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| Sponsor | Nominations must be submitted by an AASHTO member DOT willing to help promote the technology | 1. Sponsoring DOT (State): Missouri Department of Transportation | | | | | |
| 1. Name and Title: Jon Nelson | | | | | |
| Organization: Missouri Department of Transportation | | | | | |
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| 3. Is the sponsoring State DOT willing to promote this technology to other states by participating on a Lead States Team supported by the AASHTO Innovation Initiative? Yes or No: Yes | | | | | |
| **Technology Description (10 points)** | The term “technology” may include processes, products, techniques, procedures, and practices. | 1. Name of Technology:   Field Traffic Alert System | | | | | |
| 1. Please describe the technology.   Historically, MoDOT has only had access to live traffic data in metropolitan areas like St. Louis and Kansas City. This data was collected via a combination of roadside sensors or loops in the pavement along the regions most heavily traveled roads. While beneficial, this approach was costly to both install and maintain.  For years, MoDOT has desired to have live traffic flow information on other roadways in the state, particularly along major corridors like I-70 and I-44. Due to the cost and maintenance demands, it was not feasible to install sensors, loops, or other detectors across the state. To accommodate this need, MoDOT contracted with HERE in 2014 to receive access to live traffic data on over 11,000 miles of roads in Missouri via wireless technologies. Through this contract, MoDOT was able to obtain the live traffic data it desired without the expense or maintenance demands of roadside detection. While the  HERE data has been beneficial on many fronts, two particular issues have been addressed through innovative uses of the HERE data.  1. MoDOT can only respond to a problem or inform travelers of a problem once it has. Even where CCTV cameras exist, there is not enough personnel to watch all available  Cameras 24/7. To address this, MoDOT developed a field text alert system using the HERE data to notify staff of issues that should be investigated and may require a response. MoDOT receives a continuous, live traffic data from HERE 24/7. A program was developed by MoDOT staff to monitor this data and alert individual users when certain conditions are met. This program is highly personalized meaning users of the system can establish their own preferences for when and how alerts are received. Users can select individual road segments/corridors/entire regions, specify certain days/times they wish to receive alerts, and establish the traffic speeds at which they want  to receive an alert.  2. MoDOT can only warn the traveling public about traffic backups once the issue has been detected and recognized. Once alerted, MoDOT can respond accordingly through various means, such as posting messages on dynamic message signs (DMS). However, even with the alert system, it still takes time for MoDOT staff to verify the event, gather the pertinent information, and then push the information to the traveler. Recognizing the need to provide some type of immediate warning to travelers while additional information is being gathered, MoDOT worked with TransCore to develop a method for auto-populating rural DMS along I-70 with congestion warning messages as soon as they are detected. This system works similar to the text alert system describe above.  The software being used to push messages to the DMS on I-70, TransCore’s TransSuite, was programmed to monitor the HERE data 24/7. When certain conditions are met, the program automatically sends a warning message to the appropriate DMS depending on the traffic speeds and location. These warning messages are instant and provide information to warn the motorist of what they should expect to encounter. | | | | | |
| 6. If appropriate, please attach photographs, diagrams, or other images illustrating the appearance or functionality of the technology. (If electronic, please provide a separate file.) Please list your attachments here.  Please find below: Photo of selections screen, Photo of Sample Segment Choice, Photo of report, Photo of sample text alert. | | | | | |
| **State of Development**  **(30 points)** | Technologies must be successfully deployed in at least one State DOT. The AII selection process will favor technologies that have advanced beyond the research stage, at least to the pilot deployment stage, and preferably into routine use. | 1. Briefly describe the history of its development.   For years, MoDOT has desired to have live traffic flow information on other roadways in the state, particularly along major corridors like I-70 and I-44. Due to the cost and maintenance demands, it was not feasible to install sensors, loops, or other detectors across the state. To accommodate this need, MoDOT contracted with HERE in 2014 to receive access to live traffic data on over 11,000 miles of roads in Missouri via wireless technologies. Through this contract, MoDOT was able to obtain the live traffic data it desired without the expense or maintenance demands of roadside detection. | | | | | |
| 1. For how long and in approximately how many applications has your State DOT used this technology?   We’ve been using the text alerts for about a year and a half. They are used for a variety of purposes:  traffic management in work zones, traffic incident management, detection of incidents, recurring congestion, and weather issues. | | | | | |
| 1. What additional development is necessary to enable routine deployment of the technology?   None | | | | | |
| 1. Have other organizations used this technology? Yes or No: No if so, please list organization names and contacts. There are organizations using our text alert system but we still maintain all the data. We are simply sharing the information we have. | | | | | |
| Organization | Name | | Phone | E-mail | |
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| **Potential Payoff**  **(30 points)** | Payoff is defined as the combination of broad applicability and significant benefit or advantage over other currently available technologies. | 1. How does the technology meet customer or stakeholder needs in your State DOT or other organizations that have used it?   Prior to this project, MoDOT had limited capabilities to learn of traffic issues along the roadway in a very timely manner. While roadside detection and cameras provided this ability in the metro areas, issues aren't typically learned about until a call is received from a customer, law enforcement, or MoDOT staff that happened to be in the area. The field alert system instantly expanded MoDOT's ability to receive notification of traffic issues throughout the state without the burden of installing and maintaining equipment in the field. This, in turn, has allowed MoDOT to respond in a quicker and more informed manner than what was previously possible. The use of this technology has allowed MoDOT staff to exceed previous expectations in responding to adverse traffic conditions such as crashes, weather and road construction. | | | | | |
| 1. What type and scale of benefits has your DOT realized from using this technology? Include cost savings, safety improvements, transportation efficiency or effectiveness, environmental benefits, or any other advantages over other existing technologies.   The field alert system saves time in that staff is notified instantly of adverse conditions along their roadways of interest. This, in turn, improves MoDOT's ability to respond and set up necessary traffic control to manage the event. MoDOT can also more quickly notify the public of these events. The overall process is improved by giving individual responders the tools and information they need while lessening the dependence on receiving a call about an event. The system has also allowed MoDOT to not spend money on deploying roadside devices to collect this data in other locations. It could even be used to replace some of the existing detectors in St. Louis and Kansas City in the future, thus reducing the ongoing maintenance costs of these devices.  This program has greatly enhanced MoDOT’s ability to receive earlier notification of adverse traffic conditions due to an incident, road construction, weather, or recurring congestion. Earlier notification means MoDOT can respond quicker on the ground (traffic control) and also provide earlier warning to the traveling public (traveler information. | | | | | |
| 1. Please describe the potential extent of implementation in terms of geography, organization type (including other branches of government and private industry) and size, or other relevant factors. How broadly might the technology be deployed?   The alert system, while designed for use by MoDOT staff, has also been shared with contractor personnel working on MoDOT right of way as well as law enforcement partners. | | | | | |
| **Market Readiness (30 points)** | The AII selection process will favor technologies that can be adopted with a reasonable amount of effort and cost, commensurate with the payoff potential. | 1. What actions would another organization need to take to adopt this technology?   MoDOT contracts with HERE to get the data, and that data cost about $200,000 per year. The text alert tool itself was developed internally. Labor was estimated to be about 80 hours of staff time from IS. | | | | | |
| 1. What is the estimated cost, effort, and length of time required to deploy the technology in another organization?   We spend about $200k a year for the data. The text alert tool itself was developed internally. Labor was estimated to be about 80 hours of staff time from IS (mostly program development). | | | | | |
| 1. What resources—such as technical specifications, training materials, and user guides—are already available to assist deployment?   We have instructions for how to use our alert system that is made available to MoDOT users; however I don’t think there is any material of specifications available to provide to others interested in a similar deployment. They could always talk to MoDOT’s IS Division via telephone or video conference. | | | | | |
| 1. What organizations currently supply and provide technical support for the technology?   The IS Division at the Missouri Department of Transportation provides technical support. | | | | | |
| 1. Please describe any legal, environmental, social, intellectual property, or other barriers that might affect ease of implementation.   As long as an organization has permission from their data provider (HERE in our case), we are not aware of any barriers. | | | | | |
| ***Submit Completed form to*** | | [***http://web.transportation.org/tig\_solicitation/Submit.aspx***](http://transportation1.org/tig_solicitation/Submit.aspx) | | | | | |

PROJECT PHOTOS:







