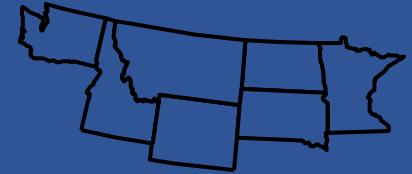




North/West Passage

Transportation Pooled Fund Study
5(376)



Progress Report

NWPASSAGE.INFO

JUNE 2023

Background

Interstates 90 and 94 between Wisconsin and Washington function as major corridors for commercial and recreational travel. Extreme winter weather conditions, prevalent in the northern states within this corridor, pose significant operational and travel-related challenges. Idaho, Minnesota, Montana, North Dakota, South Dakota, Washington, and Wyoming are predominantly rural and face similar transportation issues related to traffic management, traveler information, and commercial vehicle operations.

Recognizing the value of coordinated, cross-border collaboration, Minnesota initiated a meeting in 2002 with representatives from each of the states within the corridor. The group established itself as a Transportation Pooled Fund in 2003 through the Federal Highway Administration (FHWA).

Vision

The vision of the North/West Passage (NWP) Corridor is to focus on developing effective methods for sharing, coordinating, and integrating traveler information, operational activities, and emerging technologies across state and provincial borders. The vision provides a framework to guide the states' future projects in the corridor.

Members

- Washington State DOT
- Montana DOT
- Idaho Transportation Department
- Wyoming DOT
- North Dakota DOT
- South Dakota DOT
- Minnesota DOT

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Work Plan Project Results and Outcomes

The following pages identify the project results and outcomes of major activities performed from each work plan North/West Passage develops and approves annually. Final project reports are available at: nwpassage.info.

Work Plan 17 Project Results and Outcomes

NWP Project	Results and Outcomes
17.1 Operations Task Force - Year 10 (2023)	<ul style="list-style-type: none"> Ten webinars were held on operations, maintenance, emerging technologies, and TSMO related topics (e.g., Montana DOT’s response to the 2022 Yellowstone flooding, physical and cyber security of field devices, approaches for alerting travelers of snowplows or maintenance vehicles)
17.2 Freight Task Force - Year 7 (2024)	<ul style="list-style-type: none"> Continued to conduct task force meetings and informational web meetings.
17.3 Benefits of Traveler Information Provided by DOTs (2023)	<ul style="list-style-type: none"> Documented the needs for traveler information benefit analyses and identified options for quantifying traveler information benefits.
17.4 Communicating Route Restrictions to Third Party Mapping/ Navigation Providers (2023)	<ul style="list-style-type: none"> Documented examples of travelers being routed to unsafe routes and the challenges these events create. Engaged with mapping and navigation providers to explore solutions to mitigate situations where navigation systems advise drivers onto inappropriate routes.
17.5 Situational Data Exchange - Phase 3 (2023)	<ul style="list-style-type: none"> Developed a Work Zone Data Exchange (WZDx) website watcher application and ingest application. (Phase 2 – Project 15.2, Phase 1 – Project 14.2).
17.6 Activity to Support the Work Zone Data Initiative - Phase 2 (2023)	<ul style="list-style-type: none"> Identified gaps between NWP member states work zone reporting and data elements in the USDOT WZDx specification.
17.1 Current Practices in Expanding DOT Traveler Information Coverage (2023)	<ul style="list-style-type: none"> Researched and documented practices for expanding DOT traveler information beyond State DOT maintained roads.

Work Plan 16 Project Results and Outcomes

NWP Project	Results and Outcomes
16.1 Operations Task Force - Year 9 (2022)	<ul style="list-style-type: none"> Held periodic webinars on operations, maintenance, and TSMO related topics (e.g., WZDx grant updates, work presence approaches, advancement in winter operations). Also held a technician’s forum.
16.2 Freight Task Force - Year 6 (2022)	<ul style="list-style-type: none"> Continued to enhance NWP activities with the freight community.
16.3 Winter Performance Measures (2022)	<ul style="list-style-type: none"> Discussed performance measures, gaps and desired changes with performance measures, and challenges with consistent performance measures with a focus on level of service and recovery approaches.
16.4 Truck Parking Information Management Assessment (2023)	<ul style="list-style-type: none"> Reviewed how states share truck parking information and to make a determination of interest in a regional truck parking information management system.
16.5 Oversize/Overweight Movement Assessment (2023)	<ul style="list-style-type: none"> Identified issues and developed mitigation strategies to improve and streamline oversize/overweight movements across state lines. The assessment focused on four NWP states: Minnesota, North Dakota, South Dakota, and Wyoming.

Work Plan 15 Project Results and Outcomes

NWP Project	Results and Outcomes
15.1 Operations Task Force - Year 8 (2021)	<ul style="list-style-type: none"> Held periodic webinars on operations, maintenance, and TSMO related topics (e.g., FCC rule making and reallocating the spectrum, broadband development and small cell deployment in the right of way, sunseting technologies).
15.2 Freight Task Force - Year 5 (2021)	<ul style="list-style-type: none"> Focused on improving the commercial vehicle travel experience across state lines by streamlining the e-screening process and identifying information sharing needs and issues.
15.3 Situation Data Exchange - Phase 2 (2021)	<ul style="list-style-type: none"> Continued to expand the efforts of Phase 1 (Phase 1 - Project 14.2, Phase 3 – Project 17.5).
15.4 Commercial Vehicle Traveler Information Assessment (2022)	<ul style="list-style-type: none"> Increased awareness and collaboration between state agencies to benefit trucking operations.
15.5 Responses to the COVID-19 Pandemic (2021)	<ul style="list-style-type: none"> Documented and shared NWP member agencies’ responses to the COVID-19 pandemic to apply towards future events or daily operations.
15.6 E-Screening Coordination Assessment (2022)	<ul style="list-style-type: none"> Increased collaboration and minimized the number of stops and redundancies that trucking operators and state agencies encounter as part of multi-state truck movements.
15.7 State Weather Messaging (2021)	<ul style="list-style-type: none"> Documented current approaches for weather messaging in each NWP state and identify coordination approaches between the member states.
15.8 Activity to Support the Work Zone Data Initiative (2021)	<ul style="list-style-type: none"> Advanced activity to support advancing the WZDI within the NWP member states. Washington State DOT was awarded a WZDx grant that included support from the NWP member states.

Work Plan 14 Project Results and Outcomes

NWP Project	Results and Outcomes
14.1 Operations Task Force - Year 7 (2020)	<ul style="list-style-type: none"> Held periodic webinars on operations, maintenance, and TSMO related topics (e.g. Plow Hit experiences, traveler information systems experiences, Wyoming DOT Connected Vehicle Pilot Project).
14.2 Situation Data Exchange (SDX) - Phase 1 (2021)	<ul style="list-style-type: none"> Evaluated the current data feeds available from NWP volunteer states, and provided a gap analysis of what is required to integrate their data current data into the SDX for connected vehicle support programs. (Phase 2 - Work Plan 15, Phase 3 – Work Plan 17).
14.3 NWP Workforce Needs - Practices and Peer Exchange (2020)	<ul style="list-style-type: none"> Documented workforce practices from NWP member states gathered through phone interviews and information shared during a peer exchange webinar.
14.4 DOT Traveler Information Website Crowd Sourcing Practices (2020)	<ul style="list-style-type: none"> Examined the crowdsourcing practices of several agencies to understand practices around managing crowdsourced data from third-party providers, citizen reporting, and social media on DOT traveler information websites.
14.5 Traveler Information Website Features and Usage (2020)	<ul style="list-style-type: none"> Examined the similarities, differences, and usage of state DOT traveler information website features.

Work Plan 13 Project Results and Outcomes

NWP Project	Results and Outcomes
13.1 Operations Task Force - Year 6 (2019)	<ul style="list-style-type: none"> Held periodic webinars on operations related topics (e.g. IRS Open Source Software experiences, Technician’s Forum, Pathfinder, and Wyoming DOT Connected Vehicle Pilot Project).
13.2 Freight Task Force - Year 4 (2020)	<ul style="list-style-type: none"> Enhanced NWP activities with the freight community and efforts. Year 4 focused on supporting active engagement of members and taking steps to advance a multi-state truck platooning demonstration.
13.3 NWP Corridor and Safety Mobility (2020)	<ul style="list-style-type: none"> Conducted an overall assessment of the safety and mobility issues and challenges along the I-90 and I-94 NWP corridor.
13.4 North/West Passage Traveler Information Work Zone Alerts: Feasibility Study (2019)	<ul style="list-style-type: none"> Tracked current national work zone data efforts, including pilot activities and funding opportunities, and document current practices in NWP states.

Work Plan 12 Project Results and Outcomes

NWP Project	Results and Outcomes
12.1 Operations Task Force - Year 5 (2018)	<ul style="list-style-type: none"> Monthly webinars discussed operations-oriented topics including protest management and camera placement/integration/ maintenance experiences. A technician’s forum was held on fiber communication and ITS/Signal/Signage/Sign Structures condition rating dashboard.
12.2 Freight Task Force - Year 3 (2018)	<ul style="list-style-type: none"> Supported the active engagement of Task Force members on emerging freight operations issues in the corridor and nationally. Conducted research on and recommended criteria for regulations in the corridor to support truck platooning. Recommended guidance for selecting virtual weigh station deployments in the North/West Passage states.
12.3 NWP Corridor Large Scale ITS Deployment Development (2018)	<ul style="list-style-type: none"> This project led member states through a process to determine the most appropriate large scale ITS deployment by prioritizing the technologies to be deployed and the location. The project identified focused on enhancing each state’s 511 system to provide work zone alerts to travelers.
12.4 Evaluation of Rural 511 Phone Service (2018)	<ul style="list-style-type: none"> Examined the state of practice and trends in 511 phone usage to determine the potential future role in effectively satisfying travelers’ needs. Kentucky, Missouri, and North Carolina were studied to understand why they moved away from delivering traditional 511 phone services.
12.5 Interstate Speed Limits	<ul style="list-style-type: none"> Due to project scheduling, it was approved by the North/West Passage Steering Committee to include the intent of Project 10.6 and Project 12.5 as appropriate and needed with the efforts of Project 13.3 – NWP Corridor Safety and Mobility Assessment.
12.6 Asset Management Practices for ITS Infrastructure (2018)	<ul style="list-style-type: none"> Summarized the states’ asset management practices regarding ITS infrastructure in order to understand the extent to which ITS devices are recognized and the state of asset management for establishing life-cycles, preventative maintenance, etc.

12.7 Plow Camera and Location Sharing (2018)

- Using phone interviews and a peer exchange webinar, this project gathered information to summarize the current practices some states use to share plow cameras and locations for traveler information.

12.8 TSMO Practices Peer Exchange (2019)

- Facilitated a webinar to gather information about NWP states' TSMO organizational practices and where they are at in establishing TSMO practices.

Work Plan 11 Project Results and Outcomes

NWP Project	Results and Outcomes
11.1 Operations Task Force - Year 4 (2017)	<ul style="list-style-type: none">• Topic area discussion included color DMS use, law enforcement relationships with the DOT, interpreting DMS guidelines, and ITS asset management.
11.2 Forecasting & Alerting Travelers about Critical Road Conditions (2017)	<ul style="list-style-type: none">• Researched and summarized the approaches used by North/West Passage states to forecast and alert drivers about crucial roadway conditions.
11.3 Work Zone Management Practices for I-90/I-94 (2017)	<ul style="list-style-type: none">• Researched and documented current work zone management practices in the North/West Passage states including intelligent work zone (IWZ) strategies. Presents the findings based on interviews conducted in January/February 2017 with the North/West Passage states and a review to identify IWZ practices in other states.• Held a webinar on April 26, 2017, to summarize the interviews as well as highlight IWZ experiences in Minnesota and Iowa.
11.4 Day One Activities to Prepare for Connected and Automated Vehicles (2017)	<ul style="list-style-type: none">• Developed a list of available resources related to connected and automated vehicles. Other efforts included discussions on the resources needed for states to prepare for the transition of connected and automated vehicles.
11.5 Exploring Options for Truck Platooning along the NWP Corridor (2017)	<ul style="list-style-type: none">• Project results are available under Project 10.4.

Work Plan 10 Project Results and Outcomes

NWP Project	Results and Outcomes
<p>10.1 Operations and Traveler Information Integration Sharing (OTIIS) Website Ops & Maintenance (2016)</p>	<ul style="list-style-type: none"> • A first phase of the website was developed in Work Plan 3 (Project 3.4). A second phase of the website was completed in Work Plan 4 (Project 4.1). North/West Passage submitted and received a federal grant to continue the traveler information website with the North/West Passage Operations and Travel Information Integration Sharing (OTIIS) Multistate Corridor Operations and Management (MCOM) project. In Work Plan 6 (Project 6.5) funds were used to support the OTIIS project. • Project 10.1 documented the ownership and structure of the OTIIS website to a level that would enable the North/West Passage members to support future decisions about funding operations and maintenance.
<p>10.2 Operations Task Force - Year 3 (2016)</p>	<ul style="list-style-type: none"> • Discussed many topic areas including the use of an open Applications Protocol Interface (API) to share traveler information content with third-party traveler information service providers, options and approaches for establishing single points of telephone contact within each state, upcoming state ITS deployments, and coordination for planned major events. • Conducted a Technician’s Forum to provide operations field and office staff with best practices on parking management systems and selecting pavement sensors.
<p>10.3 Evaluate Effectiveness of Citizen Reporting (2016)</p>	<ul style="list-style-type: none"> • Evaluated the benefits, costs, and lessons learned of agencies using citizen reporters by examining Citizen Reporting Systems in Minnesota, Wyoming, Utah, Idaho, and Oregon.
<p>10.4 Freight Task Force - Year 2 (2016)</p>	<ul style="list-style-type: none"> • Conducted outreach and education webinars on freight data, truck parking, and connected vehicle trucks. Also, identified freight funding opportunities and outreach opportunities. Additional efforts included developing a paper on identifying truck parking availability systems corridor-wide that provide near real-time information to commercial vehicle drivers. A paper exploring truck platooning technology was also developed.
<p>10.5 Winter Performance Management Practices (2016)</p>	<ul style="list-style-type: none"> • Gathered and summarized information regarding the North/West Passage states' current practices surrounding winter performance measures. • Identified measures and the associated data being used, as well as targets that have been established.
<p>10.6 Multistate Assessment of Interstate Speed Limit Impacts (2016)</p>	<ul style="list-style-type: none"> • Reviewed the North/West Passage states that had increased their speed limits but because it did not include data from all member states and only a couple years of data were available since the speed limit changes, results were limited.

Work Plan 9 Project Results and Outcomes

NWP Project	Results and Outcomes
9.1 Operations Task Force - Year 2 (2015)	<ul style="list-style-type: none"> Developed and completed a task force work plan, provided guidance and input to North/West Passage operations-related efforts, and provided an opportunity for peer exchange. Hosted a North/West Passage Regional Operations Forum to provide practitioners along the corridor with new and innovative approaches for managing and operating the highway system, especially across state boundaries.
9.2 Peer Exchange (2015)	<ul style="list-style-type: none"> Hosted two webinars on member-identified topics of interest (Variable Speed Limits (VSL) and DOT Efficiencies).
9.3 Virtual Scanning Tour of “On the Road Technologies” (2015)	<ul style="list-style-type: none"> Two virtual scanning tours, one featuring Washington State DOT and the other featuring Utah DOT, were conducted with Montana DOT. Participation in the scanning tours included North/West Passage Steering Committee members. All participating agencies engaged several panelists and participants to share experiences and dialogue about all aspects of Variable Speed Limit systems, from planning and design to construction, operations, and maintenance of the systems. Overall, the interaction and discussion during the virtual scanning tour was beneficial to the North/West Passage members considering the implementation of Variable Speed Limit systems.
9.4 Freight or Operations Related Projects	<ul style="list-style-type: none"> This project was a funding placeholder for projects selected by the Operations Task Force (Project 9.1) and Freight Task Force (Project 8.3).
9.5 Research Need for Corridor Performance Measures (2015)	<ul style="list-style-type: none"> Documented performance measures in general, corridor specific performance management, and practices among other groups. Presented potential performance measures for North/West Passage to further consider as a corridor.

Federal Grant: Multistate Corridor Operations and Management Program (MCOM)

NWP Project	Results and Outcomes
Operations and Travel Information Integration Sharing (OTIIS) (2018)	<ul style="list-style-type: none"> Promoted regional cooperation, planning, and shared project implementation for research programs and multimodal transportation management system management and operations. Leveraged previous North/West Passage projects (Project 3.4, Project 4.1, Project 4.3, Project 6.5, and Project 10.1) to implement an enhanced corridor-wide traveler information website.

Work Plan 8 Project Results and Outcomes

NWP Project	Results and Outcomes
8.1 Operations Task Force - Year 1 (2014)	<ul style="list-style-type: none"> • Provided more in-depth expertise on the states' individual operating procedures and on the approaches that North/West Passage could pursue to strengthen and maintain coordination among the states, particularly during major events.
8.2 Concept of Rural TMC/TOC Operations (2014)	<ul style="list-style-type: none"> • Supported a peer exchange among the North/West Passage states on the development of a concept for rural TMC/ TOC operations.
8.3 Freight Task Force - Year 1 (2014)	<ul style="list-style-type: none"> • Established a Freight Task Force designed to assess the value of an ongoing, dedicated group focused on North/West Passage freight related activities and projects. • The Freight Task Force completed an assessment of the feasibility of a corridor-wide CVO web portal.
8.4 Winter Road Condition Map Aggregation (2014)	<ul style="list-style-type: none"> • Extended the multistate winter road condition aggregate map to the remaining four North/West Passage states (Washington, Idaho, Wyoming and Montana) for complete North/West Passage coverage.
8.5 Member Outreach Support (2014)	<ul style="list-style-type: none"> • Developed materials for and provided outreach support to the steering committee members as they shared information about North/West Passage with other staff in their agencies. • Assessed the existing outreach tools that the North/West Passage has developed and continues to update. Recommended that members continue to use each of the tools and that the tools continue to be maintained. • Developed additional outreach material and prepared summary documents with background on the overall program, state-specific financial benefits, and information on previous and current projects with state-specific results. • Conducted two peer exchange efforts and funded travel for these outreach opportunities.
8.6 Major Event Operations Coordination Support (2014)	<ul style="list-style-type: none"> • This project temporarily extended major event coordination with the intent to strengthen the relationships among operations staff in states so that coordination will occur without the need for a central point of contact and organization.
8.7 Corridor-Wide Commercial Vehicle Portal Feasibility Study (2014)	<ul style="list-style-type: none"> • The project conclusion was that implementation of the CVOP throughout the corridor is feasible from a technical perspective, however doing so would require all member states to provide forecasting services at the same level as WYDOT to populate the CVOP.

Work Plan 7 Project Results and Outcomes

NWP Project	Results and Outcomes
7.1 NWP Goal Assessment and Planning for ITS Corridor Development (2013)	<ul style="list-style-type: none"> • Identified how North/West Passage projects met the corridor’s vision, goals, and objectives and identified gaps. • Summarized how each member state planned and prioritized ITS deployments along the I-90 and I-94 Corridor. • Assessed existing ITS deployments for potential gaps that could lead to future deployments.
7.2 Corridor-Wide Traveler Information Coordination Operational Test: Phase 2 (2013)	<ul style="list-style-type: none"> • Determined the threshold of when multi-state coordination is needed for planned and unplanned events along the corridor. • Expanded the roadwork map display website developed by the Great Lakes Regional Transportation Operations Coalition (GLRTOC) to include the North/West Passage states. • Extended evaluation of coordination during major events.
7.3 Truck Parking Projects along the NWP Corridor and Evaluate Third Party Data for Truck Parking Availability (2013)	<ul style="list-style-type: none"> • Summarized the work of other projects that have identified the issues of truck parking in each North/West Passage state and nationwide. • Conducted preliminary research on the potential use of third party data to provide truck parking availability. • Provided a list of recommendations to the Freight Task Force for consideration when identifying future North/West Passage project ideas.
7.4 CVO Regional Permitting - Pashe 4 (2013)	<ul style="list-style-type: none"> • The Steering Committee recommended and approved that the funds from Project 7.4 be used to fund the initiation of a Freight Task Force (Project 8.3). • Recommendations from the three regional permitting efforts (Project 4.4, Project 5.5, and Project 6.6) will be reviewed by the Freight Task Force for consideration to continue to move efforts from the project team forward.
7.5 NWP Freight Industry Webinar (2013)	<ul style="list-style-type: none"> • Provided the opportunity to share existing traveler information sources from public agencies along the I-90/I-94 corridor and provided the opportunity to learn about the freight industry needs related to traveler information through a webinar. • Webinar feedback was presented to the Freight Task Force (Work Plan 8, Project 8.3) for consideration as freight related projects and outreach efforts continued along the I-90 and I-94 Corridor.
7.6 Multistate Coalition Coordination (2013)	<ul style="list-style-type: none"> • Facilitated coordination among the North/West Passage program and the Great Lakes Regional Transportation Operations Coalition.

Work Plan 6 Project Results and Outcomes

NWP Project	Results and Outcomes
6.1 Corridor-wide Traveler Information Coordination - Operational Test (2012)	<ul style="list-style-type: none"> • Several North/West Passage projects have developed guidelines for reporting consistent traveler information. This project tested the effectiveness of these guidelines during actual major events that occur along the NWP Corridor by conducting an operational test.
6.2 23 CFR 511 Final Rule (2013)	<ul style="list-style-type: none"> • This project assessed each state’s conformance to SAFETEA-LU Section 1201 regarding the real-time system management information program.
6.3 Citizen Assisted Reporting - Phase 2 (2013)	<ul style="list-style-type: none"> • Expanded Wyoming’s ECAR system discussed in Phase 1 from Work Plan 5 (Project 5.1) by: <ul style="list-style-type: none"> ○ Developing an ECAR web entry tool for the Wyoming DOT ECAR Program. ○ Defining consistent citizen assisted road and weather phrases. ○ Deploying a citizen web-entry tool in Idaho based on Wyoming’s ECAR system. ○ Created a summary report that identified consistent phrases to be used by the Idaho and Wyoming citizen assisted reporting programs.
6.4 Cost/Benefit Tool Evaluation - Phase 2 (2012)	<ul style="list-style-type: none"> • This project enhanced the Cost/Benefit Tool developed in Work Plan 5 – Phase 1 (Project 5.2) by: <ul style="list-style-type: none"> ○ Adding 'MetaData' to the tool which would explain deployment parameters for cited references, descriptions of how each device is used, and conditions for deployment. ○ Adding additional ITS devices to the four developed in Phase 1. • Continuing to expand/improve the tool based on input from the North/West Passage states as well as the ITS community.
6.5 NWP Traveler Information Website - Phase 3 (2012)	<ul style="list-style-type: none"> • Due to the proposed scope of the project which included potentially enhancing the North/West Passage corridor wide traveler information website the Steering Committee approved to move Phase 3 funds from this project to support the North/West Passage Operations and Travel Information Integration Sharing (OTIIS) Multistate Corridor Operations and Management (MCOM) project. • In Work Plan 6 (Project 6.5) funds were used to support the OTIIS project. Project 10.1 from Work Plan 10 documented an operations and maintenance structure for the website to support decision about continued funding.
6.6 NWP Regional Permitting - Phase 3 (2013)	<ul style="list-style-type: none"> • Continued the goal of increasing the efficiency of trucking in the corridor by reducing the confusion in regulations and requirements for oversize/overweight trips and by providing a single mechanism for obtaining permits for oversize/overweight loads moving over the corridor.
6.7 Corridor-Wide Marketing and Outreach to CVOs (2012)	<ul style="list-style-type: none"> • Commercial vehicle operators identified traveler information communication channels and existing gaps.

Work Plan 5 Project Results and Outcomes

NWP Project	Results and Outcomes
5.1 Citizen Assisted Reporting -Phase 1 (2011)	<ul style="list-style-type: none"> Shared details of Wyoming’s Enhanced Citizen-Assisted Reporting (ECAR) project with other members, explored ways in which Wyoming’s program could be improved upon for maximized success in future implementations, and explored the feasibility of the citizen reporting system expanding to additional NWP States. Work Plan 6 (Project 6.3) included a project enhancing Wyoming’s system and expanding the program into Idaho.
5.2 Cost/Benefit ITS Tool Evaluation (2012)	<ul style="list-style-type: none"> Completed the first phase of a cost/benefit spreadsheet tool (focusing on DMS, traffic detection, RWIS, and CCTV) to help agencies determine whether the benefits of a project outweighed the associated costs (especially in rural areas). The tool was developed for use in rural and urban areas and did not require a Metropolitan Planning Organization model to use the spreadsheet. The final report presents the results of the New York DOT Evaluation Model for Freeway ITS Scoping (EMFITS) evaluation, the approach used, an overview of the tool developed for NWP, and a recommendation for further enhancement of the tool. Work Plan 6 (Project 6.4) included a second phase to enhance the tool.
5.3 Consistent and Coordinated DMS Use (2011)	<ul style="list-style-type: none"> Conducted a workshop for states to discuss all traveler information dissemination methods, not just DMS, for sharing information across states. Developed Operational Guidelines for Coordinating Traveler Information with Other States along I-90/I-94. Created a web page to map out the traveler information tools along the corridor. Signed a corridor-wide Memorandum of Understanding for cooperation and coordination of traveler information among the states.
5.4 Use of Mobile Sensors and Maintenance Decision Support for Automated Road Condition Reporting (2013)	<ul style="list-style-type: none"> Performed a synthesis of the best practices of mobile sensors. The synthesis documented successful deployments that remain in operation today and what can be learned by the approaches that did not succeed. Explored the current state of the Maintenance Decision Support System (MDSS) initiatives and researched whether MDSS is a viable option for automating road condition reporting systems.
5.5 NWP Regional Permitting - Phase 2 (2012)	<ul style="list-style-type: none"> Continued to facilitate discussions among the member states to improve movement of overweight/oversized loads in the corridor by making permitting easier, making regulations more harmonious, and improving communications between agencies and the industry. Based on this project’s research, the key is states agreeing on the functionality that is to be expected from the interface system and dedicating the needed resources. Survey respondents provided a list of suggested improvements to web-based information. Work Plan 4 (Project 4.4), Work Plan 6 (Project 6.6), and Work Plan 7 (Project 7.4) included additional phases to support regional permitting efforts.
5.6 Facilitating the Use of Open Source Software Throughout the Corridor	<ul style="list-style-type: none"> Conducted a workshop to advance the concept of open source software throughout the corridor and helped each NWP state reduce the costs of developing and maintaining software systems.

Work Plan 4 Project Results and Outcomes

NWP Project	Results and Outcomes
<p>4.1 and 4.3 Traveler Information Website-Phase 2 and Center-to-Center Communications ConOps (2010)</p>	<ul style="list-style-type: none"> • Developed a ConOps, designed and then implemented a second generation corridor-wide traveler information website that built upon the first generation website (Project 3.4). • The second generation beta website added the ability to acquire active event reports posted by member agencies and display active corridor events. • A technical document was also developed to describe the data feeds available and provided a recommendation for enhanced data exchanges to support web and phone integration. • North/West Passage submitted and received a federal grant to continue the traveler information website with the North/West Passage Operations and Travel Information Integration Sharing (OTIIS) Multistate Corridor Operations and Management (MCOM) project. In Work Plan 6 (Project 6.5) funds were used to support the OTIIS project. Project 10.1 from Work Plan 10 documented an operations and maintenance structure for the website to support decision about continued funding.
<p>4.2 Call Forwarding and Evaluation of Cross Border Information Requests (2009)</p>	<ul style="list-style-type: none"> • Summarized the potential to implement access to adjacent states' information between the 511 phone systems operated in each state. • The final report outlined the current status of 511 access to adjacent states' information and the options each North/West Passage state has with their current systems and included a set of recommendations for implementation.
<p>4.4 North/West Passage Regional Permitting (2010)</p>	<ul style="list-style-type: none"> • Identified and recommended feasible approaches to implementing a regional oversize/overweight permitting process for the North/West Passage states. • The outcome of this project provided additional information to allow North/West Passage states to continue to consider the options for regional permitting. • Work Plan 5 (Project 5.5), Work Plan 6 (Project 6.6), and Work Plan 7 (Project 7.4) included additional phases to support regional permitting efforts.
<p>4.5 Traveler Information Dissemination to Commercial Vehicle Operators (2010)</p>	<ul style="list-style-type: none"> • Produced a document that summarized the truck parking status in the corridor as well as summarized the experiences, challenges, and successes disseminating traveler information to truckers.

Work Plan 3 Project Results and Outcomes

NWP Project	Results and Outcomes
3.1 Corridor-Wide Consistent Major Event Descriptions (2008)	<ul style="list-style-type: none"> • First step to define a set of consistent event description phrases to be used when sharing messages corridor-wide. • An implementation plan was also completed to identify next steps for using the consistent event description phrases.
3.2 Clarus Regional Demonstration Concept of Operations (ConOps) (2008)	<ul style="list-style-type: none"> • A ConOps was developed to demonstrate an integrated surface transportation weather observing, forecasting, and data management system and to establish a partnership to create a nationwide surface transportation weather observing and forecasting system. • This was an example of all NWP states working together to develop a ConOps.
3.3 CAD to Reporting System Integration Workshop (2008)	<ul style="list-style-type: none"> • The workshop provided the opportunity to discuss future working relationships between public safety agencies and DOTs. • Resource for members to identify the next steps to integrate their CAD and reporting system.
3.4 North/West Passage Traveler Information Website (2008)	<ul style="list-style-type: none"> • One website to provide comprehensive corridor information (camera images, weather conditions, rest area locations, links to commercial vehicle restriction information, and truck stop information). • Member states provided a link from their traveler information website to the North/West Passage corridor-wide site. • A second phase of the website was completed in Work Plan 4 (Project 4.1). North/West Passage submitted and received a federal grant to continue the traveler information website with the North/West Passage Operations and Travel Information Integration Sharing (OTIIS) Multistate Corridor Operations and Management (MCOM) project. In Work Plan 6 (Project 6.5) funds were used to support the OTIIS project. Project 10.1 from Work Plan 10 documented an operations and maintenance structure for the website to support decisions about continued funding.
3.5 Cross Border Operations and Maintenance Collaboration Workshop (2008)	<ul style="list-style-type: none"> • This workshop provided the opportunity to discuss potential collaboration benefits corridor-wide (efficiency of maintenance operations, seamless travel for motorists, reduced duplication of equipment and system deployments, improved traveler information, and reduced overall costs). • Each North/West Passage state created an action plan for improving operations and maintenance collaboration with bordering states.

Work Plan 2 Project Results and Outcomes

NWP Project	Results and Outcomes
2.1 ITS Integrated Corridor Strategic Plan (2007)	<ul style="list-style-type: none"> • The plan was developed to help the NWP achieve their vision by identifying the next projects and steps to move the program forward.

Work Plan 1 Project Results and Outcomes

NWP Project	Results and Outcomes
<p>1.1 Integrate Reporting Systems (2005)</p>	<ul style="list-style-type: none"> Travelers in North Dakota and South Dakota can select to receive Minnesota's 511 traveler information. An Interface Control Document (ICD) was created to identify the process to allow the North Dakota condition reporting system (IRIS) to send data, and for the Minnesota Condition Acquisition Reporting System (CARS) system to receive the data. NWP states using a different condition reporting system could edit the ICD to one that specifically supports exchanges with the other NWP reporting systems.
<p>1.2 Condition Reporting System Trial in Wisconsin (2005)</p>	<ul style="list-style-type: none"> The project alleviated fears about the time demands of a reporting system. The Wisconsin State Patrol used a trial reporting system for 1 month. Wisconsin deployed a statewide reporting system in 2008 including a traveler information website and 511 phone system.
<p>1.3 Develop Automated Road Condition Reporting System</p>	<ul style="list-style-type: none"> This project was tabled at the July 29, 2003 Steering Committee meeting, due to the separate and ongoing Maintenance Decision and Support System (MDSS) efforts. This project was included and approved in Work Plan 5. For more information go to Project 5.4.
<p>1.4 Provide Integrated Communications Capabilities for ND DMS (2005)</p>	<ul style="list-style-type: none"> North Dakota received grant money to complete this project. NWP funds were not used. North Dakota staff is able to communicate and coordinate use of DMS and messages displayed for the traveler. Provided other states with the steps to upgrade DMS to NTCIP compliance.
<p>1.5 Concept of Operations for DMS Deployment at the ND/MN border (2006)</p>	<ul style="list-style-type: none"> A Concept of Operations (ConOps) was developed to document operations and maintenance DMS roles and responsibilities at the border of North Dakota and Minnesota. The ConOps includes a draft MOU for operating the DMS that could be applied to other bordering states. The document also includes operations guidelines for coordinating message when closing I-94 Westbound and Eastbound at the border that could also be applied to other NWP bordering states.
<p>1.6 Concept of Transportation Operations document for providing Traveler Information Tomah Split in WI (2005)</p>	<ul style="list-style-type: none"> Provides a high level perspective of providing traveler information at the Tomah split in Wisconsin. The document was coordinated with other planning efforts in Wisconsin to ensure the focus of providing traveler information at the Tomah split fit into Wisconsin's statewide plan. This document could assist the NWP in identifying key traveler information dissemination points along the corridor.
<p>1.7 Develop a North/West Passage Program Website (2004)</p>	<ul style="list-style-type: none"> The program website provides easy access to NWP information worldwide and to communicate and educate users about the NWP Transportation Pooled Fund study. The website also provides a central communication point for those working on the NWP Program.
<p>1.8 Develop a Communication Plan for the Anti-Icing</p>	<ul style="list-style-type: none"> One Request for Proposals (RFP) was developed to deploy an anti-icing system on the Red River Bridge that is now operated and maintained by both Minnesota and North Dakota.

System on the Red River between Minnesota and North Dakota (2005)

- Other NWP states can use the RFP as an example of hiring one contractor to perform work in two different states.

1.9 Develop a Lessons Learned Document Comparing Reporting Systems in WI and ND (2005)

- The scope was revised to:
 - Provide an overview of a few traveler information condition reporting systems
 - Summarize results from Wisconsin's DOT limited deployment of CARS to illustrate data entry requirements, as well as findings from a South Dakota DOT's study of statewide condition reporting systems and an Arizona DOT study on ITS data integration
 - Describe new federal requirements on real-time system management information