

## CHECKLIST TO DESIGNATE AREAS OF EVALUATION FOR REQUESTS FOR PROPOSAL (RFP)

Research Administration Use Only

	REQUISITION NUMBER 1949	DUE DATE 4/4/2016	TIME DUE Noon est
MDOT PROJECT MANAGER <b>Rich Kathrens</b>	JOB NUMBER (JN)		CONTROL SECTION (CS)
DESCRIPTION <b>Applying multi-beam sonar for inspection for bridge scour and performance of bridge scour mitigation methods</b>			
Check all items to be included in RFP			Provide only checked items below in proposal
Check the appropriate Tier in the box below			
<input type="checkbox"/> <b>TIER I</b> (\$50,000-\$149,999)	<input checked="" type="checkbox"/> <b>TIER II</b> (\$150,000-\$1,000,000)	<input type="checkbox"/> <b>TIER III</b> (>\$1,000,000)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Understanding of Service
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Past Performance
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Qualifications of Team
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Quality Assurance/Quality Control
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<b>Location:</b> The percentage of work performed in Michigan will be used for all selections unless the project is for on-site inspection or survey activities, then location should be scored using the distance from the consultant office to the on-site inspection or survey activity.
N/A	N/A	<input type="checkbox"/>	Presentation
N/A	N/A	<input type="checkbox"/>	Technical Proposal (if Presentation is required)

The prime consultant can be a private or public university or business. 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. The basis of payment is Actual Costs for Universities and Actual Costs plus Fixed Fee for Consultants as defined in standard MDOT contracts.

To submit a proposal, please follow the [MDOT Consultant Vendor Selection Guidelines for Research Administration-Revised September 2015](#).

### RFP SPECIFIC INFORMATION

Problem Title: Applying multi-beam sonar for inspection for bridge scour and performance of bridge scour mitigation methods

OR Number: OR15-192

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

### PROPOSAL AND BID SHEET EMAIL ADDRESS –

[mdot-rfp-response@michigan.gov](mailto:mdot-rfp-response@michigan.gov) with a CC to  
[mdot-research@michigan.gov](mailto:mdot-research@michigan.gov)

## GENERAL INFORMATION

Any questions relative to the Research Problem Statement must be submitted by e-mail to:

[mdot-research@michigan.gov](mailto:mdot-research@michigan.gov). Questions must be received by 4 business days prior to the RFP due date 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.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal.

### MDOT AND RESEARCH FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION:

5100D- Request for Proposal Cover Sheet

Schedule of Research Activities Form- Appendix B

Deliverables Table- Appendix A

5100J- Consultant Data and Presignature sheet is required for signatory on this proposal

Research Proposal Budget Form Worksheet Appendix C (Universities)

Or

Budget Exhibits required in [Priced Proposal Guidelines](#) (Consultants)

## MANDATORY ELECTRONIC SUBMITTAL

**Proposals submitted for this project must be submitted electronically.**

**The following are Requirements for Electronic Submittals:**

- Proposals must be prepared using the most current Research guidelines found at the top of the page- [MDOT – Research Proposal Guidelines](#).
- The proposal must be bookmarked to clearly identify the proposal sections (See Below)
- For any section not required per the RFP, the bookmark must be edited to include “N/A” after the bookmark title.
- Proposals must be assembled and saved as a single PDF file
- PDF file must be 5 megabytes or smaller
- PDF file must be submitted via e-mail to [MDOT-RFP-Response@michigan.gov](mailto:MDOT-RFP-Response@michigan.gov) with a cc to [mdot-research@michigan.gov](mailto:mdot-research@michigan.gov)
- MDOT’s requisition number and company name must be included in the subject line of the e-mail. The PDF shall be named using the following format:
  - **Requisition#XXX\_Company Name.PDF**
- MDOT will not accept multiple submittals
- Proposals must be *received* by MDOT on or before the due date and time specified in each RFP

**If the submittals do not comply with the requirements, they may be determined unresponsive.**

The Proposer will receive an e-mail reply/notification from MDOT when the proposal is received. Please retain a copy of this e-mail as proof that the proposal was received on time. Proposers are responsible for ensuring the MDOT receives the proposal on time.

**\*\*Contact Contract Services Division immediately at 517-373-4680 if you do not get an auto response\*\***

**Required Bookmarking Format for RESEARCH ADMINISTRATION PROPOSALS ONLY:**

1. Request for Proposal Cover Sheet Form 5100D
  - A. Consultant Data and Signature Sheet, Form 5100J (if applicable)
2. Understanding of Service
3. Qualifications of Team
4. Past Performance
5. Quality Assurance / Quality Control Plan
6. Location
7. Pricing Documents/Bid Sheet (if applicable)
8. Appendices

# Michigan Department of Transportation

## SCOPE OF SERVICE FOR RESEARCH SERVICES

**TITLE:** Applying multi-beam sonar for inspection for bridge scour and performance of bridge scour mitigation methods  
OR#: 15-192

**LOCATION:** Statewide

**WORK DESCRIPTION:** Research on Applying multi-beam sonar for inspection for bridge scour and performance of bridge scour mitigation methods

**ANTICIPATED START DATE:** October 1, 2016

**ANTICIPATED COMPLETION DATE:** December 31, 2018

**MDOT RESEARCH PROJECT ADMINISTRATION MANAGER:**

Richard Kathrens  
6333 Lansing Road  
Lansing, Michigan 48917  
E-MAIL: [mdot-research@michigan.gov](mailto:mdot-research@michigan.gov)

**GENERAL INFORMATION:**

1. PROBLEM TO ADDRESS

Scour is the leading cause of catastrophic bridge failure and has been challenging to effectively and safely assess with existing technologies, especially for bridges over deeper water. MDOT's risk based management of bridges for scour vulnerability relies upon accurate inspection for bridge scour and performance of scour mitigation methods such as rip-rap and articulating concrete block systems. Technology and procedures to safely and effectively perform scour inspections when the river is deep, fast flowing, and turbid are needed. MDOT would have a formal evaluation of the capabilities of new advancements in multi-beam sonar devices and data collection platforms so that it could implement these technologies on a practical, cost-effective basis for bridge inspection and monitoring in accordance with MDOT's Scour Critical Bridge Plan of Action (POA). This would enable safer scour evaluations, bring new technologies to a level ready for MDOT usage, and provide new data for scour equations.

## 2. RESEARCH OBJECTIVES

1. Review and determine the feasibility of using multi-beam echo sounding technology for determining scour along bridge foundations during and after significant storm events.
2. Perform Field Investigations using multi-beam sonar technology to investigate scour and scour countermeasure effectiveness
3. Develop procedures and cost analysis for the use of multi-beam echo sounding technology on manned and un-manned vessels as applied to safe and effective scour monitoring.
4. Procure and deliver operable equipment, then train MDOT to conduct unmanned multi-beam echo sounding.

## 3. URGENCY AND IMPLEMENTATION BENEFIT TO MDOT

Project will be implemented by the Bridge Field Services and Bridge Management areas, and will be used on structures to monitor scour conditions. Coordination with MDOT's Survey area will be completed as this technology could be applied to all structures over water to assist with completing bathymetric surveys to be used for design and scour analysis.

Monitoring and mitigation of scour critical bridges continues to be a very high priority for MDOT, particularly with the risk of bridge failures that can impact both lives and travel. This research and development would enable safer scour evaluations and bring new technologies to a level ready for MDOT use.

## 4. RISKS OR OBSTACLES TO RESEARCH

Comparing the alternatives and considering the cost of equipment, it will be important to determine if it is cost effective to conduct unmanned multi-beam sonar scour inspections.

## 5. DESIRED QUALIFICATIONS IN AN INVESTIGATOR(S)

There is no statistical qualification requirement for this proposal.

## **CONSULTANT RESPONSIBILITIES:**

1. Review and evaluate ongoing and recently completed research in this topic area.
2. Survey other States best practices.
3. Develop multi-beam echo sounding equipment to be used for monitoring scour conditions using an unmanned vessel during high flow events.
4. Prepare an implementation document summarizing costs for equipment and training with detailed operating procedures.
5. Develop a Final Report.

Failure of any of the above will be found in noncompliance with the contract.

## **DELIVERABLES:**

The deliverable for this project would include a report detailing the best practices and procedures for use of the multi-beam echo sounding technology for monitoring scour conditions. This report would include an implementation manual for the use of manned and unmanned vessels, and the advantages of each type.

Equipment: Unmanned vessel with fully operable multi-beam echo sounder mounted on board. The vessel should be able to fit under low clearance bridges and be capable of functioning in most Michigan rivers under high flow conditions. It should be durable enough to survive the rough water and debris. The multi-beam sonar system should collect data that is GPS corrected on a state plane coordinate system. Operating manuals and instructions will be developed and delivered with the equipment.

## **MDOT RESPONSIBILITIES:**

MDOT will provide access to the Bridge Database for review of the Scour Action Plans for structures that are scour critical. A vulnerability and assessment of these structures will be provided.

## **COORDINATION PROCEDURES**

Work will be completed in compliance with the Research Implementation Manual

## **CONSULTANT PAYMENT**

All billings for services must be directed to the Department and follow the current Research Implementation Manual. This document contains instructions and forms that must be followed and used for billing. Payment may be delayed or decreased if the instructions are not followed.

Payment to the Consultant for services rendered shall not exceed the maximum amount unless an increase is approved in accordance with the contract with the Consultant.

Direct expenses, if applicable, will not be paid in excess of that allowed by the Department for its own employees in accordance with the State of Michigan's Standardized Travel Regulations. Supporting documentation must be submitted with the billing for all eligible expenses on the project in accordance with the Reimbursement Guidelines. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the activities of this project.

The use of overtime hours is not acceptable unless prior written approval is granted by the MDOT project manager. Reimbursement for overtime hours that are allowed will be limited to time spent on this project in excess of forty hours per person per week. Any variations to this rule should be included in the priced proposal submitted by the Consultant and must have prior written approval by the MDOT project manager.

The basis of payment is Actual Costs for Universities and Actual Costs plus Fixed Fee for Consultants as defined in standard MDOT contracts.

## **PROPOSAL INFORMATION AND SCORING**

Formal proposals are required and shall include the information as outlined in these Guidelines. This section is the information required in the proposal that will be used to score the qualifications of each consultant's proposal. The section numbering correlates to the score sheet. Therefore, the consultant should format their proposals consistent with the outline provided.

### **1. UNDERSTANDING OF SERVICE: 40 POINTS**

Describe understanding of the service intended to be proposed. This information is to be based on the scope of services.

**Problem Statement and Background Summary-** demonstrates good understanding of problem, looks objectively at problem, specifies problem limits and restricts scope appropriately, and cites relevant literature.

**Research Plan-** cites specific objectives clearly, technical approach responds to all written and implied requirements, difficult areas are identified and details to overcome are given, represents novel idea or technical approach, plan is feasible, and effort is consistent with scope of problem.

**Products and Implementation-** proposal clearly defines products to be delivered at completion, includes practical, realistic implementation plan.

**MDOT Involvement-** MDOT involvement is not excessive and is clearly defined and quantified.

### **2. QUALIFICATIONS OF TEAM: 30 POINTS –**

Describe the structure of the project team including the roles of all key personnel and subcontractors. For each subcontractor describe role in service and include what percent of the task that the subcontractor is expected to provide. Provide résumés for each of the key staff of the prime and subcontractor.

**Facilities-** proposer has adequate access to equipment and/or laboratory required in study.

**Staffing-** personnel availability is clearly defined, shows a depth of qualified personnel, proposer has ability to manage a project of this size an sufficient resources to complete study, qualifications are directly related to the requirements of the project, plans for specific key personnel assignment included, and there is a reasonable balance between subcontractor and prime contractor.

**Statistical Qualification-** The required knowledge level for a research team in statistical analyses, if defined, will be in the RFP under the heading DESIRED QUALIFICATIONS IN AN INVESTIGATOR(S).

Proposals not documenting statistical training and experience levels required in the RFP may be classified as non-responsive.

**3. RELEVANT PAST PERFORMANCE: 30 POINTS**

The project manager will contact references and review relevant performance evaluations from the past 5 years.

**Record of past accomplishment-** proposer satisfactorily completed past projects, was cooperative and flexible, and ended past projects according to the original budget and time schedule.

**4. QUALITY ASSURANCE/QUALITY CONTROL (QAQC) PLAN: 5 POINTS**

The proposer provided an outline of a QA/QC process. The QA/QC Manager is experienced with MDOT standards and practices.

**5. LOCATION: 5 POINTS**

The percentage of work hours performed in Michigan will be used for all selections unless the project is for on-site inspection or survey activity. The combination of location and percentage of work performed in Michigan should not exceed 5 points.

Percentage of Work To Be Done in Michigan Score	
95% to 100%	5
80% to 94%	4
50% to 79%	3
25% to 49%	2
10% to 24%	1
Less than 10%	0

**6. PRICE: 40 POINTS**

Cost score is based on the lowest cost proposed divided by the current proposer cost multiplied by 40. Lowest bid shall receive 40 points.

**TOTAL POINTS: 150**

**Research Proposal Budget Form Worksheet**

Project Title	
Research Organization	
Date	

									FY1	FY2	FY3	FY4	TOTAL	
<b>SALARIES &amp; WAGES -- MUST COMPLY WITH OMB CIRCULAR A-21</b>														
Specify number of hours to be worked and hourly rate for each individual below: Examples of role of individual are Principal Investigator, Technician, Grad Student, etc. Annual wage increases must not exceed 2%														
<b>(role of individual)</b>														
<b>Name of individual</b>														
<b>Enter FY</b>	<b>FY1 rate</b>	<b>FY1 hrs</b>	<b>FY2 rate</b>	<b>FY2 hrs</b>	<b>FY3 rate</b>	<b>FY3 hrs</b>	<b>FY4 rate</b>	<b>FY4 hrs</b>						
<b>rate &amp; hrs</b>									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>(role of individual)</b>														
<b>Name of individual</b>														
<b>Enter FY</b>	<b>FY1 rate</b>	<b>FY1 hrs</b>	<b>FY2 rate</b>	<b>FY2 hrs</b>	<b>FY3 rate</b>	<b>FY3 hrs</b>	<b>FY4 rate</b>	<b>FY4 hrs</b>						
<b>rate &amp; hrs</b>									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>(role of individual)</b>														
<b>Name of individual</b>														
<b>Enter FY</b>	<b>FY1 rate</b>	<b>FY1 hrs</b>	<b>FY2 rate</b>	<b>FY2 hrs</b>	<b>FY3 rate</b>	<b>FY3 hrs</b>	<b>FY4 rate</b>	<b>FY4 hrs</b>						
<b>rate &amp; hrs</b>									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>(role of individual)</b>														
<b>Name of individual</b>														
<b>Enter FY</b>	<b>FY1 rate</b>	<b>FY1 hrs</b>	<b>FY2 rate</b>	<b>FY2 hrs</b>	<b>FY3 rate</b>	<b>FY3 hrs</b>	<b>FY4 rate</b>	<b>FY4 hrs</b>						
<b>rate &amp; hrs</b>									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>(role of individual)</b>														
<b>Name of individual</b>														
<b>Enter FY</b>	<b>FY1 rate</b>	<b>FY1 hrs</b>	<b>FY2 rate</b>	<b>FY2 hrs</b>	<b>FY3 rate</b>	<b>FY3 hrs</b>	<b>FY4 rate</b>	<b>FY4 hrs</b>						
<b>rate &amp; hrs</b>									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>(role of individual)</b>														
<b>Name of individual</b>														
<b>Enter FY</b>	<b>FY1 rate</b>	<b>FY1 hrs</b>	<b>FY2 rate</b>	<b>FY2 hrs</b>	<b>FY3 rate</b>	<b>FY3 hrs</b>	<b>FY4 rate</b>	<b>FY4 hrs</b>						
<b>rate &amp; hrs</b>									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>(role of individual)</b>														
<b>Name of individual</b>														
<b>Enter FY</b>	<b>FY1 rate</b>	<b>FY1 hrs</b>	<b>FY2 rate</b>	<b>FY2 hrs</b>	<b>FY3 rate</b>	<b>FY3 hrs</b>	<b>FY4 rate</b>	<b>FY4 hrs</b>						
<b>rate &amp; hrs</b>									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Sub-Total Salary &amp; Wages</b>									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**FRINGE BENEFITS -- MUST COMPLY WITH OMB CIRCULAR A-21**

Indicate Employee, appropriate negotiated rate for each and description of who the rate applies to.  
 ( e.g. - Sam Smith, 25%, Summer Faculty. The rate is negotiated between the university and it's cognizant agency

<b>Name</b>									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Name</b>									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Name</b>									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Name</b>									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Name</b>									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Name</b>									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Name</b>									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>Sub-Total Fringe Benefits</b>					\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**SUBCONTRACTOR -- MUST COMPLY WITH OMB CIRCULAR A-21**

A copy of the subcontractor's budget must be attached. An MDOT approved subcontract is required for subcontractor costs in excess of \$25,000 prior to payment of invoices that contain subcontractor work. List all subcontractors on a separate line.

<b>Subcontractor Name &amp; Amt.</b>									\$0.00
<b>Subcontractor Name &amp; Amt.</b>									\$0.00
<b>Sub-Total Subcontractor</b>					\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**TRAVEL -- MUST COMPLY WITH OMB CIRCULAR A-21**

Must be in accordance with IDS contract requirements.

**In-State Travel (Destinations within Michigan)**

Provide a separate table itemizing costs.

									\$0.00
--	--	--	--	--	--	--	--	--	--------

**Out-of-State Travel (Prior approval required)**

Provide a separate table itemizing costs.

									\$0.00
--	--	--	--	--	--	--	--	--	--------

<b>Sub-Total Travel</b>					\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
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**SUPPLIES -- MUST COMPLY WITH OMB CIRCULAR A-21 (Few items not allowed are: computers, printers, monitors, fax machines, printer paper, toner cartridges, pens, pencils, legal pads, clips, rubber bands, post-it notes, books, notebooks, binders, folders, diskettes, postage stamps, chairs, office furniture, calendars, paper punches, business cards, staplers, waste cans, etc.)**

Provide details if cost exceeds \$2,000. Individual line items in excess of \$1,000 require a detailed explanation regardless of total cost

(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
<b>Sub-Total Supplies</b>		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**CAPITAL EQUIPMENT -- MUST COMPLY WITH OMB CIRCULAR A-21 - Purchased specifically for this project**

List items with a value in excess of \$500. Equipment in excess of \$5,000 requires prior approval.

(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
<b>Sub-Total Equipment</b>		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**OTHER EXPENSES -- MUST COMPLY WITH OMB CIRCULAR A-21 (Few items not allowed are: memberships in professional & scientific organizations, local telephone lines, cell phones, etc.)**

Any project expense which does not fall into another category. Provide detailed explanation of the expense and applicable breakdown of costs (e.g. graduate student tuition).

(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
(Description)						\$0.00
<b>Sub-Total Other Expenses</b>		\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**Total Sub-Totals** \$0.00 \$0.00 \$0.00 \$0.00 \$0.00

**INDIRECT COSTS -- MUST COMPLY WITH OMB CIRCULAR A-21**

Indirect cost rates are negotiated between the university and it's cognizant agency. Indicate the type of negotiated indirect rate used and the percentage (e.g. On Campus Research, 52%)

(Type)	(%)								
		FY1	FY2	FY3	FY4				
Enter \$ Amt per FY						\$0.00	\$0.00	\$0.00	\$0.00
<b>Total Indirect Costs</b>						\$0.00	\$0.00	\$0.00	\$0.00

**TOTAL PROJECT COSTS** \$0.00 \$0.00 \$0.00 \$0.00 \$0.00

**UNIVERSITY MATCHING FUNDS** \$0.00

**TOTAL MDOT PROJECT COSTS** \$0.00 \$0.00 \$0.00 \$0.00 \$0.00