Michigan Department
Of Transportation
5100B (12/14)

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

	REQUISITION NUMBER	DUE DATE	TIME DUE
	1869	11/30/2015	noon EST
MDOT PROJECT MANAGER Elyse Lower	JOB NUMBER (JN) 126442	CONTROL SECTION (CS) 33045	

DESCRIPTION
Prepare scoping packages for an Active Traffic Management (ATM) system along I-496 from I-96 to I-496.

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 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) 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 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 for all firms performing non-prequalified services on this project.)

(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."

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.

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

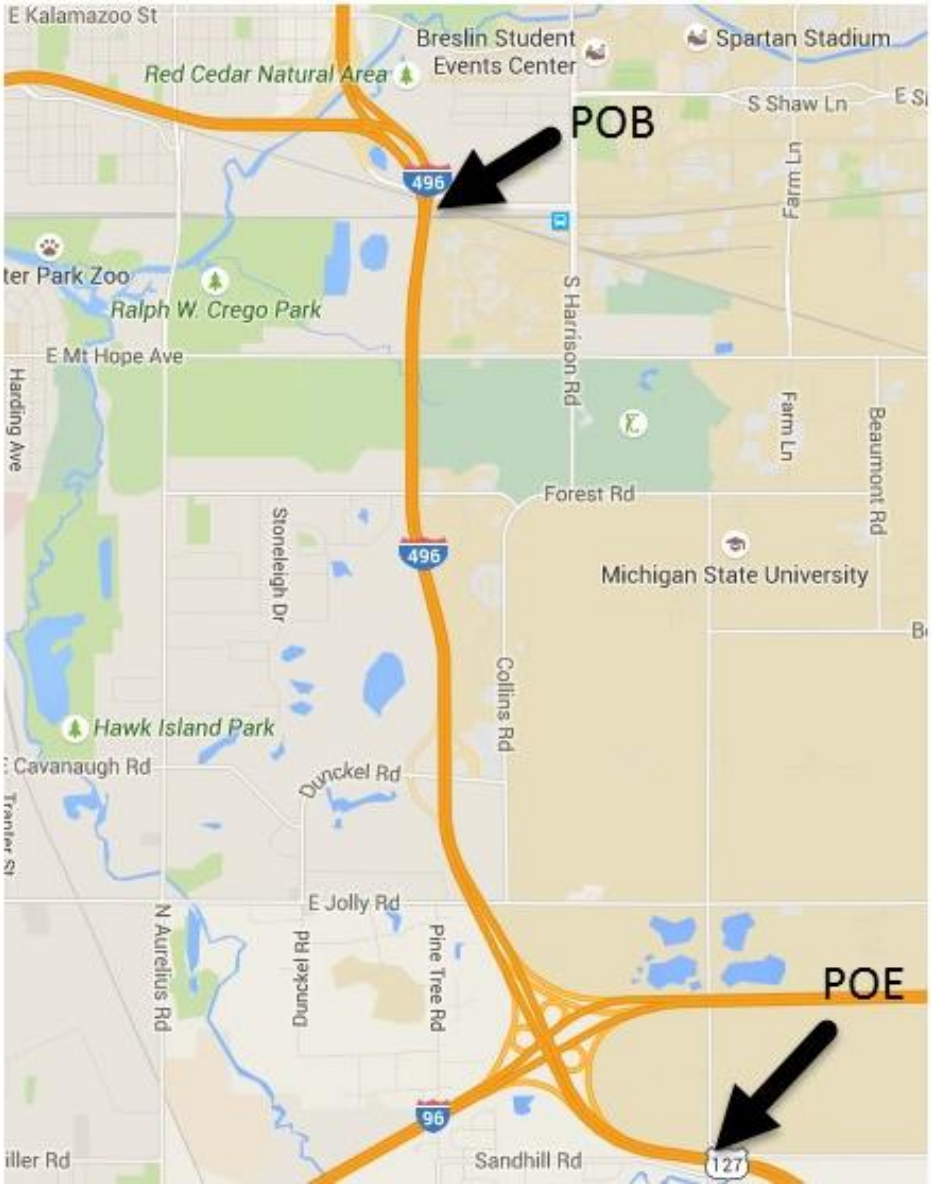
Michigan Department of Transportation

SCOPE OF SERVICE
FOR
PRE-DESIGN SERVICES

CONTROL SECTION(S): 33045

JOB NUMBER(S): 126442

PROJECT LOCATION:
The project is located on I-496/US-127 from the I-496/US-127 interchange to College Road in the City of Lansing and East Lansing.
The project length is 3.017 miles.



The following bridges are included

Structure No.	Bridge ID	Facility Carried	Feature Intersected
3757	R03-33045	I-496 EB	CSX RR & Trowbridge Ramp
3758	R04-33045	I-496 WB	CSX RR & Trowbridge Ramp
3759	R05-33045	I-496 EB	GTW RR
3760	R06-33045	I-496 WB	GTW RR
3778	S09-33045-3	I-496 EB	Mount Hope Ave
3779	S09-33045-4	I-496 WB	Mount Hope Ave
3780	S10-33045-3	I-496 EB	Forest Rd
3781	S10-33045-4	I-496 WB	Forest Rd
3782	S12-33045	I-496 WB	Jolly Rd
3783	S13-33045	I-496 WB	I-496 EB Ramp to I-96 EB
3784	S14-33045	I-496 EB	Jolly Rd
3785	S15-33045	Dunckel Road	I-496
3824	S02-33084	I-496 & US-127 NB	I-96 EB
3834	S14-33084	I-496 & US-127 NB	I-96 WB

PROJECT DESCRIPTION:
Work involved in the design of the project consists of:

Prepare preliminary and final road scoping packages for an Active Traffic Management (ATM) system along I-496/US-127 from the I-496/US-127 interchange to College Road. The type of ATM treatment that should be used is dynamic shoulder use with concurrent flow. This package shall include all road, bridge, and ITS components. The system consists of widening & upgrading the median shoulder & ITS infrastructure to allow traffic to utilize the median should during peak hours. Drainage, median barrier, and noise impacts should all be accounted for.

All bridges with in the limits will need to be scoped and develop the scope of work and estimate for each bridge. This scope of service is to evaluate various repair alternatives for a prescribed set of bridges and recommend the most appropriate rehabilitation or preventive maintenance treatment based on current conditions, remaining structure life and sound engineering judgment. Project includes visiting the site for each structure and maintaining traffic to evaluate the bridges.

ANTICIPATED SERVICE START DATE:
November 2015

ANTICIPATED SERVICE COMPLETION DATE:
October 2016

DBE PARTICIPATION REQUIREMENT: N/A

PRIMARY PREQUALIFICATION CLASSIFICATION(S):
Roadway: Intermediate

SECONDARY PREQUALIFICATION CLASSIFICATION(S):
Traffic: Capacity and Geometric Analysis
Traffic: Signing Freeway
Traffic: Safety Studies
Traffic: Work Zone Maintenance of Traffic
Bridges: Scoping
Geotechnical
Hydraulics I
Utilities: Roadway Lighting
Environmental: Noise Assessment
Surveying, Road Design

MDOT PROJECT ENGINEER MANAGER:
For questions during the RFP advertisement period ONLY contact:
Stephaine Palmer
PalmerS3@michigan.gov

Elyse Lower
Lansing TSC
2700 Port Lansing Rd
(517) 335-3714
Lowere1@michigan.gov

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. Coordinate all scoping activities that require MDOT personnel.

B. Furnish pertinent reference materials.

C. Furnish prints of an example of a similar project and old plans of the area, if available. Furnish the E.A.

D. Perform pavement designs and geotechnical recommendations based on consultant supplied soil borings and pavement cores.

E. Furnish a list of the utility companies present within the control section(s) of the project.

F. Furnish project selection justification data, including Pavement Management System data and Sufficiency Rating data.

G. Furnish current crash history data.

H. Furnish list of people invited to each Scope Review Meeting.

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

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, Railroad coordination requirements, utility conflict resolution, local agency meetings, etc.

A. Perform survey commensurate with the required in this scope of services and as detailed in Attachment A – Survey Scope of Work.

B. Provide solutions to any unique problems that may arise during the design of this project.

C. 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.

D. Attend any project-related meetings as directed by the MDOT Project Manager.

E. Attend information meetings (i.e., public hearings, open houses, etc.) with the public and public officials to assist in responding to concerns and questions. May require the preparation of displays such as maps, marked-up plans, etc.

F. 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.

G. Maintain a detailed Scoping Project Record which includes a history of significant events (changes, comments, etc.) which influenced the development of the scopes, dates of submittals and receipt of information.

H. 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.

I. For each project location, determine impacts of the proposed pavement treatment on the existing horizontal and vertical alignments, pavements, curb and gutter, drainage, right of way (ROW), etc. Every effort shall be made to minimize ROW impacts within the limits of the project. In areas of potential ROW impacts, the Vendor shall document and identify the potential need for additional ROW, by station or address, type of ROW required (grading permit, easement or fee) and roadside improvements proposed (i.e. fencing, turf establishment, landscaping, non-motorized, etc.). ROW impacts shall be documented in terms area of potential need (grading permit, easement, or fee). The ROW appraisal will be prepared by MDOT.

J. Generate Base Sheets for each project location, using the Base Map and formatted as described in REQUIRED MDOT FORMAT, for the entire project limits.

K. Prepare existing and proposed general typical cross sections for each project location as described in REQUIRED MDOT FORMAT. The pavement fix type for each project location is subject to change until the conclusion of the Preliminary Scope Review Meeting**.**

L. Compute and verify all quantities necessary to complete the Project Concept Statement and the Project Scoping Checklist, and calculate a detailed cost estimate using the Scoping estimator Tool (Trns·port).

M. Complete the Statewide Scoping Package Master Checklist – ROAD, Road Scoping Report & Details Worksheet, Culvert Scope Inspection Forms as needed, and Constructability Checklist per the MDOT Scoping Manual.

N. Review and document the existing drainage system, open or enclosed, and identify areas of possible improvements. A portion of the existing storm sewer will be video recorded as part of the scoping contract. This shall be done as per Attachment D. For minor drainage improvements, incorporate the fix into the estimates. For areas of possible major drainage improvements, document the location, condition, recommended treatment and cost estimate. With approval from MDOT, incorporate the fixes into the estimates, and incorporate information into Road Scoping Report & Details Worksheet. Complete Culvert Scope Inspection Form for all culverts over 36" and under 10'.

O. If waterman and/or sanitary sewers are present within the project limits, the Consultant shall evaluate the necessity for the relocation of waterman and sanitary sewers, in accordance with MDOT Design Division's Informational Memorandum #441B and #402R dated April 13, 1992. Send a letter to the MDOT Project Manager identifying where waterman and/or sanitary sewer relocation is needed/ recommended. Provide the limits, an explanation for the relocation and a cost estimate for each location.

P. Submit requests to applicable utility owners for preliminary utility information. Submittals to the utility company shall include: a completed MDOT approved form, and a minimum of two (2) copies of location map, Base Map and Base Sheets. Document and identify any possible utility conflicts and estimate the cost of relocation and/or adjustment.

Q. Review and document the roadside safety related items (i.e. guardrail, barriers, attenuators, etc.) which need to be modified or included in the project. Documentation to include location, existing type and condition, and the recommended treatment. This information shall be included in the appropriate area of the Road Scoping Report & Detailed Worksheet.

R. Perform crash analysis and recommend countermeasures. This shall include, but not limited to, the following:

1. Performing Crash Analysis. This shall include the last three (3) years of reliable data for the analysis period. If there is a fatality within those three (3) years, the analysis shall include the details of the specific fatality. MDOT will furnish three (3) years of data.

2. Determine Countermeasures based on the Crash Analysis. Determine ROW impacts for each countermeasure identified. Determine the construction cost estimate for each countermeasure. Summarize countermeasures which shall include each crash pattern and countermeasure individually listed, along with their associated ROW impacts and construction cost estimate. ROW impacts shall be documented in terms area of potential need along with the type of ROW required (grading permit, easement, or fee). The ROW appraisal will be prepared by MDOT. The construction cost estimate for each countermeasure recommendation shall be presented in the Preliminary Scoping Package and shall be reviewed and approved by MDOT prior to inclusion in the Final Scoping Package.

S. Document and identify locations of possible environmental issues which may impact the project, and estimate the cost of treatment. This information shall be included in the appropriate area of the Road Scoping Report & Detailed Worksheet and shall also be entered into a separate spreadsheet and submitted as part of the Final Deliverable Package

T. Document and identify (location and who has responsibility for) any existing lighting that has potential for being impacted, or should be included, in the project. Incorporate work into the estimate. (Lighting on Non-Freeway roads is the responsibility of the local jurisdiction).

U. Develop the Maintaining Traffic Concept as per Attachment B.

V. Identify, contact and coordinate with all affected governmental agencies (County, and/or city, township) within the project limits (and directly abutting, if any part of the construction influence area will be within another agencies area). Coordination will involve, at a minimum, an initial letter stating the project and its scope and requesting local input, within 30 days, in the development of the detailed scope. A follow up letter, if no response is given, and a final letter stating the process that occurred and what the final scope will be to all affected governmental agencies. There may be the need to attend meetings and receive and return telephone calls from the affected agencies. Any and all local requests shall be reviewed with MDOT before any commitment to work shall be given to the affected agencies. MDOT shall be informed of any meeting with the affected agencies a minimum of 72 hours in advance of the meeting. All discussions with agencies shall be documented and submitted with the monthly progress reports.

Prepare a spreadsheet summary of the local coordination that occurred. The summary shall document the planning/coordination process that occurred with each of the affected local agencies. The summary shall include, at a minimum, specifically what was sent to who and when, what was received from who and when and what responses were made (and why) to who and when. The information shall be entered into a separate spreadsheet and submitted as part of the Final Deliverable Package. The spreadsheet shall be prepared as stated in REQUIRED MDOT FORMAT.

W. Incorporate any MDOT identified and/or approved (if approved, include copy of MDOT approval) local needs/requests into project scope.

X. Conduct field reviews, provide photographs, and digital files (.jpg files) of the existing roadway and roadside conditions to document the needs as identified in the project scope.

Y. Review and document scope conformance to design elements for design exceptions and MDOT's 3R/4R Guidelines for non-freeway jobs.

Prepare a table of the values used for the evaluation of the elements listed in the Road Scoping Report & Details Worksheet. The table shall, at a minimum, contain the following: Existing Condition, Minimum Values per Design Standards for the associated design element, Proposed Treatment. If the Proposed Treatment is not in accordance with the Treatment as per Design Standard, an additional section shall be added entitled Reason for not Meeting Design Standards. This section shall provide documentation for the justification for not being in conformance.

For the Final Scoping Package, complete a Design Exception Request for all potential formal design exception needs. Note that cost alone will not be sufficient justification for not bringing the features up to standard.

Z. Provide soil borings/pavement coring for plan development and pavement design that will be completed by MDOT as per ATTACHMENT C. The MDOT Project Manager shall be the official MDOT contact person for the Consultant. The Consultant must either address or send a copy of all correspondence to the MDOT Project Manager. This includes all sub consultant correspondence.

AA. The Consultant shall be responsible for all traffic control required to perform the tasks as outlined in this Scope of Design Services.

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

GENERAL DESCRIPTION OF ITS SCOPING WORK

A. Provide a benefit-cost analysis of the I-496/US-127 ATM system to determine which ATM strategies should be included with the system. Strategies investigated should include Dynamic Shoulder Use with and without Lane Control Signals (LCS), Dynamic Lane use with LCS, Variable Speed Advisories (VSA), a Queue Warning System, and ramp metering.

B. Provide early preliminary engineering for the ATM system; including developing a conceptual layout for the corridor, including gantry location, power location, communication layout, and preliminary cost estimate.

C. The consultant shall perform traffic operational analysis and simulation of the existing conditions, the future year no-build conditions and the future year build conditions (with the proposed ATM system) using VISSIM software for the AM and PM peak periods.

D. Provide a Concept of Operations for the ATM system. The consultant will also be required to provide MDOT with a list of changes that are required to the Tri-County Regional Architecture and Deployment plan.

E. Provide information and graphics for public outreach of the ATM.

GENERAL DESCRIPTION OF BRIDGE SCOPING WORK

Evaluate various repair alternatives for a prescribed set of bridges and recommend the most economical rehabilitation or preventive maintenance treatment. This process is termed Bridge Scoping. The work for each bridge in this scope of work is broken down into three main components: A) Site Review B) Engineering Analysis and C) Report Preparation.

1. SITE REVIEW

General

Each bridge and environs must be visited by the CONSULTANT PM. The purpose of this visit is to locate all areas of deterioration, determine feasible repair options, determine associated approach work, determine maintenance of traffic options, and to ascertain quantities. Where necessary, high-reach equipment or an under bridge inspection crane must be used to get close enough to evaluate the structural components (See Section EQUIPMENT AND SAFETY, below). Questions regarding scour are to be directed to Chris Potvin in Design, Hydraulics Unit at (517) 335-1919.

The information collected in the field must be sufficient to determine quantities and locations of repairs and improvements. This information must be detailed in the field notes and/or sketches and these notes are to be included in the report.

a. During the site review of the bridge, the following will be done, at a minimum:

(1) Sound all concrete elements (deck, superstructure, substructure, etc.) for delaminations and unsound areas. All delaminated areas are to be marked with paint, chalk, crayon, or kiel, that will be evident in the photographs. All delamination surveys are part of the site review work (not part of testing). Sketches of the deck and substructure units mapping the areas of delamination and cracking are to be included in the appendix of the scoping report. Percent of total surface area delaminations shall be calculated and shown on the sketches.

The underside of the deck must be visually inspected for wet areas, efflorescence, transverse cracking, longitudinal cracking, map cracking, delaminations, spalling, rust along beam edges, or any other evidence of deterioration. The type of cracking and severity must be described in detail in the report. Note areas of previous repairs, or where false decking is in place. Pictures of the area must be taken and a written description of the deterioration and location must be documented for inclusion into the report. Photos of the top surface of the deck will be taken from a height no less than 10 feet.

Visually inspect all substructure units for signs of settlement, lateral movement, cracking, spalling, exposed reinforcement and material defects. Note the condition of the backwalls, and check the bridge seat for undermining at bearing locations. For pier caps, check for flexural cracks and shear cracks.

(2) Note the type and condition of the bridge railing. Does the railing meet current standards? Is a thrie beam retrofit necessary, or a railing replacement? If pedestrian fencing is present, note its condition. Guardrail on the approaches should also be evaluated. Note the condition of brush blocks, raised shoulders and sidewalks, and how these elements transition from the approaches.

(3) For reinforced concrete and prestressed concrete superstructures, visually inspect for shear or flexure cracking, exposed or broken prestressing strands, crushing of beam end in bearing areas, discoloration of concrete caused by corroding mild reinforcement or prestressing strands, high load hit damage and signs of previous repairs. Observe live loads crossing structure and note excessive deflections or working cracks. Inspect the concrete diaphragms for spalling or diagonal cracking from structure movement or excessive deflection, and any other concrete defects. Note the use of temporary supports, or if they may be needed for the structure to remain in service until proposed rehabilitation.

(4) For steel beam superstructures visually inspect for areas of section loss, heavily rusted areas or any web buckling due to excessive section loss. Note any areas that are prone to trapping drainage or debris. Note the condition of the paint system. Thickness readings shall be taken at each beam end

that exhibits section loss using an ultra-sonic thickness gage. Preparation shall include removing all dirt, debris, and rust scale from the ends of each of the steel beams under the joints so that the steel can be inspected for section loss. Thickness readings on the web and the bottom flange are to be taken at the thinnest locations within 24 inches of the end of the beam. Do not remove paint on beam ends that exhibit no section loss. Mark the sheet as "No visible loss."

These thickness readings will be compared with the original thickness and the percentages of section loss will be calculated. This data will be tabulated in a specific format (as shown in Attachment No. 2, Steel beam section loss detail sheets) and sketches will be prepared of major components, showing the location of the deteriorated areas. Specifically, if beam end repairs are necessary, show the locations of beam ends in need of repair on the existing erection diagram from the as-built plans. This information will be presented in the Appendix of the scoping report. These documents are used by Lansing
Bridge Design to prepare rehabilitation plans, and C & T Bridge Operations Unit to perform load rating analyses if requested.

Visually inspect the steel superstructure for any areas that may exhibit out of plane bending or distortion such as web to diaphragm or cross frame connections, lateral gusset plates to web connections, or connections of any other secondary members to beams. Note the existence of any fatigue prone details, or any welding in the tension zones that are transverse to the plane of stress. Inspect any pin and hanger assemblies for proper operation. Does the pin and hanger meet current standards? Note the condition of pin plates and if the ends are touching due to pin and hanger closure.

(5) In other areas of heavy flaking rust, the CONSULTANT will clean as necessary to measure for any section loss. Thickness readings will be taken at the thinnest locations and recorded.

(6) Note the condition of all bearing devices. For steel bearings such as rocker bearings or pedestal bearings, inspect for pack rust, rocker alignment, section loss and paint condition. For elastomeric bearings, check for excessive bulging of the sides (greater than 15% of bearing thickness), shear

deformation due to thermal movement, splitting and tearing, and discoloration from exposure to light.

(7) For timber structures visually inspect for checks (separations of the wood fibers parallel to the grain direction) knots and splits which are natural defects that may provide openings for decay and begin to reduce the strength of the members. Inspect for fungus, insect damage or any other effects of nature. Inspect for in-service defects such as fire damage, vehicular collision, abrasion or mechanical wear, overload distress, excessive deflection of flexural members, weathering or warping and chemical damage. Perform a pick or penetration test at various locations, which involves lifting a small sliver of wood with a pick or pocket knife, and observing whether or not it splinters or breaks abruptly. Sound wood splinters, while decayed wood breaks abruptly. Inspect areas near the support to check for horizontal shear cracks along the grain of the member. Inspect bearing areas for crushing due to decay. Note the condition of fasteners and connections.

(8) The vertical clearance of the bridge must be field verified and noted in the executive summary and stated in the report. A picture of any vertical clearance sign attached to the bridge must be taken. See the MDOT Bridge Design Manual, Volume 5, Section 7.01.08 for minimum vertical clearance requirements. For structures not meeting minimum vertical underclearance criteria, raising the structure to meet current standards must be considered in selecting the repair option. Any option including a deck replacement, superstructure replacement or bridge replacement must meet the minimum vertical underclearance requirement as it is very difficult to obtain a design exception. The cost of raising the grade of the bridge to obtain acceptable underclearance must take into account additional approach work.

(9) The width of the structure must be evaluated to determine whether it is functionally obsolete. If widening is necessary to upgrade the structure to current standards, or for maintaining traffic during construction, this must be stated in the report. Please refer to the MDOT Bridge Design Guides, Section 6.05 for acceptable bridge deck cross sections. This will include possible widening to meet current standards for radii. The CONSULTANT will describe how and where the widening is to take place and provide a plan view sketch showing the proposed widening. Specify if widening can be done within the deck overhang, or if

additional beam lines and substructure width will be needed to accommodate the required deck cross section. Widening may also require additional approach work to transition between the roadway width and the new bridge width.

(10) Any work required for the approaches must be included in the report and these items accounted for on the Estimate Sheet.

b. The area immediately around the structure must be closely evaluated to determine if there are any site issues or constraints that may have an impact during construction. Each quadrant of the structure is to be evaluated and photo-documented. These include items such as:

(1) Businesses or driveways close to the approaches.
(2) Utilities attached to or near the bridge.
(3) Signs or sign brackets attached to the bridge. Specify if the connections are bolted or welded.
(4) Poor alignment or geometrics.
(5) Approach and departure guardrail terminals or the presence of impact attenuators.
(6) Bank erosion or scour. Unusual channel features.
(7) Railroad tracks that have been removed from over or under the bridge.
(8) Proximity of other bridge structures.
(9) Is drainage sufficient? Any evidence of ponding on the structure?
(10) Is Right-of-Way limited and might additional ROW or easements be required?

c. Additionally the following items are some of the items that, if apply, must be evaluated and costs considered:

(1) Is the bridge historical?
(2) Is vertical clearance a problem?
(3) Is widening needed?
(4) Does this bridge have special structural design features which may affect the repair options (e.g., non-redundant or fracture critical)?
(5) Are there environmental issues that may impact the project?

(6) Determine impacts of the proposed bridge treatment on the existing horizontal and vertical alignments, pavements, curb and gutter, drainage, right of way (ROW), etc. Every effort shall be made to minimize ROW impacts within the limits of the projects. In areas of potential ROW impacts, the CONSULTANT shall identify the potential need for

additional ROW, by station or address, type of ROW required (grading permit, easement or fee), and roadside improvements proposed (i.e. fencing, turf establishment, landscaping, non-motorized, etc.).

(7) Review and document the final scope for conformance to 3R/4R Guidelines for non-freeway jobs and 4R, AASHTO and Interstate Standards for freeway jobs. Documentation shall include existing condition, treatment as per design standards, and recommendation.

(8) Identify areas where bridge design standards cannot be met on the final proposed recommended treatment, give justification and documentation as to the reason, and prepare the design exception. The preparation of a Design Exception Request form for the recommended proposed treatment may be necessary to fulfill the Federal Highway Administration requirements for structures on National Highway System (NHS) routes.

(9) Review and document the roadside safety related items (i.e. guardrail, barriers, attenuators, etc.) which need to be modified or included in the project. Documentation will include location, existing type and condition, and the recommended treatment.

(10) Document and identify any possible utility conflicts and estimate the cost of relocation and/or adjustment.

(11) Document and identify locations of possible environmental issues which may impact the project, and estimate the cost of treatment.

(12) Develop Construction Zone Traffic Control Concepts in accordance with the Michigan Department of Transportation Mobility Policy. See Attachment 1.

(13) All 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 MDOT.

(14) All project related items are subject to review and approval by MDOT.

If, during the site review, the CONSULTANT finds any structural condition that may cause the bridge to be load restricted (such as holes in beams), or

which may require other immediate action (such as lane closures or emergency repairs to holes in the deck, etc.) the CONSULTANT will notify the MDOT PM as soon as possible. The CONSULTANT will provide documentation of the condition (such as beam measurements) to the MDOT PM as quickly as possible.

2. Scoping Checklist and Determining Most Appropriate Repair Option

Complete the Scoping Checklist (provided by MDOT PM) and make an initial determination of the most appropriate repair option, based on the physical condition of the bridge, economic considerations, and engineering judgment, based on field conditions.

The types of repair options that are to be considered must be separated into two major work type categories: 1) Capital Preventive Maintenance and 2) Rehabilitation/Replacement.

Capital Preventive Maintenance (CPM)

a. Joint replacement
b. Pin and hanger replacement
c. Complete painting
d. Zone painting
e. Shallow concrete overlay
f. Thin epoxy overlay (flood coating)
g. Concrete deck patching
h. Scour countermeasures
i. Bituminous overlay
j. Substructure patching

Rehabilitation / Replacement (R &R)

a. Deep concrete overlay
b. Superstructure repairs
c. Extensive substructure repairs
d. Substructure replacement
e. Deck replacement
f. Superstructure replacement
g. Structure replacement

3. Photographs

A photo log of the bridge and the surrounding areas must be included in the report. All of the pictures must be mounted on 8.5” X 11" media and are to be captioned with a description of what the picture is intended to show. Each copy of the bridge report must have this series of pictures showing at least the following items and sequenced in the following order:

a. Elevation views of both sides of the bridge

b. Deck surface (entire deck surface to be photographed, including joints. Photos shall be taken from a minimum height of 10 feet.)
c. Railing, sidewalks, brush blocks, raised shoulders, or any other feature of the deck surface
d. Approaches
e. Underside of deck (to sufficiently show condition)
f. Typical superstructure elements
g. Abutments, including wingwalls and slope protection
h. Piers showing all faces
i. Waterways/railroad tracks
j. Areas of major deterioration
k. Load posting signs
l. Vertical clearance signs
m. Utilities, businesses, etc that could affect the cost.
n. Quadrant photos
o. Guardrail attachments
p. Traffic Signals / Pedestrian Signals with Construction Influence Area
q. Approach sidewalks

In addition, pictures must be taken which will support the CONSULTANT's recommendations. All pictures must be captioned to describe the pictures general view (such as north elevation, etc.) and to describe the pertinent item or deterioration. The deck surface photos will be taken after the deck delamination survey and the areas of delamination are expected to be clearly visible in the photos.

In addition to the photographs included in the report, one electronic copy of labeled photos for each bridge will also be submitted. These may be redundant copies of the same view but may help the Designers to better understand the bridge needs.

4. Testing

During the site review phase, the CONSULTANT may feel that material testing is needed to better understand the condition of the deck to evaluate the best repair option. Approval by the MDOT PM is required **prior** to initiating any testing.

If the CONSULTANT PM feels that material testing is needed, a testing proposal must be submitted to the MDOT PM for approval. The testing proposal will show the bridges for which testing is proposed, what tests are to be performed, what specific information is to be gained from the testing, how this information is to be used, and the cost of testing and necessary traffic control. Proposals submitted with insufficient justification for testing will be denied. Where the deck is beyond saving, as judged by visual indications, or where the appropriate repair option is clearly indicated, material testing will not be performed.

The results and analysis of any testing that is approved and performed will be discussed in the Site Review Findings section of the report and the actual test reports will be included in the Appendix.

B. ENGINEERING ANALYSIS

The engineering analysis phase will include an evaluation of the site review findings and determination of the work type category of the appropriate repair (R&R or CPM). The degree of required analysis and required deliverables vary for the two work type categories.

1. Rehabilitation/Replacement Work Category

For proposed R & R work proceed with the preparation of and evaluation of two or three repair strategies, including the estimate of cost of the repair strategies and the selection of the best repair option. This phase shall also include determining the scope of road work and maintaining traffic concepts as outlined in the scope.

An initial repair option will have been determined during the site review in the field. The CONSULTANT is required to perform an engineering analysis of this option and on the options above and below it from the list in the section "Scoping Checklist and Determining the most appropriate Repair Options". For example, if deck replacement is determined to be the most appropriate repair option, a cost estimate shall be prepared for the overlay and superstructure replacement options.

For the superstructure replacement and bridge replacement options, the CONSULTANT will also analyze eliminating or correcting undesirable or deficient design characteristics (e.g., structural capacity, widening, etc.). Analysis of the load carrying capacity of some components of the bridge may be required.

6. Estimating Various Repair Options

Cost estimates for each of the repair options will be prepared for each bridge. A standard form Estimate Sheet with unit prices will be used (Bridge Cost Estimate Sheet, provided by MDOT PM). The Estimate Sheet provides space to show all of the repairs to be performed. Calculations for the paint area will be prepared by the CONSULTANT and included in the Appendix of the report.

The estimates required are "early preliminary estimates" and not the more detailed "engineering estimates". The object is to determine the most economical method of treatment and to establish the budget. The unit prices on the attachment are averages of various types of repairs regardless of the type of material (steel or concrete for instance). The more detailed estimates will be determined in the design phase (not a part of this scope of work).

If additional information is necessary for a unit price not on the list, contact the MDOT PM.

3. Capital Preventive Maintenance Work Category

For proposed Capital Preventive Maintenance work proceed with the preparation of a cost estimate using the Cost Estimate Sheet. This phase shall also include determining the scope of road and maintaining traffic concepts as outlined in the scope. If additional information is necessary for a unit price not on the list, contact the MDOT PM.

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.

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.

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.

PRELIMINARY SCOPING PACKAGE

The Preliminary Scoping Package shall be presented in electric format, shown on letter size paper (8 ½" x 11") with the exception of Base Maps, sketches and diagrams which shall be on 11" x 17" paper. The Consultant shall submit one (1) copy of the Preliminary Scoping Package. The electronic document shall utilize bookmarks to direct readers to each individual section of the package.

The Preliminary Scoping Package will have a cover sheet that shall be entitled "Preliminary Scoping Package" and should also include the Control Section, Job Number, Route, and location description. An index shall also be included in the package. The photographs included in the documents shall be in an electronic .jpg format with printouts at 4" x 6", in color, labeled with the location, direction from which the picture was taken, date, particular feature needing improvement and the approximate mile point in the Package. No fewer than 8 and no greater than 24 photos per project location are required.

The Preliminary Scoping Package shall address all the items listed under CONSULTANT RESPONSIBILITIES. If any of the aforementioned items are not included or not sufficiently complete as determined by the MDOT Project Manager, the Preliminary Scoping Package will be rejected. The Consultant will have up to five (5) working days to make the changes. No additional compensation will be given to the Consultant for costs associated with making the changes directed by the MDOT Project Manager.

At the time of Preliminary Scoping Package submittal, if there are any items, in the Consultant's opinion, that need further review, discussion and/or additional information is needed from MDOT, those items shall be clearly listed on a cover sheet accompanying the Preliminary Scoping Package.

FINAL SCOPING PACKAGE

The Final Scoping Package shall be presented in an electronic format. The electronic document shall utilize bookmarks to direct readers to each individual section of the package. In addition to the electronic document, the Vendor shall submit two (2) copies of the Final Scoping Package presented in a labeled (cover and side to be entitled Final Scoping Package and should also include the Control Section, Job Number, Route, and location description.) three ring binder, with an index and tabbed sections, containing 8 ½" x 11" regular letter size paper for the majority of the documents. 11" x 17" paper may be used for Base Maps, sketches and diagrams. The photographs included in the documents shall be in an electronic .jpg format with printouts at 4" x 6", in color, labeled with the location, direction from which the picture was taken, date, particular feature needing improvement and the approximate mile point in the Package. No fewer than 8 and no greater than 24 photos per project location are required.

The Final Scoping Package shall address and document all the items listed under CONSULTANT RESPONSIBILITIES and incorporate the comments and/or changes received from the Preliminary Scoping Package and the Preliminary Scope Review meetings. If any of the aforementioned items are not included or not sufficiently complete as determined by the MDOT Project Manager, the Final Scoping Package will be rejected. The Consultant will have up to five

(5) working days to make the changes. No additional compensation will be given to the Consultant for costs associated with making the changes directed by the MDOT Project Manager.

Before the final spreadsheets are submitted as part of the Final Scoping Packages, a preliminary copy for each project location (both hard copy and electronic format) shall be submitted to the MDOT Project Manager for review and approval as to form and content.

FINAL DELIVERABLE PACKAGE

For each project location, the Final Deliverable Package shall include an updated electronic document addressing all comments received from the Final Scoping Package review. In addition, submit two (2) paper copies in a labeled three ring binder, each with an index and tabbed sections. For each project location, a single CD ROM shall be prepared for the electronic files of the Base Map (.dgn file), Base Sheets (.dgn files), cross sections (.dgn files), photos (.jpg files), location map (file type subject to MDOT approval), and the summary sheet(s) (.doc files).

All spreadsheets shall be created using Excel (.xls files). Before the final spreadsheets are submitted, as part of each of the Final Deliverable Packages, a preliminary copy (both hard copy and electronic format) shall be submitted to the MDOT Project Manager for review and approval as to form and content.

The Final Deliverable Package shall include all items under CONSULTANT RESPONSIBILITIES.

All work shall conform to current applicable MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e. Roadside Design Guide, AASHTO Road Side Design Guide, AASHTO A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

THE PRELIMINARY AND FINAL SCOPING PACKAGES

The Preliminary and Final Scoping Packages shall contain the following, and shall be assembled in the order as listed.

1. Location Map

A location map shall show a map of the project area showing the roadway name, roadway number, project beginning, project ending, project length, major cross streets, design speed, interchanges and local municipalities affected. The Location Map shall be presented on a regular letter size paper (8 ½" x 11").

2. Executive Summary/Details/Checklist

Include in this section a summary of and the completed Statewide Scoping Package Master Checklist – Road (MDOT Scoping Manual), Road Scoping Report & Details Worksheet (MDOT Scoping Manual), Constructability Checklist (MDOT Scoping Manual), MPINS Project Concept Statement (provided by MDOT), Program Revision Request (provided by MDOT),.

3. **Detailed Cost Estimate**

Estimates are to be as detailed as possible. They shall be developed using the most recent MDOT Pay Items and are to be provided as detailed in the Statewide Scoping Package Master Checklist. Individual Pay Item costs shall be rolled up into a Construction Cost. Also included in this location are all hand calculations and assumptions. Also include estimates for any additional option analyzed.

4. **Safety**

The written recommendation for maintaining traffic and the maintaining traffic typicals, Mobility Analysis, and all required documentation as detailed under CONSULTANT RESPONSIBILITIES. Traffic analysis and safety review with a summary of countermeasure recommendation(s) which shall include each location's crash pattern and countermeasure individually listed along with the associated ROW impacts (area and type) and construction cost estimate. All required information for any anticipated design exceptions.

5. **MDOT Pavement, Soils Information and Recommendations**

The actual pavement and soils information and recommendation as provided by MDOT (ie: memo, letter, e-mail, etc.).

6. **General Items & Information**

As-Builts/Old Plans, current sufficiency report, condition reports of existing sewers and culverts if available, maintenance log sheets if available, Pavement Historical Data (PHD) Data is available, ROW sheets with impacts highlighted, and existing utility information.

7. **Field Notes**

8. **Supporting Photographs**

Provide actual photographs and digital files (.jpg files on attached CD ROM) of the existing roadway and roadside conditions to document the needs as identified in the project scope. The photographs included in the documents shall be 4" x 6", in color, labeled with the location, direction from which the picture was taken, date, particular feature needing improvement and the approximate mile point. No fewer than 8 and no greater than 24 photos per project location are required.

9. **Correspondence** (MDOT, Utility, Local and Other)

Actual correspondence sent and received, organized by correspondent, in order of latest date.

10. **Miscellaneous and Additional Information**

Information which is available, but does not fit into any of the previously mentioned section.

11. **Existing and Proposed Typical Cross Sections**

Prepare existing typical cross sections and proposed typical cross sections - generally one per standard cross section area (i.e. if the road changes from a three lane to a five lane section, a cross section for the three lane and for the five lane sections will be needed).

The typical cross sections, for each standard cross section area, are to be created on 8 ½" x 11" sheets, with the existing typical cross section for the standard cross section area, drawn above the proposed typical cross section for the same standard cross section area.

The existing typicals for each standard cross section shall detail the existing conditions (pavement type, lane width, curb and gutter, shoulders, side slopes, ditch locations, setback to existing right of way limits, storm sewer/drainage structure locations, etc.). The proposed typicals for each standard cross section shall detail the proposed pavement treatments (cold mill, resurface or reconstruct, etc.). The proposed typicals shall also show new lane widths, curb and gutter/shoulders, drainage structures (new, adjusted or tapped into existing), storm sewers and ditches, etc..

The MDOT reviewer, by viewing the typical cross sections, should be able to understand the existing pavement section, the proposed pavement section, and all of the work that is expected to implement the project. For example, if additional right of way will be required, the typicals should provide a visual explanation as to why so that the MDOT reviewers can evaluate options.

12. Base Plans

Generate a single Base Map, created electronically using the MicroStation design software and formatted as described in DELIVERABLES, of the existing roadway using information from old plans, and/or, on site field reviews. The Strip Map is used to visually describe the existing roadway within the limits of the project on one page. The project limits for this task shall be defined as the greater of either 400 feet beyond the Point of Beginning (POB) and the Point of Ending (POE) or the limits needed to fully accommodate the maintaining traffic limits. The detail of the Base Plans is to include the location of existing roadways, bridges, railroads and cross roads. The Base Plans is to show all existing features; i.e. edge of pavements, edge of shoulders, curb lines, drainage courses etc. and label all roads, railroads and drainage features. The Base Plans is to represent existing conditions without showing proposed work.

13. Table of Values for Determination of Scope Conformance to 3R/4R and Design Elements

Prepare a table of the values used for the evaluation of the elements listed the Road Scoping Report & Details Worksheet, and 3R/4R Guidelines for non-freeway jobs. The table shall, at a minimum, contain the following: minimum values as per design standards for the associated design element, reference where the minimum value as per design standards were derived from, all values used to determine conformance, where values used for conformance were derived from and all formulas used for the calculation of values.

14. Minutes from Scope Review Meeting

Project specific notes from the Scope Review Meeting.

15. List of Invitees and Sign In Sheet for Scope Review Meeting

The list of people invited to the Scope Review Meeting (to be supplied by the MDOT Project Manager) and the actual sign-in sheet from the Scope Review Meeting.

A sheet listing the members of the CONSULTANT's Scoping Team (the members name, members signature and area of contribution). Also on this sheet, the CONSULTANT is to list all the sources

used in establishing existing information (old plans used, date of on site visits, etc.)

BRIDGE SCOPING PACKAGE

The deliverables will be the Scoping Reports for each bridge. The information contained in the Scoping Reports will be used by the Design Division to prepare rehabilitation plans or a preventive maintenance log project. The content of the reports will need to adequately convey the general physical condition of each structure, the specific areas in need of repair and identify surrounding appurtenances which may affect the project. 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.

1. Rehabilitation / Replacement Work Category

The deliverables for a Rehabilitation/Replacement work category for this scope of work will be the reports, photographs, estimate sheets, field notes and scoping checklist. Electronic files will be submitted for the entire scope included in the report on a CD in Microsoft Word and Microsoft Excel format.

For each bridge, a separate three-ring binder containing the scoping reports as described below will be submitted. The binder will contain all information pertaining to the site review findings and recommended repair options for each bridge. Two sets of each binder will be submitted.

a. Table of Contents
   A table of contents will be provided for the complete document.

b. Executive Summary:
   This is to include a statement of the recommended treatment for the bridge and the cost (in 2015 dollars for CPM and 2019 dollars for R&R, or as directed by MDOT PM) of the initial repair. The executive summary will be a stand alone section and will not refer to other sections of the report, nor will the main text refer to information in the executive summary.

c. Field Site Review Findings:
   This section will include, as a minimum, discussion of the following areas:

   Overall assessment of the condition of the bridge including an evaluation of the beam end thicknesses (webs & bottom flanges) taken during the site review.

   Sketches of beam end repair areas, substructure repair areas or widening options.

Site issues, i.e., geometrics, maintenance of traffic, utilities, scour, etc. In the case where no site issues that would impact the rehabilitation of the structure were identified, a statement will be made that all areas were investigated and no issues were found.

Test results and implications of the repair options. If no testing was performed, this will be stated in the report.

d. Rehabilitation Options:
This section will include a discussion of the rehabilitation options considered. For each option evaluated, a discussion of the necessary improvements and the associated costs will be included. The report must discuss and state the reasoning and judgment for selection of the recommended option. This discussion will also include the reasoning for the elimination of all other options, as appropriate.

e. Summary with Repair Recommendation:
This section will state the recommended course of action for the bridge and the factors used in determining this recommendation. This section will also briefly discuss the effects of postponing the recommended improvements.

f. Maintaining Traffic / Mobility Summary
This section shall include an analysis of the traffic control plan in accordance with the Michigan Department of Transportation's Mobility Policy. Various traffic control alternatives shall be evaluated.

g. Cost Estimate Sheets
A cost estimate must be prepared for each repair option that was considered. The cost estimate sheet can be found in the appendix, attachment number 5.

h. Appendix:
Word document with photos and descriptions
Scoping Checklist(s)
Field notes and sketches
Paint calculations
Table of beam end thickness readings
Lab test reports (if applicable)
Road preliminary estimate (separate spreadsheet)
Existing plan sheets (general plan of site and general plan of structure)
Current bridge inspection reports
General site review procedures

2. Capital Preventive Maintenance Work Category

The deliverables for the Capital Preventive Maintenance work category for bridges for this scope of work will be the executive summary sheet, scoping checklist, cost estimate sheet, bridge quantity sheets, field worksheets and pictures for each bridge.

A summary sheet showing Bridge ID, bridge location, proposed work, and estimated cost per bridge shall serve as a cover sheet. Electronic files for the entire scope shall be included on a CD in Microsoft Word and Microsoft Excel format. Two sets of each binder will be submitted.

Each binder shall be arranged in the following format:

Summary Sheet
Table of Contents
Executive Summary
Field Review Findings
Rehabilitation Options Considered
Summary with Repair Recommendation
Estimate Sheets
Word Document with Photos and Descriptions
Scoping Checklists
Field Notes and Sketches
Calculations - Paint Areas, Deck Areas, etc.
Table of Beam End Thickness Readings (if applicable)
Maintaining Traffic Concepts
CD of electronic files attached to binder

Incomplete final reports or reports with errors will be returned to the CONSULTANT for revision. Failure to make the required changes will be considered a failure to meet the terms of the scope of work.

PROJECT SCHEDULE:

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)

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE COMPLETED BY (mm/dd/yyyy)
		CONSULTANT CONTRACT AUTHORIZATION/EXECUTION		/ /
		INFORMATION GATHERING/STUDIES		
☒	☐	1115	Traffic Data Collection for Studies	/ /
☐	☐	1120	Prepare Traffic Analysis Report for Studies	/ /
☒	☐	1125	Traffic Capacity Analysis for Studies	/ /
☐	☐	1155	Request/Perform Safety Analysis for Studies	/ /
☐	☐	1300	Traffic Impact Study	/ /
☐	☐	1350	Determine Need for Interstate Access Change Request	/ /
☐	☐	1400	Feasibility Study	/ /
☐	☐	1500	Corridor Study	/ /
☐	☐	1555	Interstate Access Change Request	/ /
☐	☐	*155M*	*FHWA Approval of Interstate Access Change Request*	/ /
☐	☐	1600	Access Management Study Plan	/ /
☐	☐	1700	Other Miscellaneous Studies	/ /
		EPE SCOPING ANALYSIS		
☒	☐	2100	Scope Verification and Initiation of EPE Activities	/ /
☒	☐	2115	Prepare Traffic Analysis Report for EPE/Design	/ /
☒	☐	2120	Traffic Data Collection for EPE/Design	/ /
☒	☐	2125	Traffic Capacity Analysis for EPE/Design	/ /
☐	☐	2130	Prepare Project Purpose and Need	/ /
☒	☐	*213M*	*Concurrence by Regulatory Agencies with the Purpose and Need*	/ /
☐	☐	2140	Develop and Review Illustrative Alternatives	/ /
☐	☐	2155	Request/Perform Safety Analysis for EPE/Design	/ /
☐	☐	2160	Prepare and Review EIS Scoping Document	/ /
☐	☐	*216M*	*Public Information Meeting*	/ /

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

STUDY (EARLY PRELIMINARY ENGINEERING) (cont'd)

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE COMPLETED BY (mm/dd/yyyy)
		EPE DRAFT ANALYSIS		
☐	☐	2310	Conduct Technical SEE Studies	/ /
☐	☐	2311	Cultural Resources Survey	/ /
☐	☐	2312	Recreational Survey – Section 4(f)/6(f)	/ /
		EPE DRAFT ANALYSIS (cont'd)		
☐	☐	2313	Endangered Species Survey	/ /

☐	☐	2314	Wetland Assessment	/	/
☐	☐	2315	Wetland Mitigation	/	/
☐	☐	2316	Other Technical Reports	/	/
☐	☐	2321	Prepare for Aerial Photography	/	/
☐	☐	2322	Finish/Print Aerial Photography	/	/
☒	☐	2330	Collect EPE Geotechnical Data	/	/
☐	☐	2340	Develop and Review Practical Alternatives	/	/
☐	☐	*233M*	*Aerial Photography Flight*	/	/
☐	☐	2360	Prepare and Review EA	/	/
☐	☐	*236M*	*Approval of EA by FHWA*	/	/
☐	☐	2370	Prepare and Review Draft EIS	/	/
☐	☐	*237M*	*Approval of Draft EIS by FHWA*	/	/
☐	☐	2380	Distribute EA	/	/
☐	☐	*238M*	*Public Hearing for EA*	/	/
☐	☐	2390	Distribute DEIS	/	/
☐	☐	*239M*	*Public Hearing for DEIS*	/	/
			EPE FINAL ANALYSIS		
☐	☐	2510	Determine and Review Recommended Alternative	/	/
☐	☐	*250M*	*Concurrence by Reg Agencies with Recom Alternatives*	/	/
☐	☐	2525	Prepare and Review Engineering Report	/	/
☐	☐	2530	Prepare and Review Request for FONSI	/	/
☐	☐	*252M*	*Approval of FONSI by FHWA*	/	/
☐	☐	2540	Prepare and Review FEIS	/	/
☐	☐	*254M*	*Approval of FEIS by FHWA*	/	/
☐	☐	2550	Obtain ROD	/	/
☐	☐	*255M*	*ROD Issued by FHWA*	/	/
☒	☐	2570	ITS Concept of Operations	/	/
			CONTAMINATION INVESTIGATION		
☐	☐	2810	Project Area Contamination Survey (PCS)	/	/
☐	☐	2820	Preliminary Site Investigation (PSI) for Contamination	/	/

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

PRELIMINARY ENGINEERING - DESIGN

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE COMPLETED BY (mm/dd/yyyy)	
		DESIGN SCOPE VERIFICATION AND BASE PLAN PREPARATION			
☒	☐	3130	Verify Design Scope of Work and Cost	/	/
☐	☐	3310	Prepare Aerial Topographic Mapping	/	/
☐	☐	3320	Conduct Photogrammetric Control Survey	/	/
☐	☐	3321	Set Aerial Photo Targets	/	/

☐	☐	3325	Geotechnical Structure Site Characterization	/	/
☒	☐	3330	Conduct Design Survey	/	/
☐	☐	3340	Conduct Structure Survey	/	/
☐	☐	3350	Conduct Hydraulics Survey	/	/
☐	☐	3360	Prepare Base Plans	/	/
☐	☐	*311M*	*Utility Notification*	/	/
☐	☐	3365	Pre-Conceptual ITS Design and Meeting	/	/
☒	☐	3370	Prepare Structure Study	/	/
☐	☐	3375	Conduct Value Engineering Study	/	/
☐	☐	3380	Review Base Plans	/	/
☐	☐	3385	Preliminary Load Rating	/	/
☐	☐	*332M*	*Base Plan Review (Pre-GI Inspection)*	/	/
☒	☐	3390	Develop the Maintaining Traffic Concepts	/	/
		PRELIMINARY PLANS PREPARATION			
☐	☐	3500	Develop Transportation Management Plan	/	/
☒	☐	3510	Perform Roadway Geotechnical Investigation	/	/
☐	☐	3520	Conduct Hydraulic/Hydrologic and Scour Analysis	/	/
☒	☐	3522	Conduct Drainage Study, Storm Sewer Design, and use Structural Best Management Practices	/	/
☐	☐	3530	Geotechnical Foundation Engineering Report	/	/
☐	☐	3535	Conduct Str. Review for Arch. & Aesthetic Improvements	/	/
☐	☐	3540	Develop the Maintaining Traffic Plan	/	/
☐	☐	3551	Prepare/Review Preliminary Traffic Signal Design Plan	/	/
☐	☐	3552	Develop Preliminary Pavement Marking Plan	/	/
☐	☐	3553	Develop Preliminary Non-Freeway Signing Plan	/	/
☐	☐	3554	Develop Preliminary Freeway Signing Plan	/	/
☐	☐	3555	Prepare/Review Preliminary Traffic Signal Operations	/	/
☐	☐	3570	Prepare Preliminary Structure Plans	/	/
☐	☐	3580	Develop Preliminary Plans	/	/
☐	☐	3585	Final ITS Concept Design and Meeting	/	/
☐	☐	3590	Review The Plans	/	/
☐	☐	*352M*	*THE Plan Review Meeting*	/	/
☐	☐	3595	Conduct ITS Structure Foundation Investigation	/	/

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

PRELIMINARY ENGINEERING - DESIGN (cont'd)

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE COMPLETED BY (mm/dd/yyyy)	
		UTILITIES			
☒	☐	3610	Compile Utility Information	/	/
☒	☐	3615	Compile ITS Utility Information	/	/
☐	☐	3650	Coordinate RR Involvement for Grade Separations	/	/

☐	☐	3655	Coordinate RR Involvement for At-Grade Crossings	/	/
☐	☐	3660	Resolve Utility Issues	/	/
☐	☐	*360M*	*Utility Conflict Resolution Plan Distribution*	/	/
☐	☐	*361M*	*Utility Meeting*	/	/
☐	☐	3670	Develop Municipal Utility Plans	/	/
☐	☐	3672	Develop Special Drainage Structures Plans	/	/
☐	☐	3675	Develop Electrical Plans	/	/
☐	☐	3680	Preliminary ITS Communication Analysis	/	/
☐	☐	3690	Power Design (Power Drop in Field)	/	/
		MITIGATION/PERMITS			
☐	☐	3710	Develop Required Mitigation	/	/
☐	☐	3720	Assemble Environmental Permit Applications	/	/
☐	☐	3730	Obtain Environmental Permit	/	/
		FINAL PLAN PREPARATION			
☐	☐	3815	Geotechnical Structure Design Review	/	/
☐	☐	3821	Prepare/Review Final Traffic Signal Design Plan	/	/
☐	☐	3822	Complete Permanent Pavement Marking Plan	/	/
☐	☐	3823	Complete Non-Freeway Signing Plan	/	/
☐	☐	3824	Complete Freeway Signing Plan	/	/
☐	☐	3825	Prepare/Review Final Traffic Signal Operations	/	/
☐	☐	3830	Complete the Maintaining Traffic Plan	/	/
☐	☐	3840	Develop Final Plans and Specifications	/	/
☐	☐	*380M*	*Plan Completion*	/	/
☐	☐	3850	Develop Structure Final Plans and Specifications	/	/
☐	☐	3870	Hold Omissions/Errors Check (OEC) Meeting	/	/
☐	☐	3875	Final Load Rating	/	/
☐	☐	*387M*	*Omissions/Errors Checks Meeting*	/	/
☐	☐	*389M*	*Plan Turn-In*	/	/
☐	☐	3880	CPM Quality Assurance Review	/	/
☐	☐	3890	Final ITS Communication Analysis	/	/

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

PRELIMINARY ENGINEERING – RIGHT OF WAY

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE COMPLETED BY (mm/dd/yyyy)	
		EARLY RIGHT OF WAY WORK			
☐	☐	4100	Real Estate Pre-Technical Work (combines 411M, 4120)	/	/
☐	☐	4150	Real Estate Technical Work (combines 4130, 4140)	/	/
☐	☐	*413M*	*Approved Marked Final ROW*	/	/
		ROW APPRAISAL			

☐	☐	4350	Real Estate Appraisals (combines 4411, 4412, 4413, 4420)	/	/
		ROW ACQUISITION			
☐	☐	4450	Real Estate Acquisitions (combines 4430, 4710, 4720)	/	/
☐	☐	4510	Conduct Right Of Way Survey & Staking	/	/
☐	☐	*442M*	*ROW Certification*	/	/

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

POST LETTING/AWARD TASKS (for reference only)

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

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. 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.

ATTACHMENT A

SCOPE OF SERVICE
FOR
DESIGN SURVEYS
October 2015

Survey Limits: As needed for Design, Right of Way, and Construction. A description of survey limits detailing length, width and cross roads must be included in the Survey Work Plan.

NOTES: The Selected Consultant shall discuss the scope of this survey with an MDOT Region Surveyor or an MDOT Lansing Design Surveyor before submitting a priced proposal.

The Selected Consultant surveyor must contact the Region or TSC Traffic and Safety Engineer for work restrictions in the project area prior to submitting a priced proposal.

A **detailed Survey Work Plan must** be included in the project 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**.

It is the responsibility of the Professional Surveyor 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.

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. Work in any of the following Survey Services Categories: Surveying: Hydraulics, Surveying: Right of Way, Surveying: Road Design, Surveying: Structure and Surveying: Geodetic Control and Leveling must be completed by a survey firm which is pre-qualified by MDOT for that category.

4. Surveys must meet all requirements of the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated May 2014, except for naming conventions. Please contact the MDOT Design Survey office to clarify any specific questions regarding these standards.

5. 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.

6. 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 (which must be minimized), and an MDOT contact person (the MDOT Project Manager or designate).

7. 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.

8. 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.

9. Consultants are responsible for a comprehensive and conscientious research of all records, including MDOT records, essential for the completion of this project.

10. The Horizontal and Vertical datums and coordinate system must be clearly stated in the Survey Work Plan and subsequent submittal. For acceptable datums and coordinate systems refer to the MDOT Design Surveys *Standards of Practice*, which can be found on the MDOT Design Survey ftp site.

12. **Electronic submittal only.** Each structure must be submitted separately.

13. Each Survey Project Folder is divided into six sections. These sections are as follows: **Admin**, **Align & ROW**, **Control**, **Mapping**, **Misc**, and **RID** (Reference Information Documents).

14. To be included in the **Admin** section shall be a copy of the **Survey Project Portfolio QA/QC Check-off list**, May 2014 revision, available from the MDOT Survey Support Unit. This document shall be signed and certified by the Professional Surveyor responsible for the project QA/QC. It is highly recommended that the consultant become familiar with this document prior to preparing the proposal and again prior to assembling the final portfolio. **Failure to use and include this document may result in the immediate return of the project portfolio for completion.**

15. 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 of the computer mouse. Specified format files such as Microsoft Word and MicroStation GEOPAK must have separate access in native format outside of the PDF file.

16. The MDOT Project Manager is the official contact for the Consultant. The 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.**

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.

Acceptance of this survey by the MDOT Project Manager and/or the MDOT Supervising Land Surveyor does not relieve the Consultant of any liability for the content of the survey.

WORK RESTRICTIONS

The Selected Consultant, and the Selected Consultant only, is advised to discuss Traffic Control scenarios with the 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 Consultant must submit a five (5) day advanced notice through the permit system prior to work.

No work shall be performed or lane closures allowed during the Memorial Day, Independence Day, Thanksgiving, Christmas, New Year or Labor Day holiday periods. The holiday periods will be defined by the local Traffic and Safety Engineer which has jurisdiction over the project area.

All work on the road shall be conducted during daylight hours Monday through Saturday only. Lane closures may only occur between the hours of 9:00 am and 2:00 pm, shoulder closures may only occur between the hours of 9:00 am and 3:00 pm. Weekend work is permitted on Saturdays between the hours of 7:00 am and 5:00 pm. Double lane closures are only permitted on Saturdays. *Example; NOT Typical – to be discussed with Traffic & Safety Engineer*

All traffic control devices shall conform to the current edition, as revised, of the *Michigan Manual of Uniform Traffic Control Devices* (MMUTCD) available on line at http://mdotcf.state.mi.us/public/tands/Details_Web/mmutcdcompleteinteractive.pdf. All warning signs for maintenance of traffic used on this project shall be fabricated with prismatic retro-

reflective sheeting. Sign covers shall be placed over existing regulatory signs that are not applicable during Survey work.

The Consultant shall use MDOT standard "maintaining traffic" typicals for any and all closures. Typical MDOT traffic control diagrams are available on line at http://mdotcf.state.mi.us/public/tands/plans.cfm

The Consultant may also use MDOT Maintenance Work Zone Traffic Control Guidelines, found on line at http://www.michigan.gov/documents/zonecontrol_112912_7.pdf.

The 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 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 Consultant.

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

The Consultant's attention is called to the requirements of cooperation with others as covered in Article 104.08 of the 2012 Standard Specifications for Construction http://mdotcf.state.mi.us/public/specbook/2012/. Other contracts or maintenance operations may occur during the life of the project.

No claim for extra compensation or adjustment in contract unit prices will be allowed on account of delay or failure 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.

FINAL REPORT: ELECTRONIC SUBMITTAL

The final report for this project shall include:

1. In the **Admin** subfolder, the following will appear:

    - **XXXXXX_Survey_Notes_Receipt_and_transmittal-20YY-MM**
    - **XXXXXX_Survey_20YY-MM-DD.pdf**
        - An Adobe PDF with all of the contents of the portfolio scanned into it and bookmarked for ease of location within the PDF file. Table of Contents – should appear bookmarked on the left side of the Adobe screen. Note: Upon completion, use Adobe's "Reduce File Size" command.
    - **XXXXXX_Surveyors_Report_20YY-MM-DD.pdf**
        - Surveyor's Project Report, divided into subsections, containing a complete synopsis of project survey including, but not limited to:
            - Explanation of any deviation from the Scope and/or the Standards
            - Basis of horizontal and vertical control, with specific emphasis on datum sources used (list CORS and NAVD benchmarks tied), equipment, software, methods used to establish the coordinates and methods used to detect errors and eliminate them. If RTK is used, explain the methodology, equipment and procedure used. Include a detailed explanation relating to CORS usage or site calibration (Base Station) (for level loops, Primary and Intermediate Control networks)
            - Provide a complete discussion of all Alignments relative to the project. Include all information and methods used to determine the location and designation of each.
            - Property boundary issues addressed, with specific information that may be useful for a surveyor to retrace or an engineer during design. If necessary, include a summary of conversations with property owners and their concerns.
            - Any mapping issues encountered, with specific information that may be useful for an engineer during design.
            - Any information obtained regarding drainage issues observed or reported by local authorities or residents should be discussed.
            - Discuss the contents of anything that appears in the miscellaneous section.
            - The signed, sealed, and dated "PROFESSIONAL SURVEYOR'S CERTIFICATION FOR MDOT PROJECTS" as detailed in the MDOT Design Survey Standards of Practice.
                - Alignment information must be certified, signed and sealed by the Professional Surveyor as described in the Alignment section of the Standards of Practice.
                - Mapping information for the project should be summarized per the Standards of Practice.
                - Explanation of how the Reference Point locations were determined.

- **XXXXXX_Vicinity_Map.pdf**
  - Screen capture from Street Atlas, Google Maps, or some other resource, with the POB and POE labeled.
- **XXXXXX_QA/QC_Certification_20YY-MM-DD.pdf**
  - QA/QC Certification, signed and sealed by the lead QA/QC person (See the Standards of Practice Quality Assurance/Quality Control section – Page 24).

- **XXXXXX_MDOT_QA/QC_Checklist_20YY-MM-DD.pdf**
  - MDOT QA/QC Checklist and Certification Statement is filled out, signed and sealed by the Survey QA/QC Manager

A. **Correspondence (**subfolder):

- **XXXXXX_emails.pdf**
  - Copy of all correspondence pertaining to the project saved as a .pdf file.

- **XXXXXX_Phone_Log.pdf**
  - Transcript of all phone conversations pertaining to the project in a .pdf file format.

- **XXXXXX_Meeting_Minutes.pdf**
  - Copy of all Meeting Minutes pertaining to the project in a .pdf file format.

B. **Scopes** (subfolder):

- **Work_Permit_Permit_Name.pdf**
  - Copy of all work permits required for the project.

- **XXXXXX_Advanced_Notice_XXXXX_20YY-MM-DD.pdf**
  - Notice to proceed with work on the project.

- **XXXXXX_Form5102_Change_of_Scope_20YY-MM-DD.pdf**
  - Change of scope form.
  - This forms only needs to be filled out if the scope actually changes

- **XXXXXX_Notice_to_Proceed.pdf**
  - MDOT Form 5180 filled out and added to Scopes Folder

- **XXXXXX_Price_Proposal.pdf**
  - MDOT Price Proposal Package saved as a .pdf, wages and costs redacted

- **XXXXXX_Traffic_Control_Quotes.pdf**
  - Copies of the quotes obtained for traffic control in .pdf format.

- **XXXXXX_Work_Plan.pdf**
    - Detailed Description of the work that will be performed on the project.

2. In the **Align & ROW** subfolder, the following will appear:

    - **XXXXXX_132_Survey_Owner_Name.pdf**
        - Final Certificate of Survey saved as a .pdf file.
        - If multiple surveys are required for a project they should each have a unique name.

    - **Deed_C-123.pdf**
        - Copy of each deed used for the project.
        - Each deed saved as a separate file.

    - **LCRC_J-10_TXXN_RXXE.pdf**
        - Copy of all LCRC Documents used for the project.
        - Each LCRC saved as a separate document.

    - **Plat_Westgate_Park.pdf**
        - Copy of all Plats used for the project.
        - Each Plat saved as a separate document.

    - **Tax_Desc_07-26-100-001.pdf**
        - Copy of all Tax Descriptions used for the project.
        - Each Tax Description saved as a separate Document.

    - **Tax_Map_10-13H.pdf**
        - Copy of all Tax Maps used for the project.
        - Each Tax Map saved as a separate Document.

    - **XXXXXX_Prop_20YY-MM-DD.doc**
        - Document containing all found property monumentation.

    - **XXXXXX_Prop_20YY-MM-DD.txt**
        - Text document containing all found property monumentation.
        - Data saved in a comma separated format (csv).
        - Point Number, Northing, Easting, Elevation, Description.

3. In the **Control** subfolder, the following will appear:

    - **XXXXXX_GPS_EDM_Control_Comparison.xls**
        - Table comparing GPS grid and EDM ground observations for primary control as described in the Standards of Practice – Item 7 Control

    - **XXXXXX_NGS_Mark_Recovery_Form.pdf**

- Form detailing the NGS marks recovered during the project.

- **XXXXXX_MDOT Monument Establishment**
  - MDOT Monument Establishment Data Sheets of all Primary Control Points established and or used as part of this project (Contact Lansing Survey Office for template).

A. **Horizontal** (subfolder);

- **XXXXXX_Intermediate_Control_Plot.pdf**
  - Plot(s) of the GPS network(s) from GPS software and sketch(s) or plot(s) of network or traverse with legible point numbers.

- **XXXXXX_Primary_Control_Plot.pdf**
  - Plot(s) of the GPS network(s) from GPS software and sketch(s) or plot(s) of network or traverse with legible point numbers.

- **XXXXXX_Primary_Minimally_Constrained_Adjustment_Report.pdf**
  - Input parameters: a-priori, centering error, etc.
  - Raw unadjusted closures,
  - Final coordinates with standard deviations (2 sigma)
  - Vector input data and analysis.
  - Histograms.
  - Error ellipses.
  - Traverse closures.
  - Statistical test results.
  - Horizontal and vertical datums, ellipsoid, SPC zone, and units (International Feet)
  - Name of the adjustment program used with version or release.
  - Only Non-trivial vectors used

- **XXXXXX_Primary_Fully_Constrained_Adjustment_Report.pdf**
  - Input parameters: a-priori, centering error, etc.
  - Raw unadjusted closures,
  - Final coordinates with standard deviations (2 sigma)
  - Vector input data and analysis.
  - Histograms.
  - Error ellipses.
  - Traverse closures.
  - Statistical test results.
  - Horizontal and vertical datums, ellipsoid, SPC zone, and units (International Feet)
  - Name of the adjustment program used with version or release.
  - Only Non-trivial vectors used

- **XXXXXX_Intermediate_Minimally_Constrained_Adjustment_Report.pdf**

- Input parameters: a-priori, centering error, etc.
- Raw unadjusted closures,
- Final coordinates with standard deviations (2 sigma)
- Vector input data and analysis.
- Histograms.
- Error ellipses.
- Traverse closures.
- Statistical test results.
- Horizontal and vertical datums, ellipsoid, SPC zone, and units (International Feet)
- Name of the adjustment program used with version or release.
- Only Non-trivial vectors used

- **XXXXXX_Intermediate_Fully_Constrained_Adjustment_Report.pdf**
  - Input parameters: a-priori, centering error, etc.
  - Raw unadjusted closures,
  - Final coordinates with standard deviations (2 sigma)
  - Vector input data and analysis.
  - Histograms.
  - Error ellipses.
  - Traverse closures.
  - Statistical test results.
  - Horizontal and vertical datums, ellipsoid, SPC zone, and units (International Feet)
  - Name of the adjustment program used with version or release.
  - Only Non-trivial vectors used

- **XXXXXX_OPUS_Observation_Logs.pdf**
  - All OPUS log sheets combined together into one .pdf file

- **XXXXXX_OPUS_Manual_Conversion.pdf**
  - Manual conversion of OPUS Solution from Meters to International Feet.

- **XXXXXX_OPUS_Extended.pdf**
  - Extended output solution from OPUS for all Control Points that have been submitted to OPUS.

- NOTE: The Consultant is responsible to archive raw data for a period of five (5) years.

B. **Vertical** (subfolder):

- **XXXXXX_Data_Sheets.pdf**
  - A copy of all NGS Data Sheets used for the project

- **XXXXXX_V_Minimally_Constrained_Adjustment_Report.pdf**

- input parameters
- raw unadjusted closures,
- final elevations with standard deviations
- loop closures.
- Statistical test results.
- Horizontal and vertical datums, ellipsoid, SPC zone, and units (International Feet)
- Name of the adjustment program used with version or release.
  - OR supply all written calculations to support the final results.
- Provide separate subfolders for each adjustment which contain the files used in the processing and analysis software. e.g.: Levproc, StarLev, MicroSurvey's StarNet only.

- **XXXXXX_V_Fully_Constrained_Adjustment_Report.pdf**
  - input parameters,
  - raw unadjusted closures
  - final elevations with standard deviations
  - loop closures.
  - Statistical test results.
  - Horizontal and vertical datums, ellipsoid, SPC zone, and units (International Feet)
  - Name of the adjustment program used with version or release.
    - OR supply all written calculations to support the final results.
  - Provide separate subfolders for each adjustment which contain the files used in the processing and analysis software. e.g.: Levproc, StarLev, MicroSurvey's StarNet only.

- NOTE: The Consultant is responsible to archive raw data for a period of five (5) years.

4. In the **Mapping** subfolder, the following will appear:

   - **XXXXXX_Struc_Inventory_20YY-MM-DD.xls**
     - Drainage structure inventory report compatible with MDOT software and correlated to the connectivity drawing in Excel spreadsheet format

   - **XXXXXX_Connectivity_20YY-MM-DD.dgn**
     - Map of the project area generated from PowerGEOPAK that shows all the drainage structures collected for the project, with lines connecting each structure.

   - **XXXXXX_Images_20YY-MM-DD.zip**
     - Digital photos of the structure(s) and end sections or headwalls with names or tags correlating the photo with the information in Drainage Structure Inventory Report. **(Note: If deliverables are generated with SS3 the image should be integrated into the 3D.dgn)**

- **XXXXXX_Utility_List.doc**
  - Word document containing a utility company listing to include company name, address, phone number, and contact person, if required.

- **XXXXXX_Feature_Code.txt**
  - Individual utility / drainage station and offset reports generated by Feature Code in .dgn format drawing.
  - e.g.: Catch Basin.txt, if required.

5. In the **RID** (Reference Information Documents) subfolder, the following will appear:

- **S-XXXXXX_Align_ROW_20YY-MM-DD.dgn**
- **S-XXXXXX_Align_LandXML_20YY-MM-DD.xml**
- **S-XXXXXX_Survey_Info_Sheet_20YY-MM-DD.doc**
- **S-XXXXXX_ControlPts_20YY-MM-DD.txt**
- **S-XXXXXX_ExTriangle_20MM-YY-DD.dgn**
- **S-XXXXXX_ExTriangle_LandXML_20YY-MM-DD.xml**
- **S-XXXXXX_Survey_2D_20YY-MM-DD.dgn**
- **S-XXXXXX_Survey_3D_20YY-MM-DD.dgn**

6. In the **Misc** subfolder, the following will appear:

- Data not assignable to one of the other sections may be placed here and must be discussed in the survey report. Examples of appropriate site specific information might be: newspaper articles, photos of the project site looking up and down the roadway, various aspects of a structure, up and down stream and side to side at Hydro chains, etc. Photos shall be submitted in native format and annotated. All items must be included in the master PDF.
- **Images** (subfolder)
  - This folder contains all pictures taken for the project.
  - All pictures should be sorted into separate sub folders and labeled according to their content for example:
    - XXXXXX_Hydro_Photos
    - XXXXXX_Drainage_Structures

ATTACHMENT B

DEVELOP MAINTAINING TRAFFIC CONCEPT FOR EACH PROJECT LOCATION INCLUDING REQUIRED INFORMATION FOR MOBILITY AND SAFETY REVIEW.

1. SCOPE

This procedure covers the development of a concept to maintain and control traffic during construction.

2. WORK STEPS

A. Review the type of construction task(s) included in the project.

B. Contact the MDOT Project Manager and request a meeting with the Lansing TSC Traffic & Safety Engineer (allow a minimum of two (2) weeks for a meeting date to be determined) to review the traffic data and the project site to determine project specific construction zone traffic constraints. Any necessary or recommended exceptions shall be clearly identified and justification provided.

C. Using the given project specific constraints, develop alternatives for preliminary maintaining traffic concepts.

D. Submit preliminary alternatives to the MDOT Project Manager and Lansing TSC Traffic & Safety Engineer for review and recommendations on which concepts to proceed with further analysis.

E. For each selected concept

- Evaluate the mobility impacts using the procedures outlined in the MDOT Work Zone Safety and Mobility Manual.
- Determine whether or not the concept is significant per the MDOT Work Zone Safety and Mobility Manual.
- Prepare a preliminary cost estimate for traffic control.

F. Submit a summary of the concepts with a preferred alternative identified to the MDOT Project Manager and Lansing TSC Traffic & Safety Engineer for review and selection.

G. For the selected alternative, create a preliminary Transportation Management Plan (TMP) including a Temporary Traffic Control Plan (TTCP), Transportation Operations Plan (TOP), and Public Information Plan (PIP) as outlined in the MDOT

Work Zone Safety and Mobility Manual. Items that SHALL be included in the preliminary TMP at a minimum are:

1. Constraints as identified by the Lansing TSC Traffic and Safety Engineer.
2. Method for maintaining traffic. Typical and non-typical areas shall be addressed. All areas where the pavement widths are narrower than typical shall be clearly noted and the recommendations for maintaining traffic shall address these areas.
3. Exceptions to constraints as identified by the Lansing TSC Traffic and Safety Engineer. Justification shall be required for any exceptions.
4. Need for detour, staging and/or flagging operation.
5. Need for temporary widenings and/or shoulder upgrading.
6. Time constraints and laneage requirements (number and width).
7. Method for maintaining traffic at cross streets.
8. Local considerations (school buses, emergency vehicles, large traffic generators, etc.).
9. Need for temporary traffic signals (a minimum of two signal heads in view at all times).
10. Construction zone speed limits.
11. Special events (parades, festivals, etc.).
12. Recommendations for expedited construction.
13. Statement regarding the cost of maintaining traffic as a percent of total project cost.

H. For the selected alternative prepare maintaining traffic typicals. Typicals shall be prepared using the existing typical cross sections developed in item I under CONSULTANT RESPONSIBILITIES as a base.

I. Submit the final preliminary TMP and maintaining traffic typicals with the Final Scoping Package.

J. Verify and include the cost for maintaining traffic in cost estimate as detailed in MDOT Scoping Manual.

ATTACHMENT C
SCOPE OF SERVICE
FOR
GEOTECHNICAL SERVICES
Coring and Testing Services

DESCRIPTION OF WORK:

The work performed by the consultant geotechnical engineer under these requirements shall consist of pavement coring and soil borings using hollow or solid stem augers, geoprobe or hand augers. A total of 10 cores shall be taken in each through lane with borings through each core hole. (40 total). The borings in the outside lane shall be to a depth of 15 feet while the borings in the center lanes shall be to a depth of 5 feet. SPT testing and soil sampling are not required for this contract. Soil descriptions contained on exploration logs shall be consistent with ASTM D 2487. All Pavement cores and soil borings will be performed during normal working hours and off-peak traffic hours such as weekends and nights are not anticipated.

PRIMARY PREQUALIFICATION CLASSIFICATION: Geotechnical Engineering Services

CONSULTANT RESPONSIBILITIES:

A. The Consultant is responsible for contacting MISS DIG. The consultant is also responsible for location of other utilities not on the MISS DIG system.

B. The consultant is responsible for traffic control during all operations. The Project Manager will supply the consultant with appropriate traffic control typicals to use for each specific project. In most cases the typicals will be drawn from the "MDOT Maintenance Work Zone Traffic Control Guidelines" available on the MDOT website.

C. The Consultant shall perform field operations in accordance with the Department's Personal Protective Equipment (PPE) Policy as stated in the MDOT Guidance Document #10118. A current copy of MDOT's PPE Policy is available on the Bulletin Board System. The Consultant shall perform field operations in accordance with MIOSHA regulations and accepted safety practices.

D. Borings drilled through existing pavement should be suitably patched. Backfilling and plugging of all borings shall be in accordance with all Department of Natural Resources Regulations.

E. The consultant is responsible for preparing a summary of all cores and borings. The summary shall consist of plan sheet(s) in Microstation and pdf formats graphically listing all core and boring logs. Core and boring locations shall include lateral and longitudinal offsets referencing lanes and cross streets. In addition, the consultant will provide GPS coordinates in latitude/longitude format for all core and boring locations.

MDOT RESPONSIBILITIES

A. The Project Manager will provide the consultant with the appropriate traffic control scheme to use for each project. Traffic control may be changed during the work in response to unforeseen conditions, or as dictated by emergency or other events. MDOT will review traffic control measures being used at random times during performance of the contract.