

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

MDOT PROJECT MANAGER Gorette Yung		JOB NUMBER (JN) 106621	CONTROL SECTION (CS) 82101
DESCRIPTION EPE study and assessment to develop alignment and intersection improvements in Wayne County			
MDOT PROJECT MANAGER: Check all items to be included in RFP WHITE = REQUIRED GRAY SHADING = OPTIONAL		CONSULTANT: Provide only checked items below in proposal	
Check the appropriate Tier in the box below			
<input type="checkbox"/> TIER I (\$25,000-\$99,999)	<input type="checkbox"/> TIER II (\$100,000-\$250,000)	<input checked="" type="checkbox"/> TIER III (>\$250,000)	
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Understanding of Service
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Innovations</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<i>Safety Program</i>
N/A	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Organizational Chart
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Qualifications of Team
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Past Performance
Not required As part of Official RFP	Not required As part of Official RFP	<input checked="" type="checkbox"/>	Quality Assurance/Quality Control
<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Location: The percentage of work performed in Michigan will be used for all selections unless the project is for on-site inspection or survey activities, then location should be scored using the distance from the consultant office to the on-site inspection or survey activity.
N/A	N/A	<input type="checkbox"/>	Presentation
N/A	N/A	<input type="checkbox"/>	Technical Proposal (if Presentation is required)
3 pages (MDOT Forms not counted) (No Resumes)	7 pages (MDOT Forms not counted)	19 pages (MDOT Forms not counted)	Total maximum pages for RFP not including key personnel resumes

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 Service Contracts" and "Guideline for Completing a Low Bid Sheet(s)", if a low bid is involved as part of the selection process. **Referenced Guidelines are available on MDOT's website under Doing Business > Vendor/Consultant Services > Vendor/Consultant Selections.**

RFP SPECIFIC INFORMATION

BUREAU OF HIGHWAYS

BUREAU OF TRANSPORTATION PLANNING **

OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

NO

YES

DATED _____

THROUGH _____

Prequalified Services – See page ___ of the attached Scope of Services for required Prequalification Classifications.

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

Qualifications Based Selection – Use Consultant/Vendor Selection Guidelines

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

****For RFP's that originate in Bureau of Transportation Planning only**, a priced proposal must be submitted at the same time as, but separate from, the proposal. Submit directly to the Contract Administrator/Selection Specialist, Bureau of Transportation Planning **(see address list, page 2)**. The priced proposal must be submitted in a sealed envelope, clearly marked **"PRICE PROPOSAL."** The vendor's name and return address **MUST** be on the front of the envelope. The priced proposal will only be opened for the highest scoring proposal. Unopened priced proposals will be returned to the unselected vendor(s). Failure to comply with this procedure may result in your priced proposal being opened erroneously by the mail room.

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.

Qualifications Review / 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 and post the date of the bid opening on the MDOT website. The notification will be posted at least two business days prior to the bid opening. Only bids from vendors that meet proposal requirements will be opened. The vendor with the lowest bid will be selected. The selected vendor may be contacted to confirm capacity.

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

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

BID SHEET INSTRUCTIONS

A bid sheet(s) must be submitted in accordance with the "Guideline for Completing a Low Bid Sheet(s)" (available on MDOT's website). The Bid Sheet(s) is located at the end of the Scope of Services. Submit bid sheet(s) separate from the proposal, to the address indicated below. The bid sheet(s) must be submitted in a sealed manila envelope, clearly marked **"SEALED BID."** The vendor's name and return address **MUST** be on the front of the envelope. Failure to comply with this procedure may result in your bid being opened erroneously by the mail room and the bid being rejected from consideration.

PROPOSAL SUBMITTAL INFORMATION

REQUIRED NUMBER OF COPIES FOR PROJECT MANAGER	PROPOSAL/BID DUE DATE	TIME DUE
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PROPOSAL AND BID SHEET MAILING ADDRESSES

Mail the multiple proposal bundle to the MDOT Project Manager or Other indicated below.

MDOT Project Manager

MDOT Other

Mail one additional stapled copy of the proposal to the Lansing Office indicated below.

Lansing Regular Mail**OR****Lansing Overnight Mail**

Secretary, Contract Services Div - B470
Michigan Department of Transportation
PO Box 30050
Lansing, MI 48909

Secretary, Contract Services Div - B470
Michigan Department of Transportation
425 W. Ottawa
Lansing, MI 48933

Contract Administrator/Selection Specialist
Bureau of Transportation Planning B470
Michigan Department of Transportation
PO Box 30050
Lansing, MI 48909

Contract Administrator/Selection Specialist
Bureau of Transportation Planning B470
Michigan Department of Transportation
425 W. Ottawa
Lansing, MI 48933

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 four (4) 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

The following two American Recovery and Reinvestment Act of 2009 (ARRA) notifications, **ARRA MONTHLY EMPLOYMENT REPORTS** and **REQUIRED CONTRACT PROVISIONS TO IMPLEMENT AMERICAN RECOVERY AND REINVESTMENT ACT (ARRA) SECTIONS 902 AND 1515**, are attached to this Request For Proposal for your understanding. These two notifications are only applicable for those projects/contracts funded with ARRA funds and will be included in contract Exhibits.

MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

5100D – Request for Proposal Cover Sheet

5100G – Certification of Availability of Key Personnel

5100I – Conflict of Interest Statement

5100J - Consultant Data and Signature Sheet (Required only for Non-Prequalified Work)

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

Michigan Department of Transportation

**SCOPE OF SERVICE
FOR
EARLY PRELIMINARY ENGINEERING DESIGN SERVICES
Revisions in RED**

CONTROL SECTION(S): 82101

JOB NUMBER(S): 106621

*JN 110611- Information only not charges.

PROJECT LOCATION:

The project encompasses ~~Plymouth~~ Ann Arbor Road between Newburgh Road and Market Street, the signalized intersection of Plymouth and Ann Arbor Roads, and the Hines Drive Bridge over Ann Arbor Road/Old M-14 in the Hines Parkway, in the City of Livonia, Wayne County.

PROJECT DESCRIPTION:

The purpose of this study and assessment is to develop improvements to ~~Plymouth~~ Ann Arbor Road between Newburgh Road and Market Street, considering the planned, future reconstruction of this part of the roadway and to develop improvements at the intersection area and at the bridge, as it needs replacement due to its deteriorating condition. It has been established that the geometry of the intersection impacts the Hines and the Middle Rouge River Bridge. In addition bridge elevations will also impact potential solutions. Improvements must consider all components of the area as well as its setting in Hines Parkway. The unique public park setting that will require coordination with stakeholders. Impacts, constraints, improvement options, costs and others will need to be documented. At the conclusion, a recommended set of improvements to the intersection, roadway and bridges will be developed with a detailed cost estimate to allow the project to move into the next phase of the project's development.

ANTICIPATED SERVICE START DATE: May 2011

ANTICIPATED SERVICE COMPLETION DATE: January 2012

PRIMARY PREQUALIFICATION CLASSIFICATION(S):

Short and Medium Span Bridges
Roads and Streets

SECONDARY PREQUALIFICATION CLASSIFICATION(S):

Maintaining Traffic Plans and Provisions
Road Design Surveys
ROW Surveys
Structure Surveys
Hydraulic Surveys
Traffic Capacity Analysis and Geometric Studies
Hydraulics
Geotechnical Engineering Services

Safety Studies

DBE REQUIREMENT: 10%

MDOT PROJECT ENGINEER MANAGER:

Gorette Yung, P.E.

Project Development Engineer

Taylor TSC Office

6510 Telegraph

Taylor, MI, 48180

Email: yungg@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, Drainage Manual, Roadside Design Guide, A Policy on Geometric Design of Highways and Streets, Michigan Manual of Uniform Traffic Control Devices, etc.).

NOTE: A process change mandated by federal audit of MDOT's design process puts the Omissions and Errors Check Meeting after the Plan Completion. Please keep this in mind when preparing your schedule. See MDOT Road Design Manual, Chapter 14 – Procedures – Section 14.54 for corroboration. See “For Your Information” contacts at the end of this document for more info or questions.

Consultant is required to use MDOT's current version of Bentley MicroStation for CADD applications and Bentley GEOPAK for road design. Consultant shall comply with all MDOT CADD standards and file naming conventions.

BACKGROUND

The Michigan Department of Transportation (MDOT) is conducting engineering and planning analysis to identify improvements to **Plymouth Ann Arbor** Road from Newburgh Road to Market Street, improvements to the signalized intersection of Plymouth and Ann Arbor Roads, and to replace the Hines Drive Bridge over Ann Arbor Road/Old M-14. The potential improvements to these areas are expected to impact each other. A comprehensive analysis is required to develop the most appropriate improvements and to properly document any associated impacts. Issues, impacts, constraints and solutions will need to be examined individually and collectively due to their potential affect on each other. The future reconstruction of **Plymouth Ann Arbor** Road should be considered in the development of all of the alternatives.

Survey work will be required to accurately develop practical, constructible improvements. In addition, the overall analysis and development of the recommended improvements will be in part based on the results of road scoping conducted for the impact area. A technical road scoping report will be prepared per MDOT guidelines as a stand alone document and a part of the project.

Improvements to **Plymouth Ann Arbor** Road from Newburgh Road and Market Street, including safety and geometric enhancements at the signalized intersection of Plymouth and Ann Arbor Roads, and other improvements will be developed and planned in conjunction with the future roadway reconstruction planned for this section of **Plymouth Ann Arbor** Road.

A hydraulic analysis at the Middle Rouge River bridge will be required as a minimum to provide a baseline of the existing condition and to identify if there is any impact as a result of any developed improvements. This replacement may have additional impacts or constraints on developed improvements at the intersection, roadway or at the Middle Rouge River bridge. It is expected that bridge elevation requirements will dictate the development of improvements.

It is desired to make the intersection and roadway area safer and operate more efficiently. This may be accomplished through the consideration of both, or a combination of, minor improvements that could include signal work, signing, striping, etc., and major work including geometric improvements, a new intersection design, and others. Currently there is a sight distance concern for those traveling northeast on Ann Arbor Road towards the intersection. Back ups on the road are not seen by these drivers as they approach the intersection where others are stopped, creating a potentially hazardous situation. Unique solutions are encouraged to eliminate or improve this problem at the intersection and roadway. Additionally, the pavement is expected to be reconstructed from Newburgh Road to Market Street and should be considered when developing all improvements. The analysis and development of improvements are expected to be dependent on each other for impacts and constraints and should be analyzed as such.

There is a potential that the Middle Rouge River Bridge will impact the replacement of the Hines Drive Bridge. The Middle Rouge River Bridge is constrained by abundant vegetation including large, established trees on both sides of the road, and the River itself. A review of the geometry of the road and a hydraulic analysis will be required as a minimum for both the existing condition, and to identify if there is any impact, based on developed improvements, as the Hines Drive Bridge is expected to be replaced. The bridge condition is poor and needs to be upgraded to current FHWA design standards, with consideration to its potential NRHP eligibility status. It should be noted that it is constrained by the roadway below it, the intersection of Plymouth and Ann Arbor Roads and its setting within Hines Parkway (County Park) in the city of Livonia.

The Hines Drive Bridge carries two lanes of traffic in each direction with sidewalks on each side of the roadway. The sidewalk is currently approximately 5' wide. It is continuous on the south side of the bridge and connects to a paved path. On the north side, the sidewalk is only on the bridge, and does not connect to a path, sidewalk or any other non-motorized facility.

Impacts associated with the bridge replacement, intersection and roadway improvements will need to be documented, analyzed, quantified, evaluated, minimized if at all possible and finally mitigated for, depending on the final recommended improvements.

CONSULTANT RESPONSIBILITIES:

The CONSULTANT will assess the impacts as a result of improvements to **Plymouth Ann Arbor** Road between Newburgh Road and Market Street, the intersection of Plymouth and Ann Arbor Roads, and the replacement of the Hines Drive Bridge to current FHWA design standards. It is expected that draft and final documentation will be prepared to quantify and document impacts, the review process, improvements developed, including the preferred set of improvements, in accordance with current MDOT and federal guidelines and regulations.

The focus of this analysis will be the development and evaluation of improvements, and the

impact they will have to the area. Information will need to be gathered, analyzed, evaluated and documented. This will include a description and the reason why the improvements are needed (i.e. to improve safety at intersection, poor condition of bridge, reconstruction of ~~Plymouth Ann Arbor~~ Road, etc.). It will need to be supported through the collection of data and analysis. The CONSULTANT will be responsible for completing studies and incorporating any information, as requested by MDOT. If new MDOT or federal requirements are issued during the contract, they will be provided to the CONSULTANT and be addressed as a part of the project, if applicable.

MDOT review of draft report sections may be required before submitting the entire document for review. The CONSULTANT will be responsible for incorporating revisions, as appropriate, following review and comment. After MDOT approval, the CONSULTANT will receive permission to print copies, as appropriate.

This project consists of all work needed to determine preliminary geometrics, environmental, physical, and land use/ROW requirements for improvements to the intersection, roadway and the replacement of the bridge to current FHWA standards. This will include the development of mitigation measures and consideration to the potential NRHP eligibility status. Comprehensive documentation is expected.

The following will be used to guide the CONSULTANT. The CONSULTANT will develop and evaluate improvements based upon objective analyses. The evaluation will address issues relevant to engineering limitations, physical and environmental impacts and cost. This will include, but is not limited to:

- Use of both existing (where available), and new (where necessary), traffic counts for analysis of current operations at the signalized intersection of Plymouth and Ann Arbor Roads to identify and evaluate deficiencies and geometric changes along ~~Plymouth Ann Arbor~~ Road.
- Conduct survey work needed for the development of preliminary geometrics and the evaluation of ROW impacts, if any.
- Determine potential impacts as a result of the developed improvements. This may include technical reviews to accurately report the impacts.
- Determine preliminary horizontal and vertical alignments, proposed edge of pavements, curb and gutter, cross-sections and ROW requirements.
- Prepare preliminary cost estimates using MDOT pay items for construction. Estimates should include costs for design, ROW, relocations and construction improvements.
- Collect geotechnical information, as needed.
- Locate and identify any impacts to existing utilities.
- Document the potential and type of indirect impacts as a result of the developed improvements.

- Host, participate and assist in the preparation of stakeholder engagement meetings, per direction from MDOT. Assistance will be required with both MDOT and to stakeholders, including graphics preparation, securing meeting locations, hand outs and others.

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

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

- A. Perform design surveys, as needed.
- B. Prepare required plans, typical cross-sections, details, and specifications required for design and construction.
- C. Compute and verify all plan quantities.
- D. Prepare concepts for maintaining traffic during construction.
- E. Provide solutions to any unique problems that may arise during the study.
- F. Maintain a Project Record which includes a history of significant events (changes, comments, etc.) which influenced the development of the plans, dates of submittals and receipt of information.
- G. The Consultant shall be required to prepare and submit a CPM network for the construction of this project.
- H. The Consultant representative shall record and submit type-written minutes 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.
- I. The Consultant will provide to MDOT at the scheduled submittal dates, copies of the required specifications and plan set materials for distribution by MDOT for all reviews for this project. The Consultant

- J. Prepare and submit electronically (native format or Adobe PDF) any information, calculations, hydraulic studies, or drawings required by MDOT for acquiring any permit (ie. NPDES, DEQ, etc), approvals (i.e. county drain commission) and related mitigation. MDOT will submit permit requests.
- K. Attend any project-related meetings as directed by the MDOT Project Manager.
- L. 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.
- M. The Consultant shall assist in the review of utility permit requests, incorporate the information in the study.
- N. 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.
- O. 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.

UTILITIES

The Consultant shall be responsible for obtaining and showing on the plans the location and names of all existing utilities within the limits of the project. In the course of resolving utility conflicts, the Consultant shall make modifications to the plans or design details and provide assistance as directed by the MDOT Utility Permits Engineer and/or Project Manager. The Consultant shall attend any utility meetings called to ensure that the concerns are addressed on the plans involving utilities. The Consultant shall assist in the review of utility permit requests to ensure compatibility with the project. The Consultant will be responsible for miscellaneous staking of utilities.

TRAFFIC CONTROL

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

MDOT PERMITS

The Consultant shall be responsible for obtaining up to date access permits and pertinent information for tasks in MDOT Right of Way (ROW). This information can be obtained through Joe Rios, Utilities/Permits Section, Real Estate Division at (517) 241-2103.

MONTHLY PROGRESS REPORT

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

MDOT RESPONSIBILITIES:

- A. Schedule and/or conduct the following:
 - 1. Project related meetings.
 - 2. Study Review
 - 3. Utility Meetings.
 - 4. Quantity summary sheets and final item cost estimates.
 - 5. Final Study Review
- B. Furnish Special Details and 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. Obtain all permits for the project as outlined in previous section.
- E. Coordinate any necessary utility relocation.
- F. Furnish FTP site for software download.

DELIVERABLES:

Draft and Final feasibility report including a description of the existing condition, improvement alternatives considered, and details and impacts associated with the recommended set of improvements, reasons why they were selected, description, justification and history, illustrations of developed improvements, physical and environmental analysis, geometrics, design, land use/ROW requirements, stakeholder engagement and local coordination meeting summaries, construction cost estimates, proposed staging and preliminary constructability. Submit all mapping, engineering and planning exhibits prepared on paper and in electronic form compatible with MDOT software, and at an appropriate English scale.

The CONSULTANT will be responsible for preparing and submitting all technical reports,

meeting notes and memos completed, if applicable, including the road scoping technical report as stated on page 3 as a stand-alone document.

The CONSULTANT will be responsible for printing the required number of all documents for distribution.

The Consultant shall deliver all computer files associated with the project in their native format (spreadsheets, CADD files, GEOPAK files, etc.) on DVD, CD or uploaded to ProjectWise, as directed by the MDOT Project Manager. All CADD/GEOPAK files shall be created and identified with standard MDOT file names as shown in Appendix A of the Road Design Manual. 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 posted to the bulletin board system. When the use of GEOPAK road design software is necessary to develop plans all pay items shall be placed into the CADD file using GEOPAK's Design and Computation Manager so that Quantity Manager can be used to transfer pay item information to SAPW/Trns*port. 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 in their native format with standard naming conventions as well as combined into one Adobe 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 capturing a legally signed document or a hard copy version of a document is all that exists.

Plan files shall be submitted in their native dgn format with standard naming conventions as well as plotted into a combined Adobe PDF file. Plan sheets shall be plotted to Adobe PDF with full text search and level on/off capabilities in half size (11" x 17") formats. A full size title sheet shall be plotted stamped and signed then scanned for inclusion with the Adobe PDF set. The original title sheet will be sent to the MDOT Project Manager.

Stand Alone Proposal Estimator's Worksheet (SAPW) shall be used to generate the txt and csv files necessary for import into the Trns*port bid letting software. The SAPW files shall be transmitted electronically by the method specified by the MDOT Project Manager.

The project construction, removal and profile sheets will require a ratio (scale) of **1:40 (English Units)**.

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.

	MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST	
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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.

STUDY (EARLY PRELIMINARY ENGINEERING)

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY
YES	NO		(mm/dd/yyyy)
		<u>EPE SCOPING ANALYSIS</u>	
X	<input type="checkbox"/>	2120 Prepare Traffic Analysis Report	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2130 Prepare Project Justification	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	<i><u>213M Concurrence by Regulatory Agencies with the Purpose and Need</u></i>	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2140 Develop and Review Illustrative Alternatives	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2155 Request/Perform Safety Analysis	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2160 Prepare and Review EIS Scoping Document	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	<i><u>211M Public Information Meeting</u></i>	_/_/____
		<u>EPE DRAFT ANALYSIS</u>	
X	<input type="checkbox"/>	2310 Conduct Technical SEE Studies	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2321 Prepare for Aerial Photography	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2322 Finish/Print Aerial Photography	_/_/____
X	<input type="checkbox"/>	2330 Collect EPE Geotechnical Data	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2340 Develop and Review Practical Alternatives	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	<i><u>233M Aerial Photography Flight</u></i>	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2360 Prepare and Review EA or DEIS	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	<i><u>231M Draft Submission to FHWA</u></i>	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2380 Circulate EA or DEIS	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	<i><u>232M Public Hearing</u></i>	_/_/____
		<u>EPE FINAL ANALYSIS</u>	
<input type="checkbox"/>	<input type="checkbox"/>	2510 Determine and Review Recommended Alternative	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	<i><u>250M Concurrence by Regulatory Agencies with Recommended Alternatives</u></i>	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2525 Prepare and Review Engineering Report	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2530 Prepare and Review Request for FONSI or FEIS	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	<i><u>252M Final Submission to FHWA</u></i>	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2550 Obtain FONSI or ROD	_/_/____
		<u>CONTAMINATION INVESTIGATION</u>	
<input type="checkbox"/>	<input type="checkbox"/>	2810 Project Area Contamination Survey (PCS)	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	2820 Preliminary Site Investigation (PSI) for	_/_/____

		Contamination	
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MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST
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PRELIMINARY ENGINEERING - DESIGN

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY (mm/dd/yyyy)
YES	NO		
		<u>DESIGN SCOPE VERIFICATION AND BASE PLAN PREPARATION</u>	
<input type="checkbox"/>	<input type="checkbox"/>	3130 Verify Design Scope of Work and Cost	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3310 Prepare Aerial Topographic Mapping	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3320 Conduct Photogrammetric Control Survey	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3321 Set Aerial Photo Targets	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3330 Conduct Design Survey	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3340 Conduct Structure Survey	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3350 Conduct Hydraulics Survey	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3360 Prepare Base Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i>331M Utility Notification</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3361 Review and Submit Preliminary ROW Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i>331M Preliminary ROW Plans Distributed</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3370 Prepare Structure Study	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3375 Conduct Value Engineering Study	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3380 Review Base Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i>332M Base Plan Review (Pre-GI Inspection)</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3390 Develop the Maintaining Traffic Concepts	__/__/__
		<u>PRELIMINARY PLANS PREPARATION</u>	
<input type="checkbox"/>	<input type="checkbox"/>	3510 Perform Roadway Geotechnical Investigation	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3520 Conduct Hydraulic/Hydrologic and Scour Analysis	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3522 Conduct Drainage Study, Storm Sewer Design, and use Structural Best Management Practices	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3530 Conduct Structure Foundation Investigation	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3535 Conduct Structure Review for Architectural and Aesthetic Improvements	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3540 Develop the Maintaining Traffic Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3551 Prepare/Review Preliminary Traffic Signal Design Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3552 Develop Preliminary Pavement Marking Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3553 Develop Preliminary Non-Freeway Signing Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3554 Develop Preliminary Freeway Signing Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3555 Prepare/Review Preliminary Traffic Signal Operations	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3570 Prepare Preliminary Structure Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3580 Develop Preliminary Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3581 Review and Submit Final ROW Plans	__/__/__

<input type="checkbox"/>	<input type="checkbox"/>	351M <i>Final ROW Plans Distributed</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3590 Review Preliminary Plans (Hold Plan Review Meeting)	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	352M <i>THE Plan Review (Grade Inspection)</i>	__/__/__

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST
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PRELIMINARY ENGINEERING - DESIGN (cont'd)

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY
YES	NO		(mm/dd/yyyy)
		<u>UTILITIES</u>	
<input type="checkbox"/>	<input type="checkbox"/>	3610 Compile Utility Information	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3650 Coordinate RR Involvement for Grade Separations	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3655 Coordinate RR Involvement for At-Grade Crossings	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3660 Resolve Utility Issues	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i>360M Utility Conflict Resolution Plan Distribution</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i>361M Utility Meeting</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3670 Develop Municipal Utility Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3672 Develop Special Drainage Structures Plans	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3675 Develop Electrical Plans	__/__/__
		<u>MITIGATION/PERMITS</u>	
<input type="checkbox"/>	<input type="checkbox"/>	3710 Develop Required Mitigation	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3720 Assemble Environmental Permit Applications	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3730 Obtain Environmental Permit	__/__/__
		<u>FINAL PLAN PREPARATION</u>	
<input type="checkbox"/>	<input type="checkbox"/>	3821 Prepare/Review Final Traffic Signal Design Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3822 Complete Permanent Pavement Marking Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3823 Complete Non-Freeway Signing Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3824 Complete Freeway Signing Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3825 Prepare/Review Final Traffic Signal Operations	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3830 Complete the Maintaining Traffic Plan	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3840 Develop Final Plans and Specifications	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i>380M Plan Completion</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3850 Develop Structure Final Plans and Specifications	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3870 Hold Omissions/Errors Check (OEC) Meeting	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i>387M Omissions/Errors Checks Meeting</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	<i>389M Plan Turn-In</i>	__/__/__
<input type="checkbox"/>	<input type="checkbox"/>	3880 CPM Quality Assurance Review	__/__/__

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST

PRELIMINARY ENGINEERING – RIGHT OF WAY

		P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY (mm/dd/yyyy)
YES	NO		
		<u>EARLY RIGHT OF WAY WORK</u>	
<input type="checkbox"/>	<input type="checkbox"/>	4120 Obtain Preliminary Title Commitments	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	4130 Prepare Marked Final Right Of Way Plans	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	<i>413M Approved Marked Final ROW</i>	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	4140 Prepare Property Legal Instruments	_/_/____
		<u>ROW ACQUISITION</u>	
<input type="checkbox"/>	<input type="checkbox"/>	4411 Preliminary Interviews	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	<i>441M Post-Decision Meeting</i>	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	4412 Real Estate Services Assignment Proposal and Fee Estimate (Form 633s) for Appraisal Work Authorization	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	4413 Appraisal Reports	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	4420 Appraisal Review Reports	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	4430 Acquire Right Of Way Parcels	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	4510 Conduct Right Of Way Survey & Staking	_/_/____
		<u>ROW RELOCATION</u>	
<input type="checkbox"/>	<input type="checkbox"/>	4710 Relocation Assistance	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	4720 Prepare Improvement Removal Plan	_/_/____
<input type="checkbox"/>	<input type="checkbox"/>	<i>442M ROW Certification</i>	_/_/____

FOR YOUR INFORMATION

For questions on specific tasks, refer to the P/PMS Task Manual located on the MDOT Bulletin Board System.

For assistance in accessing this manual, please contact one of following:

Dennis Kelley: (517) 373-4614

Tonya Nobach: (517) 335-1927

PAYMENT SCHEDULE

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.

All billings for services must be directed to the Department and follow the current guidelines. The latest copy of the "Professional Engineering Service Reimbursement Guidelines for Bureau of Highways" is available on MDOT's website. This document contains instructions and forms that must be followed and used for billing. Payment may be delayed or decreased if the instructions are not followed.

Payment to the Consultant for services rendered shall not exceed the maximum amount unless an increase is approved in accordance with the contract with the Consultant. Typically, billings must be submitted within 60 days after the completion of services for the current billing. The final billing must be received within 60 days of the completion of services. Refer to your contract for your specific contract terms.

Direct expenses, if applicable, will not be paid in excess of that allowed by the Department for its own employees in accordance with the State of Michigan's Standardized Travel Regulations. Supporting documentation must be submitted with the billing for all eligible expenses on the project in accordance with the Reimbursement Guidelines. The only hours that will be considered allowable charges for this contract are those that are directly attributable to the activities of this project.

The use of overtime hours is not acceptable unless prior written approval is granted by the MDOT Region Engineer/Bureau Director and the MDOT Project Manager. Reimbursement for overtime hours that are allowed will be limited to time spent on this project in excess of forty hours per person per week. Any variations to this rule should be included in the priced proposal submitted by the Consultant and must have prior written approval by the MDOT Region Engineer/Bureau Director and the MDOT Project Manager.

The fixed fee for profit allowed for this project is 11.0% of the cost of direct labor and overhead.

ATTACHMENT A

SURVEY SCOPE OF WORK

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 traversing, leveling, mapping, 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 categories of survey: Road Design, Structure, Hydraulic, Right-of-Way, and/or Ground Control (Photogrammetric) 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 March 2009, the MDOT Design Survey Manual on-line, and the MDOT RTK guidelines. Please contact the 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

TRANSMITTAL”; the limits of the survey and original survey scope as determined by the Consultant Surveyor and Design Engineer; a complete synopsis of the survey **that shall include, but not be limited to** horizontal and vertical control datums used, methodology, a complete discussion of government corners recovered, perpetuated or otherwise used as part of the survey, problems encountered, and a statement from the Consultant surveyor supervising the project certifying compliance with Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated March 2008; as well as documentation of all project specific meetings and/or conversations with MDOT Survey personnel.

Also included in the Administrative section shall be a copy of the **Survey Project Portfolio QA/QC Check-off list**, available on the MDOT Design Survey File Transfer Protocol (FTP) site at <ftp://ftp.michtrans.net/>. The consultant Username is “survcons.” The consultant Password is “\$urvcon\$.” 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 shall result in the immediate return of the project portfolio for completion.**

- b. The **Alignment** section will contain a MicroStation drawing of the alignment; coordinates and stationing of alignment points set or found; curve data with P.I. coordinates; a designation of alignment type such as as-constructed (best fit), legal, or survey; an explanation of how the alignment was determined; and all supporting documentation.
- c. The **Control** section must contain the data collected and copies of all research documents used to establish the **horizontal and vertical** reference systems for the project, and must include a thorough written explanation describing how the systems were established. This section should also contain control traverse and GPS raw data (electronic only), least squares analysis for both traverse and benchmarks, and a list of control point coordinates and witnesses. A complete benchmark list with datum, description, station and offset, and elevation shall also be included. This information must be submitted in hardcopy as well as ASCII and MicroStation electronic file format on Compact Discs (CD's). Also, a sketch of the control traverse, showing any ties (government corners, property, alignment, etc.) shall be included in this section. It is recommended that the project's survey control be submitted for review as soon as it is available.
- d. The **Property** section contains all information that is utilized regarding the real property affected by the project, and all necessary property ties. This may include copies of all recorded Land Corner Recordation Certificates for the government corners used or reestablished, recorded plats, recorded certified surveys, tax maps, tax descriptions, and adjacent/riparian owners.
- e. The **Mapping** section contains all survey notes, research documents, and

collected data used to produce the maps necessary for this project. All topographic plots, as well as utilities and drainage information, are to be placed in this section. Raw data in electronic form only, but not on the .PDF file.

- f. The **Miscellaneous** section contains any information not included in the previous sections. The project Surveyor's Report should specify any items included in this section.
15. **All data**, whether electronic or paper, **must be recorded on non-rewritable Compact Discs (CD's) or DVD's**. All paper files, including MicroStation files, must be scanned and/or converted to Adobe Acrobat .PDF format. It is not necessary to include raw survey data files in the Adobe file. CD's must be organized in the same manner as the portfolio, such as by Administrative section, Control section, etc. A Table of Contents in Adobe Acrobat format is required that has all .PDF pages of the CD 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 ASCII text, CAiCE and MicroStation must have separate access in native format outside of the .PDF file. CD's must be labeled with the control section, job number, data type and file names.
16. It is not necessary to label each individual paper page in the portfolio.
17. Each category of survey must be packaged separately (i.e., Structure surveys separate from Road surveys and Hydraulic surveys). CD's must be labeled with the Control Section, Job Number, data type and file names.
18. The Consultant representative shall record and submit typewritten minutes 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.
19. 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 a Survey Consultant Project Manager or MDOT Region Surveyor.

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 and **must be sent to** the MDOT, Design Support Area, Supervising Land Surveyor, P.O. Box 30050, Lansing, MI 48909. Please use MDOT's Form 222(5/01) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL" for all transmittals. A copy of this transmittal form must also be sent to the MDOT Project Manager for Design.

Acceptance of this survey by the MDOT Supervising Land Surveyor and/or the MDOT Project Manager 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 Traffic and Safety Engineer at the closest MDOT TSC prior to submitting a priced proposal.

No work shall be performed or lane closures allowed during the Memorial Day, July 4th, or Labor Day holiday periods, as defined by the MDOT Project Manager or representative specifically designated by the Project Manager (the Traffic & Safety Engineer at the MDOT TSC).

Work on weekends, if approved, shall be as directed by the MDOT Project Manager or Designate.

The Consultant must call the MDOT Region or TSC Traffic and Safety Engineer before beginning work to inform him or her of surveying activity in the area. The MDOT Region or TSC must be notified at least two weeks prior to lane closures so advance notice can be posted on the Web site.

Traffic shall be maintained by the Consultant throughout the project in accordance with Sections 812, 922, 103.05 and 103.06 of the *Standard Specifications for Construction*, 2003 edition, www.mdot.state.mi.us/specbook/, and Supplemental Specification 03SS001(2) Errata to the 2003 Standard Specifications and all other supplemental specifications currently in effect against the Standard Specifications for Construction. All traffic control devices shall conform to the current edition, as revised, of the *Michigan Manual of Uniform Traffic Control Devices* (MMUTCD). All warning signs for maintenance of traffic used on this project shall be fabricated with prismatic retro-reflective sheeting, and shall be set up five feet above ground.

The Consultant shall use MDOT standard “maintaining traffic” typicals for any and all closures.

Typical MDOT traffic control diagrams are available on line at www.mdot.state.mi.us/tands/plans.cfm

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 Development Engineer at the nearest MDOT TSC for information regarding project coordination.

The Consultant's attention is called to the requirements of cooperation with others as covered in Article 104.07 of the 2003 Standard Specifications for Construction. 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 work unit scheduled.

FIELD SURVEY

The purpose of the field survey is to obtain all information and data required by the project design engineer, to leave control in the field for future construction staking, and to provide a sufficient history of the area to enable the MDOT Design Survey Unit to perform dependable surveys in the future. The Consultant surveyor must discuss the scope of this survey with the project design engineer before initiating any work on this project. Notes of this meeting and a detailed Survey Work Plan with an estimate of hours broken down by specific survey task must be submitted to the MDOT Project Manager and Survey Consultant Project Manager within two weeks of this meeting.

CONTROL

A three dimensional control system must be established throughout the project area. This control shall be based on the Michigan State Plane Coordinate System NAD1983 (CORS) horizontal datum and NAVD 1988 vertical datum. All subsequent control must be based on the established control. Any traverse/control points or bench marks established must adhere to the Michigan Department of Transportation (MDOT) Design Surveys *Standards of Practice* dated March 2009 and be listed in the Control pocket of the portfolio. Contact the MDOT Survey Consultant Coordinator or Region Surveyor for existing control in the area.

OPUS positioning may be used as a check, and for determining Primary Control as defined in the MDOT Standards of Practice for Design Survey March 2008. For any and all OPUS solutions, a RINEX format file with a minimum of two hours of GPS data must be included, as well as the OPUS solution (extended version) from NGS. All OPUS solutions must be verified within 0.20 foot, either by a separate OPUS solution from an independent occupation, or by a least squares adjustment based on NGS/CORS positions.

If GPS-derived elevations are used, the Surveyor's Report and the Witness List and Witness Sheet for the project must clearly state that the vertical datum is "NAVD 1988 GPS-derived from Geoid XX." Geoid03 is the recommended Geoid at this time September 2008.

A mapping control point that is a rebar in the ground should not be considered a benchmark. The elevation of a rebar that is a control point should be verified or re-established prior to use as a benchmark.

A Witness list sheet for this project must be provided that has a formula for grid to ground conversion, with a statement that a mapping control point that is a rebar in the ground should not be considered a benchmark, and its elevation should be verified or re-established prior to use.

All Witness lists, for horizontal control, benchmarks, government corners, and alignment points, must use all capital letters exclusively.

The Consultant must provide a **MicroStation file** that contains the benchmark list and horizontal control point list, government corner list, and alignment point list. The type of alignment must be described. This file must also provide a formula for a grid to ground conversion. This file must be named **JNxxxxwit.dgn** and formatted as an MDOT plan sheet. An example MicroStation file will be provided on the MDOT Design Survey ftp site. **Upper case letters must be used exclusively**, as they are easier to read on half size plan sheet.

PROPERTY/GOVERNMENT CORNERS

Any PLSS corners within the project limits must be recovered or established and tied to the project coordinate system. Any PLSS corners necessary for legal alignment determination and/or property ties for Right of Way issues must be recovered or established and tied to the project coordinate system.

All PLSS corners must be recorded in accordance with PA 74 of 1970, as amended, and all applicable administrative rules. A copy of each **recorded** Land Corner Recordation Certificate must be submitted to the MDOT Design Survey Office as part of the final report. All PLSS corners located in hard surface roads must be protected by a monument box, regardless of impending construction. The Consultant shall provide to the Survey Consultant Project Manager a list of any affected Government or Property Controlling Corners in the detailed work plan for discussion or approval.

The Consultant surveyor must contact the County Remonumentation Representative prior to beginning work on the project to inform him of proposed corner perpetuation activities, and to obtain information pertinent to PLSS corners and/or property controlling corners affected by project construction.

All **monument boxes** through the project area must be accounted for by the Consultant surveyor, shown on the project mapping, and have a recorded LCRC submitted in the survey portfolio.

ALIGNMENT

Since most existing alignment points locate and define the boundary between the public Right of Way and private ownership, legal alignment points are considered Property Controlling Corners and must be recovered and recorded in accordance with PA 74 of 1970, as amended, and all applicable administrative rules. A copy of each recorded Land Corner Recordation Certificate must be submitted in the Property Section of the final portfolio.

The Consultant must clearly define in the Work Plan what type of alignment(s) is proposed, Legal, Survey or As Constructed, how the stationing will be established, and whether or not the alignment(s) will be staked in the field.

An **alignment sheet** must be prepared and submitted that shows the alignment(s) with stationing and coordinates, and the source of stationing, curve data, and the alignment definition. All alignments must be **annotated** as in the following examples: As Constructed alignment for CS 45011 as surveyed in 2006, or Legal Alignment of 1952 for CS 38016 as surveyed in 2008. Showing government corners with distances along government lines to the alignment are also appropriate for this CADD drawing. MDOT MicroStation format is required. Some tangents may be graphically shortened to “shrink” the drawing to fit paper size.

The Consultant must provide an **alignment control point list with witnesses** for all alignment points found or set. This list must include datum, point designations, descriptions, coordinates, combined Scale Factor, and witnesses. This list may be appended to the witness list for horizontal and vertical control points. Witness lists must use only uppercase letters.

All **monument boxes** through the project area must be accounted for by the Consultant surveyor, shown on the project mapping, and have a recorded LCRC submitted with the survey portfolio.

MAPPING

The Consultant must submit a **CAiCE software file, named MDOTjob#.zip**, utilizing CAiCE’s built-in archive feature, of all survey mapping points and data files for the mapping area. If a Digital Terrain Model is needed for the project, it must be created in CAiCE and named EXRD. **The CAiCE software used must be Version 10.6 or newer.**

The Consultant is responsible for using the latest MDOT CAiCE Feature Codes, files and Plans Production tugboat (macro), available on the MDOT Design Survey File Transfer Protocol (FTP) site at <ftp://ftp.michtrans.net/>. The consultant Username is “survcons.” The consultant Password is “\$urvcon\$.” The tugboat can also be used to convert CAiCE files into Geopak and MicroStation formats.

The Consultant must provide an electronic **MicroStation Intergraph Version 8 format file** of the mapping area. This file must be named MDOTjob#pl.dgn, for example **79023Cpl.dgn**, and must be submitted **in a sub-directory outside of the CAiCE archive file** named “MicroStation.” The MicroStation file will be a 2-D file of the planimetric features including contours. This file must be sized appropriately, utilize the seed file **seedrd_c.dgn** with working units of 1000, 1, and be compiled in standard MDOT format. The Consultant is responsible for using the latest MDOT Resource files, color table, and cell files, available on the MDOT File Library site under CAD_V8. Go to <http://mdotwas1.mdot.state.mi.us/public/bbs/>

For a comprehensive list of MicroStation level designations, contents and line attributes, refer to the “MDOT V8 Level Feature Code List_08.pdf” table located on the MDOT Design Survey File Transfer Protocol web site. This table replaces the former Attachments AA, C & D. Also in the ftp site, the Consultant should refer to the V8GROUP&ALPHA LIST_08.pdf file for Data Collection Codes.

The Consultant must submit **files created from CAiCE that are formatted for design in Geopak** software. This can be accomplished by using the MDOT Plans Production CAiCE Tugboat (macro), which is available on the MDOT Design Survey File Transfer Protocol (FTP) site. The Consultant must submit a 3D MicroStation Triangle file and the same Triangle file in Geopak DAT format. **This DAT file is generated through the new (August 2008) MDOT tugboat.** The Consultant must also submit a Survey Chain (TIN Boundary) around the edited Triangle file with the name and Feature "CLIP." A Job#.XML file must be included for each separate alignment. Each alignment must be computed separately, and uniquely named to include the JN and a description, such as 79585_AsC_Wbd.XML. These files must be submitted electronically **in a subdirectory outside of the CAiCE archive file** named "Geopak."

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: DELIVERABLES

The final report for this project shall include:

1. In the first pocket of the portfolio, labeled **ADMINISTRATIVE**, the following will appear:
 - a. MDOT's Form 222(5/01) entitled "SURVEY NOTES: RECEIPT AND TRANSMITTAL"
 - b. The project's Professional Surveyor's Report on company letterhead consisting of:
 - i) A comprehensive synopsis of the work performed on this project, signed **and sealed** by the project's Professional Surveyor.
 - ii) The source and methods used to establish the project horizontal and vertical control and alignment(s) for this project.
 - iii) A detailed explanation of anything discovered during the survey of this project that may create a problem for the designer or another surveyor.
 - c. CD or DVD with all documents scanned or converted into PDF files. Each page must be inserted in a master PDF file and bookmarked for easy retrieval. An example can be provided upon request.
 - d. MDOT QA/QC Portfolio Checklist (revised March 2009).
2. In the second pocket of the portfolio, labeled **ALIGNMENT**, the following will appear:
 - a. An annotated MicroStation drawing of the alignment(s), showing:
 - i) A statement defining the alignment(s) as **legal, as constructed, or survey**
 - ii) Stationing, source of stationing, and station equation to existing stationing
 - iii) Horizontal coordinates of P.I.'s, at a minimum
 - iv) Curve data
 - v) Alignment points found or set
 - vi) Control points
 - vii) Reference lines and angles of crossing (if appropriate)
 - viii) Government corners and ties to government lines

- b. Witness list for the alignment points found or set, which shows coordinates, stationing and four witnesses for each alignment point. Witness lists must use only uppercase letters.
 - c. LCRC's for alignment points found.
3. In the third pocket of the portfolio, labeled **CONTROL**, the following will appear:
 - a. Documentation of horizontal and vertical datum sources.
 - b. OPUS documentation.
 - c. Least squares adjustments for the horizontal and vertical control.
 - d. It is not necessary to submit electronic raw survey data in hardcopy form, or in the .PDF file.
 - e. Text files, hardcopy and on CD, which contain the witness lists for the horizontal alignment ties, horizontal control points, benchmarks and government corners. All witness lists must note the datum(s), a combined scale factor for state plane grid-to-ground conversion, and an example thereof. Witness lists must use only uppercase letters.
 - f. A MicroStation V8 file showing the data in d. above, using only upper case letters.
4. In the fourth pocket of the portfolio, labeled **PROPERTY**, the following will appear:
 - a. Tax maps and descriptions with owner names, addresses and phone numbers, if Right of Way is to be acquired, or if riparian ownerships are required.
 - b. Maps, plats, and recorded surveys.
 - c. Documents such as plats, Act 132 Certificates and/or tax maps marked with point numbers as property ties, if Right of Way is to be acquired.
 - d. Legible **recorded** copies of all Land Corner Recordation Certificates (LCRC) filed for the government corners (PLSS corners and Property Controlling Corners) used for computations and/or in danger of obliteration by impending construction.
5. In the fifth pocket of the portfolio, labeled **MAPPING**, the following will appear:
 - a. Mapping file in MicroStation V8 format, and also converted to .PDF format. Hardcopy signed and sealed. All point and line descriptions must use only upper case letters.
 - b. An archived CAiCE software file.
 - c. Geopak files produced from CAiCE.
 - d. All field survey notes and electronic mapping data used for the project. It is not necessary to submit electronic raw survey data in hardcopy form, or in the .PDF file.
 - e. All supporting and supplemental information or data, such as drainage and utilities, electronically only if possible.
6. In the sixth pocket of the portfolio, labeled **MISCELLANEOUS**, the following will appear:
 - a. Any photographs taken for clarity of an area
 - b. Any newspaper clippings related to the project
 - c. Any information not covered in this scope that will be of benefit to the designer or another surveyor

General Notes

- a. It is the responsibility of the Consultant to insure that all electronic files submitted to

MDOT conform to the required format and that all documents are legible.

- b. The Consultant must organize and label the various sections of the portfolio as required by the Standards of Practice for MDOT Design Surveys dated March 2008.
- c. All research documents are required to be scanned and placed on the CD.
- d. It is desirable to limit paper and to include as much electronic data as possible on Compact Disc or DVD, including scanned items, to facilitate future electronic storage and transmission of survey data. **Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor".**