

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

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

DESCRIPTION

MDOT PROJECT MANAGER: Check all items to be included in RFP			CONSULTANT: Provide only checked items below in proposal
WHITE = REQUIRED ** = OPTIONAL  Check the appropriate Tier in the box below			
<input type="checkbox"/> TIER I (\$50,000 - \$150,000)	<input type="checkbox"/> TIER II (\$150,000-\$1,000,000)	<input type="checkbox"/> TIER III (>\$1,000,000)	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Understanding of Service **
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Innovations</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Organizational Chart
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Qualifications of Team
Not required as part of Official RFP	Not required as part of Official RFP	<input type="checkbox"/>	Quality Assurance/Quality Control **
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<b>Location:</b> 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)	7 pages (MDOT Forms not counted)	14 pages (MDOT forms not counted)	Total maximum pages for RFP <b>not including key personnel resumes.</b> Resumes limited to 2 pages per key staff personnel.

**PROPOSAL AND BID SHEET EMAIL ADDRESS – [mdot-rfp-response@michigan.gov](mailto:mdot-rfp-response@michigan.gov)**

### GENERAL INFORMATION

Any questions relative to the scope of services must be submitted by e-mail to the MDOT Project Manager. Questions must be received by the Project Manager at least five (5) working days prior to the due date and time specified above. All questions and answers will be placed on the MDOT website as soon as possible after receipt of the questions, and at least three (3) days prior to the RFP due date deadline. The names of vendors submitting questions will not be disclosed.

MDOT is an equal opportunity employer and MDOT DBE firms are encouraged to apply. The participating DBE firm, as currently certified by MDOT's Office of Equal Opportunity, shall be listed in the Proposal.

### MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

**5100D** – Request for Proposal Cover Sheet

**5100J** – Consultant Data and Signature Sheet (Required for all firms performing non-prequalified services on this project.)

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

# REQUEST FOR PROPOSAL

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

If your firm is interested in providing services, please indicate your interest by submitting a Proposal, Proposal/Bid Sheet or Bid Sheet as indicated below. The documents must be submitted in accordance with the latest (Consultant/Vendor Selection Guidelines for Services Contracts) **AA**

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## RFP SPECIFIC INFORMATION

ENGINEERING SERVICES                       BUREAU OF TRANSPORTATION PLANNING                       OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS  
 NO                       YES                      DATED \_\_\_\_\_ THROUGH \_\_\_\_\_

<input type="checkbox"/> <b>Prequalified Services</b> – See the attached Scope of Services for required Prequalification Classifications.	<input type="checkbox"/> <b>Non-Prequalified Services</b> – If selected, the vendor must make sure that current financial information, including labor rates, overhead computations, and financial statements, is on file with MDOT’s Office of Commission Audits. This information must be on file for the prime vendor and all sub vendors so that the contract will not be delayed. <b>Form 5100J is required with proposal for all firms performing non-prequalified services on this project.</b>
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**Qualification Based Selection** - Use Consultant/Vendor Selection Guidelines.

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

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

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

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

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

**Low Bid** (no qualifications review required – no proposal required.)

## BID SHEET INSTRUCTIONS

Bid Sheet(s) are located at the end of the Scope of Services. Submit bid sheet(s) with the proposal, to the email address: [mdot-rfp-response@michigan.gov](mailto:mdot-rfp-response@michigan.gov). Failure to comply with this procedure may result in your bid being rejected from consideration.

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## PARTNERSHIP CHARTER AGREEMENT

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

**NOTIFICATION  
MANDATORY ELECTRONIC SUBMITTAL**

**Proposals submitted for this project must be submitted electronically.**

**The following are changes to the Proposal Submittal Requirements:**

- Eliminated the Following Requirements:
  - Safety Program
  - Communication Plan
  - Past Performance as *a separate section*
  - Separate section for DBE Statement of goals. Include information in Qualification of Team section
  
- Implemented the Following Changes:
  - All proposals require an Organization Chart
  - Resumes must be a maximum of two pages
  - Only Key (lead) staff resumes may be submitted
  - Tier III proposal reduced from 19 to 14 pages
  - Forms 5100D, 5100I, and 5100G combined – 5100D
  - Forms 5100B and 5100H combined – 5100B
  - RFP's will be posted on a weekly basis -- on Mondays

**The following are Requirements for Electronic Submittals:**

- Proposals must be prepared using the most current guidelines
- The proposal must be bookmarked to clearly identify the proposal sections (See Below)
- For any section not required per the RFP, the bookmark must be edited to include “N/A” after the bookmark title.  
**Example:** Understanding of Service – N/A
- Proposals must be assembled and saved as a single PDF file
- PDF file must be 5 megabytes or smaller
- PDF file must be submitted via e-mail to [MDOT-RFP-Response@michigan.gov](mailto:MDOT-RFP-Response@michigan.gov)
- MDOT's requisition number and company name must be included in the subject line of the e-mail. The PDF shall be named using the following format:
  - Requisition#XXX\_Company Name.PDF
- MDOT will not accept multiple submittals
- Proposals must be *received* by MDOT on or before the due date and time specified in each RFP

**If the submittals do not comply with the requirements, they may be determined unresponsive.**

The Consultant's will receive an e-mail reply/notification from MDOT when the proposal is received. Please retain a copy of this e-mail as proof that the proposal was received on time. **Consultants are responsible for ensuring the MDOT receives the proposal on time.**

**\*\*Contact Contract Services Division immediately at 517-373-4680 if you do not get an auto response\*\***

**Required Bookmarking Format:**

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

**2/14/12**

**NOTIFICATION  
E-VERIFY REQUIREMENTS**

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

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

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

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

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

9/13/12

# Michigan Department of Transportation

## SCOPE OF SERVICE FOR SPECIALTY SERVICES Video Sharing Solution

**CONTROL SECTION(S):** 84900

**JOB NUMBER(S):** 125649

**PROJECT LOCATION:** Statewide

**DESCRIPTION OF WORK:** Provide a video sharing solution that will collect video from all Michigan Department of Transportation (MDOT) closed-circuit television (CCTV) cameras and display transcoded video in near real-time through an internet accessible/cloud based graphical user interface (GUI).

**PRIMARY PREQUALIFICATION CLASSIFICATION(S):** N/A

**SECONDARY PREQUALIFICATION CLASSIFICATION(S):** N/A

**ANTICIPATED START DATE:** January 1, 2016

**ANTICIPATED COMPLETION DATE:** June 30, 2021

**DBE REQUIREMENT:** N/A

**PREFERRED QUALIFICATIONS:** The selected firm shall have a minimum of three related projects working with state government, local municipalities, or international equivalent over the past five years providing video sharing solutions.

As minimum qualifications, the selected Consultant must show capabilities, including previous experience, proving that they are able to plan and execute the project and deliver the software, hardware and work with MDOT to integrate the equipment. The selected Consultant must be able to display extensive ITS project experience, including working knowledge of video collection and distribution systems and complex IP networks including both LAN and WAN. The selected Consultant must also display a highly developed ability to work with multiple teams on complex projects.

The selected Consultant will have performed planning, installation, and support services for similar projects and installations elsewhere, including procurement, installation, configuration and operation of the software/hardware.

The Consultant shall have substantial experience in the area of Video Sharing Solutions and a thorough understanding of the MDOT CCTV system as a whole, and maintenance activities performed by MDOT.

**MDOT PROJECT MANAGER:**

Luke Biernbaum  
Michigan Department of Transportation  
8885 Ricks Rd.  
P.O. Box 30049  
Lansing, MI, 48917  
517-636-5021  
BiernbaumL@michigan.gov

**REQUIRED MDOT GUIDELINES AND STANDARDS:**

All work to be performed through this contract shall be done in accordance with the Michigan Department of Transportation's 2012 Standard Specifications for Construction; the 2011 Michigan Manual on Uniform Traffic Control Devices; all applicable national, state and local building and electrical codes; and all applicable national, state and local worker safety policies.

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, the Design Survey Manual, etc.).

**GENERAL INFORMATION:**

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's staff shall conduct themselves with professionalism in carrying out their duties. Some State of Michigan facilities may require security clearance for access.

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 MDOT 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. These 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.

**SCHEDULE, LENGTH OF CONTRACT TIME PERIOD:**

The contract term shall be for five years, contracted in one year-increments to meet internal MDOT funding requirements.

**DEFINITIONS:**

**TABLE 1. – Acronyms and Definitions**

<b>Acronym</b>	<b>Definition</b>
<b>ATMS</b>	Advanced Traffic Management System
<b>BWBTOC</b>	Blue Water Bridge Transportation Operations Center
<b>CCTV</b>	Closed Circuit Television
<b>CIF</b>	Common Intermediate Format
<b>D1</b>	Digital video format standard (720 x 576 Pixel Count)
<b>DTMB</b>	Department of Technology, Management and Budget
<b>First Responders</b>	Agencies that are responsible for dispatching resources to support the clearance of roadway incidents.
<b>FPS</b>	Frames per second
<b>HTTP</b>	Hyper Text Transfer Protocol
<b>IP</b>	Internet Protocol
<b>ITS</b>	Intelligent Transportation Systems
<b>Kbps</b>	Kilobits per second
<b>LAN</b>	Local Area Network
<b>Mbps</b>	Megabits per second
<b>MDOT</b>	Michigan Department of Transportation
<b>MDSS</b>	Maintenance Decision Support System
<b>Media Stream</b>	MDOT video stream, which provides the highest quality video available per the individual device.
<b>MJPEG</b>	Motion-Joint Photographic Experts Group
<b>MPEG-4</b>	Moving Picture Experts Group - 4
<b>QA/QC</b>	Quality Assurance/Quality Control
<b>QCIF</b>	Quarter Common Intermediate Format
<b>RITIS</b>	Regional Integrated Transportation Information System
<b>RTP</b>	Real-Time Transport Protocol
<b>RTSP</b>	Real-Time Streaming Protocol
<b>RWIS</b>	Road Weather Information System
<b>SEMTOC</b>	Southeast Michigan Transportation Operations Center
<b>SOW</b>	Statement of Work
<b>STOC</b>	Statewide Transportation Operations Center
<b>TCP</b>	Transmission Control Protocol
<b>TOC</b>	Transportation Operations Center
<b>TSC</b>	Transportation Service Center
<b>UAT</b>	User Acceptance Testing
<b>WAN</b>	Wide Area Network
<b>WMTOC</b>	West Michigan Transportation Operations Center

**BACKGROUND:**

The MDOT traffic camera network and associated video streams are primarily intended to assist control room operators in the four MDOT TOCs and secondarily to provide value to other internal and external stakeholder groups who can benefit from having access to real-time traffic video. In general, the video streams are used at the TOCs to observe normal and congested traffic patterns, to detect/verify incidents and to coordinate with first responders regarding incident scene access and clearance. Various MDOT staff located at other MDOT offices, such as Region Offices or TSCs, utilize the video streams to monitor construction activities or to relay accurate, first-hand

information to the media/public regarding major incidents. Public agency stakeholders utilize the video streams to obtain real-time observations of the roadways to improve efficiency, safety and success of their respective operational missions. Private agency stakeholders utilize the video streams to add value to the various services they provide such as traveler information websites, televised broadcasts and smartphone applications. The following is a summary of a number of the various stakeholders that have vested interests in the usage of video streams from the MDOT traffic camera network.

- a. MDOT Region Offices (Including Maintenance Garages and TSCs);
- b. State and local agency TOCs and traffic engineers;
- c. Emergency Operations Centers;
- d. State and local first responders such as:
  1. Police agencies;
  2. Fire departments;
  3. Emergency Medical Services (EMS); and
  4. County and regional emergency dispatch centers.
- e. MDOT Mi Drive Team;
- f. Traffic information providers such as:
  1. Television stations;
  2. Radio stations;
  3. Internet websites; and
  4. Smartphone applications.
- g. Motoring public.

Regardless of the usage, the sharing of the video streams from the MDOT traffic camera network provides significant value to many stakeholders ultimately leading to improved mobility on MDOT roadways. MDOT's current video sharing system does not provide services to all of the vested stakeholders stated above.

**CONSULTANT RESPONSIBILITIES:**

The Consultant shall provide a Project Work Plan within ten business days of notice to proceed. The project work plan will include a project schedule that outlines all necessary steps required to provide the video sharing solution requested in this RFP. This includes the identification of interim deliverables and reviews required of MDOT. The schedule will include key milestones and the date for the delivery of a finalized video sharing solution. The Project Work Plan will also include a QA/QC plan that describes the Consultant's plan for monitoring and maintaining the system and any coordination with MDOT, DTMB and the ITS Maintenance Consultants.

The project will begin with a formal in person kick-off meeting, to review the Project Work Plan and provide an opportunity for MDOT and the Consultant to share expectations for the project.

## **Phase A – Design, Installation and Integration:**

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

- a. High level communication diagram including, but not limiting to:
  1. Existing MDOT ITS field infrastructure;
  2. Any proposed field infrastructure;
  3. TOCs and any other MDOT facilities;
  4. Existing hardware at TOCs and/or other MDOT facilities;
  5. Any proposed hardware at TOCs and/or other MDOT facilities;
  6. Existing communications between field infrastructure and MDOT/DTMB facilities;
    - A. Any estimated bandwidth increase to existing communications;
  7. Any proposed communications and connection points to existing network(s);
    - A. Estimated bandwidth requirements for proposed communications;
    - B. Proposed service provider(s) for any leased communications; and
    - C. Action plan for addressing network security.
- b. Cut sheets and detailed specifications for any proposed hardware.
- c. Operating System requirements for any proposed servers.
- d. Rack space requirements for any proposed equipment to be installed in existing MDOT owned rack space.
- e. Brief written explanation of how each system requirement in Appendix A: Video Sharing System Requirements will be met.

Complete a final design incorporating any changes requested by MDOT during review of the preliminary design. Incorporate IP assignments for any proposed hardware as directed by the MDOT Project Manager.

Complete an implementation plan for this project including, but not limited to the following:

- a. Approximate start and completion dates for the following:
  1. Any required configuration changes to existing field equipment;
  2. Installation of any proposed field equipment;
  3. Installation of proposed hardware at TOCs and/or other MDOT facilities;
  4. Installation of any proposed communications;
  5. Integration of CCTV cameras grouped by operating TOC;
  6. Configuration of initial users grouped by MDOT region; and
  7. Final User Acceptance Test Plan.

Once the final design and implementation plan is reviewed and approved by MDOT and DTMB, and written direction is provided by the MDOT Project Manager, the Consultant will be responsible for coordinating and completing all work required to deliver a fully functioning video sharing solution.

Provide documentation outlining the steps for MDOT to complete Final User Acceptance Testing of the video sharing system.

Provide as-built documentation.

### **Phase B – Operation and Maintenance:**

- a. Maintain the video sharing system and components.
  1. Maintenance of the video sharing system includes, but is not be limited to:
    - A. All equipment and hosting environment for the video sharing system and subsequent components;
    - B. Fixing any bugs that exist in the video sharing system that effect usage and/or performance;
    - C. Training and assistance on the database or host environment for MDOT employees and/or their designees;
    - D. Adding new devices as they are deployed and come online.
  2. The Consultant must submit a detailed plan in their proposal on how they will handle maintenance of the video sharing system. The proposal should include all aspects listed above as well as the following: requests for changes/upgrades and tracking of the requests (outcome of each request, problem and aspect).
- b. Enhancements to the video sharing system and subsequent components.
  1. Enhancements to the video sharing system are defined as any change that increases software or hardware capabilities beyond the original specifications and design and shall include such things as:
    - A. Additional functionality; and
    - B. Changes outside of “bug type fixes.”
  2. Releases of the software, after enhancements have been made, shall be approved and coordinated with the MDOT Project Manager. A SOW for the approved work will be issued to the Consultant by the MDOT Project Manager.
  3. The Consultant must submit in their proposal a detailed plan on how they will address, handle and facilitate enhancements to the video sharing system.
  4. Some enhancements may require additional funding and will be scoped at a future date and costs will be derived at that time. Actual funding for enhancements will occur on a yearly basis, and there is no guarantee as to the level of funding, if any, available to the project.

### **PROGRESS REPORTS:**

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

The Consultant shall submit monthly project progress reports to the MDOT Project Manager (or designee) during Phase B of this project. Monthly progress reports will include, at a minimum, all

key information affecting the quality, availability or reliability of video feeds in the previous month. In addition, the reports must also include any changes made to the video sharing system such as software, hardware and network changes.

**MDOT RESPONSIBILITIES (GENERAL):**

1. Schedule and/or conduct the following:
  - a. Project related meetings;
  - b. Project kick-off meeting;
  - c. Stakeholder engagement meetings; and
  - d. Plan review meeting.
2. Make decisions or provide input for the following items:
  - a. Resolve political issues;
  - b. Resolve issues related to funding; and
  - c. Review final plans and implementation plan.
3. Provide access to MDOT facilities;
4. Provide network configuration information and current IP addressing schemes;
5. Modify existing firewalls to allow access to field devices;
6. Review and approve all budget and schedule aspects; and
7. Review and approve all external communications.

**PROJECT MANAGEMENT:**

1. This project will require close interaction and good communication between the Consultant and multiple MDOT staff.
2. 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 the MDOT Project Manager.
3. The selected Consultant shall provide all necessary project management services, including monthly progress reports, and providing invoices in a timely manner.
4. The Consultant 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 minutes of all meetings attended which shall be delivered by email to the MDOT Project Manager.

**PROJECT DOCUMENTATION:**

All documentation and reports shall be delivered in the current version of Microsoft Office 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.

**PHASE A CONSULTANT PAYMENT - MILESTONE:**

Compensation for Phase A of this project shall be on a milestone basis. Compensation shall be divided into payments for the completion of a portion of the services (deliverables). The following milestones will be used:

Preliminary Design	10%
Final Design	20%
SEMTOC Integration	24%
WMTOC Integration	21%
STOC Integration	15%
Final UAT	10%
Phase A Total Service	100%

The MDOT Project Manager may authorize payment if a milestone is delayed due to circumstances beyond the Consultant’s control.

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.

**PHASE B CONSULTANT PAYMENT – UNIT COST:**

Compensation for Phase B of this project shall be on a unit price basis. This basis of payment typically includes a maximum quantity of units and a maximum reimbursable cost per unit.

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 and 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.

**SCORING POINT ASSIGNMENT:**

Total Points = 130 Points

**Proposed Selection Criteria and Total Possible Points:**

Understanding of Service – 30 Points

Describe your understanding of the service to be provided.

Qualifications of Team – 40 Points

Describe your team and the roles of key personnel. Provide resumes for key personnel.

Past Performance – 20 Points

Provide references and examples of similar work performed for other agencies.

Location – 5 Points

Indicate the percentage of work that will be performed in Michigan.

Price – 35 Points

Formula:  $\text{Low Bid} / \text{Bid} * \text{points assigned}$

Completed bid sheet required.

INTELLIGENT TRANSPORTATION SYSTEMS  
 VIDEO SHARING SOLUTION  
**MDOT STATEWIDE  
 PAYMENT ITEMS**

**ALL ENTRIES MADE ON THIS PAGE SHALL BE HANDWRITTEN IN INK.**

	<b>ITEMS OF WORK</b>	<b>UNIT</b>	<b>QUANTITY</b>	<b>PRICE/UNIT</b>	<b>TOTAL PRICE</b>
1	Phase A, Design, Installation and Integration	Milestone	1		
2	Phase B, Operate/Maintain Year 1	Month	12		
3	Phase B, Operate/Maintain Year 2	Month	12		
4	Phase B, Operate/Maintain Year 3	Month	12		
5	Phase B, Operate/Maintain Year 4	Month	12		
6	Phase B, Operate/Maintain Year 5	Month	12		

**CHECK UNIT PRICE COLUMN FOR OMISSIONS BEFORE ENTERING BID TOTAL**

**Bid Price for the above listed items and quantities: \$ \_\_\_\_\_**

**CONSULTANT'S NAME: \_\_\_\_\_**

**CONSULTANT'S SIGNATURE: \_\_\_\_\_**

**DATE: \_\_\_\_\_**

## Appendix A

### VIDEO SHARING SYSTEM REQUIREMENTS

#### a. General:

1. No fee shall be applied to state and local agencies or first responders to obtain access to the video sharing solution provided by the Consultant.
2. MDOT watermark logo is required on all broadcasted video.
  - A. MDOT to supply logo.
3. Consultant is responsible for the cost of any leased communication connections required at MDOT or DTMB facilities necessary to deliver the video sharing system.
4. The Consultant shall not publically share video streams of secure camera sites as directed by MDOT.
  - A. These sites include, but are not limited to, international crossings, bridges and tunnels.
  - B. Consultant shall provide a means for these secure camera sites to be privately shared by MDOT to specific system users.
5. Consultant to provide the ability for the end users to select ANY video for viewing or streaming, unless the video is blocked or secure.
6. The quality of a media stream is based on the connection quality of the individual field device encoder.
  - A. MDOT media stream quality can range from CIF at 10fps to D1 at 30fps depending on device location.
  - B. MDOT does not guarantee any uptime standard for its streaming video to the Consultant or the users of the system nor does MDOT provide a reliability standard for quality of video or reliability of the CCTV camera system.

#### b. System:

1. The video sharing system is required to host and stream all MDOT cameras that are integrated into the MDOT ITS system at the time of the video sharing system implementation.
  - A. The video sharing system must be implemented in such a way that when additional cameras are integrated into the MDOT camera system those cameras are added to the video sharing system at no additional cost to the Department.
2. The video sharing system is required to have compatibility with all MDOT IP encoders.
3. The proposed Consultant solution needs to be able to sit parallel to the Barco Transform N hardware and not interfere with current video sharing between TOCs by way of the MDOT ATMS application.
4. Provide a video distribution application for stakeholders capable of providing streaming video greater than 1fps up to 30fps.
5. Offer high quality video streams (up to D1 resolution at 30fps) on a fee-based service to select Private Agency Stakeholders.
  - A. Fee-based services to be negotiated and contracted directly between Private Agency Stakeholders (i.e. Media) and the Consultant.
    - (1) Variation in fee-based services may be reflective of the service requested such

as:

- (a) Frames per second (fps)
  - (b) Bandwidth
  - (c) Number of simultaneous streams
6. Consultant to provide a video sharing system designed to deliver 98% or greater availability.
    - A. Availability is limited to the Consultant's video sharing system components and leased connections supplied under this contract.
    - B. Consultant will not be held responsible for individual video streams that are down due to MDOT equipment failures.
  7. Video Sharing System must have the ability to supply streaming video to the MDOT Delcan ATMS.
  8. Consultant must work within the existing rack space at each TOC or provide additional rack spaces as part of the Consultant's proposed system.
  9. Consultant's proposed system must have the ability to ingest numerous video codecs including, but not limited to H.264 and MPEG-4.
  10. Consultant's proposed system must have the ability to ingest video streams of different resolutions including, but not limited to D1, CIF and QCIF.
  11. Consultant's proposed system must have the ability to ingest different frame rates including, but not limited to 10fps, 15fps and 30fps.
  12. Consultant's proposed system must have the ability to ingest different bitrates including, but not limited to 192kbps, 500kbps, 1mbps and 2mbps.
  13. Video sharing system must have ability to supply video to other MDOT software which includes, but is not limited to: Mi Drive, RWIS, RITIS and MDSS.
  14. Video sharing system must have ability to supply the MDOT TOC video walls with streaming video.
    - A. Up to four TOCs
      - (1) SEMTOC
      - (2) BWBTOC
      - (3) STOC
      - (4) WMTOC
    - B. The STOC is a unique DOT user of the system, which requires video streamed to the center from the Consultant due to the number of remote connections it has with cameras across the state.
      - (1) The video stream provided by the Consultant to the STOC will be of media stream quality with no restrictions to blocked or secure feeds.
  15. Consultant is required to provide a web-based client interface to access streaming video on demand.
    - A. Interface to be credential based.
  16. Consultant is required to provide unlimited user access to the video sharing system for MDOT and first responders.
- c. **MDOT State Network:**
1. Consultant's proposed system must distribute video streams via the public internet or a cloud based connection.
    - A. Only one secure connection will be allowed between the Consultant's system and

the MDOT ITS camera/digital video encoder in the field.

(1) The Consultant is responsible for providing multiple video streams from the single connection to the field camera/digital video encoder.

- B. The Consultant is the only external source allowed to connect to MDOT or DTMB facilities. Media agencies will not be allowed to connect directly to MDOT or DTMB facilities.

**d. Mi Drive Web Site:**

1. Consultant is required to host and stream all MDOT cameras to the Mi Drive web site (<http://www.michigan.gov/drive/>).
  - A. Cameras that are subsequently integrated to the MDOT CCTV camera system are to be streamed to the Mi Drive web site at no additional cost to the Department.
2. Consultant is required to upgrade and increase the Mi Drive websites video stream rate from a 1 frame per 2 second MJPEG current video to streaming MPEG-4 or H.264 video at a rate of 5fps or greater.
3. Streaming video on Mi Drive for the end user shall time out no sooner than 3 minutes.
4. The statistics below are for information only and account for an approximate 3kb frame size at 1 frame per every 2 seconds with a 30 second time out. The new system will have a greater bandwidth demand as an upgrade is requested as part of this RFP.

**2013 Mi Drive Website Statistics**

Month	Frames of Video	Estimated Monthly Data Transferred (GB)	Visits	New Visits %
Jan	2,770,678	7.93	14,586	45.16
Feb	3,825,234	10.95	17,636	42.41
Mar	1,550,194	4.44	12,075	39.40
Apr	1,482,741	4.24	8,592	42.81
May	1,373,595	3.93	7,343	39.30
Jun	1,557,005	4.46	7,004	41.86
Jul	1,834,940	5.25	7,199	42.73
Aug	1,904,538	5.45	7,380	39.34
Sep	1,736,069	4.97	14,971	55.89
Oct	1,708,829	4.89	11,474	47.40
Nov	1,542,284	4.41	8,545	45.03
Dec	3,209,775	9.19	14,933	45.95
<b>Total</b>	<b>24,495,882</b>	<b>70.11</b>	<b>131,738</b>	-
<b>Average Month</b>	<b>2,041,324</b>	<b>5.84</b>	<b>10,978</b>	<b>43.94</b>

5. Consultant is required to provide HTTP Live.
6. Consultant is required to be compatible with both Apple and Android mobile video streaming application platforms.
7. Consultant is required to connect and stream video to the Mi Drive mobile application.

8. Video streaming for Mi Drive must support HTML5 and be accessible via the internet directly from the Consultant's server.
9. Video streaming must be accessible in the following browsers without third party plugins: Internet Explorer 9+, Chrome 31+, Firefox 38+, Opera Version 10.5+, Microsoft Edge version 12+, Safari Version 7.1+, iOS version 4+ and Android version 3+.

**e. Users:**

1. Consultant to provide the ability for MDOT to block video streams through remote or direct access based on user credentials.
  - A. Blocked User Groups
    - (1) Private
      - (a) All private partners including, but not limited to:
        - (i) Third Party Subscribers;
        - (ii) Traffic Reporting Organizations;
        - (iii) Media;
        - (iv) Radio;
        - (v) Television; and
        - (vi) On-line video streams.
    - (2) Public
      - (a) Public Partners
        - (i) County Road Commissions
        - (ii) City/Townships
      - (b) MDOT (Blocked)
        - (i) TSC's
        - (ii) Maintenance Garages
        - (iii) Mi Drive Web Site
  - B. Not-Blocked User Groups
    - (1) MDOT Operations
      - (a) TOCs
      - (b) MDOT "First Responders"
    - (2) First Responders
      - (a) Police/Fire
      - (b) Homeland Security
2. Consultant shall be able to deliver streaming video filtered by geographic area to specific user groups as needed.
3. Administration of Users
  - A. Consultant is responsible to manage and oversee the users and user groups of the system.
    - (1) MDOT to possess administrative rights.
      - (a) Ability to manage users and user roles and rights.
  - B. Consultant to provide unique login credentials for all users.
  - C. All passwords must be encrypted and require a combination of uppercase/lowercase/number that cannot be reused for one year and require password expiry every 90 days.
  - D. Consultant is required to use MDOT provided language in their user agreements

regarding the acceptable use of sharing MDOT video streams with public and partner agencies.

(1) Public and partner agencies are required to enter into user agreements with MDOT.

(2) Private entities are not required to enter in the MDOT user agreement process.

**ADDITIONAL INFORMATION:**

- a. MDOT’s current CCTV camera quantity is approximately 485+ cameras.
- b. CCTV camerass are streamed to four separate TOC’s geographically located throughout Michigan in Detroit, Port Huron, Lansing, and Grand Rapids.
  - 1. The facilities at the four TOC locations can be accessed and used to gather video streams for the video sharing system.
  - 2. There are individual CCTV locations that connect to the internet. The video sharing system will be granted access to pull video from the individual CCTV location with direct access to the internet if desired.
    - A. Any additional costs associated with connecting to individual sites are to be part of the video sharing system.
      - (1) Approximately 50+ cameras connect via the internet.
  - 3. There is no single place where all MDOT video streams are currently fed to or through.
- c. MDOT utilizes TCP to control all CCTV cameras between two endpoints (i.e. camera to TOC).
- d. MDOT utilizes multicast RTSP to establish video streaming sessions on most Local Area Networks.
- e. MDOT utilizes unicast RTP over RTSP to establish video streaming sessions on most Wide Area Networks.
- f. MDOT utilizes analog CCTV cameras and converts the analog video streams to an IP based stream utilizing a digital video encoder.
  - 1. The digital streams are based on the communications available at each individual site and range from QCIF at 1fps to a D1 resolution at 30fps with bitrates from 96 kbps to 2 mbps.
- g. Current MDOT digital video encoders:

<b>Make</b>	<b>Model</b>
Impath	i5110-ET
Siqua (Optelecom)	C 40
Siqua (Optelecom)	C 50
Cohu	9900 Series
Coretec	VCX-4400-E-R
Coretec	VCX-7401-E

- h. Current MDOT system output (fps): 1 to 30.
- i. MDOT currently streams video through the MPEG-4 and H.264 compressions.
- j. MDOT video streams are connected to the MDOT TOC via:

1. MDOT owned wireless radios;
  2. MDOT owned fiber optics;
  3. Leased fiber optics;
  4. Leased cable modem internet service;
  5. Leased cellular modem internet service; and
  6. WiMAX.
- k. The Barco Transform N video sharing platform is deployed at all of the TOCs.