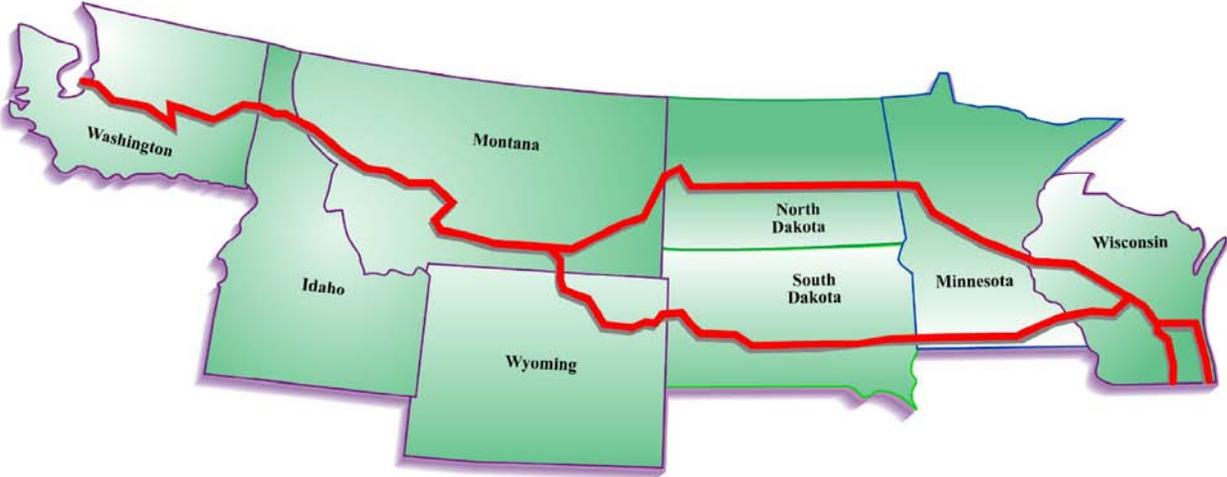


North/West Passage

Transportation Pooled Fund TPF-5(190)

Work Plan 5

May 19, 2010



North/West Passage Transportation Pooled Fund Work Plan 5

Background

The North/West Passage Corridor encompasses the states along I-90/I-94 from Wisconsin to Washington. The states within the North/West Passage Corridor are predominately rural and face similar transportation issues related to traffic management, traveler information, and commercial vehicle operations. Within the corridor states, there are numerous systems for collecting, processing, and integrating traveler and road maintenance information. At present, this information is not readily shared across state borders. Recognizing the value of coordinated, cross-border collaboration for ITS deployment to address these issues, the states formed the Transportation Pooled Fund (TPF-5(093)) in 2003. The TFP number was then changed to TPF-5 (190) when FHWA transitioned to a new reporting system.

The vision of the North/West Passage Corridor is to focus on developing effective methods for sharing, coordinating, and integrating traveler information and operational activities across state and provincial borders.

The states have completed several projects in the years since their establishment as a pooled fund. Some Work Plan 1 projects involved significant construction or equipment purchases, and the North/West Passage pooled fund served as project initiator. Under Work Plan 2, an ITS Integrated Corridor Strategic Plan was developed to guide future collaboration in the corridor. The plan focuses on center-to-center information sharing opportunities, includes a high-level architecture for the corridor, presents an inventory of existing systems, and identifies a coordinated deployment and operational concept for traveler information systems across state borders. Work Plan 3 projects began building the operational concept introduced in the Strategic Plan. A high-level traveler information web site was developed and launched for the corridor (www.i90i94travelinfo.com) and initial guidance for consistent descriptions of major events was established. Work Plan 4 continued to build on several projects recommended in the Strategic Plan. A second phase of the traveler information website was developed as well as researching the possibility for regional permitting. Complete details on previous work plans and individual projects are available through the program web site at www.nwpassage.info.

Financial Status

There have been previous solicitations for funding associated with North/West Passage. Solicitation 1 in 2003 generated \$200,000 from the states of Minnesota, North Dakota and Wisconsin. In 2006, the Solicitation 2 generated funding from all eight states totaling \$425,000. In 2008, Solicitation 3 was issued to fund Work Plan 4. In the third solicitation \$200,000 was generated by contributions from all eight states. A fourth solicitation was started in January 2010 to support Work Plan 5. States were asked to contribute another \$25,000 each.

Projects

At the March 10, 2009 annual meeting the states reviewed the North/West Passage goals, objectives and projects completed to-date in order to gauge interest in continuing to work as a pooled fund. The states all agreed that goals are being met and the work being done is of enough value to warrant

North/West Passage Transportation Pooled Fund Work Plan 5

continuation of the pooled fund. A list of prospective projects for Work Plan 5 was then developed over several months. The prospective projects were based on member suggestions and the Strategic Plan. These projects were scored at the March 17 and 18, 2010 Annual Meeting based on anticipated benefits to the corridor, likelihood of success, compatibility with vision and ConOps, and timeliness of the project.

The voting results, along with planning level cost estimates are presented in Table 1.

Table 1: Voting Results for Work Plan 5 Projects

Project Name	Estimated Project Costs	Estimated Cumulative Costs	Total Points Voted	Rank by Points
Citizen-Assist Reporting	\$ 20,000	\$ 20,000	632	1
Cost/Benefit ITS Tool Evaluation	\$ 25,000	\$ 45,000	623	2
Consistent and Coordinated DMS Use	\$ 25,000	\$ 70,000	597	3
Mobile Weather Sensors Best of Practices	\$ 25,000	\$ 95,000	585	4
NWP Regional Permitting – Phase 2	\$ 25,000	\$ 120,000	577	5
Facilitating the Use of Open Source Software Throughout the Corridor	\$ 30,000	\$ 150,000	556	6
Automated Road Condition Reporting System	\$ 25,000	\$ 175,000	554	7
Corridor-Wide Marketing and Outreach to CVOs	\$ 35,000	\$ 210,000	466	8
North/West Passage Regional Coordination	\$ 10,000	\$ 220,000	427	9
Support Cross Border 511 Unsolicited Proposal	\$ 75,000	\$ 295,000	422	10
North/West Passage Traveler Information Website – Phase 3	\$ 100,000	\$ 395,000	407	11
Rural Congestion	\$ 35,000	\$ 430,000	403	12

After discussing the voting results the states agreed to pursue the projects listed in Table 2. Note: The group agreed to combine the Automated Road Condition Reporting System with the Mobile Weather Sensors Best of Practices project. Full project details are included at the end of this work plan in Appendix A. Details for those projects not selected for this work plan are also included in Appendix B.

Several other expenses are estimated in addition to the projects. Program administration support is as an overarching contractor task to support the Program Administrator with meeting preparations, writing conference papers, preparing presentations, etc. The states are also planning their annual meeting in the coming year and the estimated cost consists of associated travel expenses.

**North/West Passage Transportation Pooled Fund
Work Plan 5**

Table 2: Work Plan 5 Funding Plan

Expense	Estimated Costs	
Projects		
<i>5.1 Citizen-Assist Reporting</i>	\$ 20,000	
<i>5.2 Cost/Benefit ITS Tool Evaluation</i>	\$ 25,000	
<i>5.3 Consistent and Coordinated DMS Use</i>	\$ 25,000	
<i>5.4 Mobile Weather Sensors and Automated Road Condition Reporting System</i>	\$50,000	
<i>5.5 NWP Regional Permitting – Phase 2</i>	\$ 25,000	
<i>5.6 Facilitating the Use of Open Source Software Throughout the Corridor</i>	\$ 30,000	
Program Administration Support	\$25,000	
Member Travel Support (one in person meeting)	\$10,000	
Revenue		Estimated Revenue
Carryover Balance from Previous Work Plan		\$35,000
State Contributions from Solicitation 4 (7 states@ \$25,000/state)		\$175,000
Total (Revenue vs. Expenses)	\$210,000	\$210,000

The states will be directly involved with finalizing contractor cost estimates, scopes of work and schedules for each of the projects to ensure concurrence with the final mix of projects contracted for Work Plan 5.

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix A**

The details of projects 5.1 – 5.6 are included in this appendix. For each project, a title, description, and recommended champion is provided, in addition to a prospective approach. Also provided are planning level cost estimates. This planning level information was used as the basis to develop this work plan and will be used to arrange contractor services to execute the individual projects. Details for those projects not selected for this work plan are also included in Appendix B.

Project Title	5.1 Citizen-Assisted Reporting Feasibility Study
Project Champion	Vince Garcia, Wyoming DOT
Project Purpose	To share details of the ECAR (citizen reporting) project in Wyoming and to explore the feasibility of any form of a citizen reporting system expanding to additional North/West Passage States.
Budget	\$20,000
Background / Current Status	Wyoming DOT has developed and deployed a system that allows authorized citizens (commercial vehicle operators or general travelers) to manually report driving conditions to Wyoming DOT staff, who then enter the events into the statewide reporting system for dissemination on 511 and the web. The project has been a success for Wyoming and has resulted reports of driving conditions statewide.
Approach	<p>The approach to this project will be to explore the feasibility of expanding the concept of a citizen reporting system to additional North/West Passage states. The project will include 3 key activities:</p> <p>#1: Synthesis of Wyoming ECAR. The initial task will document the details of the Wyoming ECAR project, including a series of best practices and issues/challenges to document things such as challenges with recruiting and training citizen reporters, challenges with maintaining consistent reports, and challenges processing conflicting event reports.</p> <p>#2: Feasibility Report of ECAR Expansion. The second task will present a series of technical options for how citizens might report conditions (e.g. using voice reporting as done in Wyoming, using social networking options such as texting, twitter, or email), and present a series of logistical options for how citizen reporting may expand along the corridor (e.g. through additional states deploying systems, or through a NWP led effort that allows citizen reporting for all or part of the corridor operated centrally (similar to the corridor-wide website).</p> <p>#3: Outreach to NWP States. The final task will share the research results and work with each states to present the results and discuss the feasibility of deploying an expanded citizen reporting using one or multiple technical and institutional options.</p> <p>The results of this project might lead to a second phased deployment project, or might give one or more states the background they need to deploy their own citizen reporting system.</p>

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix A**

Project Title	5.2 Cost/Benefit ITS Tool Evaluation
Project Champion	Bill Legg, WSDOT
Project Purpose	Cost/Benefit ITS tool evaluation
Budget	\$25,000
Background / Current Status	<p>In 2002 the NYDOT developed a simple to apply, relatively comprehensive, yet somewhat limited, spreadsheet analysis tool to determine a true cost/benefit of several types of ITS projects called EMFITS (Estimation Method For ITS). The tool was improved over a 2 year period and is currently developed to version 3.0. NYDOT has used the tool several times to guide decisions on what ITS they should deploy. The tool appears to have substantial promise to allow for cost/benefit analysis of ITS projects but is currently limited by the types of projects it can be applied to.</p> <p>This project proposes to do an evaluation of the EMFITS tools and to determine if it provides valid and acceptable approach to ITS project cost/benefit determination. In addition the project will look at how the tool can be expanded to permit evaluation of all of the typical ITS type projects that the NWP states pursue.</p>
Approach	<ol style="list-style-type: none"> 1. Discuss the EMFITS tool, its use, and results with its users in the NYDOT and other users if they exist. 2. "Test Drive" the tool with some current or recent ITS projects that have been or will be undertaken within the corridor. 3. Evaluate the analysis to determine the usefulness of the tool. 4. Based on the evaluation determine if the tool should and can be modified to meet the needs of the corridor states. 5. Modify EMFITS as needed (this may require additional budget depending on the expectations of the group).

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix A**

Project Title	5.3 Consistent and Coordinated DMS Use
Project Champion	Dave Huft, South Dakota DOT
Project Purpose	Establish a set of consistent messages (phrases) to be used on Dynamic Message Signs (DMS) signs throughout the corridor, and a plan for coordinated DMS use.
Budget	\$25,000
Background / Current Status	Each state uses DMS to display event information to travelers. The messages that are displayed may differ by organization and by operator. Similarly, the signs may be used to alert drivers to local events or long term events. In order that travelers have consistent experiences and receive the most applicable notices of events, this project proposes to develop a plan for coordinated use of DMS signs (e.g. when signs are used for local events and when major 'corridor-influencing' events are displayed upstream to a wider audience (replacing local messages).
Approach	<p>This project will benefit from the experiences of member states that currently operate DMS. The following major activities are anticipated:</p> <ul style="list-style-type: none"> • Poll the states to determine the current message sets that are used by the member states to describe events on DMS • Poll the states to understand any existing procedures for when long range events are displayed on DMS replacing displays of local events • Work with a small subset of the states to define a preliminary set of DMS message sets and a set of procedures for how DMS are used along the corridor. • Share the DMS message sets and procedures with all corridor members for feedback, input and ultimately consensus. <p>Deliverable: Recommended DMS messages and procedures/protocols for DMS sign use</p>

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix A**

Project Title	5.4 Mobile Weather Sensors and Automated Road Condition Reporting
Project Champion	Dave Huft, South Dakota DOT
Project Purpose	Develop a best practice document summarizing mobile weather and driving condition measurement and reporting systems, and research approaches towards automating road condition reporting using MDSS and/or mobile monitoring devices.
Budget	\$50,000
Background / Current Status	<p>The concept of mobile sensor reporting weather and driving conditions from moving snowplows in real-time has been developed and tested by multiple State DOTs in recent years. There are now several approaches for mobile sensors that have been deployed and tested in operational environments. Also, the Maintenance Decision Support System (MDSS) efforts have developed mature MDSS systems that are capable of recommending maintenance applications.</p> <p>Currently, most states rely on manual reporting of driving conditions into some form of a Condition Reporting System to populate the databases that drive 511 phone and web systems. This project will explore best practices and current state of the art to research the capabilities of mobile sensors and MDSS to replace some (or ultimately all) of the manual reporting that is now required.</p>
Approach	<p>The approach to this project will be to perform a synthesis of the best practices of mobile sensors. The synthesis will document the successful deployments that remain in operation today, and document what can be learned by approaches that did not succeed. Then, the project will explore the current state of the MDSS initiatives, and research whether MDSS (perhaps combined with mobile sensors) is a viable option for automating driving condition reporting systems.</p> <p>Project activities will primarily consist of:</p> <ul style="list-style-type: none"> • One-on-one phone interviews with the project managers of the various mobile sensor projects to capture lessons learned, benefits achieved, costs of deployment and operation; • Discussions with the private contractors/vendors to document options and features of the systems; • Discussions with the national weather programs (e.g. Clarus and MDSS) to understand the role of mobile sensors in the current and upcoming weather information program. • Researching the feasibility of automatically populating a NWP road condition report from the mobile sensors and MDSS data available, and developing parameters for generating applicable good/fair/difficult road condition situations based on the mobile weather sensor data and MDSS data. • Completion of a Final Report documenting lessons learned, experiences, and recommendations. Recommendations may include a later phase development and deployment for the North/West Passage member agencies to consider.

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix A**

Project Title	5.5 NWP Regional Permitting – Phase 2
Project Champion	Jim Wright, Washington State
Project Purpose	The ultimate vision if this project is that this project will allow the North/West Passage member states to continue development on a system that one day will allow commercial vehicle carriers to obtain basic oversize/overweight permits for the entire North/West Passage Corridor at a 'one-stop-shop'.
Budget	\$25,000
Background / Current Status	The North/West Passage group recently completed Phase 1 of a regional permitting project. The project researched existing regional permitting compacts, gained information through outreach to NWP states and the trucking industry, and formulated ideas for moving towards regional permitting. Phase 2 focuses on moving recommendations from Phase 1 forward.
Approach	Task 1: Continue with quarterly NWP Regional Permitting subcommittee meetings to provide a forum for discussing issues and uniformity with Regional Permitting and to gather ideas for moving regionally permitting beyond WASHTO Task 2: Work with the 5 NWP states that are not part of WASHTO to make a decision to join WASHTO Task 3: Research MN and ND Virtual Permitting

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix A**

Project Title	5.6 Facilitating the Use of Open Source Software Throughout the Corridor
Project Champion	Vince Garcia, WYDOT
Project Purpose	This project will help advance the concept of open source software throughout the corridor to help reduce the costs of developing and maintaining software systems.
Budget	\$30,000
Background / Current Status	<p>Mn/DOT has developed their traffic management center software using in-house developers; with no reliance on commercial proprietary systems. This means that other NWP states could receive the software from Mn/DOT at no cost, and then hire software companies to integrate and even add functionality to the software.</p> <p>This project would help educate the North/West Passage states on how to acquire, modify, maintain and integrate open source software. The IRIS software is only one example of open source software where the source code is available at no cost.</p>
Approach	This project would use the IRIS software as a model and work with each member state to determine if IRIS is an option to be deployed within the state. In doing so, each state will interact with experts who will explain the differences and similarities in procuring, developing and maintaining open source software.

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix B**

This appendix contains the details of projects not selected for Work Plan 5. The projects are documented here for future work plan reference and for further consideration should additional funding become available to the North/West Passage states.

Project Title	Corridor-Wide Marketing and Outreach to CVOs
Project Champion	TBD
Project Purpose	The purpose of this project is to establish brand recognition for the North/West Passage corridor and to initiate outreach and education to the commercial vehicle operators (CVOs) that travel the corridor regularly.
Budget	\$35,000
Background / Current Status	The first task of this project would be to assess the current communication channels that exist with commercial vehicle carriers (both real-time and periodic communication) in an effort to develop a market outreach plan. In addition, the public affairs coordinators in each member state likely will have established procedures and processes that must be respected, and in many cases, can be leveraged to accomplish this project.
Approach	Marketing to CVOs along the corridor should begin with an initial stage to develop a marketing plan. This plan should consist of defining “who” the primary target audience is. Then the North/West Passage members should develop and reach consensus on “what” messages are to be conveyed to the primary audience (e.g., one option might be that the message is to inform them of the North/West Passage website and the ability to call transfer to any North/West Passage state by calling 511). Then the market outreach effort should define “how” the communication will be performed. This is where the existing communication channels (and use of flyers, web announcements, press releases, or media outlets) also will be utilized. The second phase of the project should focus on performing the outreach to commercial vehicle carriers by executing the marketing plan.

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix B**

Project Title	North/West Passage Regional Coordination
Project Champion	Wisconsin
Project Purpose	To develop a regional coordination structure that utilizes sub-committees that meet quarterly and report back to the NW Passage Committee during CWG meetings focusing on operations and maintenance.
Budget	Existing hours (meeting attendance) and Administration (Printing and Document preparation)
Background / Current Status	This concept has been used by other multi-state coalitions to allow corridors spanning numerous states to develop strategies and plans focused on incorporating the operations of the interstate system into a multi-state structure.
Approach	<p>Regional subcommittees would discuss cross-border operations, traveler information, construction information, service patrols, emergency coordination, freight movement, standardization of TIM, and other regional issues on a periodic basis utilizing existing relationships where possible and developing new committees where needed.</p> <p>To leverage existing relationships, a NW Passage representative would serve as a liaison between the state level groups and NW Passage. For new sub-committees, a NW Passage representative from one of the NW Passage states would facilitate meetings at the field and operations level.</p> <p>Each subcommittee/group would report updates to the NW Passage CWG during conference calls and a face-to-face meeting would occur at the Annual Meeting.</p> <p>The NW Passage CWG would serve as an overarching parent organization that would help coordinate corridor-wide operations management, contact with other corridors (such as: LMIGA, I-5 Corridor, Mississippi Valley) and investigate future funding opportunities with FHWA for regional level projects (planning, operational, and construction). This concept would help establish the NW Passage as a resource that would permeate throughout the State DOTs expanding its influence.</p>

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix B**

Project Title	Support Cross Border 511 Unsolicited Proposal
Project Champion	TBD
Project Purpose	Support the Cross Border 511 Project if funded by USDOT
Budget	\$75,000
Background / Current Status	The North/West Passage Pooled Fund is seeking USDOT funding to allow the member agencies to demonstrate the feasibility of a truly multi-vendor / multi-agency data exchange system to support cross border travel information dissemination. The Cross Border 511 Project will also fully document the lessons learned, challenges, benefits, and pitfalls of multiple vendors and multiple states exchanging real-time data to support travel information, serving as a demonstration site for other agencies considering similar deployments.
Approach	Provide overall guidance and financially contribute to the Cross Border 511 Project if a match is required by the USDOT. <i>Note: Feedback from the USDOT was not received before final selection of the North/West Passage projects.</i>

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix B**

Project Title	North/West Passage Traveler Information Website – Phase 3
Project Champion	TBD
Project Purpose	Enhance www.i90i94travelinfo.com by adding corridor-wide major event descriptions on the overall corridor map display.
Budget	\$175,000
Background / Current Status	Phase 1 of www.i90i94travelinfo.com created a high-level traveler information website. Another project completed by the North/West Passage states also developed a listing of consistent road condition descriptors, which will be used in this project as the basis for displaying alerts. Phase 2 of the website is a mandatory phase before this phase and will establish links to all North/West Passage state reporting systems to exchange notification of major events.
Approach	The Phase 3 of the North/West Passage traveler information website will establish center-to-center event exchange and filtering to populate www.i90i94travelinfo.com with real-time major event descriptions. Challenges facing Phase 3 will include the selection of icons for the map, determining whether road and driving conditions are shown as icons or as colored roadways, and determining how many events/icons to show on the highest level corridor map. Additionally, the location descriptions (and each state’s ability to geo-reference the events) will be critical to the success of this project.

**North/West Passage Transportation Pooled Fund
Work Plan 5
Appendix B**

Project Title	Rural Congestion
Project Champion	Bob Koeberlein
Project Purpose	Develop a definition for rural congestion Develop processes for identifying and quantifying rural congestion
Budget	\$35,000
Background / Current Status	Rural congestion occurs in all rural states and may be the result of high commercial vehicle volumes and limited passing opportunities or other factors that cause extended slow moving platoons. Currently there aren't common metrics for describing or quantifying rural congestion
Approach	<ol style="list-style-type: none"> 1. Literature search 2. Interview 3-4 rural state ITS engineers 3. Develop rural congestion definition 4. Submit definition for comments 5. Develop methodology for quantifying rural congestion (delay hours, costs) 6. Submit methodology for comments 7. Submit final report