

# NORTH/WEST PASSAGE



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Transportation Pooled Fund Study TPF-5(376)

**FINAL Work Plan 17**

# North/West Passage

## 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.

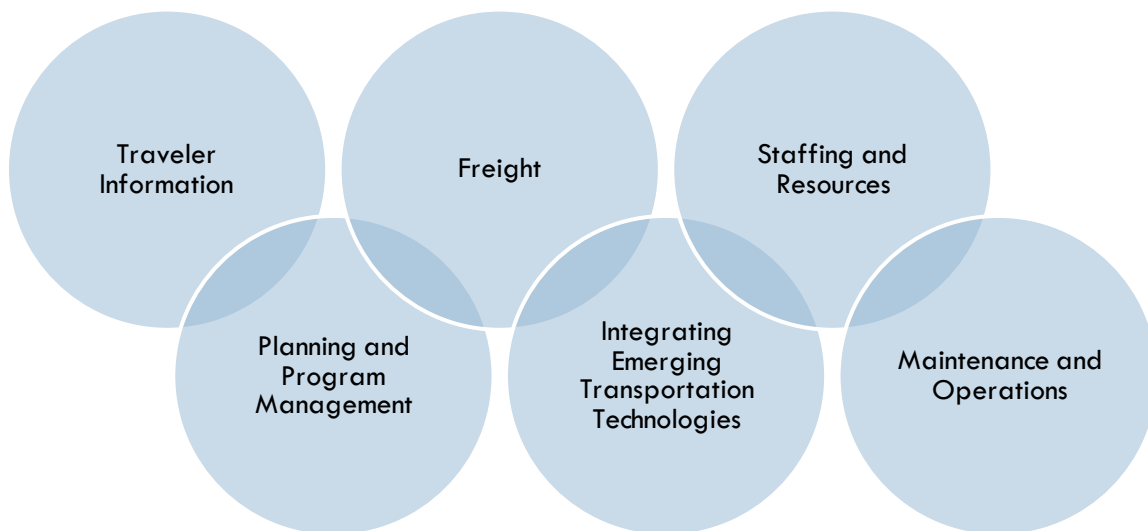
Recognizing the value of coordinated, cross-border collaboration for Intelligent Transportation System (ITS) deployment to address these issues, Minnesota initiated a meeting in 2002 with representatives from each of the states within the corridor. The group established itself as a Transportation Pooled 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, operational activities, and emerging technologies across state and provincial borders.

The North/West Passage Corridor has developed an ITS Integrated Strategic Plan and has successfully implemented fifteen work plans. Currently the group is completing its sixteenth work plan consisting of five projects. Complete details on previous work plans and individual projects are available through the program web site at [www.nwpassage.info](http://www.nwpassage.info).

### FOCUS AREAS

North/West Passage projects selected annually are focused around six areas. See Figure 1. Members review common issues, problems, or needs around each focus area to assist in identifying project ideas of interest. It is important to note that Integrating Emerging Transportation Technologies incorporates Connected and Automated Vehicle project ideas.



**Figure 1: North/West Passage Focus Areas**

## **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:

- Conducted numerous webinars and peer exchanges on operations, maintenance and Transportation Systems Management and Operations (TSMO) related topics.
- Conduct annual technician's forum.
- Documented and shared COVID-19 responses.
- Documented workforce practices.
- Examined crowdsourcing practices.
- Examined similarities, differences, and usage of state DOT traveler information website features.
- Best of ITS Rural Award recipient in 2010.
- Development of one proposal to hire a contractor to perform work in two states.
- 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.
- Identified day-one activities members may consider to deploy and support connected and automated vehicles by using existing resources and support options.
- 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 using automated driving systems (ADS), and parking for the North/West Passage states.
- Documented how each state plans and prioritizes ITS deployments.

- Federal Grant: Multistate Corridor Operations and Management Program (MCOM) recipient.
- Hosted a North/West Passage Regional Operations Forum.
- Summarized North/West Passage winter performance measures practices, approaches for forecasting road conditions, and level of service/recovery approaches.
- Evaluated Rural 511 Phone Service.
- Documented current work zone practices of member states.

## 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 2022 North/West Passage Annual Meeting, held in Helena, Montana, 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 17 was then discussed in detail. The prospective projects were based on member suggestions and the ITS Integrated Strategic Plan and corresponding updates. 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 17 PROJECTS**

Project Name	Total Points Voted	Rank by Points
Operations Task Force – Year 10	690	1
Freight Task Force – Year 7	625	2
Benefits of Traveler Information Provided by DOTs	596	3
Communicating Route Restrictions to Third Party Mapping/Navigation Providers	594	4
Situational Data Exchange (SDX) – Phase 3	552	5
Activity to Support the Work Zone Data Initiative – Phase 2	550	6
Current Practices in Expanding DOT Traveler Information Coverage	518	7
Expand Test of Travel Speeds as Measure of Level of Service (LOS) and/or Recovery Time	497	8
State Facility Assessment for Truck Parking and Other Uses	489	9
Freight System Resiliency Assessment	489	10
Increase Automation of Current Data Collection to Support Winter Performance Measures of the corridor	481	11
Workforce Practices	481	12
North/West Passage Connected and Automated Vehicle (CAV) Readiness: Pavement Markings	469	13
North/West Passage CAV Priority Areas Readiness Assessment	465	14
Broad Freight Commodity Assessment	409	15
North/West Passage State Plans	401	16
Predictive Performance Management and Integration into Winter Maintenance Activities	389	17

After discussing the voting results, the states agreed to the following approach to technical projects for this workplan:

- The seven highest ranked projects will be funded with contributions for this work plan period;
- The eighth highest ranked project (Expand Test of Travel Speeds as Measure of LOS and/or Recovery Time) will be submitted to the Clear Roads Pooled Fund Study as a project idea for their consideration; and
- As the earlier work plan projects are closed out and an accurate account for the balance brought forward is determined, if there are funds available, it will be determined at that time to fund an additional project as part of Work Plan 17. Because the eighth highest ranking project is being suggested for consideration by the Clear Roads PFS, the additional project will be either the project titled State Facility Assessment for Truck Parking and Other Uses or the project titled Freight System Resiliency Assessment (i.e., both projects received the same number of votes and ranked ninth). If the total value of the funds is not sufficient to

support one of these projects, the available funds may be added to the Freight Task Force to be used to organize and plan a future Freight Task Force in-person meeting.

An amendment to this work plan will be developed if the additional project and/or Freight Task Force funding is added.

Table 2 provides a funding plan for Work Plan 17 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 17 FUNDING PLAN**

Expense	Estimated Costs	Project Champion(s)
<b>Project Cost</b>		
Project 17.1 Operations Task Force – Year 10	\$25,000	Brandon Beise, NDDOT
Project 17.2 Freight Task Force – Year 7	\$15,000	Dave Huft, SDDOT
Project 17.3 Benefits of Traveler Information Provided by DOTs	\$20,000	Cory Johnson, MnDOT
Project 17.4 Communicating Route Restrictions to Third Party Mapping/Navigation Providers	\$15,000	Brandon Beise, NDDOT
Project 17.5 SDX – Phase 3	\$20,000	Vince Garcia, WYDOT
Project 17.6 Activity to Support the Work Zone Data Initiative – Phase 2	\$20,000	Justin Belk, WSDOT
Project 17.7 Current Practices in Expanding DOT Traveler Information Coverage	\$20,000	Mike Warren, MDT
<b>Total Project Cost</b>	<b>\$135,000</b>	
<b>Administrative Cost</b>		
Program Administration Support	\$ 30,000	
Program Website Maintenance ( <a href="http://www.nwpassage.info">www.nwpassage.info</a> )	\$ 5,000	
Member Travel Support	\$ 15,000	
<b>Total Administrative Cost</b>	<b>\$ 50,000</b>	
<b>Revenue</b>		<b>Estimated Revenue</b>
State Contributions (7 states@ \$25,000/state)		\$ 175,000
Work Plan 16 Travel (met via webinar)		\$10,000
<b>Total (Revenue vs. Expenses)</b>		<b>\$ 185,000</b>

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 17.

The details of projects 17.1 – 17.7 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. Also identified for each project is which focus area (Figure 1) the project is related to.

<b>Project Title</b>	<b>17.1 Operations Task Force – Year 10</b>
<b>Project Champion</b>	Brandon Beise, North Dakota DOT
<b>Project Purpose</b>	To continue meeting as a task force for another year (September 2022 – August 2023).
<b>Budget</b>	\$25,000
<b>Background</b>	<p>North/West Passage has supported an Operations Task Force for nine years. Since Year 2 the task force has conducted a major event, winter, and flood season review for members to update each other on each winter season. Starting in Year 4, North/West Passage conducted an annual Technician’s Forum to provide technicians with an opportunity to talk with each other and learn about ITS deployments in other states. Following are highlights from each year.</p> <ul style="list-style-type: none"> <li>• <u>Year 1</u> (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.</li> <li>• <u>Year 2</u> (September 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.</li> <li>• <u>Year 3</u> (September 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.</li> <li>• <u>Year 4</u> (September 2016 – August 2017) Discussed color DMS use, working with law enforcement, interpreting DMS guidelines, ITS asset management, and conducted a Technician’s Forum.</li> <li>• <u>Year 5</u> (September 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.</li> <li>• <u>Year 6</u> (September 2018 – August 2019) Conducted a Pathfinder Peer Exchange and Wyoming DOT provided an update on their connected vehicle pilot project.</li> <li>• <u>Year 7</u> (September 2019 – August 2020) Conducted webinars including plow hit experiences and traveler information experiences.</li> <li>• <u>Year 8</u> (September 2020 – August 2021) Conducted webinars on sunseting technologies, small cell deployments in the right-of-way, FCC rule making and reallocating the spectrum, and MnDOT’s fiber planning exercise.</li> </ul>



	<ul style="list-style-type: none"> <li>• <u>Year 9</u> (September 2021 – August 2022) Conducted webinars on advancements in winter operations, worker presence activities, NDDOT autonomous ditch mower, rural traffic incident management, and closing roads without gates or barricades.</li> </ul> <p>The intent of the task force is to:</p> <ul style="list-style-type: none"> <li>• Establish relationships</li> <li>• Enhance the scope of operations-oriented projects</li> <li>• Support further implementation of project findings</li> <li>• Increase interaction among the states outside of major events.</li> </ul>
<b>Approach</b>	<ul style="list-style-type: none"> <li>• <b>Task 1: Task Force Schedule:</b> Develop a webinar schedule that identifies operations oriented, TSMO, and maintenance operations topics. Schedule task force meetings for the year. Longer meetings will be scheduled as needed to facilitate more in-depth discussion about select topics. Topics to consider include:             <ul style="list-style-type: none"> <li>○ <i>Effectiveness of Transportation Management Centers:</i> North/West Passage states (Wyoming, Montana, Minnesota, and Washington) present on how TMC effectiveness is measured (e.g., track phone calls, number of times a road segment is updated).</li> <li>○ <i>4-inch to 6-inch Pavement Markings Towards CAV Readiness:</i> Minnesota DOT present their activities and current progress on moving from 4-inch pavement markings to 6-inch pavement markings. North/West Passage members will be asked to share their pavement markings status including any actions or considerations they have given to this.</li> </ul> </li> <li>• <b>Task 2: Conduct Webinars:</b> Prepare, gather information, facilitate, and conduct task force webinars.</li> <li>• <b>Task 3: Conduct Webinars:</b> Post recordings and webinar presentations on the Operations Task Force webpage.</li> </ul>
<b>Focus Area(s)</b>	Maintenance and Operations

<b>Project Title</b>	<b>17.2 Freight Task Force – Year 7</b>
<b>Project Champion</b>	Dave Huft, South Dakota DOT
<b>Project Purpose</b>	To continue meeting as a task force for another year (2022-2023).
<b>Budget</b>	\$15,000
<b>Background</b>	<p>North/West Passage has supported a Freight Task Force for six years, where the task force intends to enhance North/West Passage activities and build a freight community. Key activities have included:</p> <ul style="list-style-type: none"> <li>• Conducted informational web meetings on topics of interest to the North/West Passage members.</li> <li>• Conducted best practice (and practical) research on project funding opportunities.</li> <li>• Identified truck parking opportunities to best fit North/West Passage needs.</li> <li>• Conducted exploratory research on the truck platooning concept, regulations, and supported the engagement of stakeholders to advance a multi-state truck platooning demonstration.</li> <li>• Conducted an assessment of virtual weigh stations and applications for the North/West Passage.</li> <li>• Identified opportunities to improve the Commercial Motor Vehicle (CMV) travel experience across state lines by streamlining the e-screening process and identifying information-sharing needs and issues.</li> </ul>
<b>Approach</b>	<p>Ongoing Freight Task Force Support in Year 7 includes:</p> <ul style="list-style-type: none"> <li>• Maintain the task force memberships list with input from the project champion,</li> <li>• Prepare, gather information, facilitate, and conduct task force meetings, including informational web meetings,</li> <li>• Schedule task force meetings periodically throughout the year to provide an opportunity for task force members to guide and provide input to work plan projects, and</li> <li>• Other support, as needed.</li> </ul> <p>A facilitated, in-person “Peer Exchange” to broaden state freight connections has been considered in prior years but has been placed on hold due to COVID-19. This activity may be revisited in Year 7.</p>
<b>Focus Area</b>	Freight

<b>Project Title</b>	<b>17.3 Benefits of Traveler Information Provided by DOTs</b>
<b>Project Champion</b>	Cory Johnson, Minnesota DOT
<b>Project Purpose</b>	To research approaches towards quantifying and/or describing the benefits of traveler information provided by state DOTs.
<b>Budget</b>	\$20,000
<b>Background</b>	<p>There are many reasons why quantifying or documenting the benefits of state DOT operated traveler information systems is beneficial. These include:</p> <ul style="list-style-type: none"> <li>• Determining future funding needs for agency operated traveler information systems;</li> <li>• Deciding which features and functions of the traveler information system are most used and beneficial to support allocation of future funds;</li> <li>• Determining if any legacy functions or features should be revisited and possibly removed;</li> <li>• Understanding the impacts of Connected and Automated Vehicles on traveler information services; and</li> <li>• Responding to inquiries about the need for public traveler information systems when there are third-party traveler information systems available to the traveling public.</li> </ul> <p>However, quantifying and documenting the value of state DOT operated traveler information systems can be challenging. Early assessments of traveler information systems examined the number of 511 phone calls or number of web page visits. While these are still valuable, there are additional options that may offer better insights into the value and benefits of state DOT operated traveler information systems. Traditional benefit / cost comparisons are difficult as assigning a financial benefit to traveler information is not a simple task.</p>
<b>Approach</b>	<ul style="list-style-type: none"> <li>• <b>Task 1: Understanding of Needs for Traveler Information Benefit Analyses.</b> Efforts in Task 1 will document the North/West Passage members’ set of needs for documenting traveler information benefits. For example, one need for understanding the benefits is to justify future expenditures. In addition, benefit assessments can help traveler information programs identify changes needed to the system or better understand the users of the system. Finally, it may be that the primary reason for quantifying benefits is to respond to questions about the need for public traveler information systems.</li> </ul> <p>Task 1 will conclude with a brief summary describing “Why North/West Passage members need additional understanding of benefits of public operated traveler information systems.”</p>

	<ul style="list-style-type: none"> <li>• <b>Task 2: Options for Quantifying Traveler Information Benefits.</b> In Task 2, activities will research and identify options for describing benefits of public operated traveler information systems, including:             <ul style="list-style-type: none"> <li>○ <i>Differences in the public traveler information and private traveler information roles.</i> It is important to recognize the different roles of public vs. private traveler information systems and documenting these may help to describe benefits of public systems.</li> <li>○ <i>Measures for assessing traveler information benefits.</i> In the early days of traveler information, key measures included counting phone calls to 511 systems or web page visits. New uses of Apps has changed the measures and there are new ways to document the use of traveler information systems. As the use of connected and automated vehicles increases, assessment of benefits of traveler information may change as well.</li> </ul> </li> <li>• <b>Task 3: Draft and Final Project Summary.</b> Prepare a draft project summary of information gathered from all project tasks. The comments received will then be incorporated into a final project summary.</li> </ul>
<b>Focus Area</b>	Traveler Information

<b>Project Title</b>	<b>17.4 Communicating Route Restrictions to Third Party Mapping/Navigation Providers</b>
<b>Project Champion</b>	Brandon Beise, North Dakota DOT
<b>Project Purpose</b>	To engage with third party mapping/navigation providers to attempt to avoid or minimize situations where navigation systems advise drivers to divert onto inappropriate routes during highway closures. Additionally, this challenge may increase as Connected Vehicle on-board applications increasingly interact with drivers and/or if Automated Vehicles use roadway closure and delay information.
<b>Budget</b>	\$15,000
<b>Background</b>	<p>Feedback from North/West Passage members has indicated that during times when a stretch of highway is closed or when travel delays are excessive, travelers using third-party mapping/navigation systems are sometimes advised to detour onto routes that are not safe or appropriate for their travel (e.g., geometry of the road may not support the size of the vehicle, or the diversion routes may not have been cleared of snow or other conditions).</p> <p>To attempt to avoid or minimize these situations, this project will summarize the risks and challenges with automated re-routing. Then, this project will conduct outreach to known mapping/navigation companies with the intent of initiating discussions to both inform them of the challenges and risks as well as to discuss possible solutions (e.g., if supplemental DOT reports are possible that could assist navigation systems in avoiding these situations).</p> <p>In November 2019 the National Operations Center of Excellence (NOCoE) held a webinar, <a href="#"><u>Adventures in Crowdsourcing: Engaging Navigation Providers</u></a>, related to the focus of this project. This as well as other related efforts will be considered for this project. For example, the ENTERPRISE Pooled Fund Study recently completed a project, <i>Establishing a Framework for Communicating Map Updates to Mapping Companies</i>, to develop a consistent communication approach for providing transportation agency map updates to mapping/navigation companies that utilize DOT-generated data for various applications such as route guidance. A similar approach of outreach and collaboration with the navigation companies will we used in this project. Additionally, this project will outreach to The Eastern Transportation Coalition (TETC) as it is understood they are initiating an effort to identify standard information fields for states to provide to mapping companies.</p>
<b>Approach</b>	<ul style="list-style-type: none"> <li>• <b>Task 1: Defining the Challenges</b> Efforts in Task 1 will include a discussion with North/West Passage members to understand the challenges with mapping/navigation companies guiding travelers to unsafe roads. A concise (e.g., one to two page) summary of the situation that occurs and the challenges/risks that result will be prepared to capture the collaborative insight of all members. This summary will also include candidate options for solving the challenge, if they can be agreed by member input.</li> <li>• <b>Task 2: Outreach to Mapping/Navigation Companies.</b> In Task 2, select navigation/mapping companies will be contacted via email or phone to describe the challenges and initiate a discussion about possible solutions. The summary of the</li> </ul>

	<p>situation prepared in Task 1 will be used to consistently explain the challenges to the mapping/navigation companies and to initiate discussion around possible solutions.</p> <ul style="list-style-type: none"><li>• <b>Task 3: Draft and Final Project Summary.</b> Efforts in Task 3 will summarize the process, include the summary prepared in Task 1, and describe the interactions and progress made with the mapping/navigation providers. Prepare a draft project summary of information gathered from all project tasks. The comments received will then be incorporated into a final project summary.</li></ul>
<b>Focus Area</b>	Maintenance and Operations, Traveler Information, Freight

<b>Project Title</b>	<b>17.5 SDX – Phase 3</b>
<b>Project Champion</b>	Vince Garcia, Wyoming DOT
<b>Project Purpose</b>	Automating the WZDx ingest of state feeds to the SDX.
<b>Budget</b>	\$20,000
<b>Background</b>	<p>North/West Passage has completed two SDX phases.</p> <ul style="list-style-type: none"> <li>• <u>Project 14.2: SDX – Phase 1</u> provided an understanding of the potential use and expansion of Wyoming DOT’s SDX to other North/West Passage agencies while also understanding the ongoing cost implications (both for operations of the exchange and connections to the SDX).</li> <li>• <u>Project 15.3 SDX – Phase 2</u> expanded the SDX to other North/West Passage states based on the results from Project 14.2.</li> </ul>
<b>Approach</b>	<ul style="list-style-type: none"> <li>• <b>Task 1: WZDx Website Watcher Application.</b> This application monitors the USDOT published WZDx feed using the Feed Registry located at <a href="https://datahub.transportation.gov/Roadways-and-Bridges/Work-Zone-Data-Exchange-WZDx-Feed-Registry/69qe-yiui">https://datahub.transportation.gov/Roadways-and-Bridges/Work-Zone-Data-Exchange-WZDx-Feed-Registry/69qe-yiui</a> to determine all available feeds and automatically and incorporate them into the SDX system. This step is necessary for appropriate ingestion and separating later ingested messages into appropriate Organizations.             <ol style="list-style-type: none"> <li>1. Create new Azure Functions application</li> <li>2. Update structure in database to handle new feeds</li> <li>3. Compare known feeds (from database) to data scraped from WZDx publish endpoint</li> <li>4. Automatically adjust known feeds</li> </ol> </li> <li>• <b>Task 2: WZDx Ingest Application.</b> This application runs on a schedule, iterates over our known feeds and ingests accordingly.             <ol style="list-style-type: none"> <li>1. Create new Azure Functions application</li> <li>2. Schedule Function for appropriate timing (10 minutes)</li> <li>3. Pull all feeds from known endpoints in database</li> <li>4. Compare to WZDx messages in SDX</li> <li>5. Update messages as required</li> <li>6. Calculate geospatial referencing (for efficient querying) and update database</li> </ol> </li> </ul>
<b>Focus Area</b>	Integrating Emerging Transportation Technologies

<b>Project Title</b>	<b>17.6 Activity to Support the Work Zone Data Initiative – Phase 2</b>
<b>Project Champion</b>	Justin Belk, Washington State DOT
<b>Project Purpose</b>	To identify gaps between North/West Passage member states work zone reporting and the data elements included in the Work Zone Data Exchange (WZDx).
<b>Budget</b>	\$20,000
<b>Background</b>	<p>The WZDx offers a standard data exchange format for communicating work zone information and is increasing in popularity and use. There are various mandatory and optional fields in the WZDx. One approach state DOTs can use is to convert their current work zone data reports to the WZDx format, recognizing that several data fields may not be populated. However, an expected benefit of the WZDx is use by CAVs, and benefits will increase as additional data fields are populated. For example, “worker presence” is a field in the WZDx that could be very beneficial to in-vehicle applications that may warn drivers when workers are present. Identifying the actual lanes that are closed is another data element of the WZDx that would benefit drivers.</p> <p>The intent of this project is for North/West Passage members to better understand the gaps between their current work zone data reports and the data elements of the WZDx and to allow collaboration among members to discuss and ideally reach consensus about which fields are most beneficial to populate.</p> <p>North/West Passage completed a project (<a href="#">Project 13.4 NWP Traveler Information Work Zone Alerts Feasibility Study</a>) in November 2019 to track current national work zone data management efforts, including pilot activities and funding opportunities, and to document current practices in North/West Passage states. This report summarized the information gathered and shared by North/West Passage members on project webinars.</p> <p>Washington State DOT submitted a response to the <a href="#">WZDx grant demonstration</a> that tied in benefits to North/West Passage and was successful in receiving the grant (this is a Work Plan 15 project (Project 15.8) that includes some funding from North/West Passage to be used towards the match from this project. Minnesota DOT was also successful in receiving a grant.</p> <p>In addition, the Minnesota DOT completed a gap analysis as part of another project between Minnesota DOT work zone reports and the WZDx.</p>
<b>Approach</b>	<ul style="list-style-type: none"> <li>• <b>Task 1: Member States Work Zone Reports.</b> In Task 1 an interview, survey, and/or email will be used to document what elements each North/West Passage member state currently includes in their work zone reports.</li> <li>• <b>Task 2: What is Needed by the WZDx.</b> Task 2 will document the required and optional data elements defined in the most recent version of the WZDx specification</li> </ul>



	<p>(WZDx v.4.0 was released in December 2021, and later versions will be used for this task, as available).</p> <ul style="list-style-type: none"><li>• <b>Task 3: Gap Analysis.</b> Task 3 will summarize the gaps between the member states work zone data reports and the WZDx and conduct a series of discussions with members to review and prioritize which missing data elements should be prioritized as a goal to populate in order to produce WZDx messages that are as complete as possible. There will be trade offs that need to be discussed because populating additional data elements is not trivial. However, MnDOT has identified a roadmap of activities to increase the data elements they populate, and these (and other sources) can help the member understand these options.</li><li>• <b>Task 4: Draft and Final Project Summary.</b> Develop a draft and final project summary including the table of plans by state and commonalities, differences, and recommendations.</li></ul>
<b>Focus Area</b>	Integrating Emerging Transportation Technologies

<b>Project Title</b>	<b>17.7 Current Practices in Expanding DOT Traveler Information Coverage</b>
<b>Project Champion</b>	Mike Warren, Montana DOT
<b>Project Purpose</b>	To research and document current practices in expanding DOT traveler information reporting beyond state DOT maintained roads.
<b>Budget</b>	\$20,000
<b>Background</b>	<p>State DOTs typically operate and provide traveler information for state maintained and operated roads. A challenge of this is that the online maps (e.g., Google Maps) used to display conditions to travelers may include local roads, and travelers may interpret the lack of an event icon on a local road as clear conditions.</p> <p>Additionally, most trips start and end on local roads, therefore travelers would benefit if state DOT operated traveler information systems expanded to include additional roads beyond just state operated roads (e.g., to cover local county and city roads and roads in national parks and tribal lands).</p> <p>This project will research approaches used in other states to report on conditions beyond state DOT maintained roads, capturing any best practices and/or lessons learned to provide insight to help North/West Passage members consider implementing these in their states.</p>
<b>Approach</b>	<ul style="list-style-type: none"> <li>• <b>Task 1: Identify DOTs that provide traveler information for local roads, national parks, or tribal lands.</b> In this task, through an online review of DOT traveler information sites, as well as input from the Steering Committee, and possibly emails to traveler information coordinators in other states, a list of DOTs providing traveler information for local roads, national parks, or tribal lands will be identified.</li> <li>• <b>Task 2: Conduct Interviews.</b> In Task 2, an interview guide will be developed, and interviews will be scheduled with up to 4 agencies selected from Task 1 to understand the process, lessons learned, benefits etc. for expanding traveler information to local roads, national parks, and tribal lands. The information gathered will be presented to the Steering Committee.</li> <li>• <b>Task 3: Draft and Final Project Summary.</b> Prepare a draft project summary of information gathered from all project tasks. The comments received will then be incorporated into a final project summary.</li> </ul>
<b>Focus Area</b>	Traveler Information