FHWA Weather-Savvy Roads: DMS Weather Messaging
Virtual Peer Exchange

November 29, 2017

The FHWA Road Weather Management Program hosted a virtual peer exchange on weather terminology for Dynamic Message Sign (DMS)/Variable Message Sign (VMS)¹ messages related to the Weather-Savvy Roads Pathfinder initiative.

Panelists
This webinar provided an opportunity for the following panelists to exchange information as peers about their practices with DMS weather messaging, and for the audience to listen and gather information for their own practices.

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Documents and Recording
The following information from the peer exchange webinar is available through the Weather-Savvy Roads Resource Toolkit for Pathfinder.

- Webinar Recording
- Colorado DOT VMS Guidelines
- Montana DOT VMS Guidelines
- Webinar PowerPoint Presentation

Discussion Summary
Four key topic areas were discussed among the panelists.

Processes for Establishing Messages

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¹ The terms DMS, VMS and CMS (for Changeable Message Sign) are used interchangeably. References in this summary are made in relation to the terms predominantly used in each state.
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- At MDT, the Maintenance Division pre-defines messages that are stored in a library. In addition, each VMS has its own library of pre-defined messages. Messages may also be created on the fly on a case by case basis and in coordination with the National Weather Service (NWS) prior to and during a weather event.
- The initial VMS message list at ITD was based on common messages used. This list was then reviewed by the 6 district engineers for input and consent. Based on the input, a preapproved VMS message list was created. One benefit of a predefined message list is the ability to post messages without approval required from a district since VMS messages are posted from a centralized location at ITD.
- Currently VMS messages are posted from a central location at CDOT. However, CDOT is moving toward regional areas posting VMS messages. CDOT VMS messages are moving away from generic winter weather messages to include specific messages regarding the event. In addition, CDOT coordinates with a meteorologist on staff to determine VMS weather messages. It is important to note that CDOT operations staff has considerable experience, therefore the staff is empowered to work with the NWS and the meteorologist to determine the most appropriate VMS weather message.
- UDOT operations staff is in constant communication with an in-house meteorologist prior to, during, and after a weather event. This coordination helps when determining messages to post on a VMS during a weather event as well as updating the messages throughout the duration of the weather event. UDOT also coordinates with the National Weather Service and UDOT’s communication staff during the event. It is critical to have consistency with messages posted on the DMS, traveler information dissemination systems, and news releases.

Terms and Messages Used

- Example VMS messages used in each panelists state were shared.
  
<table>
<thead>
<tr>
<th>Montana</th>
<th>Idaho</th>
<th>Colorado</th>
<th>Utah</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLUSH</td>
<td>SLUSH</td>
<td>HIGH WIND ADVISORY</td>
<td>45 MPH WINDS</td>
</tr>
<tr>
<td>SNOW AND ICE</td>
<td>ICE/SNOW</td>
<td>HIGH PROFILE VEHICLES</td>
<td>SEMI-TRUCKS</td>
</tr>
<tr>
<td>REDUCED VISIBILITY</td>
<td>LOW VISIBILITY</td>
<td>USE CAUTION</td>
<td>USE CAUTION</td>
</tr>
</tbody>
</table>

- MDT posts messages for the road condition. If a corridor has high winds, VMS messages for that corridor will reflect this condition. VMS messages this past summer included messages regarding increased fire activity. MDT is working with the NWS on additional predefined messages as well as the timing of the messages based on the event.
- CDOT includes in VMS messages what can be expected. For example, a VMS message may indicate snow expected, traction laws are likely.
- Wind events are challenging for UDOT since restrictions can come from the DOT or the highway patrol. They are currently working together to discuss better coordinating the restrictions. It is important to provide the trucking community with the wind restrictions. Ice events are also challenging and UDOT often over warns. UDOT does not message if it is snowing since this is
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obvious, but will post for example increasing snow after 6AM plan travel. Ski resort areas are also challenging because there are a lot of inexperienced and out of town drivers. VMS messages around these areas are critical to note when snow is expected to warn these drivers in advance.

- As ITD further implements Pathfinder, VMS messages may for example indicate low visibility, but will also provide a distance.

**Procedures for Posting Messages**

- Requests to post messages at ITD come from DOT Maintenance or the state police.
- Operators at UDOT post messages (e.g. what, where, action) and if the event is unique the traffic control manager will assist.
- For Pathfinder at CDOT, a slide deck is created to show what is in the forecast. A call is then held with NWS, TMC operators, public information officers, event coordinators etc. where the forecast is presented, operations readiness is discussed, and messages are developed.
- At MDT the VMS guidelines provide direction and content for posting messages.

**Public Feedback on Messages**

- Overall, MDT has had a positive response from the public on DMS weather messages. There have also been a lot of requests for messages from other parties, such as fish and wildlife, because others see the signs as a good way to draw attention to get message out to the public.
- ITD also posts DMS messages on their 511 website and they have received positive feedback.
- CDOT has received a few comments that travelers do not watch the news and appreciate the preemptive messages on the DMS. Travelers also check multiple sources for weather information, consistency is key.
- UDOT, in partnership with the NWS, conducted a survey in 2013 on weather messaging. Proactive messages can have an impact. For example, a message indicating heavy snow at 5PM moved the peak traffic to 3PM which allowed snowplows to clear the roads more efficiently at 5PM instead of being stuck in commuter traffic.

**Questions**

*Is there any level of automation with weather event messages?*

- RWIS detects conditions for UDOT, a meteorologist reviews the information and then the information is posted.
- Maryland has a fully automated system from RWIS to DMS during rain and snow events.

*Are there any messages for truckers to keep them in the right lane?*

- It is important to include an action with the associated impact in your VMS message.
- Washington (state) posts messages regarding chain up requirements and which lanes are available.

*Is there confusion between CDOT’s criteria and NWS criteria for wind advisories and high wind warnings?*

- The criteria are not the same and there is an effort underway to align the criteria to avoid confusion.
Do you use the METRO road model for forecasting road temperature in Utah?

- It is not used heavily at UDOT, other sources are used (e.g. soil temperature).

Contact
For further information about the virtual peer exchange, Weather-Savvy Roads initiative, or the panelists’ DMS/VMS practices, please contact:

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