Managing Highway Performance at a National Level

Tom Maze Transportation Seminar Series
March 29, 2013

Peter Stephanos
Federal Highway Administration
What is Transportation Performance Management?

Transportation Performance Management is a strategic approach that uses system information to make investment and policy decisions to achieve a desired set of national goals.
Why Is Performance Management Important?

• Help inform decisions, strengthen accountability, and allow for better understanding
• Provide more transparency and accountability
• Manage resources efficiently whether in abundance or scarce, regardless of funding
Transportation Performance Management

National Performance Management Desire

- ✓ Timely and reliably report on system performance
- ❏ Understand performance returns from federal investments
- ✓ Set national direction on performance expectations
- ✓ Accurately justify funding needs for performance
- ❏ Link local decision making to national/regional performance
- ❏ Track progress towards the achievement of performance
Transportation Performance Management

Performance Management In Action

Business Plan 2004 & 2005
Ohio Department of Transportation

State of the System 2005
Bay Area Transportation

Measures, Markers and Mileposts
Virginia Department of Transportation

2007 Annual Attainment Report
Maryland DOT

Good to Great
Strategic Plan and Annual Report
New Mexico DOT

Tracker
Missouri Department of Transportation

Measures, Markers and Mileposts
Washington State Department of Transportation
## USDOT Performance Report

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010 Target</th>
<th>2010 Actual</th>
<th>Met / Not Met</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of travel on the National Highway System (NHS) meeting pavement performance standards for &quot;good&quot; rated ride.</td>
<td>52</td>
<td>52</td>
<td>54</td>
<td>57</td>
<td>56</td>
<td>57</td>
<td>58</td>
<td>58*</td>
<td>Met</td>
</tr>
<tr>
<td>Percentage of deck area on National Highway System (NHS) bridges rated as deficient, adjusted for average daily traffic.</td>
<td>32.0</td>
<td>29.9</td>
<td>29.2</td>
<td>29.7</td>
<td>29.5</td>
<td>29.2</td>
<td>28.9</td>
<td>28.7</td>
<td>Met</td>
</tr>
</tbody>
</table>
Condition Reporting

Report to Congress

- System Conditions
- Operational Performance
- Safety
- Revenue and Expenditures
- Investment Analysis

Difficult to associate performance with federal investments
ARRA Reporting Outcomes

[Graph displaying financial data over fiscal quarters]

U.S. Department of Transportation
Federal Highway Administration
National Commission Report

- Strong Federal role focused on national goals
- Consolidated program structure
- Performance management
- Many groups issued reports supporting many of the Commission’s recommendations, all embraced a performance-based program (U.S. DOT, AASHTO, AMPO, APTA, GAO, and more)
The TPM Framework

- Measures
- Targets
- Investment Plans
- Progress Tracking
- Reports
- Accountability
Transportation Performance Management

**FOCUS**

**PLAN**
- Set every 4-6 yrs

**PROGRAM**
- Revisit annually

**DELIVER**
- Annual Output

**ASSESS**
- Annually

**National Policy**

**Baseline Performance**

**Desired Performance**

**Federal Highway Program**

**State/MPO Role**

**Outcome**
Transportation Performance Management

FOCUS

PLAN

PROGRAM

DELIVER

ASSESS

Definition

Extent of Network

Measure

Safety

Infrastructure Condition

System Reliability

Reduced Project Deliver Delays

Environmental Sustainability

Freight Movement

Congestion Reduction

National Goal Areas

12
Transportation Performance Management

State/MPO Plan to Address National Expectations

Transportation Plans

- Coordinated & Collaborated
- Strategies and Policies
- Investment Needs

National Goal Areas
Programming Investments to Achieve Targets

Transportation Plans

Improvement Program
- Fiscally Constrained
- Address all Goal Areas
- Statewide
- Short Term

Bound Target

Investment Plan
Transportation Performance Management

Tracking Progress Towards Targeted Outcome

- Improvement Program
  - Planned Accomplishments
  - Deliver Program (Design and Construct)
    - Actual Accomplishments

- Outcome

- Is Program Delivered as Planned?
- Is Delivery On Time – On Budget Delivery?
- Is Delivery Meeting Quality Construction Expectations?
Was **Outcome** Performance Achieved?

State and National Annual Performance Reporting

- Identify best practices to manage performance
- Evaluate how investments have impacted performance
- Identify opportunities to improve process and plan

Increase Funding Flexibility

Develop Improvement Plan
SEMCOG Example – Pulling it Together

1. Examine the relationship between program-level investment and performance

2. Examine scenarios that vary funding by program area; adopt a preferred scenario
   - Preservation focused
   - Transit focused
   - Public preference driven

3. Track performance over time; track investments against the adopted scenario

<table>
<thead>
<tr>
<th>Project Type</th>
<th>Planned Funding</th>
<th>Actual Funding</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bridge</td>
<td>5%</td>
<td>5.2%</td>
</tr>
<tr>
<td>Nonmotorized</td>
<td>1%</td>
<td>1.1%</td>
</tr>
<tr>
<td>Pavement</td>
<td>24%</td>
<td>14.5%</td>
</tr>
<tr>
<td>Road Expansion</td>
<td>8%</td>
<td>3.5%</td>
</tr>
<tr>
<td>Safety</td>
<td>1%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Transit Capital</td>
<td>8%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Operating</td>
<td>53%</td>
<td>68.1%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
**Transportation Performance Management**

**FOCUS**

**PLAN**

**PROGRAM**

**DELIVER**

**ASSESS**

**Example Application – Mn/DOT**

**Policy Plan**

**Investment Plans**

**Performance Monitoring**

Overarching goals, policies, and performance measures that guide investment

Detailed analysis of investments, including expected performance impacts, legislative guidance, and stakeholder input

Regular review of performance in each policy area
How will Risk be Incorporated into the Highway Investment Planning Process?

**STEP 1**
Determine needs and strategies to address risks in each asset categories

**STEP 2**
Assess risk to revenue projections

**STEP 3**
Group individual risk-based performance levels into alternative scenarios

**STEP 4**
Select alternative to direct development of State Highway Investment Plan

**STEP 5**
Identify risk-based priorities if additional funding is allocated

**KEY ASSET CATEGORIES**
- Current Targets
- System Triage
- CASD (Precedent Goals)
- Current Targets
- Moderate Cost
- Life Cycle Replacement
- Additional Projects
- Strategic Capacity

**ALTERNATIVE INVESTMENT SCENARIOS**
- Risks mitigated
- System and performance outcomes
- Strategies

- Alt A
- Alt B
- Alt C

- Risk-Based Needs
- Pavement
- Bridge
- Safety
- Other Infrastructure
- Mobility

- Pavement
- Bridge
- Mobility
- Other Infrastructure
- Safety
MAP-21 Performance Elements

- National Goals
- Performance Measures
- Performance Targets
- Performance Plans
- Performance Reports
- Performance Accountability
## Performance Measures

### Highways
- Safety (4)
- Infrastructure Cond. (3)
- System Performance (2)
- Freight Movement (1)
- Traffic Congestion (1)
- On-Road Mobile Source Emissions (1)

### Public Transportation
- State of Good Repair (1+)
- Safety Performance Criteria (1+)

### Highway Safety Programs
- 14 Measures
**Performance Targets**

- States, MPOs, and public transit providers set targets for each of the measures
- Coordination between States, MPOs and public transit providers to ensure for consistent targets
- Option to set different targets for urbanized and rural locations
- Identified through planning process with reference to individual performance plans
Transportation Performance Management

**Performance Plans**

- Safety
- Asset Management
- Metro System Performance
- Congestion & Air Quality
- Freight
- Transportation Improvement Programs

**Performance Reports**

- Transit Performance
- Highway Performance
- Safety Performance
- Congestion & Air Quality
- Metro System Performance
- 5 Yr Report to Congress
- Conditions and Performance
Performance Accountability

- Target Achievement Requirements
  - National Highway Performance Program
  - Highway Safety Improvement Program
- NHPP and HSIP Standards
- Metro Planning Certification Review
- Statewide Performance-Based Planning Process Evaluation
- 5 Year Progress Evaluation of each State and each MPO
Rulemaking Process/Timeline

- Required to promulgate rulemaking to establish measures.
- Rulemaking activities currently underway and include:
  - Consultation with stakeholders
  - Drafting of the Notice of Proposed Rulemaking (NPRM)
  - Completion of an Economic Assessment that looks at the impact of the proposed rule on States, MPOs and other stakeholders.
  - Coordination with other rulemakings, i.e. Planning, Asset Management Plan, FTA
- 90 day minimum comment period required after NPRM is published (highways).
- Publication of final rule in Federal Register with effective date.
Stakeholder Outreach

- Methods of Outreach
  - Webinars
  - National Online Dialogues
  - Virtual Town Hall Meetings
  - Subject Matter Meetings
  - Direct Contact to FHWA: PerformanceMeasuresRulemaking@dot.gov

- Focused Areas for Outreach
  - Performance Measures
  - Target Setting Listening Session
  - Reporting and Assessment
Online Dialogue Summary

- Visited 8,165 times
- 228 ideas, 293 comments, 3,695 votes
- 8 Campaigns

FTA has completed an online dialogue on asset management and is planning one for transit safety.
Coordinating Implementation

**Measure Rules**
- Define Measure
  - Data Elements
  - Data Source
- Interstate Pavement Condition
- Target Setting Requirements
- Define Significant Progress
- State Performance Reporting
- Establish Timing

**Planning Rule**
- Performance-based Planning Process
- Target Setting Coordination
- MPO Performance Reporting
- STIP/TIP Discussion
- Transition Period

**Program R/G**
- Plan Requirements
- Special Rules
- Integrating Performance
- Transition Period
# STAGED RULE SCHEDULE

<table>
<thead>
<tr>
<th>Measures / Fiscal Year</th>
<th>Safety Measures</th>
<th>Pavement &amp; Bridge Measures</th>
<th>CMAQ, Performance, and Freight Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>FY / QUARTER</strong></td>
<td><strong>Status I</strong></td>
<td><strong>Status II</strong></td>
<td><strong>Status III</strong></td>
</tr>
<tr>
<td>FY13 (Year 1 of MAP-21)</td>
<td>Q1 Consultation/NPRM</td>
<td>Q2 Consultation/NPRM</td>
<td>Q3 Consultation/NPRM</td>
</tr>
<tr>
<td>FY14 (Year 2 of MAP-21)</td>
<td>Q1 Comments</td>
<td>Q2 Comments</td>
<td>Q3 Comments</td>
</tr>
<tr>
<td>FY15</td>
<td>Q1 Final Rule</td>
<td>Q2 Final Rule</td>
<td>Q3 Final Rule</td>
</tr>
</tbody>
</table>

Single Effective Date: Spring 2015
Evaluation of Candidate Measures

**Is it Appropriate?**
*Will the measure support national programs?*

**Are We Ready?**
*Can data be in place to support the desired measure?*

6 Factors

6 Factors
## Is The Measure Appropriate?

<table>
<thead>
<tr>
<th>Focused</th>
<th>• Is the measure focused on an area of national interest?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaborated</td>
<td>• Has the measure been developed in partnership with stakeholders?</td>
</tr>
<tr>
<td>Maintainable</td>
<td>• Is the measure maintainable to accommodate changes?</td>
</tr>
<tr>
<td>Impactful</td>
<td>• Can the measure be used to support investment decisions, policy making and target setting?</td>
</tr>
<tr>
<td>Track-able</td>
<td>• Can the measure be used to analyze performance trends?</td>
</tr>
<tr>
<td>Feasible</td>
<td>• Has the feasibility &amp; practicality to collect, store, &amp; report data for the measure been considered?</td>
</tr>
</tbody>
</table>
Are We Ready to Use the Measure?

<table>
<thead>
<tr>
<th>Who Provides the Data?</th>
<th>Data Quality</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Federal Agency</td>
<td>• Timeliness</td>
</tr>
<tr>
<td>• State/Local Agency</td>
<td>• Consistency</td>
</tr>
<tr>
<td>• Third Party</td>
<td>• Completeness</td>
</tr>
<tr>
<td>• Collection</td>
<td>• Accuracy</td>
</tr>
<tr>
<td>• Storage</td>
<td>• Accessibility</td>
</tr>
<tr>
<td>• Access</td>
<td>• Data Integration</td>
</tr>
</tbody>
</table>
Safety Measures

- Considerations
  - Defining serious injuries
  - Time lag associated with national data
  - Coordination with Highway Safety Plan
  - Target setting

- Current Efforts
  - Highway Safety Plan Interim Final Rule
  - Target setting best practices
  - Highway Safety Improvement Program guidance
Infrastructure Condition Measures

- Considerations
  - Data sources, availability, coverage
  - Measures linked to decision making
  - NBI element level data requirements
  - Advancing technologies
  - Target setting

- Current Efforts
  - Evaluating data (HPMS 2010+)
  - Exploring measure alternatives
  - Evaluating feasibility for implementation (pilot studies)
Traffic Congestion and NHS Performance

- **Considerations**
  - Data sources, availability, coverage
  - Trip information, movement of people
  - Modes of transportation
  - Scalability
  - Target setting

- **Current Efforts**
  - Acquiring data
  - Exploring measure alternatives
  - Evaluating feasibility for implementation
Implementation Challenges

- Does “One Size Fit All”
- Setting Challenging Targets
- Trade-Off Decisions
- Predicting Outcomes
- Integrating into an Existing Process
- Multiple Performance Areas
- Managing Uncertainty/Risk
- Program Transparency
What Are We Doing Now?

Building Our Strength
- Awareness
- Capacity Building Plan
- Information Access
- Tools

The Performance Story
- Workshops
- Benchmark Studies
- Pilots
- Case Studies

Designing a Program
- New Measures
- Framework Elements
- Guidance
- Coordinating Efforts
Our system at work

Our Mobile Lifestyle

No matter where you live or what your age, your lifestyle depends on transportation.

In the Spotlight

Mobile Moments: Bicycle Safety Infographic
630 cyclists died on U.S. highways in 2009.

This report gives Maryland residents a transparent assessment of the performance of their transportation system.

Infographic: How Long is It Taking Americans to Get to Work?
New York and Chicago have the longest commutes. What about your city?

BORING BUT IMPORTANT

- Bridges in the U.S.: 599,766
- Bridges requiring repairs: 152,324
- Cost to repair them: $140 billion
- What Americans spend each year on soft drinks: $65 billion
- What the US spent in 2008 repairing bridges: $12.8 billion

Source: AASHTO, ASCE, National Soft Drink Association

HOW ARE WE MEASURING UP?

HIGHLIGHTED MEASURE
LOWERING FATAL CRASHES

Current Year Compared to 5-Year Average

- 45k
- 40k
- 35k
If averaged out, every **man**, **woman** and **child** in **America** invests about **$1.55** a day in streets, roads and highways. About **$1.16** of that investment keeps roads smooth (though we all know some are smoother than others), **extends their life**, and **adds new roads and lanes** to get you where you want to go faster. You see and appreciate seasonal maintenance like **snow plowing**, **mowing** and **pot hole patching**. That takes about **9 cents** a day. **Thirteen cents** are spent to make our roads safer and **2 cents** goes to research to find innovations that help our investments last longer and work better. See below for more information.

(U.S. DOT Highway Statistics 2010)
630 cyclists died on U.S. highways in 2009.

The typical bicycle fatality victim was:

- Male: 87%
- Female: 13%
- In Urban Area: 70%
- Rural: 30%

Between 45 and 54 Years Old

The accident occurred:

- Between 4 p.m. and 8 p.m.

The number of trips by bicycle was up 25% between 2001 and 2009.

Source: National Household Travel Survey (2009).
Transportation Performance Report

This report summarizes transportation performance measures at the NATIONAL level.

HIGHLIGHTED MEASURES

These measures are recommended as a National Priority.

Are We Reducing Fatalities on our Roads? YES

EXPLANATION

THE NUMBER OF FATAL CRASHES IS DOWN. The past five years have shown a steady decline in fatal crashes, but certain driver behaviors and crash types have remained a persistent threat to the safety of our roadways. There was a 19% reduction in fatal crashes in 2010 (versus the five-year average).

THE FACTS

- Fatal crashes in 2010 were at a 15-year low.
- Approximately 40,000 people are killed on the road every year.
- Seatbelt usage has shown an increasing trend since 1994. In 1994 usage was at 58%. In 2011 usage was 84%.1 Studies have found seatbelts to be 56% effective at reducing fatalities.2
- Road departure crashes account for over 50% of fatal highway crashes.

SNAPSHOT

TREND

Data Sources: Annual Fatality Crash from FARS.

 ACTIONS

- FHWA and state DOTs have developed a focused approach to safety through the adoption of State Highway Safety Plans which establish strategic goals and include evaluation processes.
- Since the 1990’s states have enacted graduated drivers licensing laws for teen drivers.
- Forty-eight states and D.C. have restricted nighttime driving and 45 states and D.C. have passenger restrictions.3
- Click it or ticket mobilizations have been effective at increasing seatbelt usage.4
Transportation Performance Management

North Carolina Refining a Performance Management System

North Carolina

Refining a Performance Management System

NCDOT recognized they needed to refine their performance management system and therefore began a transformation process. (.pdf, 0.6 mb)

TPM and MAP-21
- What is TPM?
- National Goals
- MAP-21 Performance Requirements Summary
- Implementation Schedule

Engagement
- Rulemaking Stakeholder Engagement
- Readiness Stakeholder Engagement

Resources
- Tools
- Noteworthy Practices
- Presentations

News and Events
- FHWA Webinar Series: Asset Management Book Club Webinar
  March 27, 2013, 2:00 PM EST
- View all TPM Events
- Subscribe to email updates
Thank You!

performancemeasuresrulemaking@dot.gov
http://www.fhwa.dot.gov/tpm/
http://www.fhwa.dot.gov/map21