Traffic Operations Performance Management System

National Context and MAP-21

presented to
National Performance Management Web Meeting

presented by
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Topics

- Why is this important?
- MAP-21
- Data
- Resources
MAP 21 – Decision-making, performance measures, and executive-level awareness

Declining resources and increasing customer expectations for multimodal mobility, safety, and efficient operation of transportation system

Operations/Real Time – New data sources, capability to merge with travel demand, analytics, predictive, and integration of sources
Sound business practice

» We measure performance because it helps us get better at what we do!!!

• By:
  ♦ Detecting and correcting problems

• We:
  ♦ Manage, describe, and improve processes (programs)

• Which allows for:
  ♦ Ongoing evaluation – demonstrates value of our activities
  ♦ Transparency with decision-makers
  ♦ Better communication with the traveling public
Why do we need Operations Performance Measures?

Sources of Congestion Over 50% of congestion is directly attributable to large fluctuations in demand (such as special events), poor signal timing, traffic incidents, inclement weather, and work zones.
What They Tell You

Level 1
• Travel conditions are unreliable (Variable over time)

Level 2
• What's causing unreliable travel (e.g., incidents, weather, work zones)

Level 3
• What aspects of operations, management, and construction need to be improved

Measures

Overall Reliability
e.g., travel time index

Delay by Source
e.g., vehicle-hours

Activities, Procedures, and Policies

Used By

Upper Management
Public Relations
Planners
Mid-Management
Operators
Planners
Operators
Field Managers

Incident Timeline

<table>
<thead>
<tr>
<th>Event</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Incident Occurs</td>
<td>6:35 a.m.</td>
</tr>
<tr>
<td>Incident Recorded into CAD</td>
<td>6:42 a.m.</td>
</tr>
<tr>
<td>Incident Verified</td>
<td>6:47 a.m.</td>
</tr>
<tr>
<td>Personnel Dispatched and</td>
<td>6:49 a.m.</td>
</tr>
<tr>
<td>Actions Initiated</td>
<td></td>
</tr>
<tr>
<td>Responders Arrive to Scene</td>
<td>6:50-7:00 a.m.</td>
</tr>
<tr>
<td>Incident Cleared and Actions</td>
<td>7:15 a.m.</td>
</tr>
<tr>
<td>Canceled</td>
<td></td>
</tr>
<tr>
<td>Return to Normal Conditions</td>
<td>8:26 a.m.</td>
</tr>
</tbody>
</table>

Detection Time | Verification Time | Dispatch Time | Response Time | Clearance Time | Time to Normal Conditions
ITS is needed to measure and improve safety, congestion, system reliability, and freight movement.

Contains strong language supporting Transportation Systems Management and Operations (TSM&O).

Section 513 requires a comprehensive plan be developed to assess ITS deployment activities across all modes.

Continues funding for the Connected Vehicle Program.

Includes research statements on several Ops and ITS areas.
1) Safety

2) Infrastructure Condition

3) Congestion Reduction

4) System Reliability

5) Freight Movement and Economic Vitality

6) Environmental Sustainability

7) Reduced Project Delivery Delays
US DOT Notice of Proposed Rulemaking

Winter

US DOT establishes measures

Spring

Effective date of final rule

Spring

States set targets

Spring

MPOs set targets

Fall

90 day comment period

2013

2014

2015

2016
States and MPOs must integrate performance plans into a performance-based process.
US DOT will establish criteria to evaluate the effectiveness of transportation investments, the appropriateness of performance targets, the ability of the public to access information, and the progress towards the achievement of targets.
AASHTO’s Position: Measures

**System Performance**
- Delay (annual vehicle-hours)
- Reliability Index (80th %ile TTI)
  * 80th Percentile Travel Time/Travel Time at agency specified threshold speed

**Freight System Performance**
- Delay (annual truck-hours)
- Truck Reliability Index (80th %ile TTI)

[http://scopm.transportation.org/Pages/default.aspx](http://scopm.transportation.org/Pages/default.aspx)
Average travel times
- Every 5 minutes, 24 hours, 7 days a week

For entire National Highway System

Provided by HERE – Formerly Nokia/Navteq

Segmentation = Traffic Message Channel (TMC)

Data for freight (from ATRI) and passenger

Contact Rich Taylor FHWA or HERE
Use of Operations Data in Performance Measures

- Transportation system coverage
- Data quality
- Data format/resolution
- Data integration
- Standards/consistency/metadata
  - Backup, recovery, archiving
- Institutional issues
- Resources
| Integrating Operations, Safety, and Multimodal Planning Workshop |
| Traffic Incident Management Peer Exchange and Workshops |
| Technical Assistance for Traffic Signal Timing Training |
| Work Zone process review team and guidance documents |
| Performance Measures Workshop |
| Traffic Data Collection and Analysis Peer Exchange |
| Operations B/C Workshops |
| Outreach for Special Events Peer Training in Charlotte |
| Integrating Road Weather Mobile Observations |
| Active Traffic Management Workshop |
| Rural Incident Management Workshop |
| Applying Analysis Tools in Planning for Operations Workshop |
FHWA Benefit/Cost Handbook and Tool

» Desk Reference Document
  » Provide comprehensive, one-stop-shopping for B/C information related to

» Companion Operations B/C Decision Support Tool
  » TOPS-BC
## Resources from TRB SHRP 2 Program

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<tr>
<th>LO1</th>
<th>Integrating Business Processes to Improve Travel Time Reliability</th>
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<td>Establishing Monitoring Programs for Mobility and Travel-Time Reliability</td>
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<tr>
<td>LO5</td>
<td>Incorporating Reliability Performance Measures into the Transportation Planning and Programming Processes</td>
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<td>LO6</td>
<td>Institutional Architectures to Support Operational Strategies</td>
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<td>Identification and Evaluation of the Cost-effectiveness of Highway Design Features to Reduce Nonrecurrent Congestion</td>
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<td>Training and Certification of Traffic Incident Responders</td>
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<td>LO13</td>
<td>Requirements and Feasibility of a System for Archiving and Disseminating Data from SHRP 2 Reliability and Related Studies</td>
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<td>LO31</td>
<td>Operations Capability Workshops</td>
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[http://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Pages/Reliability_159.aspx](http://www.trb.org/StrategicHighwayResearchProgram2SHRP2/Pages/Reliability_159.aspx)
Thanks! (avandervalk@camsys.com)