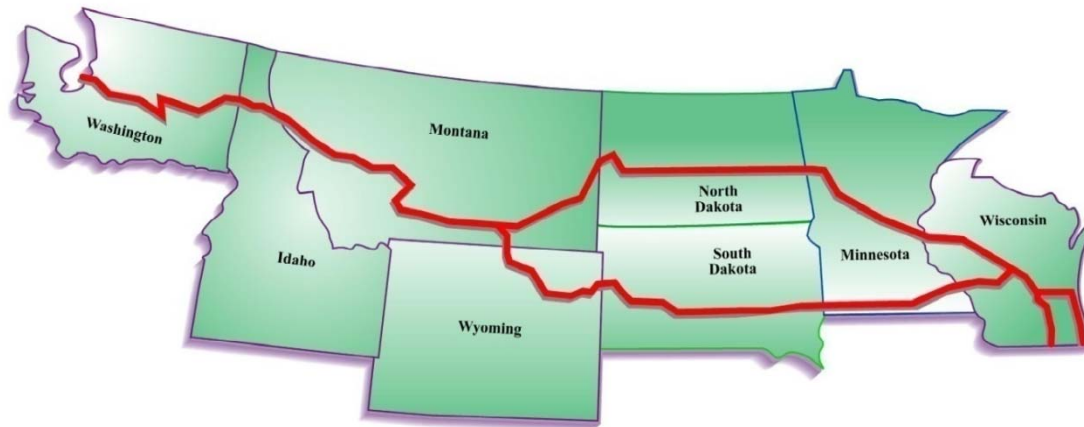


# A Multi-state Corridor Comprehensive Traveler Information System Defining Consistent Event Messages



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# Overview

- North/West Passage Background and Focus
- Current Situation
- Project Need
- Project Tasks
- Consistent Description Advantages
- Consistent Description Disadvantages
- Project Results
- Questions

# Background and Focus

- North/West Passage was established as FHWA Pooled Fund Study in 2003
- 8 State DOT Members along I-90 and I-94 (Washington to Wisconsin)
- Goals
  - Integrate traveler information systems that can provide information appropriate to the location and need of the traveler
  - Develop and promote cross-border jurisdictional cooperation and coordination in the planning, deployment, operations, and maintenance of ITS infrastructure
  - Integrate ITS projects for the North/West Passage Corridor into the state, regional, and local planning and programming processes

# Background and Focus

## Work Completed

- Phase I (3 states)
  - 9 Projects Completed
- Phase II (8 states)
  - ITS Integrated Corridor Strategic Plan
- Phase III (8 states)
  - **Corridor-Wide Consistent Major Event Descriptions**
  - Clarus Regional Demonstration ESS Metadata Development
  - CAD to Reporting Systems Integration Workshop
  - North/West Passage Traveler Information Web Site
  - Cross Border O & M Collaboration Workshop

# Current Situation

- Individually each state disseminates reports to traveler information websites and/or 511 phone systems
- Travelers must access separate phone and web systems for corridor conditions
- Each state is using one of the National ITS Standards for data exchange (different phrases from state to state)

# Project Need

- Disseminate Corridor-Wide Information to Travelers
- Standards Compliant Systems
- Define Consistent Event Description Phrases (when sharing messages between states)

## Sample of Ice-related Phrases

*Ice, Icy Patches, Black Ice, Ice Pellets,  
Ice Build Up, Wet and Icy Roads, Slush, Frozen Slush*

# Project Tasks

Task 1: Document Current Phrases used by each North/West Passage state for:

- Weather and Road Condition Information
- Incidents
- Road Restrictions
- Road Work

# Project Tasks

## Task 1 Results

- Weather and Road Condition Information provided the largest inconsistencies between states
  - Some states describe only observed conditions (packed snow, icy patches, wet roads)
  - One state defines a qualitative assessment (good, fair, difficult)
  - Some states describe best estimates of the performance of vehicles (slick spots, slippery roads)



# Project Tasks

## Task 1 Results (cont.)

- States are similar in the phrases used, but most states use numerous phrases to describe conditions

Weather Phrases Used By Individual States							
Wisconsin	Minnesota	North Dakota	South Dakota	Montana	Wyoming	Idaho	Washington
Weather Details are provided for Weather Stations throughout the state. - Location - Municipality - Time of Observation - Air Temp - Due Point - Relative Humidity - Avg Wind	- Rain - Light snow - Snow - Heavy Snow - Packed Snow - Packed Snow Patches - Slush - Slippery - Wet and icy roads - Icy patches - Ice - Black ice - Freezing rain - Freezing fog - Reduced visibility - Patchy fog - Drifting snow - Blowing snow - White out - Travel not advised	- Blowing Snow - Fog - Freezing Rain - None - Rain - Sleet - Snow - Snow/Rain <i>Visibility</i> - Clear - Reduced Zero <i>Traffic Speeds</i> - 25 MPH or Less - Normal Reduced	<i>Visibility</i> - Reduced Visibility - Dust - Smoke - Fog - Snow - Blowing Snow <i>Extents</i> - None - In Sheltered Areas - In Open Areas - In Low-Lying Areas - In Valleys - On Hills - Near the Lake <i>Enumeration</i> - Zero - Near Zero - Less Than 1/8 Mile - Less Than 1/4 Mile - Less Than 1/2 Mile Not Impacting Travel	- Snowing - Blowing and Drifting - Light Snow - Fog - Heavy Fog - Rain - Freezing Rain - Heavy Snow - New Snow - Poor Visibility - High Winds - High Wind Warning	- Favorable: <small>Occasional light shower possible.</small> - Snow: <small>Snow above isolated or occasional shower has potential to stick to road surface.</small> - Rain: <small>In excess of light showers with potential to make the road surface wet.</small> - Strong Wind: <small>Winds greater than 25 mph on slick roads or 35 mph on dry roads. (Report strong wind when wind affects driving ability.)</small> - Fog: <small>Fog that impairs visibility to less than 400 feet. (Note: See Delineator Spacing.)</small> - Blowing Snow: <small>Snow propelled by the wind across or along the road surface, at least 1 foot above the ground by definition. (Provide detail so severity can be determined)</small> - Limited Visibility: <small>Visibility less than 400 feet for any reason.</small>	- Clear - Cloudy - Rain - Heavy rain - Freezing rain - Rain and snow mixed - Light snow - Snow - Heavy snow - Patchy fog - Dense fog - Gusty winds - High winds AD = Avalanche danger AV = Avalanche BD = Blowing dust DR = Deer on roadway DS = Drifting snow RF = Rock fall RV = Reduced visibility SC = Snow chains recommended	- Clear skies - Rain - Snow - Rain and Snow Mixed - Ice - Drifting snow - Fog - Areas of fog

# Project Tasks

## Task 2: Document Current Standards

- Each state follows ATIS or TMDD
- Standards are flexible and allow multiple phrases to be used
- Inconsistencies in exchanging information between states

Example: Snow Storm in Fargo, ND/Moorhead, MN vicinity

*Fargo Operator: Snow*

*Moorhead Operator: Heavy Snow*

*Implies: Condition is better in Fargo, when in fact the two operators are describing the same condition*

# Project Tasks

## Task 3: Develop a Recommended Set of Consistent Event Descriptions

- Recommended/Translation Phrases Identified (most states don't want to give up current phrases)

# Project Tasks

## Task 3 Results

State	Road Work Phrases Currently Used by NWP States	Recommended NWP Phrase and Definition
Wisconsin		<p><b>Road Work</b>            Work is being performed on the roadway. This work may include typical maintenance activities, repairs, or the addition of lanes. Travelers should expect delays at times, and may encounter flaggers directing traffic.</p> <p>Ideally, this phrase would be accompanied by a qualifier describing the impacts to the travelers (in the form of delay, restrictions, or the use of detours).</p>
Minnesota	Road Construction, Construction Work	
North Dakota	Maintenance, Surfacing, Chip/Seal/Overlay	
South Dakota	Fresh Oil, Grading, Paving, Pavement Repair, Striping	
Montana	Fresh Oil, Crack Sealing, Grading, Striping, Chip Sealing, Overlay, Milling, Rut Filling, Rumble Strip, Paving, Guardrail, Shoulder, Patching, Sweeping, Culvert Installation, Median	
Wyoming	Road Construction, Roadway Surface	
Idaho	Road Construction, Road Maintenance	
Washington	Road Construction, Construction Work	

# Project Tasks

- There are similar recommended NWP phrases for:
  - Weather
  - Road Surface Conditions
  - Vehicle Restrictions
  - Incidents

# Consistent Descriptions Advantages

- Travelers receive consistent and non-conflicting event reports
- Confusion due to the use of local phrases or terms would be eliminated
- The finite number of agreed phrases to be used when performing consistent reporting would allow for clear and well defined definitions of each phrase.

# Consistent Descriptions Disadvantages

- Some level of detail may be lost in standardizing the messages
- Consistent message definitions would (at least initially) be limited to the North/West Passage Corridor

# Results

- Reference for surrounding states to learn about road condition phrases used
- Guidelines to consider as reporting systems are updated
  - Montana recently upgraded their system and incorporated the suggested translation phrases
  - Most other states prefer to retain their current phrases and use a translation process



# Looking Ahead

## North/West Passage States are Considering:

- State to State Message Exchange (option on 511 phone to hear I-90/I-94 conditions in a neighboring state)
- Consolidated Corridor Website (view all active conditions along the corridor)
  - An initial version implemented



# Questions



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