Michigan Department
Of Transportation
5100B (05/13)

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

	REQUISITION NUMBER	DUE DATE	TIME DUE
	1532	6/16/2014	noon EST
MDOT PROJECT MANAGER John Lobbestael	JOB NUMBER (JN) 121383	CONTROL SECTION (CS) Various	

DESCRIPTION
Mobile LiDAR data collection, data processing and data extraction to GIS for MDOT routes in Muskegon County.

MDOT PROJECT MANAGER: Check all items to be included in RFP WHITE = REQUIRED ** = OPTIONAL Check the appropriate Tier in the box below			**CONSULTANT:** Provide only checked items below in proposal
☑ **TIER 1 ($50,000 - $150,000)**	☐ **TIER II ($150,000-$1,000,000)**	☐ **TIER III (>$1,000,000)**	
☑	☐	☐	Understanding of Service **
☑	☐	☐	*Innovations*
☑	☐	☐	Organizational Chart
☑	☐	☐	Qualifications of Team
Not required as part of Official RFP	Not required as part of Official RFP	☐	Quality Assurance/Quality Control **
☑	☐	☐	**Location:** The percentage of work performed in Michigan will be used for all selections unless the project is for on-site p=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	☐	Presentation **
N/A	N/A	☐	Technical Proposal (if Presentation is required)
3 pages (MDOT Forms not counted) **(No Resumes)**	7 pages (MDOT Forms not counted)	14 pages (MDOT forms not counted)	Total maximum pages for RFP **not including key personnel resumes.** Resumes limited to 2 pages per key staff personnel.

PROPOSAL AND BID SHEET EMAIL ADDRESS – mdot-rfp-response@michigan.gov

GENERAL INFORMATION

Any questions relative to the scope of services must be submitted by e-mail to the MDOT Project Manager. Questions must be received by the Project Manager at least five (5) working days prior to the due date and time specified above. All questions and answers will be placed on the MDOT website as soon as possible after receipt of the questions, and at least three (3) days prior to the RFP due date deadline. The names of vendors 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 FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

5100D – Request for Proposal Cover Sheet
5100J – Consultant Data and Signature Sheet (Required only for firms not currently prequalified with MDOT)

(These forms are not included in the proposal maximum page count.)

REQUEST FOR PROPOSAL

The Michigan Department of Transportation (MDOT) is seeking professional services for the project contained in the attached scope of services.

If your firm is interested in providing services, please indicate your interest by submitting a Proposal, Proposal/Bid Sheet or Bid Sheet as indicated below. The documents must be submitted in accordance with the latest (Consultant/Vendor Selection Guidelines for Services Contracts" and "Guideline for Completing a Low Bid Sheet(S)*, if a low bid is involved as part of the selection process. **Reference Guidelines are available on MDOT's website under Doing Business > Vendor/Consultant Services >Vendor/Consultant Selections.**

RFP SPECIFIC INFORMATION

☐ ENGINEERING SERVICES ☐ BUREAU OF TRANSPORTATION PLANNING ☑ OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

☑ NO ☐ YES DATED_____ THROUGH _____

☑ **Prequalified Services** – See the attached Scope of Services for required Prequalification Classifications.

☐ **Non-Prequalified Services** – If selected, the vendor must make sure that current financial information, including labor rates, overhead computations, and financial statements, if overhead is not audited, is on file with MDOT's Office of Commission Audits. This information must be on file for the prime vendor and all sub vendors so that the contract will not be delayed. **Form 5100J is required with Proposal for firms not currently prequalified with MDOT**

☑ **Qualifications Based Selection** – Use Consultant/Vendor Selection Guidelines

For all Qualifications Based Selections, the selection team will review the information submitted and will select the firm considered most qualified to perform the services based on the proposals. The selected firm will be asked to prepare a priced proposal. Negotiations will be conducted with the firm selected.

For a cost plus fixed fee contract, the selected vendor must have a cost accounting system to support a cost plus fixed fee contract. This type of system has a job-order cost accounting system for the recording and accumulation of costs incurred under its contracts. Each project is assigned a job number so that costs may be segregated and accumulated in the vendor's job-order accounting system.

☐ **Qualification Based Selection / Low Bid** – Use Consultant/Vendor Selection Guidelines. See Bid Sheet instructions for additional information.

For Qualification Review/Low Bid selections, the selection team will review the proposals submitted. The vendor that has met established qualification threshold and with the lowest bid will be selected.

☐ **Best Value** – Use Consultant/Vendor Selection Guidelines, See Bid Sheet Instructions below for additional information. The bid amount is a component of the total proposal score, not the determining factor of the selection.

☐ **Low Bid** (no qualifications review required – no proposal required.) See Bid Sheet Instructions below for additional instructions.

BID SHEET INSTRUCTIONS

Bid Sheet(s) must be submitted in accordance with the "Guidelines for Completing a Low Bid Sheet(s)* (available on MDOT's website). Bid Sheet(s) are located at the end of the Scope of Services. Submit bid sheet(s) with the proposal, to the email address: mdot-rfp-response@michigan.gov. Failure to comply with this procedure may result in your bid being rejected from consideration.

PARTNERSHIP CHARTER AGREEMENT

MDOT and ACEC created a Partnership Charter Agreement which establishes guidelines to assist MDOT and Consultants in successful partnering. Both the Consultant and MDOT Project Manager are reminded to review the **ACEC-MDOT Partnership Charter Agreement** and are asked to follow all communications, issues resolution and other procedures and guidance's contained therein.

NOTIFICATION
MANDATORY ELECTRONIC SUBMITTAL

Proposals submitted for this project must be submitted electronically.

The following are changes to the Proposal Submittal Requirements:

- Eliminated the Following Requirements:
  - Safety Program
  - Communication Plan
  - Past Performance as *a separate section*
  - Separate section for DBE Statement of goals. Include information in Qualification of Team section

- Implemented the Following Changes:
  - All proposals require an Organization Chart
  - Resumes must be a maximum of two pages
  - Only Key (lead) staff resumes may be submitted
  - Tier III proposal reduced from 19 to 14 pages
  - Forms 5100D, 5100I, and 5100G combined – 5100D
  - Forms 5100B and 5100H combined – 5100B
  - RFP's will be posted on a weekly basis -- on Mondays

The following are Requirements for Electronic Submittals:

- Proposals must be prepared using the most current 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.
  Example: Understanding of Service – N/A
- 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
- 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 Consultant's 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. **Consultants 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:

I. Request for Proposal Cover Sheet Form 5100D
   A. Consultant Data and Signature Sheet, Form 5100J (if applicable)
II. Understanding of Service
   A. Innovations
III. Qualifications of Team
   A. Structure of Project Team
      1. Role of Firms
      2. Role of Key Personnel
   B. Organization Chart
   C. Location
IV. Quality Assurance / Quality Control Plan
V. Resumes of Key Staff
VI. Pricing Documents/Bid Sheet (if applicable)

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NOTIFICATION
E-VERIFY REQUIREMENTS

E-Verify is an Internet based system that allows an employer, using information reported on an employee's Form I-9, Employment Eligibility Verification, to determine the eligibility of that employee to work in the United States. There is no charge to employers to use E-Verify. The E-Verify system is operated by the Department of Homeland Security (DHS) in partnership with the Social Security Administration. E-Verify is available in Spanish.

The State of Michigan is requiring, under Public Act 200 of 2012, Section 381, that as a condition of each contract or subcontract for construction, maintenance, or engineering services that the pre-qualified contractor or subcontractor agree to use the E-Verify system to verify that all persons hired during the contract term by the contractor or subcontractor are legally present and authorized to work in the United States.

Information on registration for and use of the E-Verify program can be obtained via the Internet at the DHS Web site: http://www.dhs.gov/E-Verify.

The documentation supporting the usage of the E-Verify system must be maintained by each consultant and be made available to MDOT upon request.

It is the responsibility of the prime consultant to include the E-Verify requirement documented in this NOTIFICATION in all tiers of subcontracts.

9/13/12

Michigan Department of Transportation

SCOPE OF SERVICE
FOR
SPECIALTY SERVICES
Transportation Surveys (Mobile LiDAR) for Asset Mapping
Revised as of 6.3.14

CONTROL SECTION: Various

JOB NUMBER: 121383

PROJECT LOCATION: Various locations in Grand Region – Muskegon County

PROJECT DESCRIPTION: The selected consultant will perform Mobile LiDAR data collection, data processing and data extraction to GIS for MDOT routes in Muskegon County for purposes of evaluating the value of Mobile LiDAR collection to MDOT's asset management collection, planning and design data collection processes, relative to other collection methods. The project is a pilot project intended to determine which method would be most beneficial and cost effective for MDOT on a statewide basis.

ANTICIPATED START DATE: June 23, 2014

ANTICIPATED COMPLETION DATE: October 1, 2014

PRIMARY PREQUALIFICATION CLASSIFICATION:
Road Design Surveys

SECONDARY PREQUALIFICATION CLASSIFICATION:
Photogrammetric Control Surveys
Photogrammetry (Precautionary)

DBE REQUIREMENT: N/A

MDOT PROJECT MANAGER:
John Lobbestael, Supervising Land Surveyor
Region/TSC/Office : Central Office, Survey Support
Address : 425 W. Ottawa, P.O. Box 30050, Lansing, MI 48909
Phone : 517-335-5550
Fax Number
E-mail : lobbestaelj@michigan.gov

The Consultant shall contact the Project Manager prior to beginning any work on this Project.

GENERAL INFORMATION:

This is a pilot project intended to perform Mobile LiDAR data collection for MDOT routes in Muskegon County. In 2014, Muskegon County was scanned using the State of Michigan DTMB Center for Shared Solutions aerial LiDAR/Photography contract with Sanborn Maps. MDOT's objective is to compare and analyze both methods of LiDAR collection to determine how they benefit MDOT. The objective for this pilot project is to demonstrate the value of Mobile LiDAR collection to MDOT's asset management collection, planning and design data collection processes. Information will be used to determine which method would be most beneficial and cost effective for MDOT on a statewide basis. The collection will have varied segments representing suburban, rural freeway, rural 2 lane, downtown and rural interchange scenarios.

SCOPE OF WORK:

Planning & Field Collection

The field collection will utilize ground based Mobile LiDAR. The collection must be completed with a fully integrated mobile LiDAR system consisting of Laser Scanner(s), L1 & L2 GPS + GNSS Antenna(s) & Receiver(s), Inertial Measurement Unit and Digital Cameras. The camera array must have 360° coverage horizontally. The camera array must have a total of 270° - 300° vertical coverage extending to 60° below the horizontal plane.

At a minimum the Mobile LiDAR unit must be capable of collecting engineering grade data at a 1A Level, as specified in Table 1 of NCHRP Report 748, Guidelines for the Use of Mobile LiDAR. MDOT realizes that the absolute spatial quality of the data collected may not achieve 1A quality, however, the collection unit must be capable of such.

The Consultant should refer to the 2014 MDOT Standards of Practice for Design Surveys, Appendix D – Mobile Terrestrial LiDAR (MTL) Standards and Guidelines and NCHRP Report 748, Guidelines for the Use of Mobile LiDAR, in performing this project.

Prior to collection the consultant will develop a field collection work plan for presentation to the Project Manager. The work plan will detail:

- ✓ Routes to be covered
- ✓ Proposed drive paths and number of trajectories to be run on each route
- ✓ Times of collection
- ✓ Collection specifications
- ✓ Mobile LiDAR Unit Calibration report(s)
- ✓ Quality Control and Quality Assurance Measures to be employed for field collection

Collection Requirements :

- ✓ LiDAR Acquisition must include image collection along the trajectory routes to colorize the point cloud and to aid with feature identification and attribution. The images must be indexed and delivered with the LiDAR data.

- ✓ The following units of measure are to be used:
    - Distance Measure : International Feet
    - Angular Measure : degrees, minutes and seconds
    - Horizontal Datum : State plane GRID coordinates for Michigan South Zone (2113), NAD 83 (2011)
    - Vertical Datum : NAVD 88
    - Geoid Model : Geoid 2012A
- ✓ LiDAR Acquisition must be collected with coupled IMU / GNSS data for trajectory processing.
    - GPS GNSS Data must be RTK processed against a base station or CORS station
    - The baseline length must not exceed 5 miles
    - The resulting trajectory solution must result from the combination of a forward and reverse processing solution.
- ✓ Multiple passes must be employed in areas where obstructions occur due to traffic, if any.
- ✓ Completed when pavement is dry and not obscured by snow.
- ✓ Completed at or near traffic speeds to avoid impeding traffic while ensuring adequate spacing from surrounding traffic to avoid obstructions.

Quality Control Requirements

- ✓ Ground validation points (VP) and/or local transformation points (LTP) must be placed prior to collection. The targeting materials and layout scheme must be pre-approved by the Project Manager.
- ✓ The following layout scheme will be utilized:

Target Layout Scheme	Apply to X number of segments	Local Transformation Points	Validation Points
A	2	1 Pair at each end of segment – Method of establishment GPS + Leveled elevation	5 Per Mile –RTK Validation
B	1	None	None
C	All remaining segments	None	5 Per Mile – RTK Validation

- ✓ The consultant will determine which segments to apply each target layout scheme to considering proximity of NGS control. The project manager will approve the application of schemes to segments.

- ✓ RTK observations on the validation points must be observed in compliance with "Appendix A" of the 2014 MDOT Standards of Practices for Surveying – MDOT Real Time Kinematic GPS Standards, for photo control.
- ✓ Provide a National Standard for Spatial Data Accuracy (NSSDA) type report showing the proximity of the validation targets to the final point cloud.
- ✓ Prior to data extraction a copy of the project trajectory reports comparing the forward and reverse trajectory processing must be analyzed. The MDOT Project Manager should be notified of the completed trajectory processing and provided with a report of the results prior to extraction of data.

Collection Locations:
At a minimum, collection must be completed for both bounds over the following priority segments:

1. M-120 from Whitehall Road to Getty Street
2. US-31 from South of Russell Road to Fruitvale
3. M-120 from US-31 to Holton
4. M-46 from Maple Island to Ravenna
5. M-46 from Muskegon Avenue to Getty Street

Additional collection may be completed over the following segments:

6. US-31 from M-46 to C&O Railroad including Rest Area.
7. US-31 from I-96 to M-46
8. US-31 BR from US-31 to Southern Avenue
9. US-31 Pontaluna Interchange (1000' each way of entry / exit ramps)

In addition to the mainline collection, entry and exit ramps should be collected for freeway interchanges as well as cross road segments lying between the ramp terminals.

Data Processing and Extraction to Geodatabase

MDOT will furnish a template copy of MDOT's geodatabase format in .gdb format. Data dictionaries will also be furnished for the assets for which consultant attribution is to be completed, when such dictionaries are available. The spatial location of the assets must be extracted. Attribution will be completed to the extent that the budget will allow. The consultant will be responsible for extraction of data to ESRI .gdb over the priority segments as follows:

Asset	Visible in Point Cloud	Extract Spatial Location	Attribution by Consultant
Freeway Signs (Other than truss / cantilever)	Y	Y	MMUTCD Sign Type
Truss Mount Signs	Y	Y	Sign Text, Underclearance
Cantilever Signs	Y	Y	Sign Text, Underclearance
Pavement Markings	Y	Y	
Lane Miles	Y	Y	
Bridge Under clearances	Y	Y	Minimum clearance dimension for each bound
Billboards	Y	Y	
Guardrails	Y	Y	Guardrail Type, Approach Ending Type, Material, Departure Ending Type, Post Type, Purpose
Storm Catchbasins	Y	Y	Cover Type, Cover Size
Sidewalk Ramps	Y	Y	Ramp running slope, ramp cross slope, ramp length, ramp width, ramp flare ratio, turning space dimensions, turning space slope, detectable warning dimensions, detectable warning offset from curb
Traffic Signals	Y	Y	
Freeway Lighting	Y	Y	
Delineators	Y	Y	
Drainage Marker Posts	Y	Y	

DELIVERABLES:

- ✓ Imagery collected with the acquisition of the LiDAR Data and georeferenced to the point cloud. A duplicate set of images, not georeferenced or oriented relative to the collection perspective, should also be delivered, in order or acquisition and/or tied to a GIS index file. Imagery must be collected during daylight hours to ensure clarity.
- ✓ LiDAR data in .LAS/.LAZ & .POD format with RGB values and intensity values.
- ✓ .shp index file showing the tile layout and naming of .LAS files.
- ✓ .shp index files correlating relative estimated spatial quality of various assets assessed from trajectory processing results to a colorized system. (For example 2-3cm relative quality = green, etc.)
- ✓ .gdb file(s) inclusive of the spatial location of the assets above and attribution as indicated above.
- ✓ 2 days of hands on training of up to 3 MDOT personnel on the Point Cloud to geodatabase workflow utilized for the asset extraction.
- ✓ Report which:
    - ✓ Describes the mobile mapping project, equipment used and results
    - ✓ Describes the Rate of collection achieved in context of maximum, minimum and average
    - ✓ Describes the planning approach to collection
    - ✓ Describes proximity of GPS base stations / CORS stations and control and how the control was applied to data collection, processing and transformation, if applied
    - ✓ Describes the processing performed
    - ✓ Describes the rate of processing and extraction achieved in context of maximum, minimum and average
    - ✓ Provides a general estimate of hours required to collect all MDOT routes
    - ✓ Includes a listing of registration processing reports
    - ✓ Includes trajectory processing reports
    - ✓ Describes the extraction software and process employed, rate of extraction and difficulties encountered
    - ✓ Describes automated or semi-automated extraction efforts employed
    - ✓ Comments on other assets apparent in the data set which are visible but were not extracted
    - ✓ Comments on and makes recommendations for opportunities for innovations in collection, extraction, data management and any other pertinent area

- ✓ Provide an NSSDA type report describing the accuracies of the point cloud compared to the validation targets.

- ✓ PowerPoint presentation via recorded webinar summarizing the report. MDOT will provide Adobe Connect meeting room and determine participants. The webinar will be recorded.
- ✓ Data storage shall comply with "Appendix F" – Electronic Media Standards and Guidelines of the 2014 MDOT Survey Standards of Practice. Note that up to 4 identical complete copies will be required.

PROGRESS REPORTS

The Consultant shall submit a bi-weekly or monthly project progress report to the MDOT Project Manager. The progress report shall address the following items:

1. Work accomplished during the previous reporting period.
2. Anticipated work and goals for the coming weeks or month.
3. Real problems which occurred during the month, and anticipated problems for the coming reporting period.
4. Any updates on the project schedule including explanations for any delays or changes in schedule, scope, or work plan.
5. Any early reviews or submittals.

GENERAL REQUIREMENTS:

1. Consultants must obtain all necessary permits required to perform this survey on any public and/or private property, including an up-to-date permit from the MDOT Utilities Coordination and Permits Section. The **Consultant shall be responsible for obtaining up to date access permits** and pertinent information for any tasks involving work within the MDOT Right of Way (ROW).

2. Prior to performing any ground survey work, the Consultant must contact all landowners upon whose lands they will enter. The contact may be personal, phone or letter, but must be documented. This notice must include the reasons for the survey on private land, the approximate time the survey is to take place, the extent of the survey including potential brush cutting (which must be minimized), and an MDOT contact person (the MDOT Survey Project Manager).

3. The Consultant must contact any and all Railroads prior to commencing field survey on railroad property. The cost for any permit, flaggers and/or training that is required by the Railroad will be considered as a direct cost, but only if included in the Consultant's priced proposal.

4. The Consultant must adhere to all applicable OSHA and MIOSHA safety standards, including use of the appropriate traffic signs for the activities and conditions for this job.

CONSULTANT PAYMENT – Actual Cost Plus Fixed Fee:

Compensation for this project shall be on an **actual cost plus fixed fee** basis. This basis of payment typically includes an estimate of labor hours by classification or employee, hourly labor rates, applied overhead, other direct costs, subconsultant costs, and applied fixed fee. The fixed fee for profit allowed for this project is 11.0% of the cost of direct labor and overhead.

All billings for services must be directed to the Department and follow the current guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's website. 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. Typically, billings must be submitted within 60 days after the completion of services for the current billing. The final billing must be received within 60 days of the completion of services. Refer to your contract for your specific contract terms.

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.

MDOT will reimburse the consultant for vehicle expenses and the costs of travel to and from project sites in accordance with MDOT's Travel and Vehicle Expense Reimbursement Guidelines, dated May 1, 2013. The guidelines can be found at http://www.michigan.gov/documents/mdot/Final_Travel_Guidelines_05-01-13_420289_7.pdf?20130509082418. MDOT's travel and vehicle expense reimbursement policies are intended primarily for construction engineering work. Reimbursement for travel to and from project sites and for vehicle expenses for all other types of work will be approved on a case by case basis.

MDOT will pay overtime in accordance with MDOT's Overtime Reimbursement Guidelines, dated May 1, 2013. The guidelines can be found at http://www.michigan.gov/documents/mdot/Final_Overtime_Guidelines_05-01-13_420286_7.pdf?20130509081848. MDOT's overtime reimbursement policies are intended primarily for construction engineering work. Overtime reimbursement for all other types of work will be approved on a case by case basis.