Road Weather Management Initiatives and Tools

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Outline

• The Road Weather Problem
• Pathfinder Project
• Integrated Modeling for Road Condition Prediction
• Road Weather Performance Management Tool
Trend in Weather-Related Fatal Crashes

Weather-Related Fatal Crashes

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SIRWEC – Ft. Collins, CO – April 2016
Weather-Related Crashes

*Crashes that occurred under adverse conditions; additional factors such as rain, snow, and fog are not disaggregated from pavement conditions in this graphic. The percentage due to fog is for those crashes that occur under foggy conditions, but not wet, icy, or snowy pavement conditions.

**Source:** Road Weather Management Program, Table: Weather-Related Crash Statistics (Annual Averages), Available at: [http://www.ops.fhwa.dot.gov/weather/q1_roadimpact.htm](http://www.ops.fhwa.dot.gov/weather/q1_roadimpact.htm)
PATHFINDER PROJECT
Pathfinder Goals

Pathfinder promotes collaboration between State DOTs and the Weather Enterprise with the ultimate goals of saving lives and property and keeping the economy moving.
Pathfinder Core Partners

- **National Weather Service:** Experts at weather forecasts

- **Private Sector Weather Providers:** Experts at road weather forecasts

- **State DOTs:** Experts at operating and maintaining the roadways - knowledgeable about the state of the roadways and the impact to the traveling public

- **State Emergency Managers:** Coordinate activities during high impact events
Impacts Are More Than Just Weather
INTEGRATED MODELING FOR ROAD CONDITION PREDICTION (IMRCP)
Incorporates real-time and/or archived data and results from an ensemble of forecast and probabilistic models:
- atmospheric and road weather
- traffic
- work zones
- incidents
- special events
- demand

Weather & Traffic Model Review - Complete
Concept of Operations - Complete
Detailed Requirements - Complete
System Design & Architecture - In Progress
Example Application Scenarios

- Enhanced transportation system management and operations
  - Forecast-aware variable speed limits
  - Enhanced motorist advisories and warnings
  - Intelligent signal controls
- Traffic-aware winter maintenance decision support
- Weather- and traffic-aware routing optimization
  - Commuters
  - Long-haul freight
  - Maintenance vehicles.
  - Emergency responders
ROAD WEATHER PERFORMANCE MANAGEMENT (RW-PM) TOOL
Road Weather Performance Management (RW-PM) Tool

- Utilizes real-time traffic volume/speed, road weather, maintenance and traffic control strategies
- Continuously updates traffic control, maintenance and advisory recommendations as road weather conditions evolve
- Publishes traveler information into vehicles.

Real-time Continuous Data

Traffic Operation & Maintenance

Traveler Info: Queue Warning Speed, & Pavement Conditions
Road Weather Maintenance

- Displays the segment data Road Treatment Recommendations from Pikalert
- Each site shows an icon based on its current pavement condition
Traffic Control

- Displays the existing Traffic Backups (Queues) and Recommended Speeds (from Speed Harmonization).

- Advisories generated by the system are sent to the connected vehicles along with the speed sensor information from MnDOT.
Sample Motorist Advisories

Icy Conditions Ahead With Speed Recommendation

Backup (Queue) with Speed Recommendation (Speed Harm) and Snow Covered Roads
Contact Information

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