SCOPE OF SOLICITATION

The South Carolina Department of Transportation (SCDOT) is inviting professional engineering services to submit qualifications to provide Traffic Signal Engineers (TSE) to support the Signal Operations Program within the Transportation Systems Management and Operations (TSMO) program. The purpose of the Signal Operations Program is to improve traffic flow and reduce congestion through various operations that include, but aren't limited to, updating signal plans and/or Intelligent Traffic Systems (ITS) networks, retiming signals and signal systems, traffic and signal analyses, and operational adjustments statewide. These tasks are considered a "Type 1" activity in accordance with Federal Highway Administration (FHWA) requirements as described in Attachment A of the 2017 Procedural Agreement for Traffic Signal Projects between SCDOT and FHWA. The Consultant should anticipate the TSEs to be tasked as needed statewide in support of regular operations and any extraordinary events requiring additional staffing for the TSMO Program and SCDOT District Traffic Engineering offices. The Consultant shall meet and/or exceed the specifications listed below.

SCOPE OF WORK/SPECIFICATIONS

1. **General**

   The Consultant shall be responsible for all activities necessary to ensure the success of the contract including, but not limited to, project/contract management, accounting and financial management, schedule management, project administration, reporting, record-keeping, and day-to-day coordination with the SCDOT Program Manager. The Consultant shall provide workspace for the TSEs and Project Manager appropriate to perform the activities for this contract.

   The Consultant shall assume primary responsibility for general supervision of the Consultant employees and their sub-consultants (if utilized) for all work performed and shall be solely responsible for all procedures, methods of analysis, interpretations, conclusions, and contents of work performed under this solicitation. The Consultant shall act in an independent capacity and not as employees for/of SCDOT. Whenever necessary to perform work in the field, the Consultant will endeavor to maintain good relations with the public and any affected property owners. Personnel employed by or representing the Consultant shall conduct themselves with propriety to manage the work effort for this contract.

2. **Kickoff**

   The Consultant should expect a kickoff meeting with SCDOT Representatives within 30 business days of the issuance of a Purchase Order or Notice to Proceed. The Consultant Principal-in-Charge and Contract Lead will attend the kickoff meeting. Additional Consultant staff may be included as deemed necessary by the Consultant. The kickoff meeting may be held in person or virtual (videoconferencing) as determined by the SCDOT Program Manager.

3. Staffing

The Consultant shall provide four traffic engineers familiar with traffic signal and traffic operations and one additional Project Manager familiar with traffic operations to provide program management support. Of the four TSEs, two shall be Licensed Professional Engineers (P.E.) as prescribed in SC State Code Sections 40-22-20 and 40-22-30 to seal signal plans (https://www.scstatehouse.gov/code/t40c022.php).

One of the P.E. TSEs will fill the Contract Lead position to coordinate directly with the SCDOT Program Manager as the lead point of contact for all contract requirements. It is preferred that at least one P.E. maintain a Professional Traffic Operations Engineer (PTOE) certification as per Institute of Transportation Engineers (ITE) https://www.ite.org/. The two remaining TSEs must be licensed Engineers In Training (EIT) after passing the National Council of Examiners for Engineering and Surveying Fundamentals of Engineering (FE) exam (NCEES - https://ncees.org/exams/fe-exam/#south-carolina) as required by the state of South Carolina (One EIT can be substituted with an experienced traffic signal technician with at least ten years of traffic signal programming and operational experience). All engineers shall be experienced in signal, signal system, and corridor design/operation and maintain an International Municipal Signal Association (IMSA) Traffic Signal Technician II certification (https://www.imsasafety.org). The Project Manager shall have traffic engineering project management experience.

This contract supports the statewide Signal Operations Program so the Consultant team of four TSEs must be able to operate as two independent teams of a P.E. and EIT each on separate projects/work orders at any one time, as necessary. It is desired that all the positions listed herein be filled by the same personnel for the entirety of the contract to provide program stability for situations such as repeated visits to project locations and to maximize familiarity and confidence when working with SCDOT staff and practices. This contract shall only allow five personnel to invoice at any given time. While substituting additional personnel who meet the above specifications may be possible, any changes will prior require written approval from the SCDOT Program Manager and an executed Change Order before personnel substitution is allowed. At its sole discretion, SCDOT reserves the right to refuse any personnel for use in the performance of work under this contract.

4. Types of Work

This contract provides support to SCDOT's TSMO Program and its goals of improving traffic operations, reducing congestion and improving safety primarily through traffic signal/ITS improvements. To that end, the TSEs will provide services to SCDOT HQ Traffic Engineering and District Traffic Engineering office staff as needed. All work will be assigned by the SCDOT Program Manager, but it is expected the TSEs will coordinate directly with the appropriate SCDOT personnel and customers while performing the work. Work will primarily focus on traffic signal operations, to include traffic signal/system retiming, periodic operational improvements, signal/phase warrant analysis, and plan updates. Traffic signal design activities can include traffic signal and ITS communications network design. In addition, TSEs may be tasked to perform the analysis and corrective actions to resolve issues identified through public

reports, develop detour route traffic signal timing plans, and/or other support to either plan for or respond to special events, construction, and/or other traffic-related issues. It is expected the duties may evolve over the course of this contract as SCDOT operations evolve and advance with new technology and program improvements. Some of the potential changes may include tasking the TSEs to monitor performance data to identify and make operational improvements, assist with developing and assigning work orders for traffic signal on-call contract projects, and performing quality control review activities for work performed by other consultants or SCDOT employees. All work is expected to include any and all necessary field observations, data collection, analysis, and design.

5. Data Collection

The information required for all analysis shall be collected as needed utilizing SCDOT-approved sources. At the time of advertisement, SCDOT maintains a traffic count contract that will be used for all traffic counts in support of warrant analyses, signal timing efforts, and other traffic analyses. Additionally, SCDOT also has a contract for probe data (Iteris ClearGuide, at the time of advertisement) to be used to support corridor performance analysis and other similar needs. Floating car corridor timing runs will also be performed by the TSEs, as needed, and will utilize a GPS-based analysis tool (ex: TruTraffic) provided by the Consultant and approved by the SCDOT Program Manager. Any additional data needs must be approved by the SCDOT Program Manager prior to use, but will not be reimbursed through this contract. All signal information, timing plans, and other operational data will be provided by SCDOT District or municipality Traffic Engineering offices. Access to SCDOT's traffic signal asset management software (at the time of advertisement, DesignIT TEAMS) and/or SCDOT's traffic management system (at the time of advertisement, Cubic ATMS.now) may be granted to the TSEs, as needed, once all network security requirements are met. All data and reports will be shared and posted within SCDOT's Microsoft Teams/SharePoint sites. The Consultant shall have experience and familiarity with SCDOT's current data software (at the time of advertisement, Iteris ClearGuide, DesignIT TEAMS, Cubic ATMS.now).

6. Traffic Signal Operational Adjustments

Field work, operational adjustments to traffic signals, and other traffic management operations will be conducted in coordination with the SCDOT Program Manager and the associated District or municipality Traffic Engineering office at all times. The Consultant should expect projects to require frequent visits to the assigned project locations across the state and may occur at all hours of the day in order to respond to traffic needs during on- and off-peak times. Adjusting traffic signal timing parameters and other similar field adjustments will vary from location to location and office to office. This will vary between providing written documentation of updated traffic signal controller settings, for the office staff to implement, to direct controller or ATMS data entry either at the site, in the signal shop, or remotely. The TSEs will ensure all follow-up, troubleshooting, and adjustments are performed to the satisfaction of the associated Traffic Engineering office. For these reasons, the Consultant shall have experience and familiarity with these processes and procedures for SCDOT's current traffic signal hardware and software (at the time of advertisement, Cubic's ATMS.now central management, v65 & v76 signal controller firmware, SynchroGreen adaptive signal control,

and StreetSync signal database management tool). It is preferred the Consultant has experience with other traffic signal hardware and software utilized by some of the municipalities operating and maintaining SCDOT traffic signals (Seimens/Yunex Tactics central management and SEPAC controller, and Q-free Kinetic central management and MAXTIME controller and adaptive software).

7. Data Tracking and Reporting

In coordination with the SCDOT Program Manager, the Consultant will track and report time utilized in conducting work under this contract. As this is not a work order based contract, there will not be individual work orders assigned for the work to be accomplished. But the tracking of time and other costs is to be accomplished with the intent in capturing time and costs associated with each work item, signal corridor, or analysis. This data will not only be utilized during invoicing, but it will also serve in helping develop program metrics and performance parameters by which the program, contract, and each engineering effort can be measured. With each assigned work item, the Consultant will prepare a report containing initial conditions, implemented changes, before-after analysis, cost-benefit analysis, conclusions, warrant summary, and any other information requested by the served District or municipality Traffic Engineering office. With approval from the respective customer and SCDOT Program Manager, these reports can be modified to fit the situation, intended level of effort, or specific needs. All reports will be submitted to the respective customer for review and approval before being signed/finalized, and all reports and data will be stored and transmitted via SCDOT's Teams/SharePoint site, unless previous coordination and approval is obtained. While not currently implemented, future reporting may include reporting on carbon reduction and similar performance metrics for the individual projects as well as the program as a whole.

8. Hours

The Consultant should anticipate up to approximately 2080 hours annually for each of the P.E.s and EITs and up to approximately 200 hours annually for the Project Manager; however, these hours may vary month-to-month, year-to-year, and will be based on SCDOT needs for regular operations, extraordinary events, budget, and other factors.

9. Invoicing

The Consultant shall submit monthly invoices to the SCDOT Program Manager in a format acceptable to SCDOT with all the necessary documentation required for payment. Invoices shall contain the following information:
- Contract Number
- Invoice Number
- Payment Number
- Contract Amount
- Paid to Date
- Total Invoiced to Date
- Less Previous Payments

- Total due this Invoice

In addition, invoices will summarize the hours invoiced by each position, annotating the time by project/work order. The Consultant shall notate each invoice "I certify invoice (insert invoice number) to be true and correct." This statement shall be signed and dated by the Consultant.

The term of this contract will be One (1) year with four (4) optional – one (1) year renewals (Potentail of five (5) years)

EVALUATION FACTORS

Offers will be evaluated using only the factors states below. Evaluation factors are stated in the relative order of importance, with the first factor being the most important. Once evaluation is complete, all responsive offerors will be ranked from most advantageous to least advantageous.

Qualifications – 40%
1. Demonstrate recent and successful team experience on similar projects. Include a list of states where the members of the team have completed similar projects.
2. Provide information to illustrate ability to meet position requirements, to include two registered P.E.s in South Carolina and two EITs (one EIT can be substituted with at least ten years of signal technician experience). All TSEs shall be IMSA Signal Technician Level II certified. At least one P.E. is preferred to maintain a PTOE certification.
3. Demonstrate expertise in specialized areas required for this project to include traffic signal design, timing analysis and implementation; advanced traffic management; traffic issue analysis/resolution; signal warrant analysis; and ITS network design.
4. Provide information to support experience and familiarity with Cubic ATMS.now, v65/v76 controller firmware, SynchroGreen adaptive control, and StreetSync database management software, to include operation and programming. Information demonstrating familiarization with Q-free Kinetic and MAXTME as well as Seimens/Yunex Tactics and SEPAC software is preferred. Additionally, illustrate familiarity with Iteris ClearGuide, or approved equivalent software for corridor performance measurement and reporting.
5. Submit references with the proposal.

Technical Approach – 35%
1. Demonstrate a clear understanding of the effort and products required.
2. Demonstrate an understanding of how various strategies will improve the performance of the state's roadways. Show examples that include the use of performance measures; signal timing/phasing adjustments; and other operational analysis, recommendations and adjustments in response to traffic issues and congestion. Experience should include solutions determined both through detailed simulation/analysis as well as on-site observation and tactical adjustments to ITS devices.
3. Demonstrate quality, clarity, and thoroughness in addressing the required tasks and report submission guidelines. The proposal adheres to the document organization and content requested in the RFP. The content is free of distracting spelling, punctuation, and grammatical errors.

4. Demonstrate the ability to design and deploy various ITS devices and networks.
5. Provide examples of managing and performing quality control review activities of work performed by other entities in support of your efforts.

Project Management – 15%
1. Demonstrate an ability to perform the needed tasks in an efficient and effective manner.
2. Provide examples and demonstrate the ability to measure and report the status and effectiveness of the work performed under this contract.
3. Demonstrate the ability to track and manage multiple projects throughout the state of South Carolina, to include the time and other costs, in order to maintain program effectiveness and report cost/benefit and similar performance metrics per project/work order as well as the program over time.
4. Provide recent, current, and projected workloads of the firm.

Resources – 10%
1. Include the availability of personnel and any resources needed to successfully complete the project. Demonstrate the ability to maintain a cohesive team over the course of the contract to minimize disruptions to workflow and customer expectations.
2. Include a staffing plan demonstrating the ability to coordinate multiple assignments and teams while maintaining a cohesive program responsive to the SCDOT Program Manager and the various District and municipal Traffic Engineering offices served. Information should include location(s) and demonstrate the ability to respond to projects statewide.
3. Include a listing of each key team members' current and projected workload.
4. Identify any other resources the Consultant anticipates utilizing in the performance of this contract to improve traffic operations and performance or project management.