



## REQUEST FOR PROPOSAL

**City of Dublin, Ohio**  
**Department of Public Works - Division of Engineering**  
**Quantifying Vehicle Performance in Complex Network with Mixture of**  
**Signals and Roundabouts Leveraging Connected Vehicle Technologies**

### EXECUTIVE SUMMARY

The City of Dublin is issuing this Request for Proposal to develop a pilot program that will automate data collection to quantify vehicle performance in a complex roadway network with a mixture of traffic signals and a multi-lane roundabout using Connected Vehicle principals and devices, such as Dedicated Short Range Communications (DSRC) and Roadside Unit (RSU), or similar device that meets or exceeds current USDOT specifications. The purpose of the proposed system is to collect driving information of circulating vehicles in the roundabout such as, but not limited to, location, speed, critical headway, etc. and ultimately help approaching vehicles decide whether to enter the roundabout, if equipped with appropriate on-board equipment, on the basis of calculated gap acceptance and integrate this information with data collected at the adjacent signalized intersections in the program roadway network.

As such, the City is currently in the process of procuring the professional services of a consulting firm to design and execute a pilot program that will collect driving information of vehicles near or in the multilane roundabout and determine how the information collected from the roundabout relates to and integrates with vehicles at the nearby signalized intersections. The City of Dublin is hereby requesting a PROPOSAL from selected, multi-disciplined, professional engineering consulting firms. The majority of the professionals involved with the project must be located in Central Ohio. The selected firm will provide the professional technical services for this project in accordance with the attached Project Description and Scope of Services.

Dublin is a leader in smart city initiatives and recognizes the opportunity to bring together the already developing smart technology for traffic signals with the still developing smart technology for roundabouts to automatically collect data and report pertinent performance data and ultimately communicate with vehicles in a corridor with a variety of traffic controls. The purpose of this pilot project is multi-fold and includes:

1. Highlighting Dublin's commitment to be a leader in emerging transportation and information technologies.
2. Using smart city technologies and initiatives to set a foundation to improve safety, mobility, and sustainability in the identified roadway network.
3. Advancing the City's economic development competitiveness by decreasing congestion, maximizing energy efficiency, reducing crashes, enhancing public security, and allocating resources based on real time data.
4. Being the example to other communities how to implement smart city technologies and how to get meaningful output.

## 1.0 PROJECT DESCRIPTION

The pilot project roadway network includes the SR 161 corridor from the Bridge Street/High Street intersection to the SR 161/Dale Drive intersection and the Riverside Drive corridor from the SR 161/Riverside Drive intersection to the Emerald Parkway intersection. The City has, or is currently working to complete, fiber along the SR 161 and Riverside Drive corridor. Ethernet capabilities are in place at the signalized intersections. The City does not currently have any cameras installed in either corridor.



Figure 1: Pilot Project Study Area

- 1.1** The Consultant will identify which performance measures are best to report at the SR 161/Riverside Drive roundabout and adjacent traffic signals to fulfill the pilot project purpose. Benchmarking with other communities around the country will be necessary to determine what work, if any, has been done to integrate roundabouts and traffic signals with smart technologies.
- 1.2** The Consultant will likely need to design, develop, analyze, and extrapolate data to report on identified performance measures. Any applications or analytics developed by the Consultant shall be open source and remain the property of the City upon completion of the project.
- 1.3** Once the City agrees with which performance measures are needed, the consultant shall determine what types of data and how data must be collected at the roundabout and adjacent traffic signals to calculate the needed performance measures and how to combine that output to create meaningful results. The Consultant shall also assist the City to determine where and for how long data should be stored.
- 1.4** The Consultant shall research and provide a listing and description of possible devices that have the proper capability to collect the needed data that could be deployed in the pilot program. It is the City's expectation that a comparison of the possible devices for consideration, including pros and cons, types of data collection possible, sample output, and costs of each type of device, and overall program cost shall be provided by the Consultant. Product demonstrations may be needed to show the product or system effectiveness. The Consultant shall make a recommendation which device or devices should be deployed in the pilot project with cost implications, if any. The Consultant shall meet with City staff to discuss the options and recommendations.
- 1.5** Once the City agrees with the devices to be deployed in the field and any associated costs, the Consultant shall develop a plan regarding where and how the devices shall be deployed in the field. Infrastructure needs, such as power requirements, communications and back haul requirements, must be detailed for each location to ensure needed elements are in place or can be put in place prior to deployment. All existing communications already established in the field must be maintained during the pilot program. Survey work to be included as consultant deems appropriate. Provide description of consultant's rationale for surveying work in Proposal. Additional right-of-way is not anticipated to be required for this project. Any maintenance of traffic needed to deploy the pilot project must be included in the pilot project plan. The Consultant shall meet with City staff to discuss the infrastructure needs for the pilot program.
- 1.6** After the pilot project plan is developed, the Consultant shall deploy the selected devices and conduct the pilot project to collect all data as identified by the project materials. After an appropriate amount of time, as agreed to by the Consultant and the City, the Consultant shall compile the data and aggregate the performance measures into meaningful output and draw conclusions. This task will have a direct impact to the project schedule, and

the Consultant will need to present a project schedule reflective of their response to this task.

- 1.7** The Consultant shall develop a dashboard solution to display output and results of analysis. The City of Dublin shall retain ownership of final device configurations deployed during the pilot program. Furthermore, the City shall retain ownership of all data collected, design of and all analysis performed and all final performance reports, including the dashboard solution at no additional cost to Dublin. The Consultant shall provide a training session for City staff.
- 1.8** It is also expected that the output of the data will integrate with the City's traffic signal timing management software, TACTICS to optimize traffic operations and ultimately, to identify how to provide data back to connected vehicles equipped with the appropriate on-board equipment.
- 1.9** The consultant shall develop a methodology to measure the progress and success of the pilot project. The Consultant shall make recommendations regarding a project expansion, including phases to other areas of the City, potential improvements, other needed studies, and next steps. The Consultant shall meet with City staff to discuss recommendations.
- 1.10** Interim reports documenting each stage of the project shall be prepared by the Consultant. A final report, including an Executive Summary, shall also be provided by the consultant to formally document all stages of the project and its outcomes and conclusions.
- 1.11** Status updates: The Consultant will provide written project updates on a weekly basis via e-mail.

## **2.0 DELIVERABLES**

- 2.1** The consultant shall prepare plans for the pilot project deployment, including title sheet, a general summary of quantities, maintenance of traffic plan notes, and any other information needed or miscellaneous design details.
  - A 50% complete plan will be submitted to City staff one week prior to a review meeting.
  - A 90% complete plan, including a title sheet, a general summary of quantities, maintenance of traffic plan notes, and any other miscellaneous design details, will be submitted to City staff for review prior to final submittal. All project documentation will be provided in hard copy and electronic (PDF) format. Milestone date to be presented in the proposal by the consultant.
  - The final plans will be prepared and delivered to the City along with one set of electronic files on compact disc in both Auto Desk's AutoCAD Release 2008 to 2018 DWG format and PDF format to the City for record purposes. Also, provide one half-sized set of paper originals for reproduction purposes, due within at the target dates outlined in the proposal schedule.
- 2.2** The Consultant will coordinate with private utility companies as required.

- 2.3 The Consultant will deploy data collection devices and provide a user interface for reporting results.
- 2.4 In addition to the plans required above, as described in 1.10 above, interim reports documenting each stage of the project shall be prepared by the Consultant. A final report, including an Executive Summary, shall also be provided by the consultant to formally document all stages of the project and its outcomes and conclusions.
- 2.5 The Consultant will provide written project updates on a weekly basis via e-mail to the project manager.

### **3.0 TIME OF COMPLETION**

- 3.1 The Consultant affirms that time is of the essence regarding the execution of this project and furthermore accepts the City's commitment to completion listed in Section 4. Therefore, the Consultant commits to work with the City to perform their professional services expeditiously.
- 3.2 Failure of the Consultant to comply with the above-established deadline will jeopardize consideration of the Consultant for providing professional engineering services on future City projects and may be used as cause to reject future proposals submitted by the Consultant to the City.

### **4.0 PROPOSAL CONTENT**

Evaluation of the Proposals and ultimate selection of the consultant shall be based on the following criteria:

#### **4.1 Firm and Individual Qualifications**

- The competence of the firm to perform the required services as indicated by its background and experience on similar projects. Consultant should list and describe no more than five (5) projects that best demonstrate their experience on similar projects and additionally provide the Estimated Construction Cost and the Final Construction Cost of each project.
- Technical qualification, training, education, and experience of the offeror's principals and key technical personnel who would be assigned to perform the work. Resumes shall only be included in the Proposal for those individuals who will actually be involved in the project and assisting in the performance of the work. No other resumes shall be included.
- Name and experience of principal responsible for the work.
- Name and experience of project engineer who would be responsible for managing the project for the Consultant and would be the primary contact with the City during the progress of the work.
- Name and experience of engineers and/or technicians who would be assisting in the performance of the work.
- Name and experience of key personnel from all sub-consultants who would be assisting in the design and completion of this project.

#### **4.2 Capacity to Perform the Work**

- Consultant's statement of understanding of and approach to the Scope of Services and other requirements relating to performance of their work. The project understanding and approach needs to cover all elements through final design.
- The capacity of the firm to perform the required services competently and expeditiously to meet proposed schedules as indicated by the firm's size and availability of necessary personnel, sub-consultant(s) availability, current workload, and equipment and facilities.

#### **4.3 Schedule and Time of Completion**

- The demonstrated commitment of the firm to perform the work expeditiously and without delay.
- The Consultant shall present a schedule and date of completion in the proposal, with detailed tasks and milestones. The schedule must reflect the City's desire to complete this project as efficiently as possible. Failure to submit a detailed schedule may cause the City to reject the Proposal for this project.
- The ability of the firm to meet the Time of Completion as presented in the proposal schedule.

#### **4.4 Compensation**

- All professional services will be provided on a cost plus fixed fee basis. Fees for additional items, as requested and authorized, will be established separately. The proposed fee will be based on completing all tasks, including deploying the pilot project, dashboard, and final report for completion of the project, on-time or in advance of the Consultant's proposed schedule. Failure to submit a fee proposal may cause the City to reject the Proposal for this project.

#### **4.5 References**

- Quality, responsiveness, timeliness, and cost of work previously performed and completed for the City or other DOTs, counties, or municipalities.
- Completeness of thoroughness of work performed. Accuracy of previous estimates of professional fees and estimated construction costs relative to final construction costs.
- Capabilities of key technical personnel who were assigned to perform and complete the work.
- Capabilities of key technical personnel from all sub-consultants who were assigned to perform and complete the work.
- The ability of the consulting firm to meet schedules and deadlines.
- The ability of the consulting firm to control costs and meets budgets.
- Overall communication and cooperation of the consulting firm and its principals and key technical personnel with the client.



## 5.0 PROPOSAL REQUIREMENTS

- 5.1 Responding firms shall include in their Proposals all the information that is requested in Section 4, Proposal Content. Firms are encouraged to provide any additional information they feel will further demonstrate the firm's qualifications and abilities to acceptably complete this project but are hereby instructed to limit such additional information to that which is directly relevant to the services being requested.
- 5.2 The Proposal shall not exceed twenty (20) pages. Any superfluous information included not relevant to the services being requested only lengthens the review of a Proposal and could certainly detract from the true merits of the Proposal. Four (4) copies shall be submitted.
- 5.3 Electronic submissions will be required. The submission must be compatible with Adobe Acrobat, in a single file, and be formatted to print on standard office paper sizes. No pages shall be larger than 11x17. Fax submissions will not be accepted.
- 5.4 All material submitted in accordance with this RFP becomes property of the City and will not be returned.

If you have any questions regarding this RFP, please contact the **City's Project Manager, Jean-Ellen M. Willis, P.E.**, (614) 410-4633; [jwillis@dublin.oh.us](mailto:jwillis@dublin.oh.us). Any other contact with City personnel related to this RFP, prior to the formal selection of the consultant, is expressly prohibited without the consent of the City's Project Manager.

The Proposal should be submitted to the following address no later than **4:00 PM on July 27, 2018**. Proposals received after this deadline will NOT be considered.

Consultants should submit their Proposal to:

Jean-Ellen M. Willis, P.E.  
City of Dublin, Ohio  
Division of Engineering  
6555 Shier Rings Road  
Dublin, OH 43016

Or

[jwillis@dublin.oh.us](mailto:jwillis@dublin.oh.us)