

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

	REQUISITION NUMBER	DUE DATE	TIME DUE
MDOT PROJECT MANAGER	JOB NUMBER (JN)	CONTROL SECTION (CS)	

DESCRIPTION

MDOT PROJECT MANAGER: Check all items to be included in RFP			CONSULTANT: Provide only checked items below in proposal.
WHITE = REQUIRED ** = OPTIONAL Check the appropriate Tier in the box below			
<input type="checkbox"/> TIER I (\$50,000 - \$150,000)	<input type="checkbox"/> TIER II (\$150,000-\$1,000,000)	<input type="checkbox"/> TIER III (>\$1,000,000)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input 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"/>	Organizational Chart
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Qualifications of Team
Not required as part of Official RFP	Not required as part of Official RFP	<input type="checkbox"/>	Quality Assurance/Quality Control **
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location: 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) Resumes will only be accepted for Best Value Selections	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 E-MAIL 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 for all firms performing non-prequalified services on this project.)

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

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.”

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, 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 all firms performing non-prequalified services on this project.**

Qualification 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.)

BID SHEET INSTRUCTIONS

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.

Proposals must be submitted for this project electronically. Proposal Submittal Requirements Can Be Found At the Following Link
http://www.michigan.gov/documents/MDOT_Consultant-Vendor_Selection_Guidelines-0106_145222_7.pdf?20150707153457

In PART IV – INSTRUCTION FOR SUBMITTING PROPOSALS

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 DESIGN SERVICES Revised as of 10.11.16 Revised as of 10.26.16

CONTROL SECTION(S): 18023, 37032

JOB NUMBER(S): 123643C, 127858D

PROJECT LOCATION:

The project is located along US-10 from US-127 to east of Leaton Road in Clare & Isabella Counties.

The project length is 3.6 miles.

PROJECT DESCRIPTION:

Work involved in the design of the project consists of the development and preparation of plans, details, specifications and cost estimates (including meeting attendance) for the following:

JN 123643C:

The project scope includes an Alternate Pavement Bid (APB) design that includes both rubblize and HMA overlay, and concrete overlay. Work also includes undercuts at bridges to maintain acceptable underclearance, ramp extensions, drainage upgrades and other miscellaneous safety upgrades. In addition, all the ramps and the westbound Saginaw Road crossover will be completely reconstructed. Traffic shall be maintained by part width. Construction is anticipated for 2018.

JN 127858D: The project scope includes two concrete box culvert replacements. Construction is anticipated for 2018.

This project began development as a design-build project. Most of the survey and some of the development tasks have previously been completed.

Itemized breakdown of anticipated work consists of but may not be limited to:

Permanent Traffic:

- Pavement Markings
- Signing (just some adjusting, not all new)
- Shoulder Corrugations

Safety:

- Clearing & Tree Removal
- Guardrail

Drainage:

Cross culvert replacement
Larger culvert cleaning or lining
Underdrains

Miscellaneous:

Contractor Staking
Erosion Control
ROW Fence
Slope Restoration
Subgrade Undercutting
Trees (as mitigation for clearing/tree removals)
Permanent Barrier Wall (at bridges)
Mobilization
Contingency
Inflation

ANTICIPATED SERVICE START DATE: 11/1/2016

ANTICIPATED SERVICE COMPLETION DATE: 2/28/2018

DBE PARTICIPATION REQUIREMENT: 5%

PRIMARY PREQUALIFICATION CLASSIFICATION(S):

Design – Roadway: Intermediate
Design – Bridges

SECONDARY PREQUALIFICATION CLASSIFICATION(S):

Design – Traffic: Work Zone Maintenance of Traffic
Design – Traffic: Pavement Markings
Design – Traffic: Signing – Freeway
Design – Traffic: Capacity and Geometric Analysis
Design – Hydraulics I
Design – Geotechnical (*Precautionary*)
Surveying: Road Design
Surveying: Structure (*Precautionary*)
Surveying: Hydraulics (*Precautionary*)

PREFERRED QUALIFICATIONS AND CRITERIA (FOR NON-CLASSIFIED SERVICES):

1) UTILITY COORDINATION

x The Consultant and MDOT shall share responsibilities for project Utility Coordination. See attached “Scope of Services for Utility Coordination”.

MDOT PROJECT ENGINEER MANAGER:

Jonathan Myers
Cost & Scheduling Engineer
MDOT Mt. Pleasant TSC
1212 Corporate Drive
Mt. Pleasant, MI 48858
989-775-6104 Ext 308
myersj2@michigan.gov

All inquiries about this Request for Proposal should be directed to the MDOT Project Manager by email.

CONSTRUCTION COST:

A. The estimated cost of construction is:

<u>JN 123643C</u>	
1. Mainline Pavement	\$ 3,564,183
2. Geometric Improvement	\$ 312,538
3. Drainage	\$ 384,468
4. Safety	\$ 57,372
5. Non-Motorized	\$
6. Maintaining Traffic	\$ 900,000
7. Miscellaneous Bridge Cost	\$
8. Detours and Maintaining Traffic	\$
9. Permanent Pavement Markings/Signs/Signals	\$ 45,050
<u>10. Miscellaneous</u>	<u>\$ 3,830,083</u>
CONSTRUCTION TOTAL	\$ 9,093,694

<u>JN 127858D</u>	
1. New Box Culverts	\$ 776,800
2. Super Structure Repair	\$
3. Sub Structure Repair	\$
4. Widening	\$
5. New Deck	\$
6. Detours and Maintaining Traffic	\$ 20,000
7. Demolition	\$ 55,188
8. Road Work	\$ 63,360
<u>9. Miscellaneous</u>	<u>\$ 629,604</u>
CONSTRUCTION TOTAL	\$ 1,544,952

B. The estimated cost of real estate is: \$0

The above construction total is the amount of funding programmed for this project. The Consultant is expected to design the project within the programmed amount.

If at any time the estimated cost of construction varies by more than 5% of the current programmed amount, then the Consultant will be required to submit a letter to the MDOT Project Manager justifying the changes in the construction cost estimate.

REQUIRED MDOT GUIDELINES AND STANDARDS:

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Standard Plans, Published MDOT Design Advisories, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

The Consultant is required to use the MDOT Current Version of Bentley Microstation/GEOPAK or PowerGEOPAK (published at Section 2.2.2 of the Design Submittal Requirements) with the current MDOT workspace (published at Section 2.2.1 of the Design Submittal Requirements). 3D Models are required for all applicable projects. See Chapter 2 of the Design Submittal Requirements for a complete listing of applicable projects. The consultant shall comply with all MDOT CADD standards and file naming conventions.

MDOT RESPONSIBILITIES:

- A. Schedule and/or conduct the following:
 - 1. Project related meetings
 - 2. Base Plan/Geometric Review
 - 3. The Plan Review
 - 4. Omissions/Errors/Check
 - 5. Utility Coordination Meeting(s)
 - 6. Final Transport item cost estimates

- B. Furnish pertinent reference materials.
 - 1. As-built plans
 - 2. Pavement design
 - 3. Traffic analysis
 - 4. Crash analysis

- C. Obtain all permits for the project as outlined in previous section.

- D. Coordinate any necessary utility relocation(s).

- E. Provide the Special Provision for Maintaining Traffic and Pavement Marking.

- F. Furnish FTP site for software download and instructions for the MDOT Stand Alone Proposal Estimator's Worksheet (SAPW).

- G. MDOT will provide coordination assistance with the following:
 - 1. Utility Companies

2. Railroad Companies
3. Project Stakeholders
4. FHWA
5. Other MDOT Divisions

H. MDOT collected the pavement cores/soil borings.

CONSULTANT RESPONSIBILITIES:

Complete the design of this project including, but not limited to the following:

The Consultant must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job and perform field operations in accordance with the Department's Personal Protective Equipment (PPE) policy as stated in the MDOT Guidance Document #10118.

Meet with the MDOT Project Manager to review project, location of data sources and contact persons, and review relevant MDOT operations. The Consultant shall review and clarify project issues, data needs and availability, and the sequence of events and team meetings that are essential to complete the design by the project plan completion date. Attention shall be given to critical target dates that may require a large lead time, such as geotechnical requirements, ROW submittal dates, Railroad coordination requirements, utility conflict resolution, local agency meetings, etc.

- A. Perform any needed design surveys. A survey was completed on US-10 in 2016 beginning at US-10 station 246+00 (west of the Leaton Road bridge), however some survey will be required for the portion of US-10 west of that station.
- B. Prepare required plans, typical cross-sections, details, and specifications required for design and construction.
- C. Compute and verify all plan quantities.
- D. Prepare any necessary staging plans.
- E. Provide solutions to any unique problems that may arise during the design of this project.
- F. The Consultant shall complete a drainage study. The Consultant shall prepare any required paperwork for the necessary MDEQ permits.
- G. The Consultant is responsible for the design of the soil erosion and sedimentation control measures. This design is to be provided on the preliminary plans. The Consultant is expected to make revisions in this design according to any comments provided.
- H. Coordinate, as needed, with the TSC Utility Engineer and TSC Traffic and Safety Engineer.

- I. The Consultant may be required to provide Design Services during the construction phase of this project. If Construction Assistance is required, then a separate authorization for those services will be issued.
- J. Maintain a Design Project Record in ProjectWise, which includes a history of significant events (changes, comments, etc.) which influenced the development of the plans, dates of submittals and receipt of information.
- K. If excavation is required, submit the excavation locations which may contain contamination. Project Manager then can proceed in requesting a Project Area Contamination Survey (PACS).
- L. The Consultant shall prepare and submit in ProjectWise (in PDF format) a CPM network for the construction of this project.
- M. The Consultant representative shall record the minutes and submit in ProjectWise (in PDF format), for all project related meetings to the MDOT Project Manager within two weeks of the meeting. The Consultant shall also distribute the minutes to all meeting attendees. MDOT will provide and distribute official meeting minutes for The Plan Review Meeting.
- N. The Consultant will provide to MDOT, by entering into MDOT ProjectWise at the scheduled submittal dates, electronic documents (in PDF format) of the required specifications and plan set materials for distribution by MDOT for all reviews for this project.
- O. Prepare and submit electronically (native format or PDF) into MDOT ProjectWise, any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring any permit (ie. NPDES, DEQ, etc), approvals (i.e. county drain commission) and related mitigation. MDOT will submit permit requests.
- P. Attend any project-related meetings as directed by the MDOT Project Manager.
- Q. Attend information meetings (i.e., public hearings, open houses, etc.) with the public and public officials to assist in responding to concerns and questions. This may require the preparation of displays such as maps, marked-up plans, etc.
- R. The MDOT Project Manager shall be the official MDOT contact person for the Consultant **and shall be made aware of all communications regarding this project.** The Consultant must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all Subcontractor correspondence and verbal contact records.

- S. The Consultant shall contact the MDOT Project Manager whenever discoveries or design alternatives have the potential to require changes in the scope, limits, quantities, costs, or right-of-way of the project.
- T. The Consultant shall be responsible for showing on the plans the location and names of all existing utilities within the limits of the project. In the course of resolving utility conflicts, the Consultant shall make modifications to the plans or design details and provide assistance as directed by the MDOT Utility Coordinator and/or Project Manager. The Consultant shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Consultant shall assist in the review of utility permit requests to ensure compatibility with the project.
- U. The Consultant shall be responsible for all traffic control required to perform the tasks as outlined in this Scope of Design Services.
- V. The Consultant shall be responsible for obtaining up to date access permits and pertinent information for tasks in MDOT Right of Way (ROW). Any questions regarding MDOT permits and/or utilities should be directed to:

Michael Loynes
Utilities Engineer
MDOT Mt. Pleasant TSC
1212 Corporate Drive
Mt. Pleasant, MI 48858
(989) 775-6104 Ext 306
LoynesM@michigan.gov

- W. On the first of each month, the Consultant Project Manager shall submit in ProjectWise a monthly project progress report to the Project Manager.

DELIVERABLES:

The Consultant shall enter in MDOT ProjectWise, in the appropriate folders all electronic files associated with the project in their native format (spreadsheets, CADD files, GEOPAK files, Roadway Designer Templates etc.) as directed by the MDOT Project Manager. All CADD/GEOPAK files shall be created and identified with standard MDOT file names. It is the Consultant's responsibility to obtain up to date MicroStation and GEOPAK seed/configuration files necessary to comply with MDOT's CADD standards which are published monthly to the MDOT website. Any CADD/GEOPAK files that do not conform to MDOT standards will be returned to the Consultant for correction at the Consultant's expense.

Proposal documents shall be submitted, to MDOT ProjectWise, in the appropriate folders, in their native format with standard naming conventions as well as combined into one PDF file in the sequence specified by MDOT. To provide text search capabilities the combined proposal shall be created by converting native electronic files to PDF. Scanning to PDF is discouraged except in instances where it is necessary to capture a legally signed document or a hard copy version of a

document is all that exists.

Plan sheets shall be submitted to MDOT ProjectWise in the appropriate folders in a set in PDF 11” x 17” format. For final Plan Turn-In, a title sheet shall be printed, signed, sealed, and then scanned for inclusion with the PDF set. The original title sheet shall be sent to the MDOT Project Manager.

Reference Information Documents (RID) shall be entered into MDOT ProjectWise in the appropriate folder with standard naming conventions and content at milestone submittals as defined by [Chapter 4](#) of the [Design Submittal Requirements](#). The RID files included will depend on the design survey deliverables and project template (See [Chapter 2](#) of the [Design Submittal Requirements](#)). These files range from CADD, existing terrain, proposed cross sections, 3D models and files generated for Automated Machine Guidance (AMG) and automated inspection/stakeout activities.

Stand Alone Proposal Estimator’s Worksheet (SAPW) shall be used to generate the txt and xml files necessary for import into the Trns*port bid letting software. The SAPW files shall be entered into MDOT ProjectWise in the appropriate folder.

The project removal, construction, and profile sheets will require a scale of **1”=100’ or as approved by the Project Manager**. See Section 1.02.12 of the Road Design Manual for further direction.

All plans, special provisions, estimates, and other project related items shall meet all MDOT requirements and detailing practices (i.e., format, materials, symbols, patterns, and layout) or as otherwise directed by the Project Manager. All plans, specifications, and other project related items are subject to review and approval by MDOT.

PROJECT SCHEDULE:

The Consultant shall use the tasks to prepare the proposed implementation schedule as required in the Guidelines for the Preparation of Responses on Assigned Design Services Contracts. These dates shall be used in preparing the Consultant’s Monthly Progress Reports.

For questions on specific tasks, refer to the PPMS Task Manual on the MDOT Bulletin Board System. For assistance in accessing this manual, please contact:

Dennis Kelley
(517) 373-4614
KelleyD2@michigan.gov

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. 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](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](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.

The Consultant shall use the following events to prepare the proposed implementation schedule as required in the Guidelines for the Preparation of Responses on Assigned Design Services Contracts. These dates shall be used in preparing the Consultant's Monthly Progress Reports.

MDOT
Preconstruction Tasks
Consultant Checklist
P/PMS Form Only

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

Version 13
Updated
03-02-2015

*For questions on specific tasks, refer to the P/PMS Task Manual located on the [MDOT Website](#).
For assistance in accessing this manual, please contact:
Dennis Kelley: (517) 373-4614*

Please indicate with a check in the box next to each task number whether you believe that task will require

consultant involvement on the job. Milestones (a specific event at a point in time) are italicized and underlined. See the P/PMS Task Manual for more details. Scheduling assistance may be accomplished with estimated completion dates. While not part of P/PMS, an Authorization Milestone and Post-Design Tasks have been included for your reference.

STUDY (EARLY PRELIMINARY ENGINEERING)

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY (mm/dd/yyyy)
YES	NO		
		<u>INFORMATION GATHERING/STUDIES</u>	
<input type="checkbox"/>	<input type="checkbox"/>	1115 Traffic Data Collection for Studies	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	1120 Prepare Traffic Analysis Report for Studies	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	1125 Traffic Capacity Analysis for Studies	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	1155 Request/Perform Safety Analysis for Studies	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	1300 Traffic Impact Study	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	1350 Determine Need for Interstate Access Change Request	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	1400 Feasibility Study	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	1500 Corridor Study	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	1555 Interstate Access Change Request	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i><u>155M FHWA Approval of Interstate Access Change Request</u></i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	1600 Access Management Study Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	1700 Other Miscellaneous Studies	__/__/__
		<u>EPE SCOPING ANALYSIS</u>	
<input type="checkbox"/>	<input type="checkbox"/>	2100 Scope Verification and Initiation of EPE Activities	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2115 Prepare Traffic Analysis Report for EPE/Design	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2120 Traffic Data Collection for EPE/Design	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2125 Traffic Capacity Analysis for EPE/Design	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2130 Prepare Project Purpose and Need	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i><u>213M Concurrence by Regulatory Agencies with the Purpose and Need</u></i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2140 Develop and Review Illustrative Alternatives	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2155 Request/Perform Safety Analysis for EPE/Design	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2160 Prepare and Review EIS Scoping Document	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i><u>216M Public Information Meeting</u></i>	__/__/__
		<u>EPE DRAFT ANALYSIS</u>	
<input type="checkbox"/>	<input type="checkbox"/>	2313 Endangered Species Survey	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2314 Wetland Assessment	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2315 Wetland Mitigation	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2316 Other Technical Reports	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2321 Prepare for Aerial Photography	__/__/__

<input type="checkbox"/>	<input type="checkbox"/>	2322	Finish/Print Aerial Photography	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2330	Collect EPE Geotechnical Data	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2340	Develop and Review Practical Alternatives	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<u>233M</u>	<u>Aerial Photography Flight</u>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2360	Prepare and Review EA	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<u>236M</u>	<u>Approval of EA by FHWA</u>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2370	Prepare and Review Draft EIS	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<u>237M</u>	<u>Approval of Draft EIS by FHWA</u>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2380	Distribute EA	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<u>238M</u>	<u>Public Hearing for EA</u>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2390	Distribute DEIS	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<u>239M</u>	<u>Public Hearing for DEIS</u>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2313	Endangered Species Survey	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2314	Wetland Assessment	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2315	Wetland Mitigation	__/__/__
			<u>EPE FINAL ANALYSIS</u>	
<input type="checkbox"/>	<input type="checkbox"/>	2510	Determine and Review Recommended Alternative	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<u>250M</u>	<u>Concurrence by Reg Agencies with Recom Alternatives</u>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2525	Prepare and Review Engineering Report	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2530	Prepare and Review Request for FONSI	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<u>252M</u>	<u>Approval of FONSI by FHWA</u>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2540	Prepare and Review FEIS	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<u>254M</u>	<u>Approval of FEIS by FHWA</u>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2550	Obtain ROD	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<u>255M</u>	<u>ROD Issued by FHWA</u>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2570	ITS Concept of Operations	__/__/__
			<u>CONTAMINATION INVESTIGATION</u>	
<input type="checkbox"/>	<input type="checkbox"/>	2810	Project Area Contamination Survey (PACS)	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	2820	Preliminary Site Investigation (PSI) for Contamination	__/__/__

PRELIMINARY ENGINEERING - DESIGN

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY	
YES	NO		(mm/dd/yyyy)	
		<u>DESIGN SCOPE VERIFICATION AND BASE PLAN PREPARATION</u>		
<input type="checkbox"/>	<input type="checkbox"/>	3130	Verify Design Scope of Work and Cost	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3310	Prepare Aerial Topographic Mapping	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3320	Conduct Photogrammetric Control Survey	__/__/__

<input type="checkbox"/>	<input type="checkbox"/>	3321	Set Aerial Photo Targets	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3325	Geotechnical Structure Site Characterization	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3330	Conduct Design Survey	11/11/2016
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3340	Conduct Structure Survey	11/11/2016
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3350	Conduct Hydraulics Survey	11/11/2016
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3360	Prepare Base Plans	12/16/2016
<input type="checkbox"/>	<input type="checkbox"/>	<u>311M</u>	<u>Utility Notification</u>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3365	Pre-Conceptual ITS Design and Meeting	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3370	Prepare Structure Study	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3375	Conduct Value Engineering Study	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3380	Review Base Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3385	Preliminary Load Rating	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<u>332M</u>	<u>Base Plan Review (Pre-GI Inspection)</u>	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3390	Develop the Maintaining Traffic Concepts	12/16/2016
			<u>PRELIMINARY PLANS PREPARATION</u>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3500	Develop Transportation Management Plan	6/5/2017
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3510	Perform Roadway Geotechnical Investigation	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3520	Conduct Hydraulic/Hydrologic and Scour Analysis	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3522	Conduct Drainage Study, Storm Sewer Design, and use Structural Best Management Practices	2/1/2017
<input type="checkbox"/>	<input type="checkbox"/>	3530	Geotechnical Foundation Engineering Report	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3535	Conduct Str. Review for Arch. & Aesthetic Improvements	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3540	Develop the Maintaining Traffic Plan	2/1/2017
<input type="checkbox"/>	<input type="checkbox"/>	3551	Prepare/Review Preliminary Traffic Signal Design Plan	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3552	Develop Preliminary Pavement Marking Plan	2/1/2017
<input type="checkbox"/>	<input type="checkbox"/>	3553	Develop Preliminary Non-Freeway Signing Plan	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3554	Develop Preliminary Freeway Signing Plan	2/1/2017
<input type="checkbox"/>	<input type="checkbox"/>	3555	Prepare/Review Preliminary Traffic Signal Operations	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3570	Prepare Preliminary Structure Plans	2/1/2017
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3580	Develop Preliminary Plans	2/1/2017
<input type="checkbox"/>	<input type="checkbox"/>	3585	Final ITS Concept Design and Meeting	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3590	Review The Plans	3/2/2017
<input checked="" type="checkbox"/>	<input type="checkbox"/>	<u>352M</u>	<u>THE Plan Review Meeting</u>	3/2/2017
<input type="checkbox"/>	<input type="checkbox"/>	3595	Conduct ITS Structure Foundation Investigation	__/__/__
			<u>UTILITIES</u>	
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3610	Compile Utility Information	12/16/2016
<input type="checkbox"/>	<input type="checkbox"/>	3615	Compile ITS Utility Information	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3650	Coordinate RR Involvement for Grade Separations	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3655	Coordinate RR Involvement for At-Grade Crossings	__/__/__
<input checked="" type="checkbox"/>	<input type="checkbox"/>	3660	Resolve Utility Issues	2/1/2017

<input type="checkbox"/>	<input type="checkbox"/>	360M <i>Utility Conflict Resolution Plan Distribution</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	361M <i>Utility Meeting</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3670 Develop Municipal Utility Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3672 Develop Special Drainage Structures Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3675 Develop Electrical Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3680 Preliminary ITS Communication Analysis	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3690 Power Design (Power Drop in Field)	__/__/__
		<u>MITIGATION/PERMITS</u>	
<input type="checkbox"/>	<input type="checkbox"/>	3710 Develop Required Mitigation	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3720 Assemble Environmental Permit Applications	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3730 Obtain Environmental Permit	__/__/__
		<u>FINAL PLAN PREPARATION</u>	
<input type="checkbox"/>	<input type="checkbox"/>	3815 Geotechnical Structure Design Review	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3821 Prepare/Review Final Traffic Signal Design Plan	__/__/__
X	<input type="checkbox"/>	3822 Complete Permanent Pavement Marking Plan	5/4/2017
<input type="checkbox"/>	<input type="checkbox"/>	3823 Complete Non-Freeway Signing Plan	__/__/__
X	<input type="checkbox"/>	3824 Complete Freeway Signing Plan	5/4/2017
<input type="checkbox"/>	<input type="checkbox"/>	3825 Prepare/Review Final Traffic Signal Operations	__/__/__
X	<input type="checkbox"/>	3830 Complete the Maintaining Traffic Plan	5/4/2017
X	<input type="checkbox"/>	3840 Develop Final Plans and Specifications	5/4/2017
X	<input type="checkbox"/>	380M <i>Plan Completion</i>	5/18/2017
X	<input type="checkbox"/>	3850 Develop Structure Final Plans and Specifications	5/4/2017
X	<input type="checkbox"/>	3870 Hold Omissions/Errors Check (OEC) Meeting	6/12/2017
<input type="checkbox"/>	<input type="checkbox"/>	3875 Final Load Rating	__/__/__
X	<input type="checkbox"/>	387M <i>Omissions/Errors Checks Meeting</i>	6/12/2017
X	<input type="checkbox"/>	389M <i>Plan Turn-In</i>	9/25/2017
<input type="checkbox"/>	<input type="checkbox"/>	3880 CPM Quality Assurance Review	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3890 Final ITS Communication Analysis	__/__/__

PRELIMINARY ENGINEERING – RIGHT OF WAY

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY (mm/dd/yyyy)
YES	NO		
		<u>EARLY RIGHT OF WAY WORK</u>	
<input type="checkbox"/>	<input type="checkbox"/>	4100 Real Estate Pre-Technical Work (combines 411M, 4120)	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	4150 Real Estate Technical Work (combines 4130, 4140)	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	413M <i>Approved Marked Final ROW</i>	__/__/__
		<u>ROW APPRAISAL</u>	
<input type="checkbox"/>	<input type="checkbox"/>	4350 Real Estate Appraisals (combines 4411, 4412, 4413,	__/__/__

		4420)	
		<u>ROW ACQUISITION</u>	
<input type="checkbox"/>	<input type="checkbox"/>	4450 Real Estate Acquisitions (combines 4430, 4710, 4720)	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	4510 Conduct Right Of Way Survey & Staking	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i>442M ROW Certification</i>	__/__/__

POST LETTING/AWARD TASKS (for reference only)

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY
YES	NO		(mm/dd/yyyy)
<input type="checkbox"/>	<input type="checkbox"/>	4810 Complete Acquisition Process	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	4820 Manage Excess Real Estate	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	4830 Provide Post-Certification Relocation Assistance	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	4910 Conduct ROW Monumentation	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	5010 Construction Phase Engineering and Assistance	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	5020 Prepare As-Built Drawings	__/__/__

ATTACHMENT A

**SCOPE OF SERVICE
FOR
DESIGN SURVEYS**

Version: June 2016

TYPE OF SURVEY:

X	Surveying: Road Design (3330)
X	Surveying: Structure (3340)
X	Surveying: Hydraulics (3350)
	Surveying: Right of Way (4510)

GENERAL REQUIREMENTS:

1. Surveys must comply with **all Michigan law** relative to land surveying.
2. Surveys must be done under the **direct supervision** of a Professional Surveyor licensed to practice in the State of Michigan.
3. The selected Survey Consultant must discuss the scope of this survey with an MDOT Survey Consultant Project Manager or an MDOT Region Surveyor before submitting a priced proposal.
4. The selected Survey Consultant must contact the Region or TSC Traffic and Safety Engineer for work restrictions and traffic control requirements. Costs for traffic control must be included in the priced proposal in order to be reimbursed as a direct cost.
5. A **detailed Survey Work Plan must** be included with the Priced Proposal. A **spreadsheet estimate** of hours by specific survey task such as horizontal control, leveling, mapping, alignment determination, etc., **must** be included in the **Priced Proposal**.
6. It is the responsibility of the Survey Consultant to safeguard all corners of the United States Public Land Survey System, published Geodetic Control and any other Property Controlling corners that may be in danger of being destroyed by the proposed construction project.
7. Surveys must meet all requirements of the *MDOT Design Surveys Standards of Practice* (link: http://mdotwiki.state.mi.us/design/index.php/Chapter_1_-_Survey_Manual_Introduction). Please contact the MDOT Design Survey Support Unit to clarify any specific questions regarding these standards.

8. Survey 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.
9. Prior to performing the survey, the Survey Consultant must contact all landowners upon whose lands they will enter in accordance with the *MDOT Design Surveys Standards of Practice*. A template letter can be found here: [http://mdotwiki.state.mi.us/design/index.php/File:EXAMPLE Right of Entry.pdf](http://mdotwiki.state.mi.us/design/index.php/File:EXAMPLE_Right_of_Entry.pdf)
10. The Survey Consultant must adhere to all applicable OSHA and MIOSHA safety standards, including the appropriate traffic signs for the activities and conditions for this job.
11. The MDOT Project Manager is the official contact for the Survey Consultant. The Survey Consultant must send a copy of all project correspondence to the MDOT Project Manager. The MDOT Project Manager shall be made aware of all communications regarding this project. Any survey related questions regarding this project should be directed to an MDOT Survey Consultant Project Manager or MDOT Region Surveyor. **The MDOT Project Manager must be copied on any and all correspondence.**

SURVEY PROJECT LIMITS:

If specific survey limits are not included, then the Survey Consultant must develop the survey limits based on the needs of the design team. A description of survey limits detailing length, width and cross roads must be included in the Survey Work Plan.

RESEARCH:

Survey Consultants are responsible for a comprehensive and conscientious research of all records, including MDOT records, essential for the completion of this project. The MDOT Design Survey Support Unit is available to assist in researching MDOT records.

CONTROL:

If not specified in this scope, Primary and Intermediate Horizontal Control Points and Benchmarks established for this project must meet the requirements specified in Chapter 3 of the *MDOT Design Surveys Standards of Practice*.

The Horizontal and Vertical datums and coordinate system must be clearly stated in the Survey Work Plan and subsequent submittals. For acceptable datums and coordinate systems refer to Chapter 3 of the *MDOT Design Surveys Standards of Practice*.

ALIGNMENT & ROW:

If not defined in this scope, the use of either a Legal or Non-legal Alignment and ROW must be determined from the needs of the design team. If it is determined that MDOT will need to acquire additional ROW with partial takes, then the **Legal** Alignment and ROW must be determined. If it

is determined that there will be partial takes, the Survey Consultant may need to prepare a Certified Survey, refer to *Chapter 4 Section 6: Certified Surveys for Real Estate Acquisition* for requirements.

MAPPING:

Mapping shall include the objects and features as needed to meet the requirements of the proposed design. The Survey Consultant's Work plan shall clearly identify mapping items that will be included in the project.

The following should be considered when determining the mapping needs for the project:

- Roadway improvements, curbs, sidewalks, signs, guardrail, light poles
- Intersection signalization equipment
- Building structures and improvements on property adjacent to project
- Drainage appurtenances including ditches, culverts, structures
- Surface manifestations of utilities and connectivity
- Terrain surface mapping
- Trees and brush classification
- Bridge structure elements, measurements, elevations, and underclearance dimensions
- Hydraulics Survey of watercourses
- Use of Static Terrestrial Laser Scanning(STLS)
- Use of Mobile Terrestrial LiDAR Survey(MTL)
- Use of Photogrammetric Mapping

TRAFFIC & SAFETY:

The Selected Survey Consultant, and the Selected Survey Consultant only, is advised to discuss Traffic Control scenarios with the local MDOT TSC Traffic and Safety Engineer **NAME** at **PHONE** or **EMAIL** prior to submitting a priced proposal. Traffic Control costs not included in the priced proposal will not be paid by MDOT.

The Survey Consultant must submit an advanced notice 5-21 days prior to beginning any work activity through the MDOT Construction Permit System (CPS) (http://www.michigan.gov/mdot/0,4616,7-151-9625_72410---,00.html).

The Survey Consultant must adhere to all work restrictions and traffic control requirements detailed in the MDOT Advanced Notice Permit.

The Survey Consultant must have a vehicle with markings/logo that identifies the company within sight distance of survey activity and must have a 360 degree flashing strobe light on the top of the vehicle whenever they are working on or near the road.

Traffic control on city streets and county roads is under the jurisdiction of the local authorities where the project is located.

COORDINATION WITH OTHER CONTRACTS IN THE VICINITY:

The Survey Consultant shall coordinate operations with contractors performing work on other projects within or adjacent to the Construction Influence Area (CIA).

MDOT maintenance crews and/or Contract Maintenance Agencies may perform maintenance work within or adjacent to the CIA. The Maintenance Division of MDOT and/or Contract Maintenance Agency will coordinate their operations with the MDOT Project Manager or Designate to minimize the interference to the Survey Consultant.

The Survey Consultant must contact the Operations Engineer at the local MDOT TSC for information regarding project coordination.

Other contracts or maintenance operations may occur during the life of the project. Contractors and other consultants involved with construction projects have similar requirements of cooperation and coordination of work as part of their projects as referenced in Article 104.08 of the *2012 Standard Specifications for Construction* (<http://mdotcf.state.mi.us/public/specbook/2012/>). Survey Consultants shall conduct their work with similar coordination efforts. The Survey Consultant will not be allowed claims for extra compensation or extensions of deadlines due to delays or failures of others to complete scheduled work.

POST SURVEY CLEAN-UP:

Once the survey is complete, all stakes must be removed from the MDOT median and ROW to aid the maintenance crews and adjacent property owners. All benchmarks and control points and their witnesses must remain in place.

DELIVERABLES:

The **MDOT Survey QA/QC Checklist** details the files that are to be submitted to MDOT (link: http://mdotwiki.state.mi.us/design/index.php/File:MDOT_Survey_Project_Checklist_2016.xlsm) . This document shall be signed and certified by the Professional Surveyor responsible for the project QA/QC. **Failure to use and include this document may result in the immediate return of the project portfolio for completion.**

Files submitted to MDOT may vary by project type and scope, the following files **must always** be submitted to MDOT unless explicitly omitted in writing by the following MDOT personnel: MDOT Region Surveyor, MDOT Survey Consultant Manager or MDOT Supervising Land Surveyor:

- Survey Portfolio PDF (XXXXXXX_Survey_20YY-MM-DD.pdf)
- Survey Information Sheet (S-XXXXXXX_Survey_Info_Sheet_20YY-MM-DD.doc)
- Alignment and ROW CAD file (S-XXXXXXX_Align_ROW_20YY-MM-DD.dgn)
- 3D project map (S-XXXXXXX_Survey_3D_20YY-MM-DD.dgn)
- When Mobile Terrestrial LiDAR (MTL) or Static Terrestrial Laser Scanning (STLS) techniques are used, three (3) copies of the entire point cloud must be delivered to the MDOT Survey Support Unit on media with appropriate storage capacity to contain all the data on one device.

- When Photogrammetric Mapping techniques are used, three (3) copies of the raw digital imagery, ortho-imagery and photogrammetrically extracted points cloud data must be delivered to the MDOT Survey Support Unit on media with appropriate storage capacity to contain all the data on one device.

All submitted files must be scanned and/or converted to one PDF format file. A Table of Contents in PDF format is required that has all PDF files bookmarked/linked so each place in the PDF archive can be accessed with a single click. Items required to be included in the Survey Portfolio PDF can be found in the QA/QC Checklist. Specified format files such as Microsoft Word and MicroStation GEOPAK must have separate access in native format outside of the PDF file.

At the completion of this survey for this project, legible copies of all field survey notes, all electronic data, and all research records obtained for this project will be considered the property of MDOT. Please include MDOT's Form 222(5/01) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL" for all transmittals. A copy of this transmittal form must be sent to the MDOT Project Manager for Design and the MDOT Supervising Land Surveyor.

Electronic submittal only. Survey deliverables must be submitted using ProjectWise. For file naming conventions and upload locations, refer to Chapter 10 of the *MDOT Design Surveys Standards of Practice*. **Acceptance of this survey by the MDOT Project Manager and/or the MDOT Supervising Land Surveyor does not relieve the Survey Consultant of any liability for the content of the survey.**

ATTACHMENT B
SCOPE OF SERVICE
FOR
HYDRAULIC SURVEY
As of February 2016

C.S. << >> Job No. << >>
<<Route>> over <<Stream>>
<< >> County , <<Section>>, <<Town>>, <<Range>>

The Consultant shall perform a hydraulic survey, which provides geometric data on the stream channel upstream and downstream of the structure. **Two weeks** prior to starting the hydraulic survey, the Consultant surveyor shall schedule a site visit with an MDOT Hydraulic Engineer by contacting the MDOT Hydraulics Unit Supervisor, Chris Potvin at 517-335-1919 or Assistant Hydraulics Unit Leader, Larry Wiggins at 517-373-1713. The purpose of the site visit is to discuss details of the survey and to clarify the intent of the survey. The Consultant must take notes at the site visit and submit them promptly to the MDOT Project Manager, MDOT Survey Coordinator and MDOT Hydraulic Engineer.

Prior to performing the survey, 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, and an MDOT contact person (the MDOT Project Manager or Consultant Survey Coordinator or Region Surveyor).

The Consultant must make every effort to minimize brush cutting on private property. The use of paint on private property is prohibited.

Cross-sections shall be taken at the limits and intervals specified by the MDOT Hydraulic Engineer as described in the Deliverables for Hydraulic Survey. Approximate cross section locations and survey limits are shown in Figure 1. Cross section locations, orientation, point spacing, and distance into the floodplain will be finalized during the site meeting between the MDOT Hydraulic Engineer and Consultant Surveyor. Channel cross-sections shall be taken normal to the direction of *flood flow* and tied to the project coordinate system so they can be accurately plotted. The sections shall be extended to the edge of the floodplain, to the elevation of the top of the road at the structure, or to a distance beyond the river bank agreed upon with the MDOT Hydraulic Engineer at the site visit. Shots must be taken at intervals through the stream as specified by the Hydraulic Engineer, and at significant break points. Any high water marks and date of occurrence (if available) shall be noted.

(Insert picture of site location with approximate cross section locations)

Figure 1

The Consultant shall meet the following requirements for hydraulic cross-sections:

1. Cross-sections shall be submitted electronically in a MicroStation/GEOPAK V8 software file.
2. Each cross-section shall be a separate chain named "HYDRO9, HYDRO2", etc. These **HYDRO** chain numbers need not be in sequence, but each HYDRO chain must have a description, labeled in MicroStation/GEOPAK, of 10, 20, 30, etc., in sequence, starting with 10 at the downstream end. Each individual point should have its own particular identifying MDOT Feature Code and the same alpha prefix, such as RBOT, VEGE, TB.
3. A profile of the **highpoints of all berms** such as roads, railroads, or driveways that cross the stream must be included as a separate chain in MicroStation/GEOPAK, with a Feature Code of "**HIPTC**" and named "HIPTC3, HIPTC1", etc. These HIPTC chain numbers need not be in sequence, but each HIPTC chain must have a description of 10, 20, 30, etc., in sequence, starting with 10 at the downstream end. Each HIPTC chain must also have a description, labeled in MicroStation/GEOPAK, that identifies the type of centerline, such as "railroad berm" or "farm drive." **HIPTC chains must be sequenced separately from the HYDRO Chains.** Each individual point should have its own particular identifying MDOT Feature Code and the same alpha prefix, such as CL, SW, WALLT.
4. Each HYDRO and HIPTC cross-section shall be submitted with the points in the chain running all left to right, looking downstream.
5. The cross-sections generally must extend a minimum of 100 feet into the floodplain from the stream top of bank, unless specified otherwise by the MDOT Hydraulic Engineer during the site meeting.
6. For each cross-section, the vegetation break point (the "friction point" between the natural channel and the surrounding vegetation) shall be shot with an alpha prefix and Feature Code of "**RBK**" or "**LBK**" on the right or left side of the waterway, looking downstream. It should have a description of "break point."
7. Subsequent vegetation break points, if applicable, shall be shot with an alpha prefix and Feature Code of "**VEGE**" with a description such as "friction point – grass to shrub," or "friction point – shrub to trees" as appropriate. The vegetation type closest to the stream shall be listed first.
8. The water surface elevations at each cross section shall have a Feature Code and alpha prefix and of "**LWS**" and "**RWS**", taken at the left edge of water and right edge of water looking downstream. All water surface elevations should be taken on the same day. If this is not possible, note the date taken and any event such as rainfall which may affect the water surface elevation. The Consultant must note if any stream bed cross sections were dry, and LWS/RWS shots were unavailable. The note should be shown on the MicroStation/GEOPAK drawing. **These points are not to be included in the Hydro**

chains.

The project surveyor must ensure that all required information is legible and in a form which is easily accessible to the MDOT Hydraulics Unit. A MicroStation/GEOPAK V8 software file, version **08.11.07.566** (as of October 1, 2012), or later, is acceptable. The project surveyor must ensure that all required information is legible and in a form which is easily accessible to the Hydraulics Unit. A HEC-RAS file is acceptable. A comma separated value (.csv), specifically formatted, is recommended. An example is available on the MDOT Design Survey ftp site, or by request of the MDOT Survey Project Manager. Other formats must be discussed in advance with the MDOT Survey Project Manager or MDOT Hydraulics Unit Supervisor.

Only one MicroStation/GEOPAK file per project is desired. The Consultant should not submit separate MicroStation/GEOPAK files for Hydraulics and Road/Structure, unless the Hydraulic Survey is required to be delivered first, in which case the Road/Structure Survey MicroStation/GEOPAK file would be continued/appended to the Hydraulic Survey file.

All elevations shall be referenced to the North American Vertical Datum of 1988 (NAVD88), unless a previously established project datum is required by the MDOT Hydraulic Engineer. If a project datum is used, the MDOT Hydraulic Engineer may require a reference to the North American Vertical Datum of 1988 (NAVD88), or the National Geodetic Vertical Datum of 1929 (NGVD29), or International Great Lakes Datum (IGLD). Two benchmarks must be established at the stream crossing, one on each side of the stream. All benchmarks must be accurately described. Benchmark leveling shall be a closed loop of at least third-order accuracy, which requires an error of closure between known benchmarks of not more than 0.06 feet times the square root of the distance in miles.

Note: It is not necessary to provide least squares analyses for horizontal and vertical control for a Hydraulic Survey upstream and downstream from the structure. Electronic evidence of horizontal and vertical closure is required. The surveyor must use professional judgment to determine whether the closures are acceptable for use on a Hydraulic Survey. It is necessary to provide accurate elevations for underclearances, road and berm profiles, weirs, and anything that controls flow. It is not necessary to provide extremely accurate closures for vertical and horizontal control used for hydraulic cross-sections.

It is not necessary to provide a witness list of horizontal control points set for hydraulic cross-sections.

A list containing at least two benchmarks, one on either side of the bridge, with descriptions, elevations and datum, must be provided. Since these benchmarks may well be used for road/bridge design and construction, least squares analysis is required.

THE PORTFOLIO FOR THE HYDRAULIC SURVEY MUST BE DELIVERED ELECTRONICALLY IN PROJECTWISE in the External Partnerships section, in the JN-specific Hydraulics folder. All field measurements, notes, sketches, and calculations must be included in the final transmission.

C.S. << >> Job No. << >>

<<Route>> over <<Stream>>
<< >> County , <<Section>>, <<Town>>, <<Range>>

DELIVERABLES FOR HYDRAULIC SURVEY

1. The **riparian owners** and addresses in the four quadrants of the structure and stream, clearly shown. It may be necessary to draw the stream on an Equalization map.
2. **First water access** of all buildings within the survey limits. These shots should use Feature Code **FF** in MicroStation/GEOPAK. A description should be included noting exactly what element is depicted, such as basement window, walkout basement, or first floor.
3. All **pertinent structure data** including water surface elevations, flow lines, invert or footing elevations, opening widths, structure width, pier dimensions, and underclearance elevations, both upstream and downstream, **at the stream structure**. Include an elevation view sketch of both sides of the structure showing this information. Note structure width (measured parallel to stream) across the roadway or railroad.
4. All pertinent **structure data** including water surface elevations, flow lines, invert or footing elevations, opening widths, structure width, pier dimensions, and underclearance elevations, both upstream and downstream, at any **other structures** encountered within the reach of the survey. Include **elevation view sketches** of both sides of **all such structures** showing this information. Note structure width (measured parallel to stream) across the roadway or railroad.
5. Water surface elevations at each section must be provided, with the date taken. The water surface elevations at each cross section shall be taken at the left edge of water and right edge of water. **All water surface elevations should be taken on the same day if possible**. If not, note the date taken and any event such as rainfall which may affect the water surface elevation
6. A **profile of the highpoints of all berms** such as roads, railroads, or driveways that cross the stream must be included as separate chains in MicroStation/GEOPAK, with a Feature Code of “HIPTC” and labeled as “HIPTC3, HIPTC1”, etc. These HIPTC chains need not be in sequence, but each HIPTC chain must have a description of 10, 20, 30, etc., in sequence, starting with 10 at the downstream end. Each HIPTC chain must also have a description that identifies the type of berm, such as “railroad berm” or “farm drive.” The HIPTC chains are to have descriptions of 10, 20, 30, etc., sequenced separately from the HYDRO chains. Each individual shot in the HIPTC chain should have its own identifying Feature Code and alpha prefix such as CL, SW, or WALLT. Profile shots must be taken at the approximate reference lines of the structure, with an appropriate Feature Code and a description of “approximate reference line.”
7. One **road profile** for a minimum of 600 feet along the **highpoints of the state trunkline**, as determined by the MDOT Hydraulic Engineer, with a description or “**M-xx centerline**” if the actual centerline is used. The chain Feature Code must be HIPTC, with a description of

“10”, or as sequenced in #6 above if there are berms downstream in the survey area. Each individual shot in the HIPTC chain should have its own identifying Feature Code, such as CL, SW or WALLT. Shots must be taken at the approximate reference lines of a structure, with an appropriate Feature Code and/or point name, such as DECK or SW, and a description of “approx reference line.” In the case of a culvert, a road profile shot must be taken at the highpoint at the approximate center of the culvert, with a description of “centerline culvert” and be shown on the MicroStation/GEOPAK file.

8. For the **HYDRO** chains, HEC-RAS format or a comma separated value (.csv) file, in specific MDOT format, must be provided. The CSV must contain columns for River, Reach, X, Y, Z, Feature Code, and Description. The shots for each cross section must be grouped together in the same order that they are in the chain, and the cross section designation (10, 20, 30, etc.) noted. An example is available on the MDOT Design Survey ftp site, or by request of the MDOT Survey Project Manager. Other formats must be discussed in advance with the MDOT Survey Project Manager or MDOT Hydraulics Unit Supervisor.
9. For the **HIPTC** chains, a Microsoft Excel file, in specific MDOT format, must be provided. The Excel file must contain columns for X, Y, Z, Station, and Elevations. Station values must be determined using the Pythagorean equation for the X and Y values between shots. The shots for each chain must be grouped together in the same order that they are in the chain. Examples can be found on the MDOT Design Survey ftp site, or contacting the MDOT Hydraulics Unit, or the MDOT Design Survey Project Manager.
10. A MicroStation/GEOPAK V8 file of the Hydraulics Survey utilizing MDOT Feature Codes and showing the relationship of the cross sections to the structure and the road, and noting the distance between cross sections. The HYDRO and HIPTC chains must show the description numbers of 10, 20, 30, etc. Point numbers must also be shown in small text. RBK and LBK shots, and others (EW) as necessary, must be connected to show the stream footprint. First water access locations and elevations must be shown, along with a notation of what the first water access point is, for example: basement window.
11. A MicroStation/GEOPAK V8 file of the area at the stream crossing, saved to .pdf format, showing a basic map of the bridge including abutments, the road(s), and cross section shots at the upstream and downstream faces of the structure (elevations in small text).
12. **Benchmark list** with descriptions, elevations, and datum; and least squares analysis for benchmarks at the structure.
13. **Two HYDRO cross sections**, one at the **upstream face** and one at the **downstream face** of the structure, excluding roadway embankment.
14. **Upstream** of the structure, hydraulic **cross-sections must be defined by the MDOT Hydraulics Unit.**
15. **Downstream** of the structure, hydraulic **cross-sections must be defined by the MDOT Hydraulics Unit.**

ATTACHMENT C

**SCOPE OF SERVICE
FOR
UTILITY COORDINATION**

The Consultant is directly responsible for all aspects of the project's utility coordination. The Consultant is expected to provide technical assistance to MDOT, utilities and other stakeholders regarding utility identification, project utility coordination and utility conflict resolution.

A utility is defined as any privately, publicly, municipal or cooperatively owned line, facility, or system for producing, transmitting, or distributing communication, cable television, power, electricity, light, heat, gas, oil, crude products, water, steam, waste, or any other similar commodity, including any fire or police signal system or street lighting system.

MDOT shall -

- Provide a preliminary list of utilities, with contact information, that may have facilities located within the project limits. This list may not be 100% accurate and/or complete.
- Provide assistance, if necessary, in contacting utilities to obtain facility records.
- Provide Consultant with utility responses and facility records if utility information solicitation has been performed.
- Organize and host a kick-off meeting with Consultant and MDOT prior to Consultant beginning utility coordination services.

Consultant shall -

- Maintain a Utility Conflict Matrix* spreadsheet and deliver as the bi-weekly status report.
- Distribute form letters, plans, etc. as outlined in 14.16 (Request for Utility Information) and 14.26 (Distribution of Preliminary Plans to Utilities and Utility Coordination Meeting) of the MDOT Road Design Manual.
 - Identify existing/proposed utility owners and facilities.
 - Collect and compile utility responses.
 - Follow up with non-responsive utilities.
- Schedule and conduct utility meetings for the resolution of conflicts between utility facilities and proposed construction.
 - Identify conflicts, discuss possible design modifications, develop utility relocation schemes, discuss reimbursable relocations, and discuss project scope and schedule.
 - Identify the utility's design and construction contacts and ensure the plan's note sheet utility contact information is accurate.
 - Record meeting minutes and distribute to all attendees.
- Schedule and conduct field meetings with individual utilities to resolve conflicts.
- Schedule and conduct meetings convened for the purpose of utility betterments.
- Ensure municipal utility relocations, betterments and reimbursements follow Chapter 9 of the MDOT Road Design Manual.

- Identify eligible reimbursable utility relocations, for public/private utilities, as outlined in 23 Code of Federal Regulations (CFR) Part 645 Subparts A and B – Utilities and ensure 23 CFR Part 635.410 - Buy America Requirements are met.
 - Collect documentation to evaluate reimbursable utility relocations.
- Evaluate utility relocation plans for compatibility with the proposed project.
- Ensure utility relocation schedules do not impact the project schedule.
- Confirm utility relocation permit applications are submitted to the TSC.
- Prepare the “Utilities Status Report” (MDOT Form 2286) and “Notice to Bidders - Utility Coordination” documents.
- Track and monitor utility relocation progress.

Deliverables (Provided to the TSC Utility Coordinator and Project Manager):

- Courtesy copies of all correspondence with the utilities
- Utility Conflict Matrix
- Utility coordination meeting minutes
- Reimbursable utility relocation documentation
- Utilities Status Report and Notice to Bidders - Utility Coordination

* The Utility Conflict Matrix (UCM) is located on the <http://www.trb.org/Main/Blurbs/166731.aspx> website under Training materials > Prototype 1 – Stand-alone UCM. The UCM was developed as part of the Transportation Research Board’s (TRB) second Strategic Highway Research Program (SHRP 2) Report S2-R15B-RW-1: Identification of Utility Conflicts and Solutions which provides concepts and procedures to identify and resolve utility conflicts. Tools described in the report include utility conflict matrices that enable users to organize, track, and manage conflicts that frequently arise.