

**CHECKLIST TO DESIGNATE AREAS OF EVALUATION  
FOR REQUESTS FOR PROPOSAL (RFP)**  
Research Administration University Use Only

MDOT PROJECT MANAGER <b>Dave Juntunen</b>	JOB NUMBER (JN) <b>TBD</b>	CONTROL SECTION (CS) <b>Statewide</b>
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DESCRIPTION

**Evaluation of Bridge Decks using Non-Destructive Evaluation (NDE) at Near Highway Speeds for Effective Asset Management OR10-043**

**MDOT PROJECT MANAGER:** Check all items to be included in RFP

WHITE = REQUIRED  
GRAY SHADING = OPTIONAL

**CONSULTANT:** Provide only checked items below in proposal

Check the appropriate Tier in the box below

<input type="checkbox"/> <b>TIER I</b> (\$25,000-\$99,999)	<input checked="" type="checkbox"/> <b>TIER II</b> (\$100,000-\$250,000)	<input type="checkbox"/> <b>TIER III</b> (>\$250,000)	
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Understanding of Service
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Innovations</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Safety Program</i>
N/A	<input type="checkbox"/>	<input type="checkbox"/>	Organizational Chart
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Qualifications of Team
<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Past Performance
<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)
3 pages (MDOT Forms not counted) <b>(No Resumes)</b>	7 pages (MDOT Forms not counted)	19 pages (MDOT Forms not counted)	<b>Total maximum pages for RFP not including key personnel resumes</b>



## **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 5 p.m. EST 5 business days prior to the RFP due date. 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 ORBP FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION:**

- 5100D – Request for Proposal Cover Sheet
- ORBP Research Proposal Budget Form Worksheet Appendix D
- ORBP Schedule of Research Activities Form- Appendix B
- ORBP Deliverables Table- Appendix A
- ORBP Initial Implementation Plan Form- Appendix C
- 5100J- Consultant Data and Presignature Sheet is required for signatory on this proposal

# Michigan Department of Transportation

## SCOPE OF SERVICE FOR RESEARCH SERVICES

**TITLE:** Evaluation of Bridge Decks using Non-Destructive Evaluation (NDE) at Near Highway Speeds for Effective Asset Management  
**OR#:** OR10-043

**The prime consultant must be a Michigan University**

**LOCATION:** Statewide

**WORK DESCRIPTION:** Research on Evaluation of Bridge Decks using Non-Destructive Evaluation (NDE) at Near Highway Speeds for Effective Asset Management

**ANTICIPATED START DATE:** 10/1/12

**ANTICIPATED COMPLETION DATE:** 9/30/14

### **MDOT RESEARCH PROJECT ADMINISTRATION MANAGER:**

Michael Townley, P.E.  
425 West Ottawa Street  
Lansing, Michigan 48933  
E-MAIL: [mdot-research@michigan.gov](mailto:mdot-research@michigan.gov)

### **GENERAL INFORMATION:**

**1. PROBLEM TO ADDRESS:** Bridge decks are the number one major element that determines when preservation activities are done to a bridge. MDOT currently has well established methods for evaluating bridge decks and guidelines as to what are the best preservation activities. During bridge inspection, bridge decks are evaluated visually and a delamination study is done, typically using the chain drag method. To perform a delamination study, traffic control is needed. A bridge deck evaluation will determine spalling, cracking, and delamination, and this information is recorded in the bridge safety inspection report, the Pontis inspection report, and in detailed scoping documents. MDOT does not know the time it will take for a deck that is delaminated to produce spalls (pot holes). The fix life for the various preservation activities is shown in MDOT's Bridge Deck Preservation Matrix and the fix lives provided were developed using Markov transition probabilities and expert judgment.

## **2. RESEARCH OBJECTIVES:**

- Research non-destructive evaluation (NDE) methods to evaluate bridge decks top surface for delaminations, spalling, and cracking at near highway speeds.
- Research NDE methods to evaluate bridge deck bottom surfaces and fascia's for delaminations without hands on contact.

## **3. URGENCY:** Medium urgency

**4. IMPLEMENTATION:** MDOT's bridge deck evaluation procedures may be updated and MDOT Bridge Deck Preservation Matrix will be updated.

**5. BENEFIT TO MDOT:** MDOT's bridge deck evaluation procedures may be updated and MDOT Bridge Deck Preservation Matrix will be updated. MDOT bridge managers.

**6. RISKS OR OBSTACLES TO RESEARCH:** Evaluating all the non contact, highway speed bridge deck evaluation techniques may be limited by budget and time constraints, so the proposal should focus on the ones that are most promising.

**7. POSSIBLE INVESTIGATOR(S):** Previous research on bridge decks and NDE methods. Statistical techniques such as experiment design are the effective tools for accomplishing the reliability issue stated in Task #4. Task #3 is accomplished by the corresponding sampling method to collect the data needed by the created experiment design for Task #4. Thus, the research team should have the professional knowledge in statistical theory and experiences. Level II- Undergraduate degree in Statistics and working experience in statistical analyses, is required.

## **CONSULTANT RESPONSIBILITIES:**

- Literature Review and a state of the practice review of Transportation agencies in the US and internationally to determine what NDE methods are being used.
- Research Design and Planning - Plan studies of NDE methods and deck condition indicators to meet the objectives defined above. Understand MDOT's current bridge deck condition indicators and how they are used.
- Data Collection - 1) Collect data on and/or experiment with NDE methods to evaluate bridge deck bottom surfaces and fascia's for delaminations without hands on contact. 2) Collect data on and/or experiment with NDE methods to evaluate bridge decks top surface for delaminations, spalling, and cracking at near highway speeds. Coordinate a portion of the deck testing prior to

a series of deck rehabilitation projects so that chain drag testing, non-destructive testing, and destructive testing can be used to compare and validate the techniques. NDE methods should have data on ease of use, availability, reliability, ease of interpreting results collected among other issues. Collect information on current bridge inspection processes.

- Analysis: Analyze data to make statistically sound recommendations on NDE method as they relate to current bridge inspection processes, including cost, ease of use, availability, reliability, ease of interpreting results and other important factors.
- Reporting: Develop deliverables.
- Demonstration: Demonstrate NDE techniques recommended for use and educate MDOT staff about their use.

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

### **DELIVERABLES:**

Final research report with recommendation for methods to evaluate bridge decks at highway speeds, methods to evaluate deck bottom surface for delaminations. Methods will be evaluated on cost, ease of use, availability, reliability, ease of interpreting results, and compared to existing techniques.

An NDE technique demonstration and education event will be held for MDOT staff. Training materials will be developed.

### **MDOT RESPONSIBILITIES:**

RAP meetings, providing MDOT bridge data, MDOT policy and procedures. MDOT will provide access to the state bridge database and MDOT's bridge deck inspection guides and methods including the Bridge Safety Inspection Report (BSIR) and guidelines for bridge inspectors, the Pontis Bridge inspection reports and Pontis Bridge inspection Manual, detailed scoping guidelines and example reports.

A presentation describing MDOT's bridge management system is available at the following link:  
[http://www.nhi.fhwa.dot.gov/downloads/other/real\\_solutions\\_presentations/real\\_solutions\\_presentation\\_2009\\_11\\_3.pdf](http://www.nhi.fhwa.dot.gov/downloads/other/real_solutions_presentations/real_solutions_presentation_2009_11_3.pdf)

### **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.

Compensation for services will be reimbursed on actual cost basis.

## **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/vendor's proposal. The section numbering correlates to the score sheet. Therefore, the consultant/vendors should format their proposals consistent with the outline provided.

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

Describe your understanding of the service and/or innovations and safety or other issues you intend to propose. This information is to be based on the scope of services.

Include any work item that you believe should be added to the scope of services, or any work item that is in the current scope of services which you believe should be altered. Describe the benefit to the service, the increase/decrease in hours and the increase/decrease to the cost of the research project due to the revision to this work item.

**2. QUALIFICATIONS OF TEAM: 30 POINTS** – The scoring for qualifications of team scoring will be one score based on the following information:

**2.1 Structure of the Project Team (Personnel and Roles)**

Describe the structure of the project team including the roles of all key personnel and subconsultant/vendors. For each subconsultant/vendor, describe role in service and include what percent of the named role that the subconsultant/vendor is expected to provide.

The consultant/vendor is contractually obligated to supply the key personnel proposed for this service. This includes maintaining them at the capacity level proposed. Any change in key personnel or their capacity level must have written approval of MDOT.

If applicable to the service, provide a communication plan of how the service team will communicate services information and resolve issues. Some RFPs may state that a communication plan is required.

**2.2 Staff Service Experience**

Provide resumes for each of the key staff of the prime and subconsultant/vendors. In addition to general resume information, the following information should be provided for service experience that is similar to the service being solicited:

- General description of the service
- Role of person in the service
- Service budget
- Year service was completed
- Name of client (agency or company)
- Role of consultant/vendors in the service (It is not required that the submitting consultant/vendors have a role)
- Name and phone number of person to contact for client
- If the service is a service related to a construction project, provide the route name, limits of construction, construction budget, general description of type of construction

The resume is limited to two pages per key staff member.

**2.3. Organization Chart (Only include if required in RFP)**

If required in the RFP, provide an organization chart of your service team including subconsultant/vendor(s). This chart must include the names of the key personnel selected for this service, their roles on the service, the name of the consultant/vendor by which they are employed, and lines of communication. The RFP may include a list of required key personnel for this service. The organization chart should show the personnel who meet these requirements. Also, indicate the people who will be points of contact with the MDOT project manager.

## **2.4 Required Statistical Qualification**

In general, MDOT's research is in the category of applied research. Regardless what is the primary field of an applied research project, statistical analysis tools are the typical ones for handling the data to conduct applied research. For this reason, the research team must have the needed statistical knowledge and experiences for conducting applied research. The required knowledge level for a research team in statistical analyses, if defined in the RFP under the heading possible investigators, is classified into one of the following four categories:

- Level I: Master Degree or higher in Statistics and working experience in statistical analyses is required
- Level II: Undergraduate degree in Statistics and working experience in statistical analyses is required
- Level III: At least one college series of statistics courses and working experience in statistical analyses is required
- Level IV: at least one college statistics course and working experiences under statisticians is required
- Level V: No statistical analysis

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

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

MDOT will review relevant performance evaluations for the past five years for prime and subconsultant/vendors that are being proposed. If the consultant/vendor has not previously worked for MDOT or has only had a few services opportunities that have been evaluated, this area should be used to provide other references for the selection team to contact. At a minimum, a phone number should be supplied for every reference. These would be in addition to those provided in the resumes in Section 2 and are limited to work completed in the past five years by the consultant/vendor.

Consultant/vendors are not required to submit prior evaluations with proposals, but should be aware that MDOT is reviewing prior evaluations.

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

Outline your consultant/vendor's QAQC plan for this service. Include background information of your selected QAQC manager for this service. The person performing the quality control review must have extensive experience with MDOT standards and practices.

## **5. LOCATION: 5 POINTS**

This section will be scored for all solicitations. The consultant selection criteria will include a consideration of what percentage of the contracted work will be performed in Michigan.

Consultant/vendor is required to provide the location of where the work will be performed by prime and/or subconsultant/vendors. The percentage of work performed in Michigan must be listed for prime and/or subconsultant/vendors. The selection team will score the percentage of work performed in Michigan on all selections unless the project is for on-site inspection or survey activities. For those services, provide the location of the office(s) and key staff and where the service work will be managed/coordinated (indicating how far key personnel will have to travel to get to the site). If the work will be performed at various locations, provide this information.

As a guideline for the scoring percentage of work performed in Michigan, please use the following:

<u>Percentage of Work To Be Done in Michigan</u>	<u>Score</u>
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**

The total price of the proposal will be scored using a scale determined by the MDOT selection team.

**TOTAL POINTS: 150**

## Research Proposal Budget Form Worksheet

Project Title	
Research Organization	
Project Duration	

									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 PI, Technician, Grad Student, etc.														
<b>(role of individual)</b>														
<b>Name of individual</b>														
<b>Enter FY</b>														
<b>rate &amp; hrs</b>														
	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs	\$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>rate &amp; hrs</b>														
	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs	\$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>rate &amp; hrs</b>														
	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs	\$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>rate &amp; hrs</b>														
	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs	\$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>rate &amp; hrs</b>														
	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs	\$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>rate &amp; hrs</b>														
	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs	\$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

<b>FRINGE BENEFITS -- MUST COMPLY WITH OMB CIRCULAR A-21</b>									
Indicate Employee, appropriate negotiated rate for each and description of who the rate applies to. (e.g. - Sam Smith, 25%, Summer Faculty.)									
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(Rate Description)									
(% rate)	FY1	FY2	FY3	FY4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Name									
(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
<b>SUBCONTRACTOR -- MUST COMPLY WITH OMB CIRCULAR A-21</b>									
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.									
Subcontractor Name & Amt.									
Subcontractor Name & Amt.									
Subcontractor Name & Amt.									
<b>Sub-Total Subcontractor</b>					\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
<b>TRAVEL -- MUST COMPLY WITH OMB CIRCULAR A-21</b>									
Must be in accordance with IDS contract requirements.									
<b>In-State Travel (Destinations within Michigan)</b>									
Provide destination, purpose, total mileage, total # of days, total # of meals, total # trips, names of individual(s) traveling									\$0.00
<b>Out-of-State Travel (Prior approval required)</b>									
Provide destination, purpose, total mileage, total # of days, total # of meals, total # trips, names of individual(s) traveling									\$0.00
<b>Sub-Total Travel</b>					\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**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	\$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	\$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	\$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 (Subconsultant fees, tuition, & costs indirectly related to the project shall not have the indirect rate applied in accordance with 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	\$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