

Version 3.0

Best Practices for Road Weather Management

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Why a Best Practice Library

- ❖ **The Threat** - weather threatens surface transportation nationwide and impacts roadway safety, mobility, and productivity.
- ❖ **The Challenge** - every day transportation managers must address the challenges associated with adverse weather conditions.
- ❖ **The Response** - 3 types of road weather management strategies may be employed: advisory; control; and treatment strategies.



Road Weather Management offers solutions

There are several mitigation strategies

- *Advisory*: informing motorists of road conditions in real-time or in advance of encountering adverse conditions
- *Control*: regulating motorist behavior on weather-affected road in order to achieve desired safety outcome
- *Treatment*: actively maintaining the road to minimize weather effects



Clear need to share best practices



Version 3.0

The Best Practice Library (BPL)

- ✓ compiles premiere state and local RWM practices
- ✓ disseminates on a national scale successful and proven RWM strategies and technologies
- ✓ Will be published Oct. 2012 & will reside at:
http://www.ops.fhwa.dot.gov/weather/mitigating_impacts/best_practices.htm



BPL development process was inclusive

Comprehensive state involvement was maintained throughout development

- Key state DOT staff in all 50 states invited to participate
- Template for case study provided with invitation
- Preliminary case studies reviewed and edited by FHWA personnel
- States provided final approval of case study



Mitigation strategies illustrated by selected best practices

- Advisory
 - **Florida:** Bridge Wind Speed Alerting System
 - **New Mexico:** Dust Control System
- Control
 - **Minnesota:** I-35W Smart Lanes
 - **Colorado:** Variable Speed Management
- Treatment
 - **Idaho:** Winter Maintenance Performance System
 - **Michigan:** Measurement of Regain Time



Examples of Advisory Strategies



NM: Dust Control System



FL: Bridge Wind Speed Alerting System



Florida: Bridge Wind Speed Alerting System

- *Challenge:* High winds across bridges pose a severe danger to motorists.
- *Solution:* Wind sensor deployed on bridge; system alerts FDOT if wind speed is above various thresholds. Warnings can be disseminated if needed.
- *Outcome:* System provides a more efficient, safer and more accurate method to collect and disseminate wind speed than prior practices

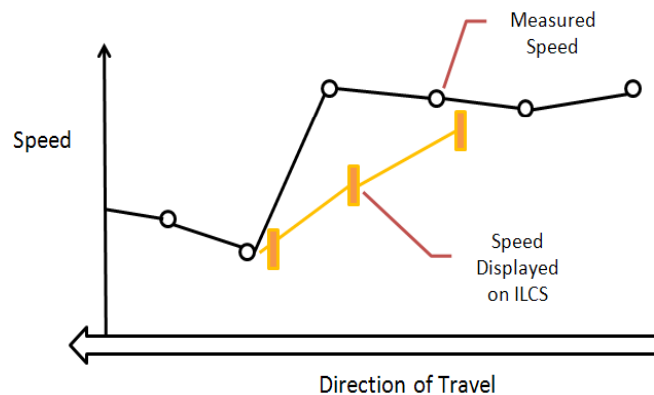


New Mexico: Dust Control System

- *Challenge:* Stretches of Interstate 10 in New Mexico are prone to frequent dust storms, reducing visibility and travel speed for motorists
- *Solution:* A sensing system detects key parameters for dust storm formation, such as temperature, wind speed, and precipitation. This information is transmitted to NMDOT and used to predict and inform motorists of potential dust storms
- *Outcome:* Currently the system is in the evaluation phase



Examples of Control Strategies



MN: I-35W Smart Lanes



CO: Variable Speed Management System



Minnesota: I-35W Smart Lanes

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Colorado: Variable Speed Management System

- *Challenge:* Topography of State Highway 82 led to road icing induced by shading
- *Solution:* Road conditions determined automatically from sensory input (traction and precipitation). Information displayed on advance DMS
- *Outcome:* No weather-related incidents on managed section of State Highway 82 during first season of implementation



Examples of Treatment Strategies



ID: Winter Maintenance Performance System



MI: Measurement of Regain Time



Idaho: Winter Maintenance Performance System

- *Challenge:* A means was needed to evaluate the benefits of Idaho's winter maintenance program
- *Solution:* A system of 87 sensors will collect information on road surface characteristics and local weather. Also, maintenance data will be automatically tracked.
- *Outcome:* By understanding the effectiveness of various treatments appropriate maintenance responses can be applied, leading to improved safety and mobility for motorists



Michigan: Measurement of Regain Time

- *Challenge:* A metric was needed to determine the effectiveness of winter road maintenance
- *Solution:* Time measured between application of maintenance to return to average road speeds via microwave sensors
- *Outcome:* Effectiveness of various treatments along I-96 can now be compared using the metric of regain time



Next steps will enhance BPL

- Proposed development of a synthesis document
 - ✓ Will contain key elements of mitigation strategy development and implementation
 - ✓ Should provide a framework for states to design and build new RWM systems
- Biannual updates targeted due to fast pace of technological change in RWM
 - ✓ Please submit your RWM best practices to weatherfeedback@dot.gov



Acknowledgement of participating states



27 case studies on select road weather management practices from 22 states:

Alabama	Kansas	South Carolina
Alaska	Kansas City	South Dakota
Arizona	Maryland	Tennessee
California	Michigan	Texas
Colorado	Minnesota	Utah
Florida	Montana	Vermont
Idaho	New Mexico	
Iowa	Pennsylvania	

Last BPL update was in 2003: 30 case studies, 21 states

