Consultant must monitor and inspect Construction Contracts such that projects are constructed in reasonable conformity with the plans, specifications, and special provisions for the Construction Contract.
15. Observe the Contractor's work and track schedule to determine the progress and quality of work. Identify discrepancies, report significant discrepancies to the County, and direct the Contractor to correct such observed discrepancies.
16. Review construction inspection reports relating to contractor performance and communicate to the County any non-conformance with contract requirements, plan specifications, workmanship, etc.
17. Review and determine validity of claims for entitlement of extra work and/or time extension for performance of construction related services.
18. Assist with the negotiation and approval of Supplemental Agreements and Task Work Orders. Consult with the County Project Manager as necessary.
19. Review and evaluate appropriateness of submitted fee proposals for supplemental agreements and work orders on construction related services.
20. Analyze contract change requests during construction and recommend appropriate action.
21. Review and evaluate contractor's performance in accordance with County procedures, specifications and rules; as necessary, and directed by the County's Project Manager.
22. Monitor the contractor's preparation of contract documents to verify that they are being prepared and maintained in a timely manner.
23. Provide project inspectors and engineering technicians on an as needed or emergency basis.
24. Services shall include maintaining the required level of surveillance of Contractor activities, interpreting plans, specifications, and special provisions for the Contract. Maintain complete, accurate records of all activities and events relating to the project and properly document all project changes.
25. Monitor, inspect and document construction for conformance with Utility Agency's Standards. Facilitate coordination and communication between Utility Agency's representatives, County staff and Contractors executing the work. Assist in the resolution of utility conflicts including County and other Government owned facilities.
26. Produce reports, verify quantity calculations and field measure for payment purposes as needed to prevent delays in Contractor operations and to facilitate prompt processing of such information in order for the County to make timely payment to the Contractor.

C. ATMS Project Contract Management Support

Consultant support for contract management activities required throughout the ATMS project. This includes, but is not limited to, supporting the County with the following contract management activities:

1. Coordinate all contract administration activities.
2. Review and Track invoices
3. Prepare periodic ATMS contract related reports
4. Track and document progress of work

5. Monitor schedule/milestone completion and enforce LDs
6. Analyze problems that arise on a project and proposals submitted by the Contractor; work to resolve such issues, and process the necessary paperwork.

D. ATMS Project Engineering Support

Consultant support for engineering services required for the completion and delivery the ATMS project. This includes, but is not limited to, supporting the County with the following activities:

1. Oversee database conversion and controller configuration
2. Ensure burn-in period requirements
3. Review Engineering Documents (Plans, reports, etc.)
4. Assist the County with acceptance testing procedures
5. Provide expert advice regarding adaptive and traffic responsive modes of operation
6. Assist with the evaluation of traffic operational public complaints
7. Traffic Engineering Services (as necessary)

E. ATMS Project IT Support

Consultant support for IT services required for the completion and delivery the ATMS project. This includes, but is not limited to, supporting the County with the following activities:

1. Oversee development and delivery of system architecture design
2. Review related documents
3. Provide assistance and coordinate tasks with MDC IT Staff

F. ATMS Project Public Involvement

Consultant support for County public involvement efforts throughout the duration of the ATMS project. This includes, but is not limited to, providing public awareness services to lead or participate in any public information programs and to inform the public on the status and impact of the ATMS project as follows:

1. Provide project information to the public via media outlets and/or any communication tools necessary to effectively inform the public.
2. Coordinate and schedule meetings to provide project status information.
3. Assist the County staff in public outreach, public information updates, public meetings, community awareness plans, public involvement plans, coordination of updating elected officials, public communications support, etc.
4. Assist the County as required to address and respond to inquiries from the public, and public officials, and assist in the preparation of newsletters and the distribution thereof, and shall review all notices, brochures, responses to news media, etc.

In addition to the aforementioned ATMS-related support services, the following tasks may be required to support other DTPW Traffic Signals and Signs (TSS) projects.

G. General Engineering Services for Miscellaneous Projects

1. Review engineering documents including, but not limited to, plans, signal timing sheets, shop drawings and engineering reports.
 - a. Review and recommend project limits or work for project design.
 - b. Develop conceptual design documents, including but not limited to, project design criteria and traffic control plans that form the basis of the preliminary engineering and design contract packages.
2. Administrative Support
 - a. Prepare and maintain project files. Project files shall be transferred to the County upon completion of the work or as otherwise directed by the County.
3. Traffic Engineering Support
 - a. Signal Retiming
 - b. Development and evaluation of Traffic Signal Operations Plans (SOP)
 - c. Traffic signal database review and conversion
 - d. Review, coordinate and verify available traffic data and collect additional data as directed.
 - e. Traffic Engineering Studies
 - f. Signalization & Signing and Pavement Marking Design
4. Design Support
 - a. Provide the County with engineering support staff to serve as the County's technical expert in traffic signal design, traffic engineering and ITS.
 - b. Review and comment on the preparation of plans, construction documents, preliminary and final estimates of construction costs developed by the County and other consultants. Recommend acceptance and approval by the County for such plans, specifications and estimates based on such reviews.
 - c. Perform shop drawing reviews.
 - d. Review and provide written response on the adequacy of all submittals.
 - e. Advise and consult on engineering-related matters
 - f. Monitor consultant performance to determine adequacy of work performed
 - g. Accomplish incidental and emergency design activities as may be required and authorized.
 - h. Minor design activities
 - i. Perform design reviews for major projects as deemed necessary.
 - j. Archive and retain all plans, submittals and Contract Documents.
 - k. Provide Geographic Information System (GIS) services.
 - l. Assist with preparation and coordination of permit application(s) as required for submittal to other agencies by the County including, but not limited to: forms, sketches and plans. Review and provide written comments on permit requirements and compliance. Review local zoning requirements for compliance and coordination with these agencies.
5. Construction Support

- a. Provide CEI support necessary for signalization projects to ensure project execution and completion in accordance with industry practice and in the best interest of the County.
6. General Contract Services
- a. Develop scopes of work, special contract provisions and project concept reports.
 - b. Prepare estimated staff loading requirements and estimates of costs for proposed services.
 - c. Develop milestone schedules of overall time relationships authorized for the performance of services and coordination between various entities that are to be involved in a project.
 - d. Develop contract/procurement documents: Requests for Proposal (RFP), Scope Packages, Addendums, Supplemental Amendment and Task Work Order.
 - e. Review and evaluate consultant fee proposals.
 - f. Review and evaluate information related to the acquisition of professional and construction services.
 - g. Review and recommend for approval consultants' requests for payment.
 - h. Monitor consultant performance of services to establish adequacy relative to contract requirements.
 - i. Prepare Consultant Termination Agreements or Certificates of Completion.
 - j. Monitor compliance with invoice submittals.
 - k. Other Professional Services Contractual support as necessary
 - l. Assist the County in the development, coordination and management of implementation of Division standards, procedures and policies
 - m. Scheduling, tracking and monitoring systems to report status of professional contracting activities.
7. Intelligent Transportation System (ITS)

The Consultant may be directed, on a case-by-case basis, to assist and support the County staff in providing the following ITS related services:

- a. Cost estimates and plans for all County related ITS needs.
- b. Expertise in ITS needs within the transportation industry.
- c. Project Management for all ITS related services.

H. Federal and State Grant Research and Grant Package Preparation

The Consultant may be directed, on a case-by-case basis, to assist and support the County staff in the following services:

1. Research Federal and State Grant Programs to support deployment of County projects.
2. Prepare Grant packages and applications to be submitted for consideration and approval by Federal and State officials.
3. Coordinate meetings with Federal, State, County and Local Agency representatives; includes preparation of meetings' agendas and materials.

I. In-House Operational Support

The Consultant shall provide in-house support staff to assist in any of the tasks outlined in the Scope of Services, or serve in other (engineering, operational, clerical, etc.) capacities as needed. Working hours for the assigned staff person(s) shall be under the County's normal working hours unless modified by the County Project Manager and approved by the Consultant's Project Manager.

4.0 ITEMS FURNISHED BY THE CONSULTANT

A. Field Office

Provide a field office with sufficient room and furnishings to effectively carry out all responsibilities under this Scope of Services. Field office shall be approved by the County. Include, within the same facility, a private office for the County Project Manager with office furniture, telephone and broadband internet access.

Provide all software and hardware necessary to efficiently and effectively carry out the responsibilities under this Agreement. Provide each inspection staff with a laptop computer (or tablet) and a mobile broadband connection. All computer coding shall be input by Consultant personnel using equipment furnished by them. Ownership and possession of computer equipment and related software, which is provided by the Consultant, shall remain at all times with the Consultant. The Consultant shall retain responsibility for risk of loss or damage to said equipment during performance of this Agreement. Field office equipment should be maintained and operational at all times.

Field Office expenses will be compensated on a direct reimbursement basis, provided that such expenditures are reasonable and previously authorized by the County. Reimbursable expenses may include field office, utilities and furnishings. These expenses shall be reimbursed on a direct cost basis. No separate additional payment shall be authorized for the use of workstations, vehicles, document reproduction, rental of specialized equipment, and purchase of special instruments.

B. Vehicles

Vehicles must be equipped with appropriate safety equipment and must be able to effectively carry out requirements of this Agreement. Vehicles shall have the name and phone number of the consulting firm visibly displayed on both sides of the vehicle.

C. Field Equipment

Supply survey, inspection, and testing equipment essential to perform services under this Agreement; such equipment includes non-consumable and non-expendable items. Hard hats shall have the name of the consulting firm visibly displayed. Equipment described herein and expendable materials under this Agreement will remain the property of the Consultant and shall be removed at completion of the work. Retain responsibility for risk of loss or damage to said equipment during performance of this Agreement.

D. Licensing for Equipment Operations

Obtain proper licenses for equipment and personnel operating equipment when licenses are required. The license and supporting documents shall be available for verification by the County, upon request.

5.0 SPECIFICATIONS OF WORK

The Consultant shall comply with all applicable Federal, State and Local Regulations in performance of services.

A. Plans & Specifications

The Consultant shall ensure that all documents, studies and construction plans, as applicable, are prepared in accordance with the latest editions of the Governing Regulations and Standard References utilized by the County listed in DTPW Division 01 Construction Specifications.

B. Professional Services Contract Documents and Retention

The Consultant shall ensure that all hard copies/electronic copies of Contract documents and support documentation are stored at the Consultant's office through project completion. Once a project is closed out, delivery of project files must be coordinated with the County.

6.0 PERSONNEL REQUIREMENTS

The Consultant must provide qualified personnel necessary to efficiently and effectively carry out its responsibilities under this Agreement. Unless otherwise agreed to by the County, the County will not compensate overtime.

A. Personnel Qualifications:

Provide competent personnel qualified by experience and education. Submit in writing to the County Project Manager the names of personnel proposed for assignment to the project, including a detailed resume for each containing at a minimum: education and experience. Personnel identified in the technical proposal are to be assigned as proposed and are committed to performing services under this Agreement.

Personnel changes will require written approval from the County. Staff that has been removed shall be replaced by the Consultant within one week of notification to the County. Should it become necessary to replace the key personnel, the Consultant must provide replacement staff with equal or superior skills and qualifications. During the course of the Contract, the County reserves the right to approve all replacement prime consultant personnel; the County also reserves the right to approve any replacement subconsultant personnel after proposal submission and after contract execution.

B. General Requirements

Provide qualified personnel necessary to efficiently and effectively carry out its responsibilities under this Agreement. Unless otherwise agreed to by the County, the County will not compensate overtime.

The Consultant is to provide at a minimum the following key personnel for oversight and support of the ATMS Project. Minimum qualifications are set forth as follows:

1. Consultant Project Manager

The person in overall charge of all tasks assigned under this contract and is responsible for the coordination and monitoring of contract progress. This person directs highly complex and specialized construction engineering administration and inspection programs. This person plans and organizes the work of subordinate and staff members; develops and/or reviews policies, methods, practices, and procedures. Also must have the following:

- An Engineering degree and the State of Florida Professional Engineer registration
- Minimum of 10 years' experience with construction of Transportation projects. A Master's Degree in Engineering may be substituted for one (1) year of engineering experience

2. CEI Project Administrator

The person responsible for the management of the ATMS contract on behalf of the County. The CEI Project Administrator is in charge of administering the ATMS contract to ensure the project is delivered on time, within budget, with the specified quality and in reasonable conformance with the contract documents. The CEI Project Administrator must have the knowledge and experience to lead a team and execute the tasks described in the FDOT Construction Project Administration Manual.

The CEI Project Administrator receives general instructions regarding assignments and is expected to exercise initiative and independent judgment in the solution of work problems. This person directs and assigns specific tasks to inspectors / Consultant staff and assists in all phases of the construction project. This person will be responsible for the progress and final estimates throughout the construction project duration. Also must have the following:

- Engineering degree and the State of Florida Professional Engineer registration
- Minimum of 10 years' experience with traffic signalization or ITS construction projects. A Master's Degree in Engineering may be substituted for one (1) year of engineering experience
- FDOT Advanced MOT

3. CEI Senior Inspector

The person responsible for performing highly complex technical assignments in the field and is responsible for overseeing the overall ATMS deployment process and verifies compliances with plans, specifications, codes and regulations. This person checks engineering

computations, inspects construction work, conducts field tests and quality checks, and suggests potential improvements. This person is responsible for inspecting construction work; monitoring traffic signalization, ITS and electrical installation techniques to ensure conformance with the plans, specifications, National Electrical code and other applicable manuals and is responsible for coordinating and managing the lower level inspectors. Responsible for escalating any deficiencies to the Project Administrator. Also must have the following:

- a. High School graduate or equivalent plus four (4) years of experience in construction inspection, two (2) years of which shall have been in ATMS or ITS construction inspection plus knowledge or experience working with the following:
 - i. Traffic Signal Controller Operation and Testing
 - ii. Miami Dade Traffic Signal Cabinet
 - iii. CCTV Installation
 - iv. Familiarity with Communication Equipment and Switches
 - v. Fiber Installation Inspection
- b. FDOT Intermediate MOT
- c. IMSA Level II

4. CEI Inspector

This person performs assignments under the direct supervision of the Senior Inspector. This person is responsible for inspecting the construction work; monitoring the correct traffic signalization, ITS and electrical installation techniques to ensure conformance with the plans, specification, National Electrical Code and other applicable manuals. This person is responsible for escalating to the Senior Inspector or Project Administrator (as applicable) any deficiencies. Also must have the following:

- a. High School Graduate or equivalent plus two (2) years of experience in construction inspection, one (1) year of which shall have been in ATMS or ITS construction inspection plus knowledge or experience working with the following:
 - i. Traffic Signal Controller Operation and Testing
 - ii. Miami Dade Traffic Signal Cabinet
 - iii. CCTV Installation
 - iv. Familiarity with Communication Equipment and Switches
 - v. Fiber Installation Inspection
- b. FDOT Intermediate MOT
- c. IMSA Traffic Signal Field Technician Level II certification or higher
- d. Licensed Miami-Dade County Journeyman Electrician

5. CEI Traffic Engineer

The person responsible for reviewing traffic signal timing documentation, signalization plans and proposed traffic engineering solutions and techniques on behalf of the County. This

person takes the lead on any traffic engineering issue related to the ATMS contract and serves as the traffic engineering advisor to the County. This person must have experience performing traffic studies, testing of operations of traffic signal controller, developing traffic signal operating plans and timing plans, implementation of traffic signal timing and fine tuning. Also must have the following:

- a. Engineering degree and the State of Florida Professional Engineer registration
- b. At least two years of post-registration traffic engineering experience.

6. CEI Engineer Intern

The person performs assignments under the direct supervision of the Traffic Engineer. This person must have knowledge of traffic engineering concepts and principles and must have experience performing traffic engineering studies. This person must have strong analytical and problem solving skills. Also must have the following:

- a. Engineering degree and the State of Florida Engineer Intern registration
- b. At least one year of traffic engineering related experience.

7. CEI Systems Engineer

The person responsible for the review and progress of the ATMS contract IT related tasks including the review and progress of systems architecture design and implementation, equipment specifications, hardware installation supervision, equipment and reliability analysis. This type of work requires experience involving traffic control systems, system installation, system testing, debugging and operation, system documentation, training of operations personnel and knowledge of Construction Engineering Inspection (CEI) requirements for intelligent transportation construction projects. Also must have the following:

- a. Engineering degree and the State of Florida Professional Engineer registration
- b. At least ten years of post-registration traffic engineering experience.

8. Scheduler

The person responsible for ensuring ATMS contract processes can meet deadlines, tasks advance according to approved schedules, keeps record and control of project deliverables. This person is responsible for coordinating with County staff and ensuring availability of County resources for any ATMS project related issue. This person must be able to work with databases, prepare reports and communicate with others, including ATMS contract team personnel and County staff, regarding potential scheduling problems and impact of proposed schedule changes. This person must be self-disciplined and self-motivated and have the ability to comprehend the ATMS contract deployment plan and schedules. Also must have the following:

- a. Bachelor's degree in science

- b. Experience with schedule management in Microsoft Project and understand scheduling techniques and best practices, and schedule planning and development.
- c. Understanding of systems engineering processes and be able to accurately represent engineering perspectives to program management and government representatives.

C. Consultant Qualifications:

The Consultant must be technically certified pursuant to Miami-Dade County Administrative Order 3-39 in the following main work class category and work class designations:

- 3.04 Traffic Engineering Studies
- 3.07 Traffic Signal Timing
- 3.08 Intelligent Transportation Systems Analysis, Design, and Implementation
- 3.11 Signalization
- 17.00 Engineering Construction Management

The Consultant (or qualified subconsultants) must be technically certified pursuant to Miami-Dade County Administrative Order 3-39 in the following main work class category and work class designations:

- 11.00 General Structural Engineering
- 13.00 General Electrical Engineering
- 15.01 Land Surveying
- 16.00 General Civil Engineering
- 19.03 Value Analysis and Life-Cycle Costing/Highway Systems

The Consultant must be qualified by the Florida Department of Transportation in the following Rule 14-75, Florida Administrative Code Consultant Work Type Categories:

- 6.1 Traffic Engineering Studies
- 6.2 Traffic Signal Timing
- 6.3.1 Intelligent Transportation Systems Analysis and Design
- 6.3.2 Intelligent Transportation Systems Implementation
- 6.3.3 Intelligent Transportation Systems Communications
- 6.3.4 Intelligent Transportation Systems Software Development
- 7.3 Signalization
- 10.1 Roadway Construction Engineering Inspection

The Consultant (or qualified subconsultants) must be qualified by the Florida Department of Transportation in the following Rule 14-75, Florida Administrative Code Consultant Work Type Categories:

- 4.1.1 Miscellaneous Structures

D. Staffing

Once authorized, the Consultant shall establish and maintain appropriate staffing throughout the duration of construction and completion of the Project. Responsible personnel, thoroughly familiar with all aspects of construction and final measurements of the various pay items, shall be available to resolve disputed final pay quantities until the County has received a regular acceptance letter.

Construction engineering and inspection forces will be required of the Consultant while the Contractor is working. If Contractor operations are substantially reduced or suspended, the Consultant will reduce its staff appropriately.

In the event that the suspension of Contractor operations requires the removal of Consultant forces from the project, the Consultant will be allowed ten (10) days maximum to demobilize, relocate, or terminate such forces.

7.0 QUALITY ASSURANCE (QA) PROGRAM:

A. Quality Assurance Plan:

Within thirty (30) days after receiving award of an Agreement, furnish a QA Plan to the Construction Project Manager. The QA Plan shall detail the procedures, evaluation criteria, and instructions of the Consultant's organization for providing services pursuant to this Agreement. Unless specifically waived, no payment shall be made until the County approves the Consultant QA Plan. Significant changes to the work requirements may require the Consultant to revise the QA Plan. It shall be the responsibility of the Consultant to keep the plan current with the work requirements. The Plan shall include, but not be limited to, the following areas:

1. Organization:

A description is required of the Consultant QA Organization and its functional relationship to the part of the organization performing the work under the Agreement. The authority, responsibilities and autonomy of the QA organization shall be detailed as well as the names and qualifications of personnel in the quality control organization.

2. Quality Assurance Reviews:

Detail the methods used to monitor and achieve organization compliance with Agreement requirements for services and products.

3. Quality Assurance Records:

Outline the types of records which will be generated and maintained during the execution of the QA program.

4. Control of Subconsultants and Vendors:

Detail the methods used to control subconsultant and vendor quality.

5. Quality Assurance Certification:

An officer of the Consultant firm shall certify that the inspection and documentation was done in accordance with County specifications, plans, standard indexes, and procedures.

B. Quality Assurance Reviews:

Conduct periodic Quality Assurance Reviews to ensure compliance with the requirements of the Agreement. Quality Assurance Reviews shall be conducted to evaluate the adequacy of materials, processes, documentation, procedures, training, guidance, and staffing included in the execution of this Agreement. Quality Assurance Reviews shall also be developed and performed to achieve compliance with specific QA provisions contained in this Agreement. The reviews shall be submitted to the County Project Manager in written form no later than one (1) month after the review.

C. Quality Records:

Maintain adequate records of the quality assurance actions performed by the organization (including subcontractors and vendors) in providing services and products under this Agreement. All records shall indicate the nature and number of observations made, the number and type of deficiencies found, and the corrective actions taken. All records shall be available to the County, upon request, during the Agreement term. All records shall be kept at the primary job site and shall be subject to audit review.

8.0 CERTIFICATION OF FINAL ESTIMATES:

A. Final Estimate and As-Built Plans Submittal:

Prepare documentation and records in compliance with the Agreement, approved Quality Control (QC) Plan, and the County's Procedures. Submit the Final Estimate(s) and one (1) set of final "as-built plans" documenting the Contractor's work. Revisions to the Certified Final Estimate will be made at no additional cost to the County.

B. Certification:

Duly authorized representative of the Consultant firm will provide a notarized certification on a form pursuant to County's procedures.

C. Offer of Final Payment:

Prepare the Offer of Final Payment package and submit along with the Certified Final Estimates Package to the County for review. The Consultant shall be responsible for forwarding the Offer of Final Payment Package to the Contractor.