

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

Research Administration Use Only

	REQUISITION NUMBER 1865	DUE DATE 11/30/2015	TIME DUE Noon EST
MDOT PROJECT MANAGER <b>Creightyn McMunn</b>	JOB NUMBER (JN) <b>TBD</b>		CONTROL SECTION (CS) <b>n/a</b>

DESCRIPTION

### Developing Representative Michigan Truck Configurations for Bridge Load Rating

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-\$150,999)	<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 must be a Michigan university. 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 Milestone for Universities as defined in standard MDOT contracts.

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](http://www.michigan.gov/mdot/0,1607,7-151-9625_32842--00.html).

#### RFP SPECIFIC INFORMATION

Problem Title: Developing Representative Michigan Truck Configurations for Bridge Load Rating  
OR Number: OR14-023

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 (Consultants)

Research Proposal Budget Form Worksheet Appendix C (Universities)

Or

Bid Sheet and 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 OR#: 14-023 MICHIGAN UNIVERSITIES ONLY

**LOCATION:** Statewide

**WORK DESCRIPTION:** Research on Developing Representative Michigan Truck Configurations for Bridge Load Rating

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

**ANTICIPATED COMPLETION DATE:** December 31, 2017

**MDOT RESEARCH PROJECT ADMINISTRATION MANAGER:**

Creightyn McMunn  
425 W. Ottawa  
Lansing, Michigan 48909  
E-MAIL: [mdot-research@michigan.gov](mailto:mdot-research@michigan.gov)

**GENERAL INFORMATION:**

**1. PROBLEM TO ADDRESS**

Federal regulations require that each state maintain a current load rating of each bridge in its inventory. The load rating must reflect the capacity of a bridge with respect to the state legal loads. The Michigan Vehicle Code provides the legal load requirements that apply to vehicles that travel on Michigan's public roadways.

The Michigan Vehicle Code provides legal limitations on axle weight, and overall truck length, width, and height. There are also several exceptions that were implemented to accommodate industrial and commercial shipping needs of the state. Vehicles meeting these exceptions are granted extended permits to move frequently on Michigan roadways. As a result, there are currently twenty-eight truck types that are analyzed to encompass the load effect of all Michigan legal load configurations.

The loading configurations and requirements used in load rating have also changed. LRFR requires different configurations and loading for continuous and long span bridges, as well as modifies the live load factor depending upon the expected frequency of occurrence for a particular vehicle configuration. While this is independent of the Michigan Vehicle Code, the selection of controlling configurations is linked to the method of analysis and should be considered in this research.

Although the number of trucks is an acknowledgement of the unique loading situation in Michigan, it results in an extensive number of calculations to determine the accurate load rating for each bridge in the inventory. Due to changes in industry practices, amendments to the vehicle code, as well as the load effects experienced by bridges due to the configurations, it is believed that some of these truck types may not be an accurate representation of current commercial trucks in Michigan. An examination of Michigan legal loads by comparing them with the field-collected truck data is necessary to calibrate and possibly reduce or change the truck types used to calculate the state legal load rating.

## 2. RESEARCH OBJECTIVES

1. Develop a detailed understanding of legal load requirements and exceptions, as dictated by the Michigan Vehicle Code and as implemented by the MDOT Transport Permits Unit.
2. Develop a detailed understanding of existing field measured Weigh-In-Motion (WIM) data and determine how WIM data corresponds to the requirements of the Michigan Vehicle Code.
3. Compare the Michigan Vehicle Code with WIM data and Michigan's 28 legal trucks, as detailed in the Michigan Bridge Analysis Guide, and identify any discrepancies.
4. Determine how observed discrepancies (if any) and vehicle configurations affect structural analysis, and develop recommendations for grouping truck types to create a representative Michigan legal load truck configuration for efficient and accurate load rating. This analysis should account for LFR and LRFR analysis methods and requirements.

## 3. URGENCY AND IMPLEMENTATION BENEFIT TO MDOT

The results of this project may be included in an update to the Michigan Bridge Analysis Guide, which provides guidance and specification for the load rating of all bridges on public roads in Michigan.

The results of this project will ensure the safety of Michigan's bridges, and a deeper understanding of Michigan's legal load requirements may result in time and cost savings for MDOT and local agencies when performing load rating analyses.

## 4. RISKS OR OBSTACLES TO RESEARCH

The risk of this project is that existing WIM data may not be sufficient to allow for a differentiation between legal trucks and permit vehicles. If data is not sufficient, additional data may need to be compiled, which would affect the schedule for this project.

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

The team should have a researcher with bridge research experience with load rating projects.

At least one college series of statistics courses and working experience in statistical analyses.

## **CONSULTANT RESPONSIBILITIES:**

1. Review and summarize the Michigan Vehicle Code as well as other available literature.
2. Interview and collaborate with MDOT Transport Permit Unit personnel to develop an understanding of current procedures regarding the issuance of extended permits for vehicles granted exceptions as per the Michigan Vehicle Code.
3. Interview and collaborate with Michigan law enforcement and the trucking industry to develop an understanding for current needs and limitations with respect to the Michigan Vehicle Code requirements and enforcement.
4. Determine realistic truck configurations that meet the exceptions listed in the Michigan Vehicle Code. Present findings to date to the research panel before completing additional steps.
5. Review several years of existing available WIM data and determine if additional WIM stations or data collection is warranted to complete the research. Analyze the existing WIM data to determine which recorded vehicles represent legal or permitted vehicles. Present findings to the research panel before completing additional steps.
6. Compare data analysis results with the current 28 Michigan legal trucks and the Michigan Vehicle Code to identify discrepancies. Present findings to the research panel before completing additional steps.
7. Develop recommendations for grouping truck types or develop new load rating vehicles to create a representative Michigan legal load truck configuration for efficient and accurate load rating. This analysis should account for LFR and LRFR analysis methods and requirements.
8. Recommendations/Reporting.

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

## **DELIVERABLES:**

The final deliverable will be a report that details the findings of the research. The report should include, at a minimum:

1. Documentation and evaluation of existing literature.
2. Detailed breakdown and analysis of Michigan vehicle code as it applies to truck loads and configurations.
3. Detailed summary of existing WIM data and comparison to Michigan Vehicle Code and 28 legal trucks.
4. Recommendations for changes to the load rating process.

## **MDOT RESPONSIBILITIES:**

MDOT will provide coordination with other stakeholders, WIM data, and technical reviews of deliverables as needed throughout the project. There are currently 50+ locations statewide. Detailed millisecond WIM data has been recorded at more than 30 of these locations since 2011 and will be provided at the start of the project.

## **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 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%														
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & hrs									\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
(role of individual)														
Name of individual														
Enter FY	FY1 rate	FY1 hrs	FY2 rate	FY2 hrs	FY3 rate	FY3 hrs	FY4 rate	FY4 hrs						
rate & 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	

**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.

<b>In-State Travel (Destinations within Michigan)</b> Provide a separate table itemizing costs.									\$0.00
<b>Out-of-State Travel (Prior approval required)</b> Provide a separate table itemizing costs.									\$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

**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
(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