North/West Passage
ITS Deployments for Operations – Summary Report

March 2016

Introduction

North/West Passage has previously held focused discussions about ITS deployments among the member states. For example, in 2007 the states inventoried ITS deployments as part of their strategic planning effort. The inventory was used to understand what was already deployed in the corridor to provide insight into what technology has or has not worked well, states' experiences with various technologies, gaps in technology and technology preferences. In 2010, information was updated from the states about what ITS devices were deployed and where so that a resource map could be created to support coordination among TMC/TOC operations staff during major events.

The North/West Passage Steering Committee recommended that the Operations Task Force include a detailed discussion about ITS deployments during a monthly webinar in their 2015-2016 work plan. The task force chose to focus this discussion more specifically on ITS deployments that have had direct impacts on operations. It was envisioned that the states may use information from this discussion to consider future deployments within their individual states and that the task force may consider suggesting future project ideas for the I-90/I-94 corridor related to the deployments that were shared. **This summary report describes the approach that was used to exchange information about states' ITS deployments that have impacted operations, summarizes the deployment information that was exchanged, and identifies potential project ideas for further consideration by North/West Passage.**

Approach

A peer exchange webinar was planned for February 17, 2016 to discuss ITS deployments that have had a direct impact on operations. Prior to the webinar, North/West Passage Steering Committee and Operations Task Force representatives were asked to identify how ITS deployments are being used to manage operations on I-90/I-94 or other key routes with potential applicability to I-90/I-94. Several examples were prepared in advance of the meeting to prompt discussion and additional sharing during the meeting. For each deployment, the following information was gathered:

- Type of deployment (e.g. CCTV, warning system, etc.)
- Extent of deployment (e.g. corridor, statewide, etc.)
- Problem(s) addressed by the deployment (e.g. truck parking availability, intersection crashes, truck blow-overs, etc.)
- Impact deployment has had on operations – formal or anecdotal

ITS Deployments for Operations

Following are summaries of the various ITS deployments that were shared by the North/West Passage states during this peer exchange webinar. The summaries are numbered for ease of reference only. Contacts, references and additional details are also provided when available for each summary to allow further exploration of the deployments.

1. Intelligent Work Zone Data Collection and Evaluation

Type	DMS, detection, CCTV
Extent	Corridor, I-94 St. Cloud (central Minnesota)
Problem	Work zone queues and crashes, and unknown travel times, detection out during construction
Impact	Worked well; some concerns about variability in times so data was smoothed and focused on slow lane; travel time errors increased with queue length; travelers noted benefits from advanced notice
References	I-94 Intelligent Work Zone Evaluation Final Report (2013) http://www.dot.state.mn.us/guidestar/2013/intelligent-workzone-data-collection/index.html
Contact	Cory Johnson, MnDOT, 651-234-7062, coryj.johnson@state.mn.us

2. Work Zone Accident Reduction Deployment (WZARD)

Type	RWIS, DMS, AVL, IRIS
Extent	Corridor, Hwy 10 Detroit Lakes and I-94 St. Cloud (central Minnesota)
Problem	Work zone and snow removal crashes
Impact	Reduced work zone, snow removal and secondary crashes; streamlined traveler information
Additional Details	First deployment on Hwy 10 was temporary for a work zone active over the winter months; second deployment on I-94 is permanent to alert public of plow operations
References	Destination Innovation Project: Safe Corridor Enhancements (SCORE) Work Zone Accident Reduction Deployment (WZARD) Final Report (2012) http://www.dot.state.mn.us/guidestar/2012/safecorridorenhancements/scorewzard.html
Contact	Cory Johnson, MnDOT, 651-234-7062, coryj.johnson@state.mn.us

3. Roadside Traveler Information

Type	150 DMS (3-line, 2-line, portable)
Extent	Statewide, Interstates and major US/state routes
Problem	Rapidly changing road and weather conditions make it important to alert motorists in real-time as much as possible (e.g. fog related crash in early 2000s)
Impact	Helped prevent crashes and people being stranded during bad weather; helped minimize secondary crashes; success of portable DMS on I-90 for Rally led to permanent DMS last year
Additional Details	On staff meteorologist has helped significantly with forecasting information and developing action plans in advance of severe conditions
Contact	Gabe Gutierrez, Wyoming DOT, 307-777-2983, gabriel.gutierrez@wyo.gov

4. Variable Speed Limit Zones

Type	RWIS, speed sensors, dynamic speed limits signs
Extent	Corridors, I-80, I-25, WY28 and soon I-90
Problem	Rapidly changing and extreme wind conditions cause high-profile vehicles to blow over
Impact	Requires monitoring and enforcement to ensure speeds are credible and obeyed; proven reductions in speed; crash reduction on I-80; reduction in road closures for crashes

Additional Details	University of Wyoming completed a study of a VSL deployment site and developed an algorithm using RWIS data to increase automation of speed limit setting
References	Variable Speed Limit System for Elk Mountain Corridor (2010) http://www.dot.state.wy.us/files/live/sites/wydot/files/shared/Planning/Research/WYDOT_ElkMtnVSL_FinalReport.pdf
Contact	Gabe Gutierrez, Wyoming DOT, 307-777-2983, gabriel.gutierrez@wyo.gov

5. Snowplow Cameras for Operations

Type	Cameras (Live View), API, traveler information web page layer
Extent	Statewide, 10 tow-plows initially
Problem	Understanding what operators are dealing with; filling in gaps with cameras
Impact	Provides opportunity for ops to coordinate on road conditions; strong positive public and media response
Additional Details	Images are taken every half mile and displayed with weather details for 30 minutes; Iowa DOT has a similar deployment with iPhones
Contact	Brandi Hamilton, Montana DOT, 406-444-0468, brhamilton@mt.gov

6. High-Wind Sensors and Signing

Type	Wind sensor, static sign with beacon
Extent	Corridor, I-90 Livingston (MP 330-338)
Problem	Isolated high winds cause blow overs; challenging to know when to detour/close road; dangerous field conditions for ops to activate closures
Impact	Decreased blow overs, reduced ops staff exposure to dangerous field conditions
Additional Details	DMS and RWIS are used on both end of this area but this deployment is much simpler to deal with a location specific problem
Contact	Brandi Hamilton, Montana DOT, 406-444-0468, brhamilton@mt.gov

7. RWIS for Traveler Information

Type	RWIS, DMS, CCTV, HAR, 511 website
Extent	Statewide
Problem	Hazardous conditions can develop and unknown amounts of time can pass before operators know and are able to warn travelers
Impact	Hazardous conditions are reported more immediately to travelers through automated polling of RWIS sites and automated postings to traveler information services
Additional Details	RWIS data is used to generate alerts about conditions vs. just displaying images from RWIS sites for travelers to interpret
Contact	Tony Ernest, Idaho Transportation Department, 208-334-8836, tony.ernest@itd.idaho.gov

8. Truck Parking Information and Management System (Indiana)

Type	DMS, detection
Extent	Corridor, I-65 and I-70 (pilot)
Problem	Unknown parking availability when truckers need
Impact	Rested drivers less likely to crash, trucking company cost savings

Additional Details	Indiana is sharing $25M from a Transportation Investment Generating Economic Recovery (TIGER) 2015 grant with seven other states (KS, KY, IA, MI, MN, OH, WI) to continue developing truck parking systems; additional truck parking systems are also being pilot tested by I-95 Corridor Coalition
Reference	U.S. Department of Transportation Announces $25 Million TIGER Grant for the Regional Truck Parking Information and Management System (October 2015) https://www.fhwa.dot.gov/pressroom/dot15104.cfm I-95 Truck and Park (November 2015) http://www.i95truckparking.com
Contact	Donna Luley, Indiana DOT, 317-233-3519, dluley@indot.in.gov

The following additional ITS deployments targeted at operations were also briefly noted during the meeting. They are again numbered for each of reference only. For further information about these deployments, please contact the listed agency representative.

Brief Description of ITS Deployment	Contact
9. Introducing more **forecasted information to DMS, 511 phone and web services**; emphasis on wind advisories for high profile vehicles	Dave Huft, South Dakota DOT, 605-773-3358, dave.huft@state.sd.us
10. **Integrating State Patrol CAD system with traveler information** services; emphasis on using integration to maintain information after hours	Dave Huft, South Dakota DOT, 605-773-3358, dave.huft@state.sd.us
11. Developing an **ITS asset management system**	Dave Huft, South Dakota DOT, 605-773-3358, dave.huft@state.sd.us
12. Using **license plate readers to complete e-screening** for commercial vehicles	Dave Huft, South Dakota DOT, 605-773-3358, dave.huft@state.sd.us
13. Exploring **two-way information exchanges with third party data providers**	Dave Huft, South Dakota DOT, 605-773-3358, dave.huft@state.sd.us
14. **Expanding travel time information** to Tacoma and other places throughout Washington	Bill Legg, Washington DOT, 360-705-7994, leggb@wsdot.wa.gov
15. Exploring how new **Seattle TMC can serve as a transportation hub** for variety of other agency centers throughout region	Bill Legg, Washington DOT, 360-705-7994, leggb@wsdot.wa.gov
16. Installing tablets in select fleet vehicles to gather **asset management** information	Bill Legg, Washington DOT, 360-705-7994, leggb@wsdot.wa.gov

Potential Operations Project Ideas

Based on the information exchanged about ITS deployments being used to support operations within the states, some deployments could be developed into project ideas for further consideration by North/West Passage. Following are some potential ideas that may be further considered by the task force during their March 16 meeting when operations-related project ideas will be discussed. The task force will then decide which project ideas will be submitted to the Steering Committee for their further consideration in the annual work plan development process for North/West Passage.

Project Idea 1: Work zone management practices for I-90/I-94. This project would identify what work zone management practices are being used among the states for extended construction projects that significantly impact travel along the I-90/I-94 corridor. Emphasis would be placed in identifying intelligent work zone applications, in particular. Examples will also be gathered of construction projects that have applied the work zone management practices noted by the states.

Project Idea 2: Asset management practices for ITS. This project would summarize the states' asset management practices regarding ITS devices. Information would be gathered about asset management tools used to maintain information about individual assets, policies regarding the maintenance and decisions surrounding asset information, and the extent to which ITS devices are recognized and included as assets to be actively managed.

Project Idea 3: Forecasted information alerts for roadstosafediscovery.com. Explore the feasibility of using states' RWIS sites along I-90/I-94 to generate information alerts about forecasted, critical conditions that are likely to significantly impact travel through the corridor. The alerts would be displayed on roadstosafediscovery.com.

Conclusion

This summary report provided an overview of select ITS deployments being used to manage operations in the North/West Passage states. Although this list is not comprehensive and not all deployments are necessarily feasible for the I-90/I-94 corridor, periodic exchanges of information like this allow the states to maximize the value of a pooled fund environment like North/West Passage. Because this specific exchange of information was focused on operations, it also supports the states' further exploration of transportation systems management and operations, particularly for rural environments. The states will use the information to further explore deployments for application in their individual states, and the potential project ideas will allow the states to also explore the potential for application to the I-90/I-94 corridor.