Request for Proposal

Investigation of Pavement Maintenance Support
Applications of IntelliDrive<sup>SM</sup>

December 4, 2009

Issued by
Procurement Services
Charlottesville, Virginia

A VASCUPP Member Institution
I. GENERAL INFORMATION

Request for Proposal (RFP) Name: Investigation of Pavement Maintenance Support Applications of IntelliDrive℠

RFP Number: MW120409B

Issue Date: December 4, 2009

Preproposal Questions: Any questions or necessary additional information concerning this RFP must be sent to the buyer listed below no later than 3:00 p.m. EST on Wednesday, December 16, 2009 in order to guarantee a timely response prior to the proposal due date.

Proposal Due Date: 3:00 p.m. EST on Friday, January 8, 2010. Proposals must be sent to the buyer via email (Word document preferred) using the contact information in the box below. The University of Virginia (the “University”) reserves the right to reject proposals received after the stated due date and time.

Expected Award Date: Wednesday, February 3, 2010

Term of Agreement: The term of a resulting Agreement is expected to be for twelve months.

REFER ALL QUESTIONS TO THE ISSUING OFFICE:

UNIVERSITY OF VIRGINIA
Department of Procurement Services
Attention: Michael Warlick
Phone: 434-924-8918
Fax: 434-982-2690
Email: warlick@virginia.edu

NOTE: During the RFP process, all communication must be directed to the buyer listed above, with the exception of issues directly related to SWAM business and SWAM subcontracting opportunities. Such SWAM issues may be alternately directed to Bill Cooper, the University’s Director of Supplier Diversity, at (434) 924-7174 or SWAM@virginia.edu. Any failure to adhere to this requirement may result in the rejection of the firm’s proposal or cancellation of the RFP.
This Request for Proposal (RFP) has been posted on Procurement Services web site for your convenience. Addenda and attachments are posted if issued. The RFP can be downloaded at this web site: http://www.procurement.virginia.edu/pagerfp. It is the firm’s responsibility to ensure that the latest version of the entire RFP and related links are reviewed prior to submission of a proposal. We encourage you to check the web site frequently for any changes prior to the due date. Call (434) 924-1346 if you have trouble accessing the RFP from the web. For questions about the content of the RFP, contact the buyer listed above. Additional information can be found on Procurement Services web site: http://www.procurement.virginia.edu.

For ease of reference, each firm or individual receiving this RFP is referred to as a “firm” and the firm or individual selected to provide services for the University is referred to as the “Selected Firm”. This RFP states the instructions for submitting proposals and the procedure and criteria by which a firm may be selected.

II. BACKGROUND INFORMATION

IntelliDriveSM Pooled Fund Study
The project detailed in this RFP is intended to develop and evaluate IntelliDriveSM pavement maintenance support applications, one of the infrastructure-oriented IntelliDriveSM applications as part of the Pooled Fund Study entitled “Program to Support the Development and Deployment of Infrastructure IntelliDriveSM Applications.” This pooled fund study was created by a group of state transportation agencies and the Federal Highway Administration (FHWA), with the Virginia Department of Transportation (VDOT) serving as the lead agency. The University of Virginia Center for Transportation Studies is supporting VDOT on the pooled fund study, serving as the technical and administrative lead for the effort. For more information about IntelliDrive, please see http://www.intellidriveusa.org/. For more information about the pooled fund study, please see http://www.pooledfund.org/projectdetails.asp?id=431&status=4.

The objectives of the pooled fund study are:
• To support states in preparing for the deployment of IntelliDriveSM infrastructure, and
• To provide support for the IntelliDriveSM Deployment Planning being led by the American Association of State Highway and Transportation Officials (AASHTO).

As such, the focus of this program is on prototyping and testing practical infrastructure oriented applications that are readily deployable, rather than developing theoretical applications. Supporting deployment is the central focus of the entire program. Of particular importance is the estimation of benefits that the applications will provide.
Background

Maintenance of pavements represents one of the most important (and costly) functions of a transportation agency. To do so, transportation agencies must regularly measure/rate the quality of its pavements. Currently, this involves "manual" visual inspection and, in some cases, use of a specialized vehicle with ultrasonic and video sensors to measure rutting and other pavement distress. In current practice, pavement assessment is conducted only periodically due to the limited availability of specialized equipment and the high cost.

The international roughness index (IRI) is a standardized pavement roughness measurement that was developed in the 1980s. It used to define a characteristic of the longitudinal profile of a traveled wheel track. The IRI is based on the average rectified slope (ARS), which is a filtered ratio of a standard vehicle's accumulated suspension motion (in mm, inches, etc.) divided by the distance traveled by the vehicle during the measurement (km, mi, etc.). IRI is usually calculated from longitudinal profile measurements obtained during pavement profiling surveys using specialized equipment. Another important measurement needed for pavement maintenance is detecting and locating (mapping) potholes. It is expected that, using IntelliDriveSM probe vehicles, pavement condition may be assessed with greater coverage in a timelier manner.

III. SCOPE OF SERVICES

The University seeks a qualified organization (the “Selected Firm”) to investigate pavement maintenance support applications of IntelliDriveSM (the “Services”).

A. Goal and Objectives

The goal of this project is to investigate if vehicular data available from IntelliDriveSM can be used to measure pavement conditions.

More specifically this project will look to see if IntelliDriveSM data from various vehicle sensors such as accelerometers can be used:

- To develop estimates of the International Roughness Index (IRI),
- To detect and map potholes, and
- To understand and document specific risks, constraints and opportunities in a large-scale deployment of the proposed system

B. Tasks

The tasks proposed to accomplish the project goals are:
1. Examination of available data from IntelliDrive SM probe vehicles
   • This task examines various data types from vehicle sensors under IntelliDrive SM in relation to assessing pavement conditions. Interested sensors include, but are not limited to, Accelerometers, Anti-lock Breaking System, Traction Control System, and other vehicle sensors. Also, interested data include, but are not limited to, XYZ coordinates, vehicle speeds, acceleration/deceleration, and other data from the sensors.

2. Development of methodologies
   • In this task, based on the analysis results of available IntelliDrive SM probe data, methodologies 1) to develop estimates of the International Roughness Index (IRI) and 2) to determine the presence, severity and location of potholes shall be developed.

3. Preparation of prototype testing environment
   • The research team will secure IntelliDrive SM equipped vehicles and related roadside infrastructure to allow for limited prototyping and testing of the pavement maintenance application.

4. Probe data collection
   • IntelliDrive SM equipped vehicle data shall be collected in this task. Note here that, since the major focus of the project is to assess “static” conditions of the pavement, rather than real-time dynamic conditions, data collection and analysis may be conducted off-line.

5. Evaluation of the proposed methodology
   • In this task, based on the ground truth data derived from conventional methods (such as IRI measures from pavement assessment vans), performance of the proposed methodology shall be evaluated.

6. Documentation of the complete system for IntelliDrive SM
   • Based on the evaluation results, a complete system design that is deployable under an IntelliDrive SM environment shall be provided. Critical contents include, but are not limited to, concept of operations, system requirements, and recommended system design documentation.
7. Deployment analysis:
   - This task shall analyze specific risks, constraints and opportunities in a large-scale deployment of the proposed system. Cost-benefit analysis will also be included.

C. Project Coordination

Michigan Department of Transportation (MDOT) is currently initiating a project (Slippery Road Detection and Evaluation) to focus on the use of IntelliDrive\textsuperscript{SM} for assessing pavement conditions primarily during winter conditions. In order to take advantage of the synergy between the efforts, this project is to be conducted in coordination with the MDOT project.

IV. CONTENTS OF THE PROPOSAL

Proposals are to provide a concise description of the organization’s research plan and capabilities to satisfy the requirements of the RFP. Emphasis will be on completeness and clarity of content. The proposal should be kept to 20 pages or less not including a title page and qualifications of project participants. Firms will provide the following information:

A. A detailed description and the full plan to accomplish the Services proposed.

B. A brief history of the firm and its experience, qualifications and success in providing the type of service requested.

C. The firm’s proposed price / fee for providing the Services.

D. The firm’s Small, Woman-owned and Minority-owned (SWAM) businesses status and/or how the firm intends to utilize SWAM firms in regards to this particular procurement.

NOTE: Virginia Freedom of Information Act

Except as provided below, once an award is announced, all proposals submitted in response to this RFP will be open to the inspection of any citizen, or any interested person, firm or corporation, in accordance with the Virginia Freedom of Information Act. Trade secrets or proprietary information submitted by a firm as part of its proposal will not be subject to public disclosure under the Virginia Freedom of Information Act; however, the firm must invoke the protections of this section prior to or upon submission of its proposal, and must identify the specific data or other materials to be protected and state the reasons why protection is necessary. A firm may not request
that its entire proposal be treated as a trade secret or proprietary information; nor may a firm request that its pricing be treated as a trade secret or proprietary information, or otherwise be deemed confidential.

V. BASIS OF SELECTION

Proposals will be evaluated based upon the overall merits/value of the proposal including, but not limited to, price. The University, with the assistance of Pooled Fund Study members, will evaluate proposals, and if a firm is to be selected, select the firm on the basis of:

A. The firm’s technical plan to provide the University with the products as described in the Scope of Services section;

B. The firm’s experience in providing Services similar to those described in this RFP;

C. The firm’s price/fee for providing the Services; and

D. The firm’s Small, Woman-owned and Minority-owned (SWAM) businesses status and/or the firm’s plan for utilization of SWAM businesses. For more information about SWAM and the University’s SWAM plan, please see the letter at Attachment 1 and refer to the following site: www.procurement.virginia.edu/main/publicpostings/rfp/SWAMplan.pdf.

Note 1: A 10% minimum weight will be given to this criterion in evaluating proposals.

Note 2: Any questions related to SWAM business and SWAM subcontracting opportunities can be directed to Bill Cooper, the University’s Director of Supplier Diversity, at (434) 924-7174 or SWAM@virginia.edu.

VI. TERMS AND CONDITIONS

This solicitation and any subsequent award are subject to:

A. The Selected Firm registering as a vendor with the University of Virginia: https://www.procurement.virginia.edu/forms/USVendorRegForm.html

B. The Selected Firm registering and accepting eVA Terms and Conditions prior to award: http://www.eva.virginia.gov/
C. The University’s Mandatory Contractual Provisions:

D. The University’s Preferred Contractual Provisions:

**Note:** Unless a firm expressly and specifically states its exception to any of the Preferred Provisions in its written proposal, then the proposal from the firm will automatically be deemed to include those Provisions.

E. The University's Procedure for Resolution of Contractual Claims:
Greetings:

The quality of service the University of Virginia is able to deliver to its customers is directly related to the excellent support we receive from you and many other outstanding suppliers of goods and services. Without you, we would not be able to fulfill our educational, health care and research missions. An important part of our procurement program involves our commitment to doing business with small, women-and minority-owned (SWAM) businesses. As one of our most important vendors, we look to you to help us achieve this objective.

We conduct substantial business with small firms. We have been less effective in securing long-term business relationships with minority-and women-owned businesses. We are determined to improve our record.

I seek your assistance in two areas. First, to the extent practical, I ask that you involve small, women-and minority-owned businesses in the delivery of services you provide to UVa. Second, I seek your help in reporting your results through our quarterly subcontracting reports. The terms and conditions previously provided to your organization outlined this process.

This effort is important to us. We depend on you in so many ways – this is another way that we can partner with your company to make things better.

Sincerely,

Leonard W. Sandridge
Executive Vice President and Chief Operating Officer

LWS:dr

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