REQUEST FOR PROPOSAL

The Michigan Department of Transportation is seeking professional services for the project contained in the attached Research Problem Statement.

The prime consultant/vendor is responsible for the successful completion of the service and is expected to perform at least 40 percent of the services, by dollar value, not including direct costs required on the service, unless otherwise specified in the RFP.

If your organization is interested in providing services, please indicate your interest by submitting a proposal following the research guidelines near the top of MDOT's Request for Proposals Web page at http://www.michigan.gov/mdot/0,1607,7-151-9625_32842---,00.html.

RFP SPECIFIC INFORMATION

Problem Title: Monitoring Highway Assets with Remote Technology
ORBP Number: OR10-030

This is Best Value Selection which means the budget amount submitted with the proposal is a component of the proposal score, not the determining factor of the selection.

PROPOSAL SUBMITTAL INFORMATION

REQUIRED NUMBER OF COPIES FOR PROJECT MANAGER	PROPOSAL DUE DATE	TIME DUE
8	**2/25/2011**	**5:00 PM, EST**

PROPOSAL AND BID SHEET MAILING ADDRESSES

Mail the multiple proposal package to:

☒ Michael Townley, P.E.

First Class Mailing Address
Michigan Department of Transportation
Office of Research and Best Practices
P.O. Box 30050
Lansing, Michigan 48909

OR

Overnight/Express Services Address
Michigan Department of Transportation
Office of Research and Best Practices
425 West Ottawa
Lansing, Michigan 48933

Mail one additional copy of the proposal to the Contracting Office indicated below:

☒ First Class Mail:
ORBP Contract Administrator
Contract Services Division
Michigan Department of Transportation
P.O. Box 30050
Lansing, Michigan 48909

OR

Lansing Overnight Mail:
ORBP Contract Administrator
Contract Services Division
Michigan Department of Transportation
425 West Ottawa
Lansing, Michigan 48933

BUDGET

☐ Tier I ($25,000 - $99,999)

☒ Tier II ($100,000 - $250,000)

☐ Tier III (>$250,000)

GENERAL INFORMATION

Any questions relative to the Research Problem Statement must be submitted by e-mail to: mdot-research@michigan.gov. Questions must be received by **February 18, 2011 at 5:00 p.m. EST.** All questions and answers will be placed on the MDOT RFP Web site as soon as possible after receipt of the questions and at least three (3) days prior to the due date listed above. The names of organizations submitting questions will not be disclosed.

The prime contractor must be a Michigan university. An organization located outside of Michigan may be included in the research team, but cannot be the primary contractor. A consultant located in Michigan may be included in the research team, but cannot be the primary contractor. MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to participate as a subcontractor. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal.

MDOT AND ORBP FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION:

5100D – Request for Proposal Cover Sheet
5100G – Certification of Key Personnel
5100I – Conflict of Interest Statement
ORBP Research Proposal Budget Form Worksheet
ORBP Schedule of Research Activities Form
ORBP Deliverables Table
ORBP Implementation Project Recommendation Form

Michigan Department
Of Transportation
5308-10 (07/10)

OFFICE OF RESEARCH & BEST PRACTICES
MDOT RESEARCH PROGRAM
2011 PROBLEM STATEMENT

PROBLEM TITLE
Monitoring Highway Assets with Remote Technology

ORBP NO.	STRATEGIC PRIORITY NO.	CRITICAL ISSUE CODE	MDOT PROJECT CATEGORY
OR10-030	9		Delivery & Maintenance

PROBLEM TO ADDRESS

BRIEFLY DESCRIBE THE PROBLEM TO BE ADDRESSED AND WHY IT IS AN ISSUE FOR MDOT
MDOT is experiencing a decline in human resources available for monitoring many of the thirty roadway hardware/assets such as signs and barriers. MDOT would like to move to a more technology based monitoring system that will be less dependent on staff size, more timely, responsive and less costly. The investigation would be the initial phase of a project that would identify remote sensing technology and processes that would enable MDOT to better monitor the quantity and quality of hardware/assets.

RESEARCH OBJECTIVES AND TASKS

LIST THE RESEARCH OBJECTIVE(S) TO BE ACCOMPLISHED

1. Reduce MDOT reliance on field staff to monitor roadway hardware/asset data.
2. Develop a uniform methodology ensuring all data significant to maintenance operations and budgets are considered.
3. Prioritize categories for collection based on budgeting and maintenance needs.
4. Identify tools and establish processes for collecting, storing, analyzing, sharing and updating roadway hardware data.

LIST THE MAJOR TASKS TO ACCOMPLISH THE RESEARCH OBJECTIVES:	ESTIMATED PERSON HOURS
1. Develop and document the feasibility and efficiency of remotely collecting highway hardware data. Develop and compare the typical costs per mile for physically and automatically gathering, format, storing and distributing data to Regions and Transportation Services Center offices.	180 hrs.
2. Develop roadway hardware/asset categories based on the ability to obtain reliable data for business requirements.	140 hrs.
3. Test technology, methodology and tools for collecting three out of the thirty roadway hardware/assets currently managed by MDOT. Hardware/assets will consist of inventory and associated condition data. Employ a pilot project to demonstrate procedures for collecting retro-reflectivity and other sign attributes data, and or barrier and/or lane mile attributes and integrating with existing in-house geographical application software and GIS databases. MDOT may consider a hardware/asset substitution at our discretion.	3 categories @ 210 hrs./category
4. Determine the most efficient data storage and distribution technologies allowing for data and software to reside on either a service provider or State Of Michigan IT network. The proposed technology will facilitate access by Regions and Transportation Services Center offices.	250 hrs.
5. Prepare a final research report document that includes a summary of research results, deliverables and recommendations. Deliverable will consist of an implementation plan, training materials and a presentation to stakeholders.	280 hrs.
6. Total estimated Hours	1,480 hrs.

ESTIMATED COST AND TIMELINE

ESTIMATE THE COST OF THIS RESEARCH STUDY (Please provide a cost range [min. and max.] associated with the person hours by task above)
Tier II ($100,000 - $250,000)

PROVIDE A PROPOSED TIMELINE FOR THE PROJECT (At minimum, the expected duration of the project)
10/1/2011 to 5/31/2013

REQUIRED COMPLETION DATE (At minimum, the date by which results are needed to be applicable)
5/31/2013

BUDGET INFORMATION

(For each FY, list suggested minimum and maximum budgets as targets. Indirect Cost Rate is for ORBP use only.)

TOTAL BUDGET (BY FY)	FY1	FY2	FY3	FY4	INDIRECT COST RATE

DELIVERABLES

WHAT DELIVERABLES SHOULD BE RECEIVED AT THE END OF THIS PROJECT? (e.g., usable technical product, design method, techniques, training, workshops, report, manual of practice, policy, procedure, specification, standard, software, hardware, equipment, training tools, etc.)

1. A report documenting the feasibility of remotely collecting all roadway hardware/assets MDOT currently manages. This will include a matrix categorizing and prioritizing hardware/assets most important to MDOT's maintenance and budget related activities. A second matrix will show whether hardware/assets can be capture data, inventory and condition, with technology.
2. Cost comparison between physical and automated collection methods.

3. Identify existing technologies hardware\software, data storage and data distribution methods that will allow information between Lansing Regions and Transportation Centers.
4. Listing of off-the-shelf hardware and software for the collection and sharing processes.
5. Develop training manuals/classes for MDOT staff.
6. Develop presentation for stakeholders.

MDOT INVOLVEMENT (What will MDOT provide for this project and when)
MDOT will assist researchers with a list for roadway hardware/assets and data, organizational structure and contacts for the Lansing area, Regions, TSC as necessary. Additionally MDOT will provide assistance with the Department of Technology Management Budget staff.

URGENCY, PAYOFF POTENTIAL AND IMPLEMENTATION

HOW URGENT IS THIS RESEARCH? IS IT IMPORTANT THAT IT BE DONE SOON? IF SO, WHY?
The priority has been identified by MDOT as a long-term need, greater than five years in the future. However, starting the assessment sooner (2011) would enable MDOT to more effectively plan for implementing a remote sensing-based system, if the technology proves technically capable. The new rule of the Manual on Uniform Traffic Control Devices (2009 MUTCD) requires states to adopt the rule within two years, including on retro-reflectivity requirements. Assessing the potential remote sensing to meet these upcoming requirements raises the urgency of this project. A two-year project, completed by 2013, would provide that assessment in a timely manner.

DESCRIBE HOW THE PROPOSED RESULTS OF THIS PROJECT CAN BE IMPLEMENTED AT MDOT
Implementation would involve a centrally located group administering a contract for collecting actual highway hardware data. Using routing, maintenance activities and budgeting concerns regions would establish collection priorities for roadway asset categories. Regions would use automation tools and their staff to access the condition of roadway hardware in their area of responsibility.

DESCRIBE HOW MDOT WILL BENEFIT FROM THE IMPLEMENTATION OF THIS PROJECT AND WHO THE BENEFICIARIES WILL BE. INCLUDE A DISCUSSION OF HOW MDOT DIVISIONS, OTHER THAN THAT OF THE PROBLEM SUBMITTER, WILL BENEFIT AND HOW.
Under existing operational and budget constraints regions are striving to provide the same levels of service with limited resources. This project would reduce the exposure of survey staff to working in hazardous conditions and shorten the amount of time required to collect, distribute, analyze data and respond to immediate system needs.

POTENTIAL OBSTACLES

WHAT RISKS OR OBSTACLES MAY MAKE CARRYING OUT THIS PROJECT DIFFICULT? WHAT STRATEGIES WILL YOU USE TO OVERCOME THEM?
Remote data collection technology may not be appropriate for inventory and condition assessment for all roadway hardware. Therefore, each asset category must be evaluated to determine if there is a positive benefit for employing remote sensing technology for a given category or item. MDOT does not have baseline conditions for all roadway hardware items in the inventory. Therefore, the initial survey may require boots on the ground to populate a database created using remote sensing procedures.

POSSIBLE INVESTIGATOR(S)

DESIRED QUALIFICATIONS IN AN INVESTIGATOR
Experience working with highway hardware data collection, Information Technology, highway maintenance activities, Global Positioning System, Geographic Information Systems, aerial and ground based data collection systems, statistical techiques and department\government decision makers.