



Guidelines for Disseminating Road Weather Messages

Improved Road Weather Information for Travelers

The Federal Highway Administration (FHWA) Road Weather Management Program (RWMP) recently published a document titled *Guidelines for Disseminating Road Weather Advisory and Control Information (FHWA-JPO-12-046)*. The guidelines are intended for use by individuals and organizations responsible for designing and communicating road weather information to the traveling public. It helps develop messages that support traveler information needs and allow them to make safe and effective travel decisions through clear and understandable information pertaining to inclement weather. In addition, the guidelines are intended to encourage increased consistency across the country in the framing, delivery and content of road weather information, thereby supporting a seamless national traveler experience. The RWMP encourages widespread use of the guidelines and seeks feedback to support continuous improvement of the guidance based on user experience.

Background and Development

The last decade has seen tremendous growth in both the amount of available road weather information (information on road conditions impacted by weather), as well as the methods by which this information can be acquired and disseminated to travelers. This growth includes weather data gathering devices (fixed and mobile), models and tools for analyzing and predicting weather conditions. However, increases in both the type and amount of road weather information do not automati-

cally lead to better driving decisions by drivers. Specifically, unless the content, format, and timing of road weather information is consistent with what travelers need, want, and will use, then such information may not be useful and in certain situations may even lead to reduced mobility as well as unsafe driving behaviors.

To address this issue, the FHWA's RWMP initiated a two-phased effort to: (1) evaluate the current state of the practice in communicating road weather traffic advisory and control information, and develop preliminary guidelines to improve those practices, and (2) test, evaluate and refine the preliminary guidelines using detailed evaluation feedback from State Department of Transportation (DOT) staff working at Traffic Management Centers (TMCs) and private agencies. The final

guideline document is available on the weblink:

http://ntl.bts.gov/lib/45000/45600/45623/FinalPackage_JPO-12-046_V1.pdf

Organization and Content

There are 28 individual messaging guidelines, organized around three dissemination methods:

- 1) Dynamic Message Signs (DMS),
- 2) Auditory messages (Highway Advisory Radio and 511), and
- 3) Web-based messages.

Figure 1 identifies all 28 individual guidelines contained under the three dissemination methods. Each guideline addresses design details based on recent scientific studies, relevant literature, and best practices. Each guideline shares a common, structured

Dynamic Message Signs (9)	Auditory Messages (7)	Web-Based Messages (12)
<ul style="list-style-type: none"> • Structuring content • Message length • Display phases • Phase timing • DMS abbreviations • Travel or delay times • Event location • Communicating urgency • Message certainty and credibility 	<ul style="list-style-type: none"> • Message content • Message length • Message delivery • Travel time and timestamps • Diversion directions • Communicating urgency • Message certainty and credibility 	<ul style="list-style-type: none"> • Tabular information • Text paragraphs • Traffic camera display • Map displays • Wx-specific maps • Visual icons • Color selection • Severe Wx alerts • Linking to road weather information • Portable devices • Communicating urgency • Message certainty and credibility

Figure 1. Individual Guidelines for Each Dissemination Method

presentation format that includes key information elements. Figure 2 illustrates this format. In addition to these guidelines, the document includes seven illustrative tutorials that cover the following topics:

- When travelers use road weather information;
- How to determine which dissemination methods travelers will use;
- Traveler adjustments based on road weather information;
- Safety/mobility implications of road weather information;
- Description of the road weather message design tool;
- Example applications of the road weather message guidelines; and,
- Road weather messaging for personal electronic devices and social media.

Use of the Guidelines

The guidelines can serve several important functions:

- 1) **Road weather message design:** The guidelines are a useful reference for State DOT TMC managers and operators to enhance existing road weather messages and guide the development and deployment of

new messages to fit particular situations that may arise.

- 2) **Research, training and education:** The guidelines contain a wealth of research findings about driver information needs and principles for weather message design that will be useful to researchers and also to State DOTs in their education and training curriculum for new operators, or for refresher training for their current operations staff.
- 3) **Road weather information coordination and integration:** State DOTs are organized in various ways with regard to the roles and responsibilities of managers, traffic operators, maintenance personnel, information technology experts, meteorologists and other weather advisors, and private sector consultants supporting DOT operations. Each of these constitutes a potential stakeholder in how road weather information is integrated and communicated to the traveling public, and the guidelines can serve to facilitate a constructive dialog among them.

Importantly, the guidelines are intended to augment, not replace, the guidance provided in the *2009 Manual on Uniform Traffic Control Devices (MUTCD)* and

other guidance documents relevant to the presentation of traveler information such as the *Changeable Message Sign Operation and Messaging Handbook* (FHWA-OP-03-070).

Anticipated Benefits

The FHWA seeks to provide state DOTs and TMCs with the best available tools and encourages them to adopt current best practices. These guidelines reflect the most up-to-date understanding of effective road weather messaging as derived from the existing literature and established through feedback from leading state DOTs and TMCs. The primary beneficiaries of the guidelines are travelers who are able to adjust their travel decisions appropriately for the road weather conditions, based on messages provided by DOTs on message signs, websites, and audio systems that are easy to understand and follow. FHWA anticipates that effective messaging, followed by safer driving behaviors, can result in widespread improvements in travel safety and mobility during inclement weather.

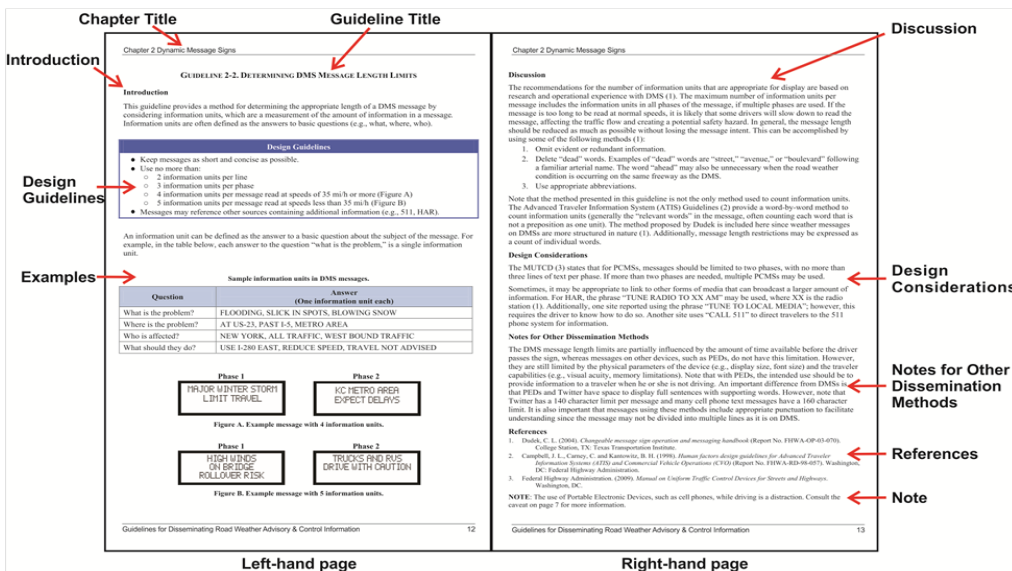


Figure 2. Structured Presentation Format of Each Guideline

All figures and photos courtesy of RWMP.



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Federal Highway Administration

"Anytime, Anywhere Road Weather Information"

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