Transportation Performance Management
Implementation of a Performance-based Federal Highway Program

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Louisiana Transportation Conference
Baton Rouge, LA

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Federal Highway Administration
Presentation Outline

- Rulemaking Status
- MAP-21 Performance Provisions
- Assessments and Implementation Issues
- Linking Asset Management and TPM
- Assessing TPM: the Capacity Maturity Model
- The Future of TPM
Rulemaking Status
The MAP-21 Charge *(23 USC 150(a) - Declaration of Policy)*

<table>
<thead>
<tr>
<th>Performance Management</th>
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<tbody>
<tr>
<td><strong>Will:</strong></td>
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<tr>
<td>• transform the Federal-aid highway program</td>
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<td>• provide a means to the most efficient investment of funds</td>
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<td><strong>By:</strong></td>
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<td>• refocusing on national transportation goals,</td>
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<td>• increasing accountability &amp; transparency, and</td>
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<td>• improving project decision making</td>
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MAP-21 Performance Programs under USDOT
-10 Interrelated Rules

Highway Safety Grant Programs

Federal-aid Highway Programs

Public Transportation Programs

NHTSA
1 Final

FHWA
6 Proposed

FTA
3 Proposed
<table>
<thead>
<tr>
<th>Performance Areas</th>
<th>NPRM</th>
<th>Comments Due</th>
<th>Anticipated Final Rule</th>
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<tbody>
<tr>
<td>System Performance Measures</td>
<td>Projected March 2016</td>
<td>120 days</td>
<td>n/a</td>
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Safety Implementation Proposals

- **Measures** (5 year rolling average)
  - Fatalities (total and rate)
  - Serious Injuries (total and rate)
- Annual State and MPO targets
- One common definition for serious injuries
- HSIP annual reporting on performance
- Annual assessment of progress
**Safety Comment Summary**

**Commenters**
- 13,269 letters to docket
- 38 States
- 27 local government agencies
- 50 associations

**Themes**
- Addressing non-motorized safety
- Significant progress determination
- Requirement of identical targets
- Implementation timing
- Optional targets
- Data lag
Pavement and Bridge Proposal

- Measures
  - % of Bridges in Good and Poor condition
  - % of Pavements in Good and Poor condition
- 2 yr and 4 yr State and 4 yr MPO targets
- New pavement measure (IRI, crack, rut/fault)
- Biennial reporting on performance
- Biennial assessment of progress
Pavement and Bridge NPRM Comment Summary

Commenters

– 127 letters (many comments)
– 42 States and 19 local government agencies
– 27 industry/advocacy groups
– 14 planning organizations
– 16 individuals

Themes

– NHS Ownership
– Declining Conditions
– Implementation Timing
– Cost Burden
– Minimum Condition Provisions
– Pavement Measure
– Data Collection and Reporting
MAP-21 Performance Provisions
Proposed Measures

- Safety Performance (4)
  - Number of fatalities
  - Rate of fatalities
  - Number of serious injuries
  - Rate of serious injuries

- Pavement and Bridge (6)
  - Percentage of pavements of the Interstate System in Good condition
  - Percentage of pavements of the Interstate System in Poor condition
  - Percentage of pavements of the non-Interstate NHS in Good condition
  - Percentage of pavements of the non-Interstate NHS in Poor condition
  - Percentage of NHS bridges classified as in Good condition
  - Percentage of NHS bridges classified as in Poor condition
Proposed Reporting Requirements

Safety
- State DOTs establish and report targets and progress in the annual HSIP report
- MPO report to State DOTs annually and report on progress in their System Performance Report as part of their transportation plan

Pavement and Bridge
- Baseline Performance Period Report – two- & four-year targets, baseline conditions, relationship with other performance expectations
- Mid Performance Period Progress Report – two-year condition/ performance, investment strategy effectiveness, progress discussion, target adjustment*, extenuating circumstances*, target achievement discussion if fail to demonstrate significant progress (* = optional)
- Full Performance Period Report – Same content as Mid Period report but reporting on four year targets
- MPOs report targets and progress to State DOTs per the Metropolitan Planning Agreement
Proposed Target Setting

Safety

- State DOTs shall establish targets annually for each performance measure identified.
- Be identical to the targets established by the SHSO for common performance measures.
- Represent performance outcomes anticipated for the calendar year following the HSIP annual report date.
- Represent the anticipated performance outcome for all public roadways within the State regardless of ownership or functional class.
- Reported in the HSIP annual report that is due after one year from the effective date of this rule and in each subsequent HSIP annual report thereafter.
- Include in the HSIP Report 10 years of serious injury data.
- Unless approved by FHWA, State DOTs shall not change their target once it is submitted in the HSIP annual report.
**Proposed Target Setting**

- **Pavement and Bridge**
  - All State DOTs and MPOs establish targets for each performance measure, aligned with biennial reports.
  - Targets to be established for the entire NHS network, regardless of ownership.
  - State DOTs may adjust four-year targets at the performance period midpoint.
  - State targets are statewide.
  - State DOTs have the option to set additional urbanized/non-urbanized targets.
  - MPOs establish four-year targets by committing to support the State target or by setting a quantifiable target when applicable.
  - If State adjusts target, any MPO adjustments must occur within 180 days.
  - If MPO changes a quantifiable target, must be done in a manner agreed upon and documented in Metropolitan Planning Agreement.
Proposed Data Requirements

Safety

- Data taken from the Fatality Analysis Reporting System (FARS)
- Data taken from the State motor vehicle crash database
- Exposure data for the serious injury and fatality rate measures are calculated per 100 million VMT as reported in the HPMS.
- Serious injuries shall be coded (A) in the KABCO injury classification scale through the use of the NHTSA serious injuries conversion tables.
- Within 18 months of the effective date of the final rule, serious injuries must be determined using the latest edition of MMUCC
**Proposed Data Requirements**

- **Pavement and Bridge**
  - Pavement data provided to the Highway Performance Monitoring System (HPMS), 0.1 mile uniform pavement sections
  - Bridge data provided to the National Bridge Inventory (NBI)
  - Pavement metrics are IRI, cracking, rutting and faulting with thresholds corresponding to “Good/Fair/Poor”
  - Bridge metrics are condition of deck, superstructure and substructure (or culvert) with “Good/Fair/Poor” thresholds
  - Measures are % lane miles “Good/Poor”, and % deck area “Good/Poor”
Assessments and Implementation Issues
Assessments and Reviews

Level of Readiness

- Congestion, Air Quality, Freight
- Coordinating on performance
- Telling the performance story
- Investment decision-making
- Improving data-quality
- Target setting practices

Implementation Status

Federal Assistance

Best Practices

Report to Congress
Q16: Distribution on Overall Understanding/Involvement

The bar chart shows the distribution of states across various domains, with categories such as Safety, Pavement, Bridge, Congestion, Air Quality, and Freight. Each category is further divided into levels of involvement: Not or Limited Involvement (1 or 2), Moderately Involved (3), and Very Involved (4). The chart indicates the number of states associated with each level of involvement for each domain.
Q17: Distribution of Overall TPM Readiness

- Safety: Low or Moderate (8), High (18), Very High (26)
- Pavement: Low or Moderate (11), High (20), Very High (21)
- Bridge: Low or Moderate (14), High (17), Very High (21)
- Congestion: Low or Moderate (14), High (14), Very High (31)
- Air Quality: Low or Moderate (13), High (3), Very High (36)
- Freight: Low or Moderate (12), High (9), Very High (31)
**Internal Assessment Top Readiness Needs**

- Assuring Data Quality
- Supporting Target Setting
- Assisting in Plan Development
- Monitoring Progress
- Facilitating Coordination
**Transportation Performance Management**

**HPMS Report Cards**

**Timeliness**
- Before 6/15: 12 states
- Within 1 month: 26 states
- After 1 month: 9 states
- No submission: 5 states

**Completeness**
- 100% Submission: 16 states
- 95% or better: 15 states
- Less than 95%: 16 states

**Quality**
- Minor issues: 15 states
- No fatal issues: 21 states
- Fatal issues: 11 states

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Finding Bridges
Assessing Where We Are: the TPM Capacity Maturity Model
## The TPM Capability Maturity Model

<table>
<thead>
<tr>
<th>Component</th>
<th>Description</th>
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<tbody>
<tr>
<td><strong>1. Strategic Framework</strong></td>
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<tr>
<td><strong>2. Target Setting</strong></td>
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<tr>
<td><strong>3. Performance-Based Planning</strong></td>
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<td><strong>4. Performance-Based Programming</strong></td>
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<tr>
<td><strong>5. Monitoring &amp; Assessment</strong></td>
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<tr>
<td><strong>6. Reporting &amp; Communication</strong></td>
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<tr>
<td><strong>A. TPM Organization &amp; Culture</strong></td>
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<tr>
<td><strong>B. External Collaboration</strong></td>
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<tr>
<td><strong>C. Data Usability &amp; Analysis Capabilities</strong></td>
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<tr>
<td><strong>D. Data Management</strong></td>
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CMM has 10 components w/ 26 Subcomponents
## TPM CMM Levels of Maturity

<table>
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<tr>
<th>Level</th>
<th>Definition</th>
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<tr>
<td>1.Initial</td>
<td>Ad hoc, uncoordinated, firefighting, champion-dependent</td>
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<tr>
<td>2.Developing</td>
<td>Nominal framework (e.g., organizational roles) being defined and systematic approaches starting to emerge</td>
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<tr>
<td>3_DEFINED</td>
<td>Framework and systems defined but not fully implemented or effectively supporting decision making</td>
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<tr>
<td>4.Functioning</td>
<td>TPM practices have been institutionalized, information used to guide actions, data improvements being pursued, basic predictive and tradeoff capabilities in place</td>
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<td>5.Sustained</td>
<td>TPM will survive across new leadership, managers using performance information, data effectively managed, and external stakeholders view performance results as useful in promoting accountability and transparency</td>
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CMM: Framework Considerations

1. Grounded in maturity model practices and recent transportation related assessment models
2. Balance “too few” components vs “too complicated”
3. Move dialogue from “what is TPM” to “HOW to do it”
4. Ability to distinguish maturity by performance areas
5. Align with current research on data quality and management
6. Reflect recent performance management frameworks
TPM CMM’s Relation to Other Tools

TPM CMM

Agency-Wide Perspective
High-Level

Specific Application Focus
In-Depth

Detailed Assessment Tools

- Roadway Safety Data Capabilities Assessment
  - HSIP
- Asset Management Gap Analysis Tool
- System Operations & Management
- Corridor Management TPM Model
- Incident Management
- In Progress: Traffic Management, Road Weather, Special Events, Work Zones, Signals
The Future of Transportation Performance Management
Better Outcomes!

- Improved communication of the link between investments and results
  - Depict future scenarios under varying funding levels
- Increased consistency across the country
- Increased coordination across agencies and jurisdictions
- Greater understanding of what works
Improved Measures of Performance

- Synergies between National and other measures used by agencies
- Further refinement of the National measures
- Spur discussions on the value of future areas for performance management
- Improved data collection, integration, mining, reporting, and visualization
Communicating Transportation Performance

Infographics

Performance Reports
Communicating Transportation Performance

**America in Motion**

It's hard not to marvel at the transportation system that keeps America — and you — going.

**Demographics Changing Transportation**

As we look to the future of transportation, we see that America’s needs are evolving.

**How is Transportation Funded in the U.S.?**

Learn more about how the United States funds transportation and why innovative funding sources are needed.

**Mobile Moments: Bicycle Safety Infographic**

630 cyclists died on U.S. highways in 2009.
Thank You

FSWhitson@dot.gov

http://www.fhwa.dot.gov/tpm/