Road Weather Management Performance Measures

Update to Stakeholder Meeting
Attendees
Madison, WI
08 August 2012

Gabriel Guevara, P.E.
Federal Highway Administration
Road Weather Management Program
Content

• Why Should We Care?
• Where Have We Been?
• Where Are Heading?
MAP-21
MOVING AHEAD FOR PROGRESS
IN THE 21st CENTURY
Transforming the way we build, maintain, and manage our Nation’s highways
REFORMS PROGRAMS

Reforms and Focuses the Federal Program
PROMOTES INNOVATION

Accelerates Project Delivery and Promotes Innovation
PERFORMANCE-BASED
Establishes A Performance-Based Federal Program
Original Objective: Develop performance measures for evaluating the success of the RWMP in achieving the following Section 5308 goals:

1. Maximize use of available road weather information and technologies;
2. Expand Road Weather R&D efforts to enhance roadway safety, capacity, and efficiency while minimizing environmental impacts; and
3. Promote technology transfer of effective road weather scientific and technological advances.
Project History

Phase 1 – Identify measures (11/2006 – 1/2008)

• Literature Review and Synthesis (135+ documents)
• Preliminary Measures (Stakeholder Workshop -- 4/24/07)
• Feedback from practitioners (240 requests, 70 respondents)
• Narrowed down to 11 output and outcome measures
• Published final report, flyer
## Selected RWM Performance Measures

<table>
<thead>
<tr>
<th>PROGRAM GOALS</th>
<th>PERFORMANCE MEASURES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Goal 1: Maximize use of available road weather information and technologies.</td>
<td>Number or percentage of transportation agencies that use road weather information and decision support systems for making advisory, control, and treatment decisions.</td>
</tr>
<tr>
<td></td>
<td>Number or percentage of travelers who use road weather information for making travel decisions (both pre-trip and en-route).</td>
</tr>
<tr>
<td></td>
<td>Number of weather/environmental sensor stations (ESS) deployed and used by transportation agencies to support decision-making (normalized by total road mileage).</td>
</tr>
<tr>
<td>Goal 2: Expand road weather R&amp;D efforts to enhance roadway safety, capacity,</td>
<td>Number of agencies participating in and benefiting from road weather R&amp;D projects.</td>
</tr>
<tr>
<td>and efficiency while minimizing environmental impacts.</td>
<td>Percentage of time roadway meets safety and capacity level of service (LOS) standards (i.e. V/C ratio, etc.) during and after weather events.</td>
</tr>
<tr>
<td></td>
<td>Reduction in agency costs (i.e. labor, equipment, materials) due to adoption of maintenance and operations decision-support systems for road weather management.</td>
</tr>
<tr>
<td></td>
<td>Reduction in user costs (i.e. delay, crashes, vehicle operating costs, emissions, salt damage) due to improved road weather advisory, control, and treatment strategies.</td>
</tr>
<tr>
<td>Goal 3: Promote technology transfers of effective road weather scientific and</td>
<td>Number of agencies/individuals visited or contacted through technology transfer, training, and outreach efforts.</td>
</tr>
<tr>
<td>technological advances.</td>
<td>Rate of adoption of RWM technologies (e.g., decision-support systems) by agencies that participated in workshop or training activities.</td>
</tr>
<tr>
<td></td>
<td>Number of RWM technology development, testing and deployment activities initiated through public or private sector based on identified operational needs.</td>
</tr>
<tr>
<td></td>
<td>Number of road weather technologies developed through public-private and/or public-public partnerships reaching operational deployment.</td>
</tr>
</tbody>
</table>
Project History

Phase 2 – Quantify the measures

- Definition of Metrics and Data Sources, Implementation Plan
- Identified Alternative Performance Indicators
- Quantified the measures
- Final Report: Road Weather Management Performance Metrics: Implementation and Assessment, EDL - #14492
- Drafted Flyer
Current Status

Phase 3 – 2012 Performance Update

- Ongoing
- Transition from SAFETEA-LU goals to new RWMP Objectives set out in new roadmap

<table>
<thead>
<tr>
<th>Focus Areas</th>
<th>Activities</th>
<th>Objectives</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stakeholder Coordination</td>
<td>Build partnerships</td>
<td>Ensure investments pay off</td>
</tr>
<tr>
<td>Program &amp; Performance Management</td>
<td></td>
<td></td>
</tr>
<tr>
<td>R&amp;D</td>
<td>Lots of interesting projects</td>
<td></td>
</tr>
<tr>
<td>RdWx Data Capture &amp; Mgmt</td>
<td></td>
<td>Transportation &amp; weather communities use fixed and mobile observations</td>
</tr>
<tr>
<td>RdWx Dynamic Applications</td>
<td></td>
<td>Integrate RdWx observations into advanced decision support tools</td>
</tr>
<tr>
<td>Weather-responsive Traffic Mgmt</td>
<td></td>
<td>Advance the state-of-the-practice through tailored management strategies</td>
</tr>
<tr>
<td>Tech Transfer, Training, Education</td>
<td></td>
<td>Raise road weather capabilities across the industry</td>
</tr>
<tr>
<td>Operations &amp; Climate Change</td>
<td></td>
<td>Operations is engaged with climate change community</td>
</tr>
</tbody>
</table>
Current Status

2012 Update Features

- Review existing measures for their continued suitability, strengths, and weaknesses for determination of performance.
- Determine changes to the baseline conditions for existing measures using updated or new data sources.
- Incorporate within or through new performance measures
  - Reliability and other operations measures which are being looked at within the Office of Operations and SHRP2 research program
  - Operations Efficiency Index (OEI) measures for top 40 metropolitan areas
- Identify refinements necessary to the existing performance measurement framework and develop a plan to quantify the measures.
- Quantify all existing and new performance measures using current data to create a 2012 RWMP performance assessment report.