

Request for Information

- Date:** January 21, 2016
- Project:** To identify potential business models for robust communications systems and data services that would reduce or complement the cost of connected vehicle-related infrastructure in Michigan.
- Issuing Agency:** Michigan Department of Transportation

Introduction

Requests for Information (RFIs) are being solicited by the Michigan Department of Transportation (MDOT) for potential business models or innovative service arrangements that could reduce, or complement, the future financial expenditures by public agencies in Michigan for dedicated short-range radio (DSRC) roadside infrastructure to support connected vehicle systems. At this time, MDOT does not have a defined plan for entering into any future innovative third party agreements related to connected vehicle systems. However, MDOT is interested in soliciting feedback of potential business models or service arrangements that, so that such options may be considered in the future.

Requirements

- Any potential business model relating to data collection and processing should assume that data and information will be provided to MDOT's DUAP system. MDOT would assist with creating the connection point to the DUAP system.
- Operators of potential business models for data and application systems would be required to maintain an active partnership with MDOT and partner agencies, and ensure that compatibility is not an issue. The operators would work with MDOT to stay active in the technology, changes and innovative approaches that would benefit the State of Michigan.

This is not a competitive request. MDOT reserves the right to begin discussions with any, all, or none of the Respondents. MDOT may or may not, at its discretion, issue one or more Requests for Proposal (RFPs) related to this subject at a future date.

MDOT recognizes that some of the information contained in these responses may be confidential. Portions of the LOI marked as confidential will not be made publicly available except as required by law. MDOT will not return the LOI to the Respondent.

MDOT requests that Respondents provide five bound paper copies of the LOI to the MDOT Project Manager. In addition, MDOT also requests one electronic copy of the LOI, to be sent to the MDOT Project Manager via e-mail. Electronic copies must be in PDF format and must not exceed 5MB in size.

All copies of the LOI should be sent to the MDOT Project Manager at:

Michigan Department of Transportation

Project Manager: Matt Smith

Van Wagoner Building

425 West Ottawa Street

P.O. Box 30050

Lansing, MI 48909

smithm81@michigan.gov

There is no due date for responses to this LOI. All responses will be reviewed and considered.

Respondents may e-mail the MDOT Project Manager, Matt Smith, at smithm81@michigan.gov for additional information.

Background

Michigan has made impressive strides over the past decade in improving the mobility of motorists and reducing the number of traffic fatalities on our roads. However, in recent years, the trend of sharp declines in fatalities has “leveled out”. Michigan has adopted the Towards Zero Death initiative, and believes that Connected Vehicle technologies will be at the forefront of accomplishing this goal.

MDOT continues to be aggressive in research, planning and implementation of a connected vehicle (vehicle-to-infrastructure) communication system. Through this effort partnerships have been instrumental, and will continue to be, as a true connected vehicle environment will exceed the capabilities of any one agency, automobile company, or technology company.

Working in partnership with automobile manufacturers and suppliers, universities, local agencies and a number of others in the public and private sectors, MDOT has set a vision for a connected vehicle environment encompassing a large segment of southeast Michigan, centered along the freeway and surrounding arterial network in the metropolitan Detroit area. This corridor goes through the heart of Michigan’s automotive and technology development area, and links to several other connected vehicle deployments, including the USDOT’s test bed in Oakland County, a deployment in the City of Detroit, and the Safety Pilot Model Deployment / Ann Arbor Connected Vehicle Test Environment in Ann Arbor. The connected vehicle environment is envisioned to encompass the four basic foundations of any connected vehicle system; supporting infrastructure, equipped vehicles and/or motorists, data and applications, and the communications network needed to support the system.

MDOT’s connected vehicle vision represents a multi-year investment and progress, eventually expanding outside of the metropolitan Detroit area, resulting in “connected regions”, and a “connected state”. This vision is shared at both regional and national levels which is demonstrated through continued support and partnership with the USDOT.

MDOT recently deployed an initial 17 roadside units on a high volume freeway that is readily used by current company fleets and has real safety and mobility challenges that can be addressed by a connected vehicle environment. This deployment also provides benefit to the users as it ties into the

existing USDOT testbed in Oakland County. MDOT will continue to work with partners to leverage DSRC-equipped vehicles coming off of the assembly line, and those being retrofitted by owners of fleet vehicles (such as the State of Michigan, automobile companies, and others.)

The connected vehicle environment is envisioned to include a variety of available communications technologies including Dedicated Short Range Communication (DSRC), cellular, fiber optic and others as necessary to deploy and support various system applications. Initially, MDOT will focus on the installation of communications infrastructure as well as equipping MDOT and other State of Michigan fleet vehicles with devices that will interact with the smart corridor infrastructure. MDOT will also be coordinating with other Southeast Michigan fleet owners to consider the installation of connected vehicle devices. While MDOT's initial focus is on the deployment of DSRC infrastructure, we are actively seeking partnerships that will allow MDOT to minimize the level of public sector financial investment in infrastructure needed while continuing to pursue the latest proven technologies.

MDOT has also made a significant investment in a Data Use Analysis and Processing (DUAP) system, which is focused on utilizing connected vehicle and other mobile observations, in conjunction with other traditional MDOT data sets, to populate a series of applications used by transportation agency. These applications address the safety, mobility, and asset management goals of MDOT. A single "connected vehicle" has the potential to anonymously generate literally thousands of data points for every minute it's running, creating a potential deep well of useable information for transportation agencies. It is expected that this data has value to other partners of the connected vehicle system as well, including private entities.

Instructions for Responses

Respondents should submit a response, stating their interest in working with MDOT and their partners to develop potential business models and arrangements that have the potential to reduce the cost of installing, operating and maintain roadside infrastructure equipment associated with the connected vehicle system. At a minimum, the LOI should:

- a) Provide contact information for the Respondent.
- b) Document innovative strategies to reduce or eliminate costs for public agencies in the installation, operation and maintenance of DSRC roadside infrastructure.
- c) Describe products, services or revenue that could be shared with public agencies related to innovative strategies in the connected vehicle environment.
- d) Document innovative strategies or services that can reduce or eliminate the public agency costs for the backhaul communications needed to support a connected vehicle environment.
- e) Describe innovative strategies or services that can reduce or eliminate the public agency costs for data hosting and processing of connected vehicle systems.
- f) Document innovative strategies or services that can reduce or eliminate the public agency costs for "operating and maintaining" a data system associated with a connected vehicle environment in Michigan. "Operating and maintaining" a data system could include, but not be limited to, services such as ensuring accuracy of data and information, ensuring reliability of data and information streams, and ensuring availability of data and information streams.

- g) Describe innovative strategies or services that can reduce or eliminate the public agency costs for developing and providing connected vehicle (primarily vehicle-to-infrastructure) applications.
- h) Describe innovative strategies or services that can reduce or eliminate the public agency costs for “operating and maintaining” connected vehicle (primarily vehicle-to-infrastructure) applications. “Operating and maintaining” applications could include, but not be limited to, refining application source code and material, upgrading application versions, providing “fixes” to existing applications, and coordinating with other application systems.
- i) Describe innovative strategies or services that can reduce or eliminate public agency costs for connected vehicle deployments in rural areas with lower traffic volumes.
- j) Describe any policy issues or concerns that the respondent may be aware of in relation to State of Michigan laws, rules or regulations that would prohibit the ability to implement innovative strategies or services for connected vehicle deployments.

Please note that responses to this request could incorporate some or all of items a through h above; responses do not need to be inclusive of all of the items described in the preceding section. Responses could also include innovative strategies and services related to critical items of a connected vehicle environment, such as (but not limited to):

- Providing instrumented (production and/or aftermarket) vehicle fleet(s) to generate data for support of CV applications.
- Providing high precision infrastructure mapping for support of CV applications (signalized intersections (MAP), limited access freeways, arterials, etc).
- Provide additional wide area distribution method(s) to assist in providing infrastructure generated messages to motorists.

When the generation of revenue streams is involved with responses to any of items in this RFI, provide representative revenue and cost examples.