NORTH/WEST PASSAGE

Transportation Pooled Fund Study TPF-5(376)

FINAL Work Plan 14

North/West
Passage

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TRANSPORTATION POOLED FUND STUDY TPF-5(376)

BACKGROUND

Interstates 90 and 94 between Minnesota 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 for Intelligent Transportation System (ITS) deployment to address these issues, 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 (TPF-5(093)) in 2003 through the Federal Highway Administration (FHWA). The TPF number was then changed to TPF-5 (190) when FHWA transitioned to a new reporting system. In 2019 TPF-5 (190) was closed out and a new number was assigned (TPF-5(376)).

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 North/West Passage Corridor has developed an ITS Integrated Strategic Plan and has successfully implemented twelve work plans. Currently the group is completing its thirteenth work plan consisting of four projects. Complete details on previous work plans and individual projects are available through the program web site at www.nwpassage.info.

ACCOMPLISHMENTS

The North/West Passage has completed a number of projects since its inception in 2003, the following bullets highlight some of accomplishments of the corridor:
- Best of ITS Rural Award recipient in 2010.
- Development of one proposal to hire a contractor to perform work in two states.
- Each state uses their own phrases to describe road events. NWP defined and agreed upon a set of consistent event description phrases to use across the I-90 and I-94 corridor.
- Provided a forum for state patrol/police and DOT staff to discuss integration of systems.
- Held a workshop to create action plans for increased cross-border operation and maintenance collaboration.
- Participated in the USDOT Clarus initiative that developed a corridor Concept of Operations.
- Signed a Corridor-Wide MOU for coordination of traveler information.
- Created a benefit/cost spreadsheet tool for typical rural ITS projects.
- Researched freight funding opportunities, truck platooning and parking for the NWP states.

- Evaluated traveler information tools and coordination during major events.
- Documented how each state plans and prioritizes ITS deployments.
- Assessed each state's conformance to SAFETEA-LU 1201 regarding real-time system management information program.
- Federal Grant: Multistate Corridor Operations and Management Program (MCOM) recipient.
- Held peer exchanges on the development of a concept for rural TMC/TOC operations, variable speed limits, DOT efficiencies, TSMO practices, plow cameras, and protest management.
- Hosted a NWP Regional Operations Forum.
- Summarized NWP winter performance measures practices and approaches for forecasting road conditions.
- Evaluated Rural 511 Phone Service

FINANCIAL STATUS

North/West Passage members contribute $25,000 or more annually to the pooled fund and are reimbursed for program travel. The North/West Passage member agencies are anticipated to contribute financially to the projects included in this work plan.

PROJECTS

At the April 2019 North/West Passage Annual Meeting in Seattle, Washington 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 value to warrant continuation of the pooled fund. A list of prospective projects for Work Plan 14 was then discussed in detail. The prospective projects were based on member suggestions and the ITS Integrated Strategic Plan. These projects were scored at the annual meeting based on anticipated benefits to the corridor, likelihood of success, compatibility with vision and strategic plan, and timeliness of the project.

The voting results are presented in Table 1.

TABLE 1: VOTING RESULTS FOR WORK PLAN 14 PROJECTS

Project Name	Total Points Voted	Rank by Points
Operations Task Force – Year 7	641	1
Apply Wyoming DOT Connect Vehicle Pilot Project Results	608	2
North/West Passage Workforce Needs - Practices and Peer Exchange	601	3
DOT Traveler Information Website Crowd Sourcing Practices	593	4
Traveler Information Website Features Usage	589	5
Pathfinder Performance Measures and North/West Passage State Weather Messaging Peer Exchange	551	6
Freight Task Force	509	7
Truck Platooning Demonstration - Coordination Support	482	8

Mobile Data Management Practices	461	9
Implementing Steps for Virtual Weigh Stations	447	10
Technology Deployment Evaluation for Rural Interstates	380	11
Transportation Systems Management and Operations (TSMO) Practitioner Training	362	12
Traffic Incident Management Capability Maturity Framework (CMF) Workshop	323	13

After discussing the voting results, the states agreed to fund the five highest ranked projects and include the Freight Task Force with a budget of $0. The fourth year of the Freight Task Force from Work Plan 13 was delayed in starting and began in Summer 2019. The members will vote on the Freight Task Force – Year 5 during Work Plan 15 development.

Table 2 provides a funding plan for Work Plan 14 that includes several other expenses in addition to the projects selected through voting. Program administration support is as an overarching contractor task to support the Program Administrator and Chair with meeting preparations, writing conference papers, preparing presentations, maintaining progress reports, etc. The states are also planning their annual meeting in the coming year and the estimated cost noted below consists of associated travel expenses.

TABLE 2: WORK PLAN 14 FUNDING PLAN

Expense	Estimated Costs	Project Champion
Project Cost		
Project 14.1 Operations Task Force – Year 7	$25,000	Brandon Beise
Project 14.2 Apply Wyoming DOT Connected Vehicle Pilot Project Results	$40,000	Vince Garcia
Project 14.3 North/West Passage Workforce Needs – Practices and Peer Exchange	$25,000	Justin Belk
Project 14.4 DOT Traveler Information Website Crowd Sourcing Practices	$17,500	Tony Ernest
Project 14.5 Traveler Information Website Features Usage	$22,500	Tony Ernest and Christie Killeen
Project 14.6 Freight Task Force	$0	Dave Huft
Total Project Cost	**$130,000**	
Administrative Cost		
Program Administration Support	$ 30,000	
Program Website Maintenance (www.nwpassage.info)	$ 5,000	
Member Travel Support	$ 10,000	
Total Administrative Cost	**$ 45,000**	

Revenue		Estimated Revenue
State Contributions (7 states@ $25,000/state)		$ 175,000
Total (Revenue vs. Expenses)	**$ 175,000**	**$ 175,000**

The member 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 14.

The details of projects 14.1 – 14.6 are included below. For each project, a title, description, and champion are 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.

Project Title	14.1 Operations Task Force – Year 7
Project Champion	Brandon Beise, North Dakota DOT
Project Purpose	To continue meeting as a task force for another year.
Budget	$25,000
Background	North/West Passage has supported an Operations Task Force for six years. Following are highlights from each year. - Year 1 (October 2013 – August 2014) 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. - Year 2 (August 2014 – August 2015) Webinars focused on a variety of topics including ITS deployment plans, API use among states, approaches to 24/7 staffing and citizen reporting and other crowd sources. The Operations Task Force also hosted a Regional Operations Forum on May 13-15, 2015. - Year 3 (August 2015 – August 2016) Explored third party data providers to better understand the data they provide, summarized ITS deployments for operations, and conducted a Technician's Forum. - Year 4 (August 2016 – August 2017) Discussed color DMS use, working with law enforcement, interpreting DMS guidelines, ITS asset management, and conducted a Technician's Forum. - Year 5 (August 2017 – August 2018) Conducted a Technician's Forum, hosted a peer exchange on camera placement, integration and maintenance experiences, and hosted a webinar on protest management experiences. - Year 6 (August 2018 – August 2019) Conducted a Pathfinder Peer Exchange and Wyoming DOT provided an update on their connected vehicle pilot project. The intent of the task force is to:

	• Establish relationships
	• Enhance the scope of operations-oriented projects
	• Support further implementation of project findings
	• Increase interaction among the states outside of major events.
Approach	• Develop a webinar schedule for a year that identifies operations-oriented topics to be discussed during periodic webinars. Webinar topics may also include maintenance operations (snow and ice) and Transportation Systems Management and Operations (TSMO).
	• Schedule task force meetings for the year. Longer meetings will be scheduled as needed to facilitate more in-depth discussion about select topics.
	• Prepare, gather information, coordinate speakers, facilitate, and conduct task force meetings.

Project Title	**14.2 Apply Wyoming DOT Connected Vehicle Pilot Project Results**
Project Champion	Vince Garcia, Wyoming DOT
Project Purpose	To expand the use of the situational data warehouse developed by the Wyoming Connected Vehicle Pilot to other North/West Passage members.
Budget	$40,000
Background	The Wyoming DOT was one of three agencies awarded cooperative agreements from the USDOT to implement a suite of connected vehicle applications and technologies to meet their region's unique transportation needs.
	During the March 2019 NWP Operations Task Force meeting, Wyoming DOT provided an update on their connected vehicle pilot effort. The North/West Passage member states are interested in identifying if results and lessons learned from this pilot deployment could be applied to the North/West Passage corridor or individual states.
	The architecture of the Wyoming CV Pilot deployment included development of a situational data warehouse. The sources of data to this data warehouse include data collected by connected vehicles, weather data from the Pikalert system, incident information, work zone data, and parking information.
	This situational data warehouse could support other NWP states, allowing them to post their data to this system and to access Wyoming's data, effectively expanding to a connected vehicle data source for the NWP corridor. The data warehouse can support a lot of functions, including fleet operators downloading data and infrastructure to vehicle communications.

	This project will allow NWP members to understand the potential of using and expanding this warehouse, while also understanding the ongoing cost implications (both for operations of the warehouse and connections to the warehouse).
Approach	• Arrange for a detailed webinar to North/West Passage members on the situational data warehouse.
	• Work with North/West Passage members to understand the role of the situational data warehouse, both in regard to individual members states and to the corridor as a whole.
	• Arrange a demonstration of a North/West Passage member state beyond Wyoming interacting with the data warehouse (uploading or downloading data) as an illustrative example of the process and value of data.
	• Develop a conceptual plan for how the warehouse could be utilized by North/West Passage members and expanded to support members' uploads and downloads of data (if expansion is needed).
	• Document a business model to allow the NWP members to reach a decision about a "go/no-go" decision to pursue the use of the data warehouse.

Project Title	**14.3 North/West Passage Workforce Needs – Practices and Peer Exchange**
Project Champion	Justin Belk, Washington State DOT
Project Purpose	To document NWP member states workforce practices as well as practices from other states, conduct a peer exchange webinar, and identify potential next steps
Budget	$25,000
Background	There are changes in workforce needs among the NWP states with impacts of new and evolving technologies (e.g. CAV), staff turnover, retirement etc. There are also challenges with training staff on increasing systems and technology. Many personnel systems were established with an engineering layer, but not a technical layer. In some situations, degree requirements and licensing for job position eliminates applicants.
Approach	• Document changing workforce challenges and needs (e.g. more data management, more technology maintenance and repairs, struggles with hiring equipment maintenance staff) and current practices with each North/West Passage member state through phone interviews.
	• Conduct outreach to national TSMO efforts such as the CTSO Annual Meeting, ROLFs, etc. to request best practices.
	• Summarize challenges, solutions, and practices. Conduct a peer exchange to share information gathered and discuss future NWP projects to bridge the gaps.

	• Summarize challenges, solutions, practices, and potential next steps

Project Title	14.4 DOT Traveler Information Website Crowd Sourcing Practices
Project Champion	Tony Ernest, Idaho Transportation Department
Project Purpose	To understand traveler information crowd sourcing on DOT traveler information websites.
Budget	$17,500
Background	Some state DOT traveler information websites allow citizens to validate reports (e.g. Idaho Transportation Department, Minnesota DOT). However, in certain circumstances this can be misleading or incorrect. For example, a DOT reports that a section of road is snow covered. A citizen views a DOT camera view close to the location and observes that the road is dry. However, just over the hill not in the camera view it may be wintery conditions. In this situation, if the citizen indicates the report isn't valid it provides others with incorrect information. Third Party traveler information data providers also provide crowd sourcing to validate reports (e.g. Waze) and some DOTs ingest data from crowd sourcing companies as an additional source of information.
Approach	• Identify state DOTs that allow citizens to validate DOT reports on their traveler information websites. • Identify state DOTs that ingest Third Party Data (e.g. Waze) and display the reports on DOT traveler information websites. • Conduct a phone interview with selected state DOTs that allow citizens to validate DOT traveler information reports or ingest Third Party Data to understand what works well, issues, filtering, etc. This will include developing a list of questions to guide the discussion. • Prepare a draft and final summary report documenting information gathered.

Project Title	14.5 Traveler Information Website Features and Usage
Project Champion	Tony Ernest, Idaho Transportation Department and Christie Killeen, Montana DOT
Project Purpose	To document the similarities, differences, and usage of traveler information website features among the North/West Passage states for consideration as modifications are made to their websites.
Budget	$22,500

Background	Each North/West Passage state operates and maintains a traveler information website. The features and usage among the websites may vary.
	• Minnesota DOT • North Dakota DOT • South Dakota DOT • Montana DOT • Idaho Transportation Department • Wyoming DOT • Washington DOT
Approach	• Document traveler information items displayed on each North/West Passage state's traveler information website. • Contact each North/West Passage member state via phone or email to gather usage data on features displayed on their traveler information websites (e.g. priorities in displaying data, number of hits on a camera). • Document traveler information feature similarities, differences, and usage among the North/West Passage states. • Conduct a webinar with the traveler information managers in each member state to present the information collected and provide an opportunity for discussion among states. • Prepare a draft and final summary report.

Project Title	14.6 Freight Task Force
Project Champion	Dave Huft, South Dakota DOT
Project Purpose	Placeholder for the Freight Task Force to meet for another year.
Budget	$0
Background	North/West Passage has supported a Freight Task Force for three years where the intent of the task force is to enhance North/West Passage activities with the freight community and efforts. • Year 1 – Provided a more in-depth expertise on the states' individual freight issues and activities and on the approaches that North/West Passage could pursue to better understand and address freight needs in future projects. • Year 2 – Focused on supporting active engagement of Freight Task Force members, conducted best practice (and practical) research on project funding opportunities, helped refine the truck parking concept so that it best fits North/West Passage needs, and conducted exploratory research on truck platooning for the North/West Passage corridor.

	• Year 3 – Focusing on truck platooning regulations and virtual weigh stations.
	Year 4 of the Freight Task Force from Work Plan 13 was delayed in starting and will begin in Summer 2019. The members will vote on the Freight Task Force – Year 5 during Work Plan 15 development.
Approach	• N/A