FHWA Road Weather Program and TSMO365

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FHWA Office of Operations

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FHWA Road Weather Management Program

• Created in late 1990’s as part of Office of Operations
• Goal is minimize impacts of weather on transportation system
• Works with various partners in transportation and weather communities
• Conducts research, development and deployment activities → innovative solutions
• Provides training, technical assistance and peer exchange
## Partners

<table>
<thead>
<tr>
<th>Transportation Community</th>
<th>Weather Community</th>
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<tbody>
<tr>
<td>State DOT’s</td>
<td>NOAA National Weather Service</td>
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<td>Local Agencies</td>
<td>NOAA Office of Federal Coordinator for Meteorology</td>
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<td>Turnpike/Toll Authorities</td>
<td>NWS Forecast Offices</td>
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<td>AASHTO Committees/TSP’s</td>
<td>American Meteorological Society</td>
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<td>TRB Committees</td>
<td>Interdepartmental Committee for Meteorological Services and Supporting Research (ICMSSR)</td>
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<td>APWA</td>
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<td>NACE</td>
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<td>Pooled Fund Programs</td>
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FHWA RWMP Role in TSMO COP

• Help understand and mitigate impacts of weather on TSMO, including freight operations
• Support and facilitate integration of weather information in TSMO activities
• Build connection between agency operations and maintenance
• Develop and deploy decision-support tools and innovative solutions for TSMO during weather events
• Provide a forum/venue for collaboration, exchange of information, and dissemination of RWM best practices among TSMO staff
Every Day Counts (EDC) Program

• State-based model to identify and rapidly deploy proven but underutilized innovations to:
  o shorten the project delivery process
  o enhance roadway safety
  o reduce congestion
  o improve environmental sustainability

• EDC Rounds: 2-year cycles
• Currently 5th Round (2019-2020) - 10 innovations
• To date: 4 Rounds, 46 innovations
EDC-4 Pathfinder

- **Collaboration** between the National Weather Service (NWS), State DOTs, and support contractors to share and translate forecasts into consistent public transportation impact messages.

- Disseminates road weather information that is:
  - clear,
  - concise,
  - consistent, and
  - impact-based.

**Intended Outcome** - Drivers are well informed and able to make safe and efficient travel decisions.
Pathfinder Deployment States

Pathfinder Adoption (19)
* Additions to EDC-4 (ID, NE, PA)
Active but not Adopting Under EDC-4
Not Implementing
EDC-4 Integrating Mobile Observations (IMO)

Weather and road condition data collection from fleet vehicles for a more comprehensive view of network conditions

Advanced, vehicle-based technologies are deployed to collect, transmit, and use weather, road condition, and related vehicle data

Intended Outcome - Utilizing enhanced data for more informed system management (maintenance, traffic, asset, performance)

Source: Wyoming DOT
IMO Deployment States

- IMO Adoption (23)
- Active but not Adopting Under EDC-4
- Not Implementing
EDC-5 Weather Responsive Management Strategies (WRMS)

- One of 10 initiatives selected for 2019-2020
- Focuses on using mobile and connected vehicle data for traffic and maintenance management during weather events
- Includes 2 types of strategies
  - Traffic Management (Advisory/Control)
  - Maintenance Management (Winter/Non-Winter)

https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/weather_strategies.cfm

Source: Nevada DOT
Source: NWS Wyoming
Source: Minnesota DOT
WRMS Strategies

• Traffic Management Strategies
  - Motorist Advisory and Warning System (i.e. 511, Highway Advisory Radio, Variable/Dynamic Message Sign, Website, Kiosk, In-vehicle application, Smartphone Application)
  - Signal Timing and Ramp Metering
  - Variable Speed Limit
  - Road/Lane Closure
  - Traffic Diversion
  - Vehicle Restriction

• Maintenance Management Strategies
  - Anti-icing and De-icing
  - Plowing and Snow Removal
  - Route Optimization/Vehicle Tracking
  - Debris Removal
  - Water Drainage Maintenance
  - Vegetation Control

Source: Michigan DOT

Source: Minnesota DOT
WRMS Data Sources

- Vehicle-based Road Weather Sensors
  - Friction, Temperature, Precipitation, Snow Depth, etc.
- On-board cameras
- Electronic tablets
- Cell Phones and Personal Digital Assistants (PDA)
- Global Positioning System receivers/AVL Systems
- Vehicle Controller Area Network (CAN) Bus
EDC-5 WRMS Deployment States

- Deploying WRMS (23)
- Not Deploying or Institutionalized

Map showing states with green indicating deployment of WRMS.
## RWMP Activities and TSMO365 Priority Areas

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<tr>
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<th>Mobile Road Wx Observations</th>
<th>VSL Systems</th>
<th>Active/Real-Time Warning Systems</th>
<th>Predictive Traffic Condition Modeling</th>
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<td>EDC4 Pathfinder</td>
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