Michigan Department
Of Transportation
5100B (03/10)

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

Exhibit B

MDOT PROJECT MANAGER	JOB NUMBER (JN)	CONTROL SECTION (CS)
Collin Castle	113689C, 113689EPE	84915

DESCRIPTION
ITS Design Services for various locations, on I-94 from the Indiana border to the I-69 interchange area (Southwest Region).

MDOT PROJECT MANAGER: Check all items to be included in RFP

WHITE = REQUIRED
GRAY SHADING = OPTIONAL

Check the appropriate Tier in the box below

CONSULTANT: Provide only checked items below in proposal

☐ **TIER 1 ($25,000-$99,999)**	☐ **TIER II ($100,000-$250,000)**	☑ **TIER III (>$250,000)**	
☐	☐	☑	Understanding of Service
☐	☐	☑	*Innovations*
☐	☐	☐	*Safety Program*
N/A	☐	☑	Organizational Chart
☐	☐	☑	Qualifications of Team
☐	☐	☑	Past Performance
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) **(No Resumes)**	7 pages (MDOT Forms not counted)	19 pages (MDOT Forms not counted)	Total maximum pages for RFP **not including key personnel resumes**

REQUEST FOR PROPOSAL

Clear Form

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 1 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.

Clear Form

PROPOSAL SUBMITTAL INFORMATION

REQUIRED NUMBER OF COPIES FOR PROJECT MANAGER	PROPOSAL/BID DUE DATE	TIME DUE
4	8/22/11	4:00 PM

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

Collin Castle
8885 Ricks Rd.
P.O. Box 30049
Lansing, MI 48909

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

MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

5100D – Request for Proposal Cover Sheet
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
INTELLIGENT TRANSPORTATION SYSTEMS

CONTROL SECTION: 84915

JOB NUMBER: 113689C

PROJECT LOCATION:
Various locations, on I-94 from the Indiana border to the I-69 interchange area in Berrien, Van Buren, Kalamazoo and Calhoun Counties Michigan.

DESCRIPTION OF WORK:
This scope is to provide systems engineering and design for an Intelligent Transportation Systems (ITS) project for the following:

- Develop a final bid package based on 100% complete plans and provide a cost estimate for construction
- Develop or procure a truck parking smart phone application
- Partner with a private truck parking information service provider and a **minimum of one** commercial fleet vehicle company
- Facilitate integration with data provided by a private truck parking information service provider
- Install Connected Vehicle equipment
- Coordinate use of a truck parking smart phone application in commercial fleet vehicles
- Serve as the MDOT representative and system manager and integrator, through the construction phase

The Consultant will be responsible to scope the project using a systems engineering process, refine locations of equipment, develop plans and proposal information to 100% completion, define known or anticipated environmental issues, provide necessary geotechnical information, define known or anticipated utility issues and define known or anticipated traffic concerns.

Note: Consultant presentations may be required at the MDOT's discretion.

PRIMARY PREQUALIFICATION CLASSIFICATION(S):
Intelligent Transportation Systems

SECONDARY PREQUALIFICATION CLASSIFICATION(S):
Maintaining Traffic Plans & Provisions
Road Design Surveys
Geotechnical Engineering Services

ANTICIPATED START DATE: September 19, 2011

ANTICIPATED COMPLETION DATE: July 19, 2014

DBE REQUIREMENT: There is no DBE requirement for this project.

MDOT PROJECT MANAGER: Collin Castle
ITS Staff Engineer
8885 Ricks Rd.
P.O. Box 30049
Lansing, MI 48909
Phone: 517-636-5021
Fax: 517-322-5664
castlec@michigan.gov

This is an ITS project that consists of all work related to the design of a Truck Parking and Information Management System along the I-94 corridor. The project will entail the detailed design and deployment of ITS infrastructure at rest areas and interchanges near private truck stops to monitor truck parking conditions. **Response to the Federal Highway Administration Notice of Funding Availability for the Truck Parking Facilities Program** is available in its entirety, for review.

Contact the Project Manager to schedule a time to review the information.

ITS Infrastructure for these systems is anticipated to be located at the following MDOT Public Truck Parking Facilities:

Table 1 – Public Truck Parking Facilities in the Project Corridor

Truck Parking Facility	Location
New Buffalo Welcome Center	Eastbound, near Mile Marker 0
Watervliet Rest Area	Westbound, near Mile Marker 42
Galesburg Rest Area	Westbound, near Mile Marker 85
Battle Creek Rest Area	Eastbound, near Mile Marker 96
Marshall Rest Area	Westbound, near Mile Marker 113

The systems shall include, but are not limited to, Dynamic Truck Parking signage, Closed-Circuit Television (CCTV) Cameras, Traffic Sensors, DSRC Radios, Servers, and communications infrastructure, all of which shall interface with all of the existing ITS monitoring software and equipment. A project specific Conceptual Operations (Con-Ops) plan must also be developed using the systems engineering process.

The Truck Parking and Information Management System along the I-94 corridor shall also interface with a private truck parking information service provider to display the parking availability of private truck parking facilities along the corridor. The following private truck parking facilities located in the project corridor include:

Table 2 – Private Truck Parking Facilities in the Project Corridor

Truck Parking Facility	Location
Plaza 1 Truck Stop	Exit 1
Dunes Auto-Truck Plaza	Exit 12
TA	Exit 12
USA Travel Center	Exit 16
Road Hawk Travel Center	Exit 26
Marathon Express	Exit 28
Pri Mar Fuel Center	Exit 29
Flying J Truck Stop	Exit 30
Speedway	Exit 66
Arlene's Truck Stop	Exit 92
Te-Khi Travel Court	Exit 104
Pilot Travel Center	Exit 104
Pioneer Auto-Truck Plaza	Exit 110
Loves	Exit 112
The 115 Truck Stop	Exit 115

For details on the proposed system's overview, description, and architecture, as well as high level requirements see Attachment A – System Information, which contains excerpts of the original MDOT proposal.

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

The project manager shall be an engineer licensed in the State of Michigan with relevant experience in ITS systems engineering and design services. The project manager shall be an employee of the primary consulting firm responding to the RFP and not a sub-Consultant.

REQUIRED MDOT GUIDELINES AND STANDARDS:

Work shall conform to current MDOT, FHWA, and AASHTO practices, guidelines, policies, and standards (i.e., Road Design Manual, Bridge 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, the Design Survey Manual, etc.). The project will be done using the DTMB project methodology, as applicable.

GENERAL INFORMATION:

The Consultant shall have substantial ITS conception, design background and experience. The Consultant should be prepared to demonstrate their background and experience, as this will be a major part of the selection for this RFP.

The Consultant shall furnish all services and labor necessary to conduct and complete the services described herein. The Consultant shall also furnish all materials, equipment, supplies, and incidentals necessary to perform the Services (other than those designated

in writing to be furnished by the Department) and check and/or test the materials, equipment, supplies and incidentals as necessary in carrying out this work. The Services shall be performed to the satisfaction of the Department consistent with applicable professional standards.

The Consultant shall comply with all applicable Federal and State laws, rules, and regulations. The Consultant staff shall conduct themselves with professionalism in carrying out their duties.

The Consultant shall notify the Project Manager, in writing, prior to any personnel changes from those specified in the Consultant's original approved proposal. Any personnel substitutions are subject to review and approval of the Project Manager.

At the request of the Department, the Consultant, during the progress of the Services, shall furnish information or data relating to the Services described herein that may be required by the Department to enable it to carry out or to proceed with related phases of the Project not described herein, or which may be necessary to enable the Department to furnish information to the Consultant upon which to proceed with further Services.

CONSULTANT RESPONSIBILITIES:

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

- The Consultant will be responsible for completing all tasks as detailed in Attachment B – Consultant Responsibilities, including; Systems Engineering, Survey, Communications Design, PS&E Development, System Procurement and Implementation, and System Integration and Software Modifications.

- Provide conceptual layouts for the corridor. This will include seeking stakeholder input on device locations and system functionality.

- The Consultant will be required to develop a Concept of Operations for the ITS devices for this project.

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

- Perform required design and functional technical specification writing and/or modification to expand the ITS facilities in the project area. The proposed facilities shall include, but are not limited to, Dynamic Truck Parking signage, Closed-Circuit Television (CCTV) Cameras, Traffic Sensors, DSRC Radios, Servers, and communications infrastructure.

- Perform required design and functional technical specification writing and/or modification to develop or procure a smart phone truck parking application, partner with a private truck parking information provider and a minimum of one commercial fleet vehicle company, interface/integrate with data provided by a private truck parking information service provider, installation of Connected Vehicle equipment and coordinate use of a truck

parking smart phone application in commercial fleet vehicles, and integration of all systems with the MDOT Advanced Traffic Management System (ATMS) software package.

- Prepare required plans 100% complete which would include: typical cross-sections, details, functional requirements and specifications required for construction. MDOT shall provide any existing details and specifications applicable to the proposed work in electronic format.

- Compute and verify all plan quantities for the bid package.

- Prepare staging plans and special provisions for maintaining traffic during construction.

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

- Develop component and acceptance tests and work with MDOT to perform all tests.

- Contact all utility companies thru mailings to determine possible conflicts and incorporate the results from their investigation into their proposal.

- Prepare and incorporate all documents for E-Proposal Submittal.

MDOT PRECONSTRUCTION TASKS CONSULTANT CHECKLIST
STUDY (EARLY PRELIMINARY ENGINEERING)

YES	NO	P/PMS TASK NUMBER AND DESCRIPTION	DATE TO BE COMPLETED BY (mm/dd/yyyy)
		CONSULTANT CONTRACT AUTHORIZATION/EXECUTION	__/__/____
		EPE SCOPING ANALYSIS	
☐	☐	2120 Prepare Traffic Analysis Report	__/__/____
☐	☐	2130 Prepare Project Justification	__/__/____
☐	☐	*213M Concurrence by Regulatory Agencies with the Purpose and Need*	__/__/____
☐	☐	2140 Develop and Review Illustrative Alternatives	__/__/____
☐	☐	2155 Request/Perform Safety Analysis	__/__/____
☐	☐	2160 Prepare and Review EIS Scoping Document	__/__/____
☐	☐	*211M Public Information Meeting*	__/__/____
		EPE DRAFT ANALYSIS	
☐	☐	2310 Conduct Technical SEE Studies	__/__/____
☐	☐	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 or DEIS	__/__/____
☐	☐	*231M*	*Draft Submission to FHWA*	__/__/____
☐	☐	2380	Circulate EA or DEIS	__/__/____
☐	☐	*232M*	*Public Hearing*	__/__/____
		EPE FINAL ANALYSIS		
☐	☐	2510	Determine and Review Recommended Alternative	__/__/____
☐	☐	*250M*	*Concurrence by Regulatory Agencies with Recommended Alternatives*	__/__/____
☐	☐	2525	Prepare and Review Engineering Report	__/__/____
☐	☐	2530	Prepare and Review Request for FONSI or FEIS	__/__/____
☐	☐	*252M*	*Final Submission to FHWA*	__/__/____
☐	☐	2550	Obtain FONSI or ROD	__/__/____
☒	☐	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	10/01/2011
☐	☐	3310	Prepare Aerial Topographic Mapping	__/__/____
☐	☐	3320	Conduct Photogrammetric Control Survey	__/__/____
☐	☐	3321	Set Aerial Photo Targets	__/__/____
☒	☐	3330	Conduct Design Survey	__/__/____)
☐	☐	3340	Conduct Structure Survey	__/__/____
☐	☐	3350	Conduct Hydraulics Survey	__/__/____
☐	☐	3360	Prepare Base Plans	__/__/____
☐	☐	*331M*	*Utility Notification*	__/__/____
☐	☐	3361	Review and Submit Preliminary ROW Plans	__/__/____
☐	☐	*331M*	*Preliminary ROW Plans Distributed*	__/__/____
☒	☐	3365	Pre-Conceptual ITS Design and Meeting	__/__/____
☐	☐	3370	Prepare Structure Study	__/__/____
☐	☐	3375	Conduct Value Engineering Study	__/__/____
☐	☐	3380	Review Base Plans	__/__/____
☐	☐	*332M*	*Base Plan Review (Pre-GI Inspection)*	__/__/____
☒	☐	3390	Develop the Maintaining Traffic Concepts	__/__/____)
		PRELIMINARY PLANS PREPARATION		

☐	☐	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	Conduct Structure Foundation Investigation	__/__/____
☐	☐	3535	Conduct Structure Review for Architectural and 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	__/__/____)
☐	☐	3581	Review and Submit Final ROW Plans	__/__/____
☐	☐	*351M*	*Final ROW Plans Distributed*	__/__/____
☒	☐	3585	Final ITS Concept Design and Meeting	__/__/____)
☒	☐	3590	Review Preliminary Plans (Hold Plan Review Meeting)	__/__/____
☒	☐	*352M*	*THE Plan Review (Grade Inspection)*	01/01/2012
☒	☐	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	Submit Environmental Permit Applications	__/__/____
☐	☐	3730	Obtain Environmental Permit	__/__/____

		FINAL PLAN PREPARATION		
☐	☐	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*	05/01/2012
☐	☐	3850	Develop Structure Final Plans and Specifications	__/__/____
☒	☐	3870	Hold Omissions/Errors Check (OEC) Meeting	__/__/____
☒	☐	*387M*	*Omissions/Errors Checks Meeting*	06/01/2012
☒	☐	*389M*	*Plan Turn-In*	07/02/2012
☐	☐	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		
☐	☐	4120	Obtain Preliminary Title Commitments	__/__/____
☐	☐	4130	Prepare Marked Final Right Of Way Plans	__/__/____
☐	☐	*413M*	*Approved Marked Final ROW*	__/__/____
☐	☐	4140	Prepare Property Legal Instruments	__/__/____
		ROW ACQUISITION		
☐	☐	4411	Preliminary Interviews	__/__/____
☐	☐	*441M*	*Post-Decision Meeting*	__/__/____
☐	☐	4412	Real Estate Services Assignment Proposal and Fee Estimate (Form 633s) for Appraisal Work Authorization	__/__/____
☐	☐	4413	Appraisal Reports	__/__/____
☐	☐	4420	Appraisal Review Reports	__/__/____
☐	☐	4430	Acquire Right Of Way Parcels	__/__/____
☐	☐	4510	Conduct Right Of Way Survey & Staking	__/__/____
		ROW RELOCATION		
☐	☐	4710	Relocation Assistance	__/__/____
☐	☐	4720	Prepare Improvement Removal Plan	__/__/____
☐	☐	*442M*	*ROW Certification*	__/__/____

POST LETTING/AWARD TASKS (for reference only)

P/PMS TASK NUMBER AND DESCRIPTION		DATE TO BE

YES	NO			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	__/__/____

OTHER P/PMS RELATED TASKS

- 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.

- Maintain a Design 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.

- The Consultant shall identify the locations of any existing water main and/or sanitary sewer on the project.

- If water main and/or sanitary sewers are present within the project limits, the Consultant shall evaluate vertical elevations and design the depth of any proposed ITS facilities so as not to be in conflict with the existing utility.

- The Consultant shall submit a Transportation Management Plan (TMP) that addresses MDOT's current Safety and Mobility policy.

- The Consultant may be required to provide Design Services during the construction phase of this project. This will include System Manager (SM) tasks such as to assist the MDOT Project Delivery Office with review tasks during the construction phase of the project to complete tasks including, review of shop drawing submittals, meeting correspondence, etc. If Construction Assistance is required, then a separate authorization for those services will be issued. The Consultant will not be compensated for performing work due to errors or omissions.

- If excavation is required, submit the excavation locations which may contain contamination. Project Manager then can proceed in requesting a Preliminary Project Assessment (PPA).

- The Consultant shall be required to prepare and submit a CPM network for review and use for preparing the progress schedule for the project.

- The Consultant representative shall record and submit type-written minutes for all project related meetings to the MDOT Project Manager within two days 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.

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

- 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.

- 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.

- The Consultant shall determine all potential utility conflicts with the proposed facility placement. The Consultant shall also define solutions to the various utility conflicts and have them reviewed by MDOT before they are designed and placed on the construction plans.

- The Consultant is also responsible for determining the availability of electric and communication service to the proposed facilities at the locations described previously. Any potential problems with utility electric and communication service shall be brought to MDOT's attention as soon as they are known.

- 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.

BI-WEEKLY PROGRESS REPORT:

The Consultant shall submit bi-weekly project progress reports to the MDOT Project Manager (or designee). The reports shall include work accomplished during the previous 2 weeks; anticipated work items for the upcoming 2 weeks; real or anticipated problems on the project; update of previously approved detailed project schedule, including explanations for any delays or changes; items needed from MDOT; copy of Verbal Contact Records for the period.

MDOT RESPONSIBILITIES (GENERAL):

A. Schedule and/or conduct the following:
    1. Project related meetings
    2. The Plan Review
    3. Utility Meetings
    4. Stakeholder engagement meetings
    5. Final item cost estimates, as necessary

B. Make decisions or provide input for the following items:
    1. Resolve political issues
    2. Resolve issues related to funding
    3. Review of Final packaging of the Proposal after the Consultant's review of the final package.
    4. Determine which letting date will be used for the project
    5. Coordinate with local Contractor's association (MITA)

C. Furnish existing plans.

D. Provide environmental clearance.

E. Coordinate any necessary utility relocation.

F. Safety Reviews for any required design exceptions.

G. Review and approve all external communications.

H. Review and approve all budget, schedule, and design aspects.

I. DTMB will be responsible for IT work including hardware and software, as applicable

DELIVERABLES:

The Consultant shall provide full size (cut size 24" x 36") and half size (cut size 11" x 18") plans in English units.

All plan sheets required for this project shall be completed by the Consultant. These include, but are not limited to:

- Title Sheet
- Note Sheet
- Typical Cross-Sections
- Plan Sheets

- Project specific Special Details
- Construction staging and traffic control plans
- Truck Parking Information Smart Phone Application
- Electronic files for each to be provided

TRAFFIC CONTROL AND MDOT PERMITS

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

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 the Utilities/Permits Section, Real Estate Division at (517) 373-7680.

UTILITIES

The Consultant shall be responsible for obtaining from MDOT 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 shall provide for the staking of various proposed facilities so as to locate potential utility conflicts and aid in the completion of utility relocation plans for and private utility companies.

SCHEDULE:

Achievement of the project milestones will require a concentrated effort by both the Consultant and MDOT. Timely communications, receipt of information, and development and approval of deliverables will be critical to the success of the assigned deliverables.

The schedule will be determined on a task by task basis as set forth in each task.

The start date for the Consultant services will be immediately upon notice to proceed (NTP). The duration of the services will be at the discretion of MDOT project manager.

The Consultant shall provide at the kick off meeting a detailed schedule of target dates for each step of the design.

PROJECT MANAGEMENT:

This project will require close interaction and good communication between the Consultant and MDOT.

If there are any major deviations from the original scope of this assignment, these changes must be documented and jointly approved by the Consultant and MDOT.

The selected Consultant shall provide all necessary project management services, including monthly and quarterly progress reports, developing and maintaining a project schedule, and providing invoices in a timely manner.

Consultants should provide a description of their management team for this project and list all key personnel responsible for the deliveries of this RFP.

STATUS REPORTS/ MEETINGS:

There will be periodic, regular meetings between MDOT representatives and the selected Consultant to review work product, and to communicate progress, issues, ideas, and expectations.

The selected Consultant shall provide copies of all project reports, correspondence, meeting announcements, and meeting minutes which shall be delivered by email to the MDOT Manager. The Consultant shall provide the minutes of all meetings attended. These shall be distributed by email to the MDOT Project Manager.

PROJECT DOCUMENTATION:

All documentation and reports shall be delivered in the current version of Microsoft Word or Adobe Acrobat (whichever applies) being used by MDOT. All documentation delivered shall be clear, concise, complete, and in compliance with standards required by the MDOT Project Manager. All CADD files shall be delivered in the current version of MicroStation being used by MDOT.

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

SYSTEM INFORMATION

SYSTEM OVERVIEW

Commercial vehicle operators along I-94 require multiple types of information, such as travel times, traffic incidents, work zones, and border crossing wait times, in addition to truck parking availability. As information on truck parking is provided to commercial vehicle operators, other traveler information can be provided over the same communications network and ITS infrastructure to promote the efficient movement of goods within the corridor.

The system will require new software to monitor parking availability and to disseminate parking information to commercial vehicle operators. MDOT is currently undergoing an update of their statewide Advanced Traffic Management System (ATMS) software. An interface between the truck parking system and the new ATMS will be completed as part of this project. The Consultant will be responsible for contracting with the current ATMS Software vendor, Delcan Corporation, as a sub-consultant for tasks associated with the design and integration with the ATMS software package.

An innovative aspect of this project is the use of Connected Vehicle and cellular-based technologies for information dissemination. MDOT will work with a fleet operator to equip some of their vehicles with Connected Vehicle on-board equipment. A section of the I-94 corridor will be instrumented with Connected Vehicle roadside equipment to demonstrate effective communications with commercial vehicles using Dedicated Short Range Communications (DSRC). In addition, audible cellular alerts will be provided to subscriber fleet operators in the corridor.

The system design must be scalable for expansion to other segments of the I-94 corridor, including those in other states and provinces, and to other corridors within Michigan. Michigan has clearly recognized that there is an opportunity to improve the safety and efficiency of commercial transport in the I-94 corridor and, in particular, the management of the parking infrastructure that is available. The I-94 Truck Parking and Information Management System will take advantage of existing systems and data sources, but will also incorporate new concepts to provide a safe, yet highly reliable and effective method to inform fleet operators of available truck parking.

SYSTEM DESCRIPTION

The I-94 Truck Parking and Information Management System will collect truck parking availability information and disseminate it to users over a variety of media, including:

- Dynamic truck parking signs upstream of rest areas
- Audible alerts via Smart phones
- Connected Vehicle Infrastructure
- The MDOT MiDrive web site, and
- A private parking information service provider.

Each of these applications is described below.

Dynamic Truck Parking Signage

Parking availability information will be sent to dynamic parking information signs upstream from the rest areas. These signs will provide information about the number of parking spaces available, but may include other information related to the services provided at the rest area (e.g., showers, Wi-Fi availability, etc.). An off-the-shelf solution will be used for this application.

Smart Phone and Connected Vehicle Applications

The Consultant will be required to establish a mechanism for utilizing a smartphone application that will disseminate audible truck parking information to subscribers. The smartphone application will be configurable to allow messages only during certain times of the day. Other relevant information may also be disseminated using this technique.

Through this project, DSRC roadside units (RSUs) will be installed in advance of rest areas and private truck stops in the I-94 project corridor. Parking availability information will be sent from the Statewide Transportation Operations Center (STOC) in Lansing, MI to the roadside equipment on cycles of less than every five minutes. The parking

availability information will then be broadcast to passing Connected Vehicle equipped commercial vehicles.

MDOT developed a Connected Vehicle parking availability and payment application for the 2009 ITS Michigan Annual Meeting. This application was developed using open source software and was disseminated over a wireless mesh communications network. This project will reuse much of this previously developed application for the "Connected Vehicle" parking information application. Modifications will be required for DSRC communications.

The Consultant will be required to partner with a private freight company for participation in this project. Participation will include, but not be limited to, subscription to the smartphone audible parking alert system and installation of Connected Vehicle on-board units in some of the freight company's vehicles. To minimize driver distraction, the concept calls for audible, rather than visual, messages in the vehicle through the smart phone and "Connected Vehicle" applications.

MiDrive Web Site

The Consultant will be required to partner with appropriate MDOT and DTMB MiDrive representatives to publish parking availability information on the MiDrive website. This website includes a page specifically for "Truckers". Dispatchers can use this information to inform their drivers of parking availability in the corridor.

Private Parking Information Services

The Consultant will be required to partner with a parking information service provider to disseminate parking availability information to ensure broad distribution to motorists through simple and convenient mobile and web search, and navigation devices. Value added information will be provided for parking facilities in the corridor.

HIGH-LEVEL REQUIREMENTS

1. The number of available parking spaces at rest areas along a pilot project segment of I-94 shall be determined by counting entering and exiting vehicles at truck parking areas only.

2. Traffic sensors will be deployed at the ingress and egress points for trucks at all rest areas along the I-94 pilot project section to determine the number of available spaces.

3. CCTV cameras will be used to monitor and verify truck movements in and out of the rest areas as well as common overflow areas.

4. Each rest area shall include a local communications and data server to process and communicate data and video.

5. Communications will be established between the local communications servers at the rest areas and the STOC.

6. Parking availability data and video from the rest areas will be transmitted over the MDOT communications network to the STOC.

7. Parking availability information at private truck stops will be collected, processed and transmitted to the STOC by a private parking information service provider.

8. The STOC will transmit rest area parking information to the parking information service provider.

9. Parking availability data will be broadcast to commercial vehicles upstream of rest areas and truck stops using DSRC.

10. Parking availability data will be displayed on dynamic Truck Parking Signs upstream of the rest areas.

11. The STOC will display the parking availability data on a corridor map showing all rest areas and truck stops in the corridor.

12. Parking availability data shall be converted from text to speech at the STOC.

13. The STOC shall broadcast parking availability messages for the corridor based on operational thresholds and user defined broadcast update timing parameters.

14. Parking availability data shall be collected, processed, displayed, and updated at intervals of no more than every five minutes.

15. Parking availability data shall be provided on the MiDrive website and to drivers via cellular and DSRC communications media.

16. Parking availability data shall also be disseminated by a private parking management service provider.
17. Rest area closure information shall be disseminated over these media in addition to existing dynamic message signs (DMS) in the corridor.

18. The system will be operated by MDOT or its operations Contractor from the STOC.

19. Accommodations will be made to facilitate future interstate and international linkages for sharing truck parking information, along with other pertinent information to facilitate goods movement throughout the corridor.

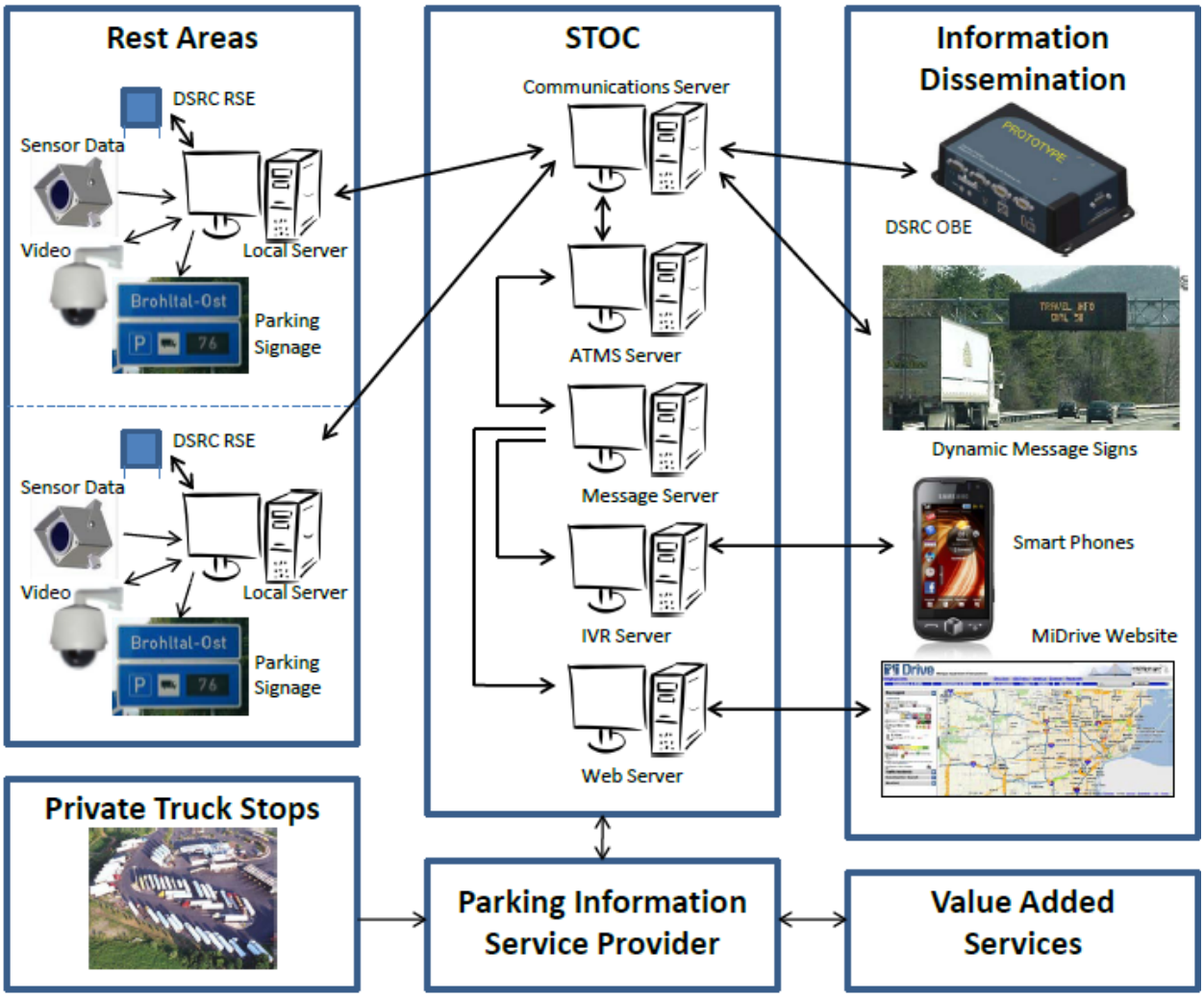
SYSTEM ARCHITECTURE

The proposed system architecture for the Truck Parking and Information Management System includes components related to data collection, verification, processing, storage, communications, display, and information dissemination. Some of the processes will be distributed to local servers at rest areas. Most of the data processing will take place at the STOC in Lansing, MI.

Figure 1 describes the system architecture. As depicted, traffic sensors will collect truck parking availability at rest areas along the project segment. The sensors will be installed to collect truck entry and exit data. CCTV cameras will be installed at each rest area to

verify sensor data. Information about truck parking availability at private facilities will be provided by a parking information service provider. The Consultant will partner with the truck stops in the corridor to obtain this parking availability information through the service provider.

Figure 1 – Proposed Truck Parking and Information Management System Architecture



Sensor data will be stored on local servers at the rest areas. The local servers will process the parking data and send the verified information via local communications links to dynamic parking signs upstream of the rest area.

The data also will be transmitted to the STOC in Lansing for dissemination through the MiDrive website, DMS, DSRC roadside units, and through the smartphone application. An interface between the communications server for the Parking Management and Information System and the new MDOT ATMS software will be part of the system. An interface also will be provided between the parking information service provider and the STOC to allow exchange of data.

Drivers will be provided information in their vehicles through the following mechanisms:

1. Dispatchers may access the MiDrive website to obtain truck parking availability at rest areas and truck stops along the corridor. This information can be provided to operators by their dispatchers.

2. Drivers may subscribe to the audible alert system by downloading an application on their smart phones. The Consultant will partner with a freight company on this approach.

3. Drivers of Connected Vehicle equipped vehicles would obtain the information through DSRC communications. Onboard equipment would be installed in the vehicles, and the driver interface would be audible messages specific to parking availability as the commercial vehicle approaches a rest area. This application may include a DSRC dongle tied to the driver's smart phone in order to leverage the smart phone capabilities for voice alerts.

4. Value added services will be available through the parking information service provider. Examples of value added services include parking reservations, check-in/check-out, electronic payment, advertisements, services provided at the parking facility, and mapping.

Truck parking information would also be disseminated through MDOT infrastructure, including MDOT's DMS system and dynamic truck parking signs in advance of rest areas. These mechanisms would also be used to transmit information about rest area closures, along with other critical information.

ATTACHMENT B
May 2011

CONSULTANT RESPONSIBILITIES

2. SYSTEMS ENGINEERING

The Consultant will perform the required systems engineering analyses to meet Rule 940. Part of this effort will be devoted to the analysis of current infrastructure to be used for this project. Existing communications infrastructure and software systems will be leveraged to the highest degree possible. An analysis of alternative technological solutions also will be completed during this phase of the project.

The concept of operations will be refined and detailed requirements will be developed for the proposed system. This will require meetings with the various project stakeholders to clearly agree to roles and responsibilities, the refined concept of operations and system requirements. The first meeting will cover the concept of operations and conformity with the regional ITS architecture. In this case, a regional ITS architecture has been developed for the MDOT Southwest Region. A subset of the ITS stakeholders in the region will be invited to participate in the first meeting.

As the requirements and conceptual design are finalized, a walkthrough meeting will be conducted between the MDOT project manager, MDOT technical staff, the engineering Consultant, and other select stakeholders to finalize the system concept and requirements.

Specific subtasks are outlined in the following table.

2. Systems Engineering
2.1 Data collection and analysis
2.1.1 Existing mapping and survey of the corridor
2.1.2 Evaluate existing geotechnical data
2.1.3 Inventory existing ITS assets in the corridor
2.1.4 Investigate concurrent projects (ITS deployments, ATMS software, etc.)
2.1.5 Prepare block diagrams of existing systems
2.2 Refine concept of operations
2.2.1 Stakeholder meeting
2.2.2 Evaluate ITS architecture conformity
2.2.3 Prepare and validate operational scenarios
2.2.4 Stakeholder workshop
2.2.5 Update concept of operations and ITS architecture as needed
2.3 Refine requirements

2.3.1 Parking detection and information system
2.3.2 CCTV system
2.3.3 Software
2.3.4 Communication and power
2.3.5 System interfaces and protocols
2.3.6 Inter-agency video/data exchange
2.3.7 Statewide Traffic Operations Center and ATMS software enhancements
2.3.8 Internal review by team
2.3.9 Revisions
2.3.10 Stakeholder meeting
2.3.11 Revise report
2.3.12 Develop traceability matrix for requirements verification
2.3.13 Develop evaluation plans
2.4 High level design
2.4.1 Technology alternatives
2.4.1.1 Parking detection
2.4.1.2 Parking signage
2.4.1.3 Communications network
2.4.1.4 Central software displays
2.4.1.5 Central software architecture
2.4.1.6 CCTV camera system
2.4.1.8 Video distribution
2.4.1.9 In-vehicle equipment and software refinement
2.4.1.10 Human-machine interface in vehicles
2.4.2 Industry standards
2.4.3 Develop preliminary costs - budget checkpoint
2.4.4 High level design report

3. SURVEY

Because infrastructure will be deployed as part of this project, it is anticipated that some field survey work will be required. The Consultant will conduct surveys as needed to identify alignments and problem soil conditions, as required. MDOT will provide existing survey information, as needed. Specific tasks are summarized below.

3. Survey
3.1 Alignment
3.2 Control survey
3.3 Topographic survey
3.4 Geotechnical investigation

4. COMMUNICATIONS DESIGN

This project is all about communications, from the STOC in Lansing to the rest areas and interchange locations; from the STOC to the Michigan State Police; between local servers at the rest areas and ITS devices; and between the infrastructure and commercial vehicles. Existing communications infrastructure will be leveraged to the greatest extent possible.

The Consultant will develop a network plan based on the concept of operations, inventory, requirements, and conceptual design developed. This network plan will present the topology and proposed technological solutions to meet the requirements. A final report will be prepared. Specific tasks are summarized below.

4. Communications Design
4.1 Center-to-field, including wireless line-of-sight analysis
4.2 Center-to-center
4.3 V2I/I2V
4.4 Existing system tie-in
4.5 Develop network plan
4.5.1 Draft report
4.5.2 Final report

5. PS&E DEVELOPMENT

The Consultant will prepare plans, specifications, and estimates for the system. The design effort will be iterative, with reviews at the 30%, 60% and 90% design levels. Final design packages will be prepared for the procurement of a Contractor to install and integrate the system, for computer, server and network equipment to be procured through the Department of Technology Management & Budget (DTMB), and for parking management and other software solutions.

Tasks associated with the detailed design and procurement activities are outlined below.

5. PS&E Development
5.1 Develop Prelim Roll Plot/Conceptual Design
5.1.1 Initial field assessment and utility location
5.1.2 Request utility information
5.1.3 Draft conceptual design/plot preliminary device locations
5.1.4 Conceptual design review with system management Consultant
5.2 Develop Final Roll Plot
5.2.1 Detailed field review
5.2.2 Plot preliminary device locations
5.2.3 CCTV bucket truck survey at rest areas and interchange locations
5.2.4 Finalize device locations
5.2.5 Preliminary utility coordination
5.2.6 Constructability review
5.2.7 Final roll plot review meeting
5.3 Develop Base Plans and Estimate - 30% Plan Set
5.4 Base Plan Review Meeting
5.5 Preliminary Plans, Design, and Estimate - 60% Plan Set
5.5.1 Wireless link analysis
5.5.2 Field design/conduit layout
5.5.3 Preliminary specifications
5.5.4 Preliminary construction zone traffic control plans
5.5.5 Soil boring sheets

5.5.6 Calculate quantities
5.5.7 Engineer's estimate
5.5.8 Constructability review
5.5.9 60% plan set assembly
5.5.10 Preliminary plans and final location review meeting - 60%
5.6 Pre-Final PS&E - 90%
5.6.1 Construction zone traffic control plans
5.6.2 Cross sections
5.6.3 Final specifications
5.6.4 Prepare details
5.6.4.1 CCTV pole and foundation
5.6.4.2 CCTV camera mounting
5.6.5.3 Parking sign structure
5.6.5.4 Parking sign mounting
5.6.5.5 Detector details
5.6.5.6 DSRC details
5.6.5.7 System block diagrams
5.6.5.8 Fiber splicing
5.6.5.9 Statewide Traffic Operations Center rack elevations
5.6.5.9 Cabinet device connections
5.6.5.10 Antenna mounting
5.6.5.11 Local server rack elevations
5.6.5.12 Local server connections
5.6.5.13 Miscellaneous details
5.6.5.14 Power service
5.6.5.15 Cabinets
5.6.6 Structural design for poles and supports
5.6.7 Revise quantities
5.6.8 Engineer's estimate
5.6.9 Standard MDOT details
5.6.10 Assemble and submit final plans, specs, and estimate
5.8 Finalize Electrical Service Coordination
5.9 Final PS&E - 100%
5.10 Omissions/Errors Check
5.11 Incorporate Final Comments
5.12 Submit Final Construction Plans, Specs, and Estimate
5.13 Submit Final Design Deliverables
5.14 Prepare Contractor Bid Documents

6. SYSTEM PROCUREMENT AND IMPLEMENTATION

MDOT will procure an installation and integration Contractor for implementation of the infrastructure required for the system. The implementation Contractor will be responsible for procuring, installing and integrating all ITS devices, including DSRC radio equipment.

The Consultant will oversee construction and integration activities performed by the installation Contractor. This includes attending the preconstruction meeting, reviewing cut sheets and shop drawings, performing site inspections, and reviewing as-built plans developed by the Contractor. Testing and training oversight are also part of this task.

This task will also involve computer hardware procurement, software procurement and development activities. Computer hardware will be procured in cooperation with DTMB, who will also be involved in software procurement and development.

Various off-the-shelf software systems will be procured based on the detailed requirements, including:

1. A parking management software system that has been customized for truck parking.

2. An Interactive Voice Recognition (IVR) system required to convert text to speech for the audible smart phone application.

3. A "smart phone" application for truck parking.

Also, the Connected Vehicle smart parking application developed previously for MDOT will be modified by the engineering Consultant for this project. The original software was developed using open source. However, modifications will be required for the DSRC application.

The procurement and implementation tasks are outlined below.

6. Procurement and Implementation
6.1 Contracted Installation and Integration Services
6.2 Construction Support Services
6.2.1 Pre-construction meeting
6.2.2 Cut sheet review
6.2.3 Shop drawing review
6.2.4 CPM schedule
6.2.5 Testing oversight
6.2.6 Inspection services
6.2.7 Training oversight
6.2.8 As-built plans
6.3 Procure Server/Computer Equipment
6.4 Procure Software
6.4.1 Procure parking management system software
6.4.2 Procure IVR software services/license
6.4.3 Procure iPhone application or development
6.4.4 Modify existing "Connected Vehicle" parking information software

7. SYSTEM INTEGRATION AND SOFTWARE MODIFICATIONS

The Consultant will oversee integration activities performed by the installation Contractor. This includes the development of various test procedures, including unit testing, subsystem/assembly testing, system tests, and acceptance testing. The network addressing scheme will be devised, implemented and thoroughly tested.

Software modifications at the STOC will be performed by the ATMS software Consultant Delcan Corporation as needed to interface with the Truck Parking and Information Management System. Connected Vehicle applications will be enhanced by the Consultant to deliver parking information to drivers via their mobile phones or DSRC equipment in the vehicles. The information will be delivered in an audible format using IVR technology at the head end.

The steps for this task are shown below.

7. System Integration and Software Modifications
7.1 Integration plan development
7.2 Test plan development
7.3 Network addressing scheme
7.4 Perform software modifications
7.5 Integration and testing

ATTACHMENT C
May 2011

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, according to Public Act 299 of 1980.

3. Work in any of the following categories of survey: Road Design, Structure, Hydraulic, Right-of-Way, Photogrammetric Ground Control, and/or Geodetic Control 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. 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. Measurements, stationing, recorded data, and computations must be in **International Feet**, unless specified otherwise by the MDOT Project Manager.

11. Coordinate values shall be based upon the Michigan State Plane coordinate system NAD83 (NSRS2007). All elevations must be based upon the North American Vertical Datum of 1988 (NAVD88). The datums must be clearly stated in the Survey Work Plan.

12. The survey notes must be submitted to the Design Survey Unit in 10" by 12" divided portfolios with flap covers. As many portfolios should be used as are needed to contain all of the required documents and Compact Discs (CD's) or DVD's. Duplicate CD's must be included in the portfolio, with one set labeled "Region Surveyor". **It is desirable to limit paper documents as much as possible.**

13. Each portfolio and CD must be labeled on the outside as in the following example:

Survey Notes for:
Route, Location and Project Limits [I-94 under Beaubien Street]
Control Section [S06 of 82024] Job Number [45197D] Date [*of submittal*]

14. Each submittal is to be divided into six sections. These sections are to be labeled as follows: **Administrative, Alignment, Control**, **Property**, **Mapping**, and **Miscellaneous**.

15. To be included in the Administrative section shall be a copy of the **Survey Project Portfolio QA/QC Check-off list**, available from the MDOT Design Survey 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.**

16. **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 Microsoft Word, CAiCE and MicroStation must have separate access in native format outside of the .PDF file.

17. It is not necessary to label each individual paper page in the portfolio.

18. 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.

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 Division, 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 Designee.

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 104.08 of the 2012 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.

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, and first directory on the CD, 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, and second directory on the CD, labeled **ALIGNMENT**, the following will appear:
   a. An annotated MicroStation drawing of the alignment(s), showing:
      i) A statement defining the alignment(s) as **survey, as constructed, and/or legal**
      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 legal alignment points found or set.

3. In the third pocket of the portfolio, and third directory on the CD, labeled **CONTROL**, the following will appear:
   a. Documentation of horizontal and vertical datum sources.
   b. OPUS documentation, long version..
   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 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. An MDOT-formatted Microsoft Word file, SurveyInfoSheet.doc, showing the data in e. above, using only upper case letters.

4. In the fourth pocket of the portfolio, and fourth directory on the CD, 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, and fifth directory on the CD, labeled **MAPPING**, the following will appear:
   a. Mapping file in MDOT MicroStation V8 format, and also converted to .PDF format. 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, and sixth directory on the CD, 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