

SOLICITATION OF STATEMENTS OF QUALIFICATIONS
Citywide Traffic Signal Optimization Services
DCKA-2011-Q-0052

1. The Government of the District of Columbia, Office of Contracting and Procurement, on behalf of the District Department of Transportation Traffic Operations Administration (DDOT/TOA), is soliciting Standard Form 330 from experienced Architect-Engineer firms. The form will be used in selecting a contractor to perform traffic signal optimization services in order to make DC traffic signals safer and friendlier for the pedestrians, improve bus running times, and reduce traffic congestion and vehicular traffic emissions.
2. Contractor selection will be in accordance with the provisions of 27 DCMR Chapter 2620 through 2633. A panel of DDOT staff will conduct evaluations and make award recommendation to the Contracting Officer. Final selection will be made by the Contracting Officer in accordance with Title 27 DCMR Chapter 26.
3. A copy of the scope of work is accessible via the DDOT and OCP websites at www.ddot.dc.gov and www.ocp.dc.gov.
4. The evaluation criteria for selection are listed below:
 - (a) Knowledge, skill and ability of the engineers, as required to conduct the tasks specified in the scope of work document. Advanced level Synchro experience is required. Past experience in the development of TS Diagrams and Configuration Packages and working with the QuicNet system will be desirable. (Maximum 30 Points)
 - (b) Understanding of the project and District's objectives; evidence that the firm(s) have the necessary resources (or sub-contractors) to fully satisfy the requirements of all phases of this contract. (Maximum 20 Points)
 - (c) Specialized experience in the field of signal timing optimization; Offeror's prior experience in timing traffic signals in highly urban multi-modal environment. Offerors must list up to 5 urban signal optimization projects similar to the project identified in this RFQ. (Maximum 20 Points)
 - (d) Offerors which are located within the Washington Metropolitan Area, or which can provide indication of an ability to adequately investigate and interact with personnel on-site while minimizing associated travel or relocation costs. (Maximum 10 Points)
 - (e) Past performance and experience in traffic signal design and operations. (Maximum 10 Points)
 - (f) Capacity to accomplish the work in the required time. (Maximum 10)

5. Vendors desiring consideration for Architect-Engineer contracts should submit six (6) copies of their Standard Form 330, Architect-Engineer Qualifications. All vendors desiring consideration for Architect-Engineer contracts must include all information relating to the firms qualifications in the standard form. Inclusion by reference to other materials is not acceptable.
6. DDOT will award one Indefinite Delivery/Indefinite Quantity Contract for a base period of one year with four (4), one (1) year options periods for a total of (5) five years.
7. A thirty five 35(%) Disadvantaged Business Enterprise (DBE) subcontracting goal for firms certified as DBE's in accordance with 49 CFR Part 26 has been set on this federally assisted contract.
8. TITLE VI OF THE CIVIL RIGHTS ACT OF 1964, AS AMENDED. During the performance of the Contract, the Contractor and any of its subcontractors shall comply with Title VI of the Civil Rights Act of 1964, as amended. This Act provides that no person shall, on the grounds of race, color or national origin, be excluded from participation in, or be denied the benefits of or be subject to discrimination in federally funded program and activities. See 42 U.S.C. §2000d *et seq.*
9. The Standard Form 330 from all offerors must be received by 2:00 p.m. on February 03, 2011 at the following address:

Office of Contracting and Procurement Bid Room
Reeves Center
2000 14th Street, N.W. 3rd Floor
Washington, D.C. 20009
10. For technical questions contact, Mr. A. Wasim Raja, Traffic Signals and ITS Manager on (202) 671-2656. The Contracting Officer for this procurement is Mr. Jerry M. Carter. He may be contacted at (202) 671-2270.

*Citywide Traffic Signal Optimization Services***Scope of Work DCKA-2011-Q-0052
Citywide Traffic Signal Optimization Services****BACKGROUND**

Due to significant amount of development activities within the District, regional growth, installation of new traffic signals, changing of travel patterns, as well as the conflicts between different modes of travel – District Department of Transportation (DDOT) has decided to perform a district-wide traffic signal optimization. *The central goal of the optimization project will be to make DC traffic signals safer and friendlier for the pedestrians, improve bus running times & reduce bus delays, improve overall traffic flow and reduce vehicular traffic emissions.*

The project would include anywhere between 500 to 1600 plus traffic signals and involve dividing the entire network into smaller networks, and preparing new signal timing plans to improve pedestrian and vehicular mobility. Following is a brief summary of District's traffic signal system:

- All District signalized intersections currently operate on the 170 traffic signal controller platform and utilizes FSK modems that are hard-wired via 19 gauge twisted pair, to the traffic control center located at the Reeves Center (also IP capable).
- QuicNet, the District's central traffic signal and CCTV command and control system, utilizes once per second polling while monitoring all traffic signals within the District, and one signal on the Suitland Parkway just across the city limit.
- QuicNet broadcasts time of day to all intersections and maintains downloadable programming data and event logging for all intersections within a central server. Programming data can be manually downloaded from central, or can be requested by specific key strokes on the intersection's controller.
- The District's traffic signal system is currently capable of utilizing up to 9 pre-programmed plans; primarily utilizing 4 timing plans based on AM peak, Mid-day, PM Peak, and nights and weekend traffic patterns.
- Each local controller can also maintain multiple special event schedules that can be called by time, date, and year.
- The District system is capable of programming cycles up to 240 seconds and maintains one 240 plan for emergency evacuation along regionally based published evacuation routes.
- The District system also maintains plans specific to Nationals Park events.
- The system maintains traffic signals which operate under both interval and NEMA phase based controls. Majority of the traffic signals in the District operate under interval based pre-timed control.
- The District also operates one H.A.W.K. signal at Georgia Avenue and Hemlock NW.

Citywide Traffic Signal Optimization Services

- The District operates several corridors with reversible lanes, based on AM and PM peak patterns, including manually operated movable barriers on the Roosevelt bridge.
- The District also maintains a flexible time based, local lane control firmware, primarily used during roadway, and bridge construction projects.

This project will be developed utilizing the Department's policies and procedures, and Federal Highway Administration's (FHWA) guidelines.

TASKS

- 1.0** Develop a list of smaller networks from the larger network of 1600 plus traffic signals so that the smaller networks would be suitable for phased implementations. Review the existing signal system and available in-house data to develop a data collection plan and also the timing implementation plan for each phases.
- 2.1** Data collection including, but not limited to: (1) Turning movement counts including pedestrian activity for AM, Midday, PM, Off-peak and Weekend. Counts will be collected when schools are in session with weekday counts to be performed between Tuesdays and Thursdays. Weekday counts include 3-hour AM peak, 2-hour mid-day peak, and 4.5-hour PM peak counts. Weekend counts will primarily include 5-hour counts during Saturday peak hours. Turning movement and tube counts at select locations may also be performed on Sundays. (2) Signal data – Consultant should collect signal data such as phase/interval timings, co-ordination data, and phasing/TS diagrams. (3) Geometric data – to include width of pedestrian crosswalks, intersection width, land use, lane configurations, link distances between intersections, storage lengths for exclusive turning lanes, lane drops, speed limits, approach grades, parking conditions, bus-stops, etc. Collection of transit volume data traveling through the District traffic signals including frequencies and dwell times will be requested for select corridors.

Intersection sketches or condition diagrams must be provided based on the existing conditions. Legible hand-drawn sketches will be acceptable. Counts will be provided to DDOT in both hard copy and electronic formats.
- 2.2** Before implementation travel time data for AM/PM peak periods but not limited to these periods. For certain corridors, transit travel times will be requested.
- 3.1** Evaluation of pedestrian clearance intervals for all signals, based on the District and new MUTCD standards. Evaluation of vehicular Clearance (Yellow and All Red) intervals for all signals based on the District and ITE standards. Work will also include conversion of existing FW intervals to steady WALK intervals at locations where FW intervals are still active. Modification of any such signal phases including adding a new clearance interval under the interval-based control will require the contractor to furnish a revised TS drawing and corresponding configuration package.
- 3.2** Conversion of simple two-phase four-legged intersections from interval based operation to NEMA phase-based control. This will require a revision to the TS drawing and development of a corresponding configuration package.

Citywide Traffic Signal Optimization Services

- 4.0** Assist District in establishment of warrants for leading pedestrian intervals (LPI).
- 5.0** Create volume balance worksheets based on the new volumes (AM, Mid-day, PM, Evening Off-Peak, and Weekend).
- 6.0** Network set up and coding of existing conditions in Synchro using District roadway layer as the background. DDOT's existing Synchro files can be used for this purpose but these files must be updated to reflect existing conditions.
- 7.0** Signal Timing Plan Development and Optimization, including but not limited to, the development of signal timing plans and the evaluation of the results using Synchro and SimTraffic. Cycle lengths should be adequate to accommodate all pedestrian activities. The plans must be supported by vehicular traffic progression (time-space diagram). For time-based coordination (TBC), different timing plans will be developed for AM peak, PM peak, Mid-day, Evening off-peak/Late Night, and weekends.
- 8.0** Development of Dial sheets using the District format and TS Drawings/configuration packages as specified in **3.1** and **3.2**. The District will provide Consultant with template for timing sheets. Assist District staff in implementing new co-ordination timing plans along with updated vehicular and pedestrian clearances. The contractor must have prior experience in working with the QuicNet system and also developing configuration packages. The contractor must be capable of making the necessary changes in the signal cabinet to modify a signal phasing as part of the implementation effort.

DDOT will provide the complete list of locations which would require modification to the TS drawings, development of the configuration packages, and field implementation of the new intervals/phasings requiring cabinet level work.
- 9.0** Field adjustments (fine-tuning) and corresponding Synchro/timing sheets updates during the implementation phase.
- 10.0** Conduct after implementation travel time runs with time periods to match with before implementation data collection.
- 11.0** Evaluation of signal timing improvements and changes in the Measure of Effectiveness (MOEs) based on both travel time runs and the software generated output.
- 12.0** Development of evacuation and emergency timing plans on select corridors. Development of special timing plans such as planned events on the mall, Nationals stadium events may be requested.
- 13.0** Submission of five hard copies (with companion soft copy) of the final project report by compiling vital information from all the tasks above. All electronic files used to develop the optimized timing plans are to be submitted to DDOT. Training of District staff in the maintenance of Synchro/SimTraffic files developed as part of this project.

STAFFING

It is anticipated that these services may require one project manager and a minimum of six and a

Citywide Traffic Signal Optimization Services

maximum of twenty additional engineers (senior engineers, engineers, junior engineers, and engineering technicians). Consultant shall provide to DDOT the resumes and qualifications of all personnel assigned to work on specified tasks prior to providing services on this contract. The number of engineers to be furnished may be reduced by DDOT at any time during the duration of the contract. For certain tasks, the contract personnel may need to work from a DDOT facility.