

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 WHITE = REQUIRED ** = OPTIONAL Check the appropriate Tier in the box below		CONSULTANT: Provide only checked items below in proposal	
<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"/>	Understanding of Service **
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<i>Innovations</i>
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Organizational Chart
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Qualifications of Team
Not required as part of Official RFP	Not required as part of Official RFP	<input type="checkbox"/>	Quality Assurance/Quality Control **
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Location: The percentage of work performed in Michigan will be used for all selections unless the project is for on-site p=inspection or survey activities, then location should be scored using the distance from the consultant office to the on-site inspection or survey activity.
N/A	N/A	<input type="checkbox"/>	Presentation **
N/A	N/A	<input type="checkbox"/>	Technical Proposal (if Presentation is required)
3 pages (MDOT Forms not counted) (No Resumes)	7 pages (MDOT Forms not counted)	14 pages (MDOT forms not counted)	Total maximum pages for RFP not including key personnel resumes. Resumes limited to 2 pages per key staff personnel.

PROPOSAL AND BID SHEET EMAIL ADDRESS – mdot-rfp-response@michigan.gov

GENERAL INFORMATION

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

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

MDOT FORMS REQUIRED AS PART OF PROPOSAL SUBMISSION

5100D – Request for Proposal Cover Sheet

5100J – Consultant Data and Signature Sheet (Required only for firms not currently prequalified with MDOT)

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

RFP SPECIFIC INFORMATION

ENGINEERING SERVICES BUREAU OF TRANSPORTATION PLANNING OTHER

THE SERVICE WAS POSTED ON THE ANTICIPATED QUARTERLY REQUESTS FOR PROPOSALS

NO YES DATED _____ THROUGH _____

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

Non-Prequalified Services – If selected, the vendor must make sure that current financial information, including labor rates, overhead computations, and financial statements, 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 is required with Proposal for firms not currently prequalified with MDOT**

Qualifications 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.) See Bid Sheet Instructions below for additional instructions.

BID SHEET INSTRUCTIONS

Bid Sheet(s) must be submitted in accordance with the "Guidelines for Completing a Low Bid Sheet(s)* (available on MDOT's website). Bid Sheet(s) are located at the end of the Scope of Services. Submit bid sheet(s) with the proposal, to the email address: mdot-rfp-response@michigan.gov. Failure to comply with this procedure may result in your bid being rejected from consideration.

PARTNERSHIP CHARTER AGREEMENT

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

**NOTIFICATION
MANDATORY ELECTRONIC SUBMITTAL**

Proposals submitted for this project must be submitted electronically.

The following are changes to the Proposal Submittal Requirements:

- Eliminated the Following Requirements:
 - Safety Program
 - Communication Plan
 - Past Performance as *a separate section*
 - Separate section for DBE Statement of goals. Include information in Qualification of Team section

- Implemented the Following Changes:
 - All proposals require an Organization Chart
 - Resumes must be a maximum of two pages
 - Only Key (lead) staff resumes may be submitted
 - Tier III proposal reduced from 19 to 14 pages
 - Forms 5100D, 5100I, and 5100G combined – 5100D
 - Forms 5100B and 5100H combined – 5100B
 - RFP's will be posted on a weekly basis -- on Mondays

The following are Requirements for Electronic Submittals:

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

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

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

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

Required Bookmarking Format:

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

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
INTELLIGENT TRANSPORTATION SYSTEMS
CONTROL SECTION: 84917**

JOB NUMBER: 121588 and TBD (Annual Maintenance)

PROJECT LOCATION: Metro and University Regions

DESCRIPTION OF WORK:

This work consists of installation of a connected vehicle infrastructure deployment on Belle Isle for the 2014 Intelligent Transportation Systems (ITS) World Congress, removal and reinstallation of the equipment to the Michigan Department of Transportation (MDOT) Connected Vehicle testbed expansion locations after the 2014 ITS World Congress, and maintenance of the system deployment for 3 years. This will include any and all associated items for the deployment, removal and reinstallation for a 100% complete and operational system.

PRIMARY PREQUALIFICATION CLASSIFICATION:

Intelligent Transportation Systems – Design & System Manager

SECONDARY PREQUALIFICATION CLASSIFICATION:

Maintaining Traffic Plans and Provisions
Geotechnical Engineering Services
Right of Way Surveys
Complex Traffic Signal Operations
Utility Coordination

PREFERRED QUALIFICATIONS:

- The contractor shall include a minimum of five related projects working with state government or local municipalities over the past five years.
- The contractor shall have and demonstrate related work experience in the areas of ITS.
- The contractor shall have a minimum of one license electrician on staff and part of the project team.

ANTICIPATED START DATE: February 1, 2014

ANTICIPATED COMPLETION DATE: March 1, 2016

MDOT PROJECT MANAGER: Michele Mueller
Michigan Department of Transportation
Detroit Operations Service Center
1060 W. Fort St.
Detroit, MI 48226
Email: muellerm2@michigan.gov
Tel: (313)-256-9803
Fax: (313)-256-9036

DBE REQUIREMENT: 5%

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

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

QUESTIONS:

All questions from firms concerning the RFP shall be submitted in writing to the MDOT Project Manager no later than 12:00 pm EST 5 business days prior to the proposal due date. All questions shall be submitted in writing via email to the MDOT project manager. The answers to all questions will be posted to the Contract Services Division web site, where the RFP was posted.

MDOT will not respond to telephone inquiries or visitation by bidders or their representatives. All questions are to be put in writing and must be submitted electronically. Answers to questions will be prepared and made available on the MDOT website. The answers to the questions will supersede the original issue pertaining to the question(s) of the RFP.

GENERAL INFORMATION:

The consultant will need to have substantial ITS conception, design background and experience. The consultant should be prepared to demonstrate their background and experience.

MDOT continues to lead the State of Michigan in transportation technology. In an effort to continue that leadership and advancement of new technology, MDOT, in partnership with the United States Department of Transportation - Research and Innovative Technology Administration (USDOT - RITA), has developed a long term expansion and enhancement plan for the Michigan Connected Vehicle testbeds. These expansions and enhancements will further define and support the technology and developments in the connected vehicle community.

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 work, 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 Services described herein are financed with public funds. The Consultant shall comply with all applicable Federal and State laws, rules, and regulations. The Consultant shall perform field operations in accordance with MIOSHA regulations and accepted safety practices. The consultant staff shall conduct themselves with professionalism in carrying out their duties.

The Consultant will notify the MDOT 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.

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 sub-Consultant correspondence and verbal contact records.

All materials submitted in response to this RFP become the property of MDOT, proposals and supporting materials will not be returned to consultants. MDOT reserves the right to reject any or all proposals.

CONSULTANT RESPONSIBILITIES:

The Contractor will be required to comply with the "Southeast Michigan 2014 Security-Requirements" included as Appendix A.

The Consultant will provide engineering and technical services for the research, development, deployment, removal, reinstallation and maintenance of the connected vehicle infrastructure done under this contract. The Consultant's activities may include, but are not limited to, the following activities as directed by the MDOT Project Manager:

1. Deployment and Integration of RSE's, Backhaul, and any other associated components for 2014 ITS World Congress Technology Showcase.
 - A. Deployment shall be at the following locations for the 2014 ITS World Congress unless otherwise directed by the Project Manager; Belle Isle, Atwater Street, Cobo Conference and Exhibition Center and Jefferson Ave. The exact placement locations will be determined by the final showcase footprint for these areas.
 - B. Deployment shall include RSE's, backhaul locally, backhaul to Cobo Hall, backhaul to SEMTOC, integration locally, integration to Cobo Hall, integration to SEMTOC and any other necessary components to provide a 100% operational system which is defined by fully functional locally on Belle Isle, Back to the Head Ends, and communicating with infrastructure.

Any issues will be the contractor's responsibility to resolve, there will be NO Exceptions.

C. Procurement of equipment

- i. Roadside Equipment (RSE) – 5.9 Gigahertz Dedicated Short Range Communication (DSRC) Radio, antennas, management unit, etc.
 - ii. Backhaul – Radio, antenna, power supplies, etc.
 - iii. Misc. components –brackets, network switches, etc.
 - iv. Associated cabling (including but not limited to communications, power, etc.)
 - v. Signal Phase and Timing (SPaT) signal converter (black box)
 - vi. NEMA (National Electric Manufacturers Association) enclosures that are rated for a Michigan environment, including but limited to temperature, moisture, etc. Also, that are sized appropriate based on the final installation scenario. The enclosure selection must be coordinated with MDOT and be compatible with its long-term plans for signal equipment installations as applicable. The enclosure shall be such as to meet the requirement for the electrical supply to be in a separate access door but still part of the same cabinet.
 - vii. Rental trailers with generators to mount the RSE's and/or backhaul on as needed for ITS World Congress sites.
 - viii. Configuration of the devices (RSEs, network equipment, etc.) to be in compliant with the USDOT (RITA) standards and the necessary information to be shared to the demonstrators that will be utilizing the infrastructure. The standard will be provided to the consultant by the MDOT Project Manager in conjunction with USDOT (RITA) staff.
 - ix. Power for any of the equipment and devices shall be the consultant's responsibility and appropriate inspections and certifications completed.
2. The Contractor will be required to work with MDOT to lay out a strategy for implementation in Southeast Michigan for the equipment from Belle Isle. This will include meetings with MDOT stakeholders, mapping and long term strategy planning.
 3. Removal, Reinstallation and Integration of RSE's, Backhaul, and any/all other associated components to defined locations in Southeast Michigan to provide a 100% operational system which is defined by fully functional locally, Back to the Head Ends, and communicating with infrastructure. Any issues will be the contractor's responsibility to resolve, there will be NO Exceptions.
 4. As-built, Interconnect Diagrams and ITS Asset Database information collected, input and integrated.
 - A. As-built shall show all of the components, communication, and power in the correct final installation locations.

- B. Interconnect diagrams shall show all of the connections between components including communication and power connections.
 - C. Consultant shall complete the asset inventory spreadsheet document to insure all of the devices are in the system with the appropriate information.
5. Maintenance and support of any and all components, devices, software, etc. that was completed under this project.
- A. The consultant must fully maintain all aspects including but not limited to;
 - i. Backhaul
 - ii. RSE's
 - iii. Software
 - iv. Cabling
 - v. Power
 - vi. Misc. Equipment
 - vii. Cabinets
 - viii. Misc. Hardware
6. The Consultant must have appropriate tower climbing certificates and provide that information with your submittal for this RFP. Any inspections required by the owner of the facility or the tower shall be coordinated and completed by the Consultant. Anything not compliant shall be redone to meet compliance at the Consultant's expense.
7. The Consultant will be working at some secured facilities so the designated employees for the project will have to complete a police background check, finger printing, etc. This must be completed and passed prior to any work being done in those designated secured areas. The Consultant shall coordinate with the MDOT Project Manager to work through the requirements of the Michigan State Police for background check acceptance.

MDOT RESPONSIBILITIES:

MDOT shall provide the Consultant with all relevant documentation needed to complete the tasks assigned and approved by the MDOT Project Manager.

DELIVERABLES:

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

SCHEDULE:

For scheduling purposes, it is anticipated that this project shall begin on **February 1, 2014** and shall end on **March 1, 2016**.

Services to be rendered by the Consultant, as herein described, will commence upon written notice from the Professional Services Administrator and will be completed within approximately three (3) years from the date of such notice.

PAYMENT SCHEDULE:

Compensation for this project shall be on an **actual cost plus fixed fee** basis. This basis of payment typically includes an estimate of labor hours by classification or employee, hourly labor rates, applied overhead, other direct costs, subconsultant costs, and applied fixed fee. The fixed fee for profit allowed for this project is 11.0% of the cost of direct labor and overhead.

All billings for services must be directed to the Department and follow the current guidelines. 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.

MDOT will reimburse the consultant for vehicle expenses and the costs of travel to and from project sites in accordance with MDOT's Travel and Vehicle Expense Reimbursement Guidelines, dated May 1, 2013. The guidelines can be found at http://www.michigan.gov/documents/mdot/Final_Travel_Guidelines_05-01-13_420289_7.pdf?20130509082418. MDOT's travel and vehicle expense reimbursement policies are intended primarily for construction engineering work. Reimbursement for travel to and from project sites and for vehicle expenses for all other types of work will be approved on a case by case basis.

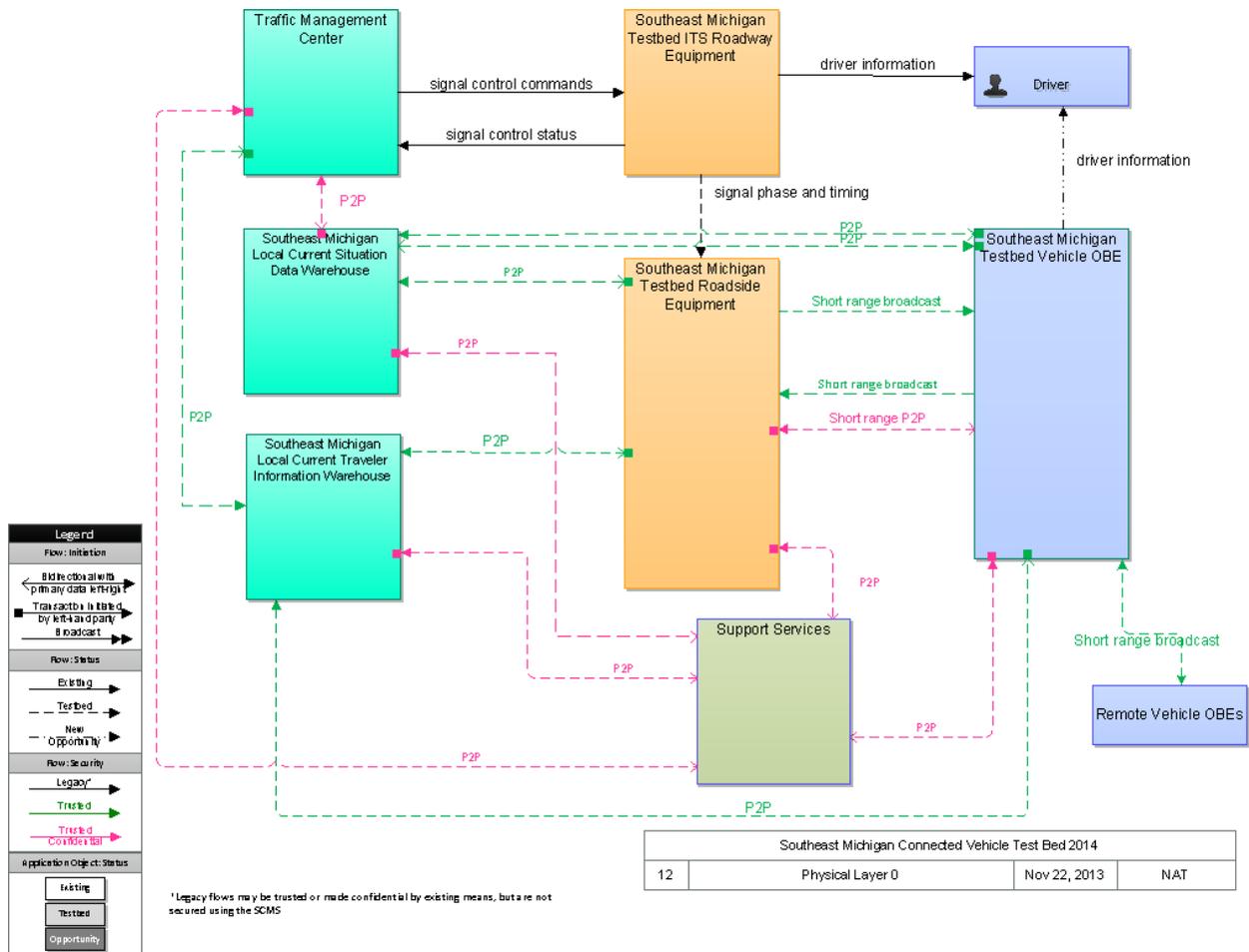
MDOT will pay overtime in accordance with MDOT's Overtime Reimbursement Guidelines, dated May 1, 2013. The guidelines can be found at http://www.michigan.gov/documents/mdot/Final_Overtime_Guidelines_05-01-13_420286_7.pdf?20130509081848. MDOT's overtime reimbursement policies are intended primarily for construction engineering work. Overtime reimbursement for all other types of work will be approved on a case by case basis.

ATTACHMENT A

Communication Security Requirements Southeast Michigan 2014 Project

1) General

One of the goals of the Southeast Michigan 2014 project is to investigate the use of a common process for assuring trust in and protecting confidentiality of data use by all applications independent of communication medium or purpose.



a. Communication types

We identify two types of communication patterns that support applications: *broadcast* and *transactional*.

Broadcast-supported applications send unencrypted, broadcast messages, which are intended to be consumed by any receiver in the vicinity. Examples of broadcast communications are BSM, SPaT, MAP.¹

NOTE: In the Southeast Michigan Test Bed, all broadcast messages will be signed immediately before the final transmission. In other words, if a message originates at a server and is sent to an RSU for broadcast, it will be signed by the RSE, not the server.

Transactional-type applications are exchanges between two objects for the purposes of carrying out some transaction. In the Southeast Michigan Test Bed, the concept of operations is that transactional applications will consist of request-response activities with small data transfers (up to approx. 10 Kbytes). The Southeast Michigan Test Bed concept of operations does not cover larger data transfers that need to be handed off between multiple RSU sessions.

This set of security requirements does not consider groupcast communications, that is, applications that involve communications between groups of more than two devices but are not broadcast to everyone. For example, applications that use a publish-subscribe mechanism might naturally use groupcast. The security framework for the Southeast Michigan Test Bed will not natively support groupcast.

This set of security requirements does not consider the need for device physical security.

This set of security requirements does not address data protection at endpoints, for example encryption of databases. It is however assumed that endpoints that store Personal Identifiable Information (PII) shall take appropriate measures to protect that PII.

b. Privacy considerations for a multi-application setting

The system requirements are formulated so as to protect the privacy of the users to the highest possible degree. In a multi-application setting this is particularly challenging, because (a) the user may have higher privacy requirements than a specific application does, and (b) there is an additional threat to the privacy of the user from correlations between applications – in other words from an attacker learning information about the user not just from the contents of individual application messages, but from the fact that one user is running two applications.

Some applications by their nature will have to reveal sensitive or user-specific information: for example, BSMs reveal vehicle location. This makes it all the more important to ensure that applications do not reveal this information unless it is absolutely necessary, as revealing the information within application A will allow it to be correlated with information from application B.

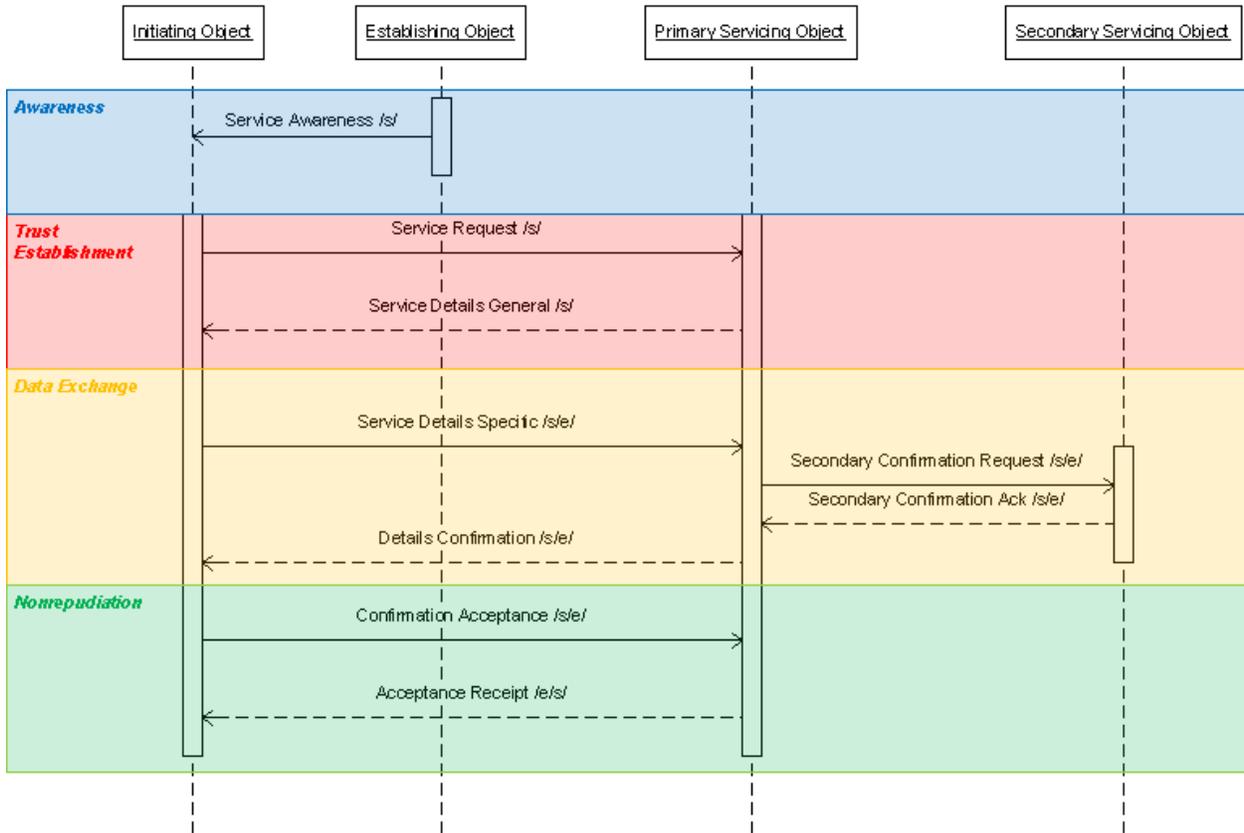
The requirements below are written bearing in mind the need for privacy against correlation of data and metadata from multiple applications.

¹ Note that this definition identifies an application with a message set, rather than with a particular process on the computing platform or a particular set of user interactions.

Further discussion of privacy and security for the multi-application setting can be found in EU-US ITS Task Force Standards Harmonization Working Group Harmonization Task Group 1 report 1-1, “Current Status of Security Standards”, section 14 and Annex C.

2) Requirements for transactional unicast communications

Phases of a Peer-to-Peer Data Exchange Message Sequence



Participants are identified as User and Server. The User initiates the exchange. The User wants to engage in a service offered by the Server – this service could be that the Server provides data to the User, that the User provides data to the Server to store, or that the Server and User exchange data. There may be multiple distinct instances of a Server for a given system, and one instance may be better than the others – we call this the preferred instance.

- 3) Service discovery:
 - a. The exchange shall allow the User to determine whether it is communicating with the preferred instance of the given server.
 - b. No server-side service discovery requirements.
- 4) Authorization
 - a. The exchange shall allow the User to demonstrate that they are authorized to use the service.

- b. The exchange shall allow the Server to demonstrate that they are authorized to provide the service.
 - c. The definition of “authorized to use the service” will be application specific. Examples of what might be demonstrated to show authorization include:
 - (a) that the object is of the right physical type
 - (b) that it has the desired software installed
 - (c) that it does not have bad software installed
 - (d) that it currently has appropriate credentials, including the correct PSID (and possibly SSP) if those credentials are a 1609.2 certificate
 - (e) that it is in an approved physical location
- 5) Privacy
- a. The exchange shall not require either party to reveal sensitive information unencrypted. Sensitive information is any information beyond what is necessary to establish authorization as described above. Information exchanged about the parties should be about their permissions rather than about their identities, unless their identities are necessary in determining whether or not they are allowed to carry out the exchange.
 - b. The exchange shall not contain the User’s location information unless this is necessary as part of service provision or necessary for the server to verify that the user is authorized to use the service, for example to prevent a service from being participated in by the wrong User.
 - c. The exchange shall not use identifiers that can be straightforwardly linked to the User’s real-world identity (VIN, license number, etc.).
 - d. The exchange shall as far as practical use temporary and one-time identifiers. Separate instances of the exchange should as far as practical not use identifiers (USER MAC address, IP address, certificate, temporary ID, session ID, etc.) that have been used in a previous instance of the exchange.
- 6) Integrity.
- a. Each party to the exchange shall be satisfied that messages, including any metadata necessary to carry out the exchange correctly, have not been modified since they were created by the other party.²
- 7) Replay / message order
- a. The exchange shall guarantee that messages from both parties are fresh and have not been replayed.
 - b. For every message in the exchange that is a response to a particular previous message, the exchange shall ensure that the response message is recognized as a response to the correct previous message and cannot be incorrectly associated with a different previous message.
- 8) Non-repudiation / Audit

² Here, the exchange being “carried out correctly” is defined as either the correct outcome happens, or the packet gets lost.

- a. If one object provided incorrect information, it shall be possible to prove this to a third party using a transcript of the exchange (in other words, it shall not be possible for one object to forge evidence that the other object provided incorrect information).
- 9) Performance
 - a. The security processing shall add as few round trips as possible to the exchange.
 - b. The security processing shall not require either object to communicate in real time with a third party, for example to get keys or revocation information.
- 10) Removal of misbehaving objects
 - a. For each given application setting, there shall be an object or subsystem that is able to correctly determine that an object in that application setting is misbehaving, i.e. if that is sending information that is wrong in a significant or persistent way (where “significance” may be application-specific). This shall include protection against false accusations of misbehavior.
 - b. If an object is misbehaving, it shall be possible to prevent the object’s information from being trusted in future, either by denying it new credentials or by revoking its existing credentials.
 - c. For settings in which revocation is used to remove misbehaving objects, it shall be possible for a User to efficiently check the revocation status of a Server, and vice-versa.
 - d. If an object is itself revoked, it shall be possible for the object to discover that it is revoked. Mechanisms to recover from revocation are out of scope for the Southeast Michigan Test

11) Requirements for broadcast applications

The application that sends a broadcast message is referred to as the User. The application that receives is referred to as the Receiver.

- 1) Service discovery: No requirements.
- 2) Authorization: The security process shall allow the User to demonstrate that they are authorized to send the message.
 - a. The definition of “authorized to send the message” will be application specific. Examples of what might be demonstrated to show authorization include:
 - (a) that the object is of the right physical type
 - (b) that it has the desired software installed
 - (c) that it does not have bad software installed
 - (d) that it currently has appropriate credentials, including the correct PSID (and possibly SSP) if those credentials are a 1609.2 certificate
 - (e) that it is in an approved physical location
- 3) Privacy
 - a. The exchange shall not require the User to reveal sensitive information unencrypted. Sensitive information is any information beyond what is necessary to establish

authentication as described above. Where possible the information exchange shall reveal information about the User's permissions rather than about its identity, unless its identity is necessary in determining whether or not it was allowed to send the message.

- b. The message shall not contain the User's location information unless this is a necessary part of the application data, or necessary to demonstrate that the User is entitled to send the message.
 - c. The message shall not use identifiers that can be straightforwardly linked to the User's real-world identity (VIN, license number, etc.).
 - d. The message shall as far as practical use temporary and one-time identifiers. Separate instances of the message shall as far as practical not use identifiers (User MAC address, IP address, certificate, temporary ID, session ID, etc.) that have been used in a previous instance of the exchange.
- 4) Integrity. The Receiver shall be satisfied that messages have not been modified since they were created by the User.
 - 5) Replay / message order: The security process shall guarantee that the User's messages are fresh and have not been replayed.
 - 6) Non-repudiation / Audit: If the User provides incorrect information, it shall be possible to prove this to a third party using a transcript of the exchange (in other words, it shall not be possible for one party to forge evidence that the other party provided incorrect information).
 - 7) Performance: The security process shall not require the User or Receiver to communicate in real time with a third party, for example to get keys or revocation information.
 - 8) Removal of misbehaving objects
 - a. For each given application setting, there shall be an object or subsystem that is able to determine that an object in that application setting is misbehaving, i.e. if that is sending information that is wrong in a significant or persistent way (where "significance" may be application-specific)
 - b. If an object is misbehaving, it shall be possible to prevent the object's information from being trusted in future, either by denying it new credentials or by revoking its existing credentials.
 - c. For settings in which revocation is used to remove misbehaving objects, it shall be possible for a User to efficiently check the revocation status of a Server, and vice-versa.
 - d. If an object is itself revoked, it shall be possible for the object to discover that it is revoked. Mechanisms to recover from revocation are out of scope for the Southeast Michigan Test

ATTACHMENT B

SCOPE OF SERVICE
FOR
UTILITY COORDINATION

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

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

MDOT shall -

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

Consultant shall -

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

- Ensure municipal utility relocations, betterments and reimbursements follow Chapter 9 of the MDOT Road Design Manual.
- Identify eligible reimbursable utility relocations, for public/private utilities, as outlined in 23 Code of Federal Regulations (CFR) Part 645 Subparts A and B – Utilities and ensure 23 CFR Part 635.410 - Buy America Requirements are met.
 - Collect documentation to evaluate reimbursable utility relocations.
- Evaluate utility relocation plans for compatibility with the proposed project.
- Ensure utility relocation schedules do not impact the project schedule.
- Confirm utility relocation permit applications are submitted to the TSC.
- Prepare the “Utilities Status Report” (MDOT Form 2286) and “Notice to Bidders - Utility Coordination” documents.
- Track and monitor utility relocation progress.

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

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

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