Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and the Congestion Mitigation and Air Quality Improvement Program

Overview Presentation

April 2016
Opening Comments and Introductions

Bob Arnold
Director
FHWA Office of Transportation Management
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<th>Summary of Key Concepts, Performance Measures and Metrics</th>
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</tbody>
</table>
Part 1

Introduction to Transportation Performance Management
Why Are We Doing Performance Management?

- To transform the Federal-aid Highway Program and to provide a means to the most efficient investment of Federal transportation funds
- To refocus on national transportation goals
- To increase the accountability and transparency of the Federal-aid Highway Program
- To improve decision-making through performance-based planning and programming
## FHWA TPM Rulemaking Schedule

<table>
<thead>
<tr>
<th>Performance Area</th>
<th>NPRM</th>
<th>Comments Due</th>
<th>Final Rule</th>
</tr>
</thead>
<tbody>
<tr>
<td>Statewide and Metro Planning; Non-Metro Planning</td>
<td>June 2, 2014</td>
<td>Closed October 2, 2014</td>
<td>Anticipated May 2016</td>
</tr>
<tr>
<td>Performance of the NHS, Freight, and CMAQ Measures</td>
<td>April 22, 2016</td>
<td>Open until August 2016</td>
<td>TBD</td>
</tr>
</tbody>
</table>
Summary of Proposed New 23 CFR Part 490

**Subpart A:** General Information, Target Establishment, Reporting, and NHPP and NHFP Significant Progress Determination

**Subpart B:** Measures to Assess the Highway Safety Improvement Program (HSIP)

**Subpart C:** Measures to Assess Pavement Condition

**Subpart D:** Measures to Assess Bridge Condition

**Subpart E:** Measures to Assess Performance of the National Highway System (NHS)

**Subpart F:** Measures to Assess Freight Movement on the Interstate System

**Subpart G:** Measure for Assessing the CMAQ Program – Traffic Congestion

**Subpart H:** Measures for Assessing the CMAQ Program – On-Road Mobile Source Emissions
## Final Measures: Safety

<table>
<thead>
<tr>
<th>Measure Area</th>
<th>Proposed Performance Measures</th>
</tr>
</thead>
</table>
| **Highway Safety Improvement Program Performance Measures (Subpart B)** | • Number of Fatalities  
• Number of Serious Injuries  
• Rate of Fatalities per 100 million VMT  
• Rate of Serious Injuries per 100 million VMT  
• Number of non-motorized fatalities and non-motorized serious injuries |

Note: These measures apply to all public roads, regardless of ownership/classification.

More information about these measures can be found in previous presentations and fact sheets on the Office of TPM Website (www.fhwa.dot.gov/tpm).
**Proposed Measures: Pavement and Bridge Condition**

<table>
<thead>
<tr>
<th>Measure Area</th>
<th>Proposed Performance Measures</th>
</tr>
</thead>
</table>
| Pavement Condition                                        | • Percentage of pavements of the Interstate System in Good condition*  
• Percentage of pavements of the non-Interstate NHS in Good condition*  
• Percentage of pavements of the Interstate System in Poor condition*  
• Percentage of pavements of the non-Interstate NHS in Poor condition* |
| Performance Measures (Subpart C)                           |                                                                                                                                                                |
| NHS Bridge Condition                                       | • Percentage of NHS Bridges Classified as in “Good” Condition*  
• Percentage of NHS Bridges Classified as in “Poor” Condition* |
| Performance Measures (Subpart D)                           |                                                                                                                                                                |

*More information about these measures can be found in previous presentations and fact sheets on the Office of TPM Website (www.fhwa.dot.gov/tpm).*

*These measures contribute to the National Highway Performance Program (NHPP)
**Proposed Measures: Performance of the NHS and Freight Movement on the Interstate**

<table>
<thead>
<tr>
<th>Measure Area</th>
<th>Proposed Performance Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Performance of the National Highway System</strong></td>
<td>• Percent of the Interstate System providing for Reliable Travel Times*</td>
</tr>
<tr>
<td>(Subpart E)</td>
<td>• Percent of the non-Interstate NHS providing for Reliable Travel Times*</td>
</tr>
<tr>
<td></td>
<td>• Percent of the Interstate System where Peak Hour Travel Times meet expectations*</td>
</tr>
<tr>
<td></td>
<td>• Percent of the non-Interstate NHS where Peak Hour Travel Times meet expectations*</td>
</tr>
<tr>
<td><strong>Freight Movement on the Interstate System</strong></td>
<td>• Percent of the Interstate System Mileage providing for Reliable Truck Travel Times**</td>
</tr>
<tr>
<td>(Subpart F)</td>
<td>• Percent of the Interstate System Mileage Uncongested**</td>
</tr>
</tbody>
</table>

*These measures contribute to the National Highway Performance Program (NHPP)*

**These measures contribute to the National Highway Freight Program (NHFP)**
### Proposed Measures: CMAQ Program

<table>
<thead>
<tr>
<th>Measure Area</th>
<th>Proposed Performance Measures</th>
</tr>
</thead>
<tbody>
<tr>
<td>Measures for Assessing the CMAQ Program – Traffic Congestion (Subpart G)</td>
<td>• Annual Hours of Excessive Delay Per Capita</td>
</tr>
<tr>
<td>Measures for Assessing the CMAQ Program – On-Road Mobile Source Emissions (Subpart H)</td>
<td>• Total Emission Reductions</td>
</tr>
</tbody>
</table>
Part 2

Summary of Key Concepts, Performance Measures and Metrics
**Metrics, Thresholds, and Measures**

**METRIC**
A quantifiable indicator of performance or condition

**Example**
Average truck speed = **52.30 mph**

**MEASURE**
An expression based on a metric, used to establish targets and to assess progress towards achieving the established target

**Entire Applicable Network**
2,510 uncongested miles

**Threshold**
The level of performance for a specific reporting segment that would determine its inclusion in the measure

**Example (Entire Applicable Network)**
Total miles = **3,000**

Uncongested = Avg truck speed > **50.00 mph**

83.7% uncongested
Measures vs. Targets

**MEASURE**
An expression based on a metric, used to establish targets and to assess progress towards achieving the established target

**TARGET**
A quantifiable level of performance or condition, as a value for a measure, to be achieved within a time period required by FHWA

**Example**
83.7% total Interstate miles uncongested

Target: 80.0% Uncongested
Actual: 83.7% Uncongested

✓ Target Achieved
## Subpart E: Proposed Measures, Metrics and Applicability

<table>
<thead>
<tr>
<th>Part 490 Subpart</th>
<th>Measure</th>
<th>Metric</th>
<th>Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subpart E - Performance of the National Highway System</td>
<td>Percent of the Interstate System providing for Reliable Travel Times</td>
<td>Level of Travel Time Reliability (LOTTR)</td>
<td>Interstate System mileage within the State or each MPA</td>
</tr>
<tr>
<td></td>
<td>Percent of the non-Interstate NHS providing for Reliable Travel Times</td>
<td>Level of Travel Time Reliability (LOTTR)</td>
<td>Non-Interstate NHS within the State or each MPA</td>
</tr>
<tr>
<td></td>
<td>Percent of the Interstate System where Peak Hour Travel Times meet expectations</td>
<td>Peak Hour Travel Time Ratio (PHTTR)</td>
<td>Interstate System mileage within each urbanized area with a population over 1 million</td>
</tr>
<tr>
<td></td>
<td>Percent of the non-Interstate NHS where Peak Hour Travel Times meet expectations</td>
<td>Peak Hour Travel Time Ratio (PHTTR)</td>
<td>Non-Interstate NHS mileage within each urbanized area with a population over 1 million</td>
</tr>
</tbody>
</table>
## Subpart F: Proposed Measures, Metrics and Applicability

<table>
<thead>
<tr>
<th>Part 490 Subpart</th>
<th>Measure</th>
<th>Metric</th>
<th>Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subpart F - Freight Movement on the Interstate System</td>
<td>Percent of the Interstate System mileage providing for Reliable Truck Travel Times</td>
<td>Truck Travel Time Reliability (TTTR)</td>
<td>Interstate System mileage within the State or each MPA</td>
</tr>
<tr>
<td></td>
<td>Percent of the Interstate System Mileage Uncongested</td>
<td>Average Truck Speed</td>
<td>Interstate System mileage within the State or each MPA</td>
</tr>
</tbody>
</table>

National Performance Management Measures NPRM

U.S. Department of Transportation
Federal Highway Administration

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## Subparts G & H:
### Proposed Measures Metrics, and Applicability

<table>
<thead>
<tr>
<th>Part 490 Subpart</th>
<th>Measure</th>
<th>Metric</th>
<th>Applicability</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subpart G – CMAQ – Traffic Congestion</strong></td>
<td>Annual Hours of Excessive Delay Per Capita</td>
<td>Total Excessive Delay</td>
<td>NHS roads in urbanized area with a population over 1 million are, all or in part, designated as nonattainment or maintenance areas for ozone ($O_3$), carbon monoxide (CO), or particulate matter (PM)</td>
</tr>
<tr>
<td><strong>Subpart H – CMAQ - On-Road Mobile Source Emissions</strong></td>
<td>2- and 4-year Total Emission Reductions for each applicable criteria pollutant and precursor</td>
<td>Annual Tons of Emission Reductions by project for each applicable criteria pollutant and precursor</td>
<td>All projects funded by CMAQ program in areas designated as nonattainment or maintenance for $O_3$, CO, or PM</td>
</tr>
</tbody>
</table>
What is the National Performance Management Research Data Set (NPMRDS)?

- Is a data set provided by FHWA monthly to State DOTs and MPOs
- Includes travel times derived from all traffic using the highway system, in 5-minute bins
- Includes a breakdown of travel times of freight vehicles and all traffic (freight and passenger vehicles)
- Uses travel times that are reported via vehicle probes on contiguous segments of roadway covering the entire mainline NHS
- Uses vehicle probes that could include mobile phones, vehicle transponders, and portable navigation devices
**Equivalent Data Source Requirements**

- Include contiguous segments that cover the full NHS, as defined in 23 U.S.C. 103, within the State boundary and/or MPA.
- Include average travel times for at least the same number of 5-minute intervals and the same locations that would be available in the NPMRDS.
- Be populated with actual measured vehicle travel times and shall not be populated with travel times derived from imputed methods (historic travel times or other estimates).
- For each segment at 5-minute intervals throughout a full day (24 hours) for each day of the year, include the average travel time, recorded to the nearest second, representative of at least one of the following:
  - All traffic on each segment of the NHS (freight and passenger).
  - Freight vehicle traffic on each segment of the Interstate System.
Reporting Segments – Mainline NHS

Maximum Urban Length
½ mile*

Maximum Rural Length
10 miles*

*Unless an individual Travel Time Segment is longer
**Example of NPMRDS Travel Times**

<table>
<thead>
<tr>
<th>5-minute bins (105,120 per year)</th>
<th>Avg Travel Time (EB)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Freight Vehicles (sec)</td>
</tr>
<tr>
<td>Feb 3 6:00 – 6:05am</td>
<td>32</td>
</tr>
<tr>
<td>Feb 3 6:05 – 6:10am</td>
<td>31</td>
</tr>
<tr>
<td>Feb 3 6:10 – 6:15am</td>
<td>--</td>
</tr>
<tr>
<td>Feb 3 6:15 – 6:20am</td>
<td>37</td>
</tr>
<tr>
<td>Feb 3 6:20 – 6:25am</td>
<td>36</td>
</tr>
<tr>
<td>Nov 7 7:25 – 7:30pm</td>
<td>29</td>
</tr>
<tr>
<td>Nov 7 7:30 – 7:35pm</td>
<td>--</td>
</tr>
<tr>
<td>Nov 7 7:35 – 7:40pm</td>
<td>30</td>
</tr>
<tr>
<td>Nov 7 7:40 – 7:45pm</td>
<td>29</td>
</tr>
<tr>
<td>Nov 7 7:45 – 7:50pm</td>
<td>31</td>
</tr>
</tbody>
</table>
Part 3

Proposed Performance of the NHS, Freight, and CMAQ Measures

Subpart E: Measures to Assess Performance of the NHS
Subpart F: Measures for Assessing Freight Movement on the Interstate System
Subpart G: Measures to Assess CMAQ – Traffic Congestion
Subpart H: Measures to Assess CMAQ – On-Road Mobile Source Emissions
### Subpart E: Measures to Assess Performance of the NHS

<table>
<thead>
<tr>
<th>Travel Time Reliability</th>
<th>Interstate System</th>
<th>Non-Interstate NHS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Percent of the Interstate System providing for Reliable Travel Times</td>
<td>Percent of the non-Interstate NHS providing for Reliable Travel Times</td>
</tr>
<tr>
<td>2</td>
<td>Percent of the Interstate System in urbanized areas over 1M in population where Peak Hour Travel Times meet expectations</td>
<td>Percent of the non-Interstate NHS in urbanized areas over 1M in population where Peak Hour Travel Times meet expectations</td>
</tr>
<tr>
<td>3</td>
<td>Percent of the Interstate System providing for Reliable Travel Times</td>
<td>Percent of the non-Interstate NHS providing for Reliable Travel Times</td>
</tr>
<tr>
<td>4</td>
<td>Percent of the Interstate System in urbanized areas over 1M in population where Peak Hour Travel Times meet expectations</td>
<td>Percent of the non-Interstate NHS in urbanized areas over 1M in population where Peak Hour Travel Times meet expectations</td>
</tr>
</tbody>
</table>
Measures to Assess Performance of the NHS – Travel Time Reliability

**METRICS**
Level of Travel Time Reliability (LOTTR) of each time period of each reporting segment for the full extent:
1. Interstate System
2. Non-Interstate NHS

**THRESHOLD**
LOTTR < 1.50 for the reporting segment = reliable

**MEASURES**
Percent of system providing for reliable travel times.
1. Interstate System
2. Non-Interstate NHS

**Example**
LOTTR = 2.00

30 sec (80th percentile)/15 sec (50th percentile)

8,125 reliable miles/10,000 total Interstate miles = 81.3% reliable
## Measure vs. Target

<table>
<thead>
<tr>
<th>MEASURES</th>
<th>TARGETS</th>
</tr>
</thead>
</table>
| Percent of system providing for reliable travel times. Threshold: < 1.50 | **1.** % of Interstate System provides reliable travel times;  
**2.** % of non-Interstate NHS provides reliable travel times |

### Interstate Example

- **81.3%**  
  Interstate miles providing for reliable travel times

### Entire Applicable Network

- Target: 80.0 %  
  Actual: 81.3 %  
  ✔ Target Achieved
Measures to Assess Performance of the NHS – Peak Hour Travel Time

<table>
<thead>
<tr>
<th>Each Reporting Segment</th>
<th>Entire Applicable Network</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>METRICS</strong></td>
<td><strong>MEASURES</strong></td>
</tr>
<tr>
<td>Peak Hour Travel Time</td>
<td>Percent of each system</td>
</tr>
<tr>
<td>Ratio (PHTTR) of each</td>
<td>in urbanized areas where</td>
</tr>
<tr>
<td>reporting segment for</td>
<td>peak hour travel times</td>
</tr>
<tr>
<td>the full extent in</td>
<td>meet expectations</td>
</tr>
<tr>
<td>urbanized areas of &gt; 1</td>
<td></td>
</tr>
<tr>
<td>1. Interstate System</td>
<td></td>
</tr>
<tr>
<td>2. Non-Interstate NHS</td>
<td></td>
</tr>
<tr>
<td>30 sec (longest)/25</td>
<td>800 miles met expectations/</td>
</tr>
<tr>
<td>sec (desired)</td>
<td>1,000 total miles =</td>
</tr>
<tr>
<td>PHTTR = 1.20</td>
<td>80.0%</td>
</tr>
</tbody>
</table>

**Threshold**

PHTTR < 1.50 for the reporting segment = reliable

**Example**

Segment: 1.20 < 1.50 = Met Expectations
Measure vs. Target

**MEASURES**
Percent of each system in urbanized areas where peak hour travel times meet expectations

**TARGETS**
1. % of Interstate System in area that meets expectations
2. % of non-Interstate NHS that meets expectations

**Interstate Example**
80.0 %
Interstate miles met expectations

**Target:**
- Actual: 80.0%
- Target: 80.0%

✓ Target Achieved
# Subpart F: Measures to Assess Freight Movement on the Interstate System

<table>
<thead>
<tr>
<th></th>
<th>Measure</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Truck Travel Time Reliability</td>
<td>Percent of the Interstate System Mileage providing for Reliable Truck Travel Times</td>
</tr>
<tr>
<td>2</td>
<td>Mileage Uncongested</td>
<td>Percent of the Interstate System Mileage Uncongested</td>
</tr>
</tbody>
</table>
Measures to Assess Freight Movement on the Interstate System – Truck Travel Time Reliability

**METRIC**
Truck Travel Time Reliability (TTTR) for each segment on the Interstate System

**Example**
60 (95th percentile)/42 (50th percentile)
TTTR = 1.43

**MEASURE**
Percent of the Interstate System mileage providing for reliable truck travel times

**ENTIRE APPLICABLE NETWORK**
2,492 reliable miles / 3,000 total miles = 81.3% reliable

**THRESHOLD**
TTTR < 1.50 for the reporting segment = reliable

1.43 < 1.50
Reliable
**Measure vs. Target**

**MEASURE**
Percent of the Interstate System mileage providing for reliable truck travel times

**TARGET**
Percent of the Interstate System mileage providing for reliable truck travel times, during a calendar year

**Example**
81.3%
Interstate miles providing for reliable truck travel times

Target: 80.0% reliable miles
Actual: 81.3% reliable miles

✓ Target Achieved
### Measures to Assess Freight Movement on the Interstate System – Mileage Uncongested

<table>
<thead>
<tr>
<th>Metric</th>
<th>Threshold</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average Truck Speed for each travel time segment on the Interstate System for a calendar year</td>
<td>Average truck speed &gt; 50 mph for the segment = uncongested</td>
<td>Percent of the Interstate System mileage uncongested</td>
</tr>
</tbody>
</table>

**Example**

Average truck speed = 52.30 mph

52.30 mph > 50.00 mph = **Uncongested**

2,250 uncongested miles / 3,000 total miles = **75.0% uncongested**
**Measure vs. Target**

<table>
<thead>
<tr>
<th>MEASURE</th>
<th>TARGET</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of the Interstate System mileage uncongested</td>
<td>Percent of the Interstate System mileage uncongested, for a calendar year</td>
</tr>
</tbody>
</table>

**Example**

- **75.0%** Interstate miles uncongested

- **Target:** 75.0% uncongested
  - **Actual:** 75.0% uncongested
  - ✔️ **Target Achieved**
**Subparts G and H: Measures to Assess the CMAQ Program**

1. CMAQ – Traffic Congestion (Subpart G) - Annual Hours of Excessive Delay Per Capita

2. CMAQ – On-Road Mobile Source Emissions (Subpart H) - 2- and 4-year Total Emission Reductions for each applicable criteria pollutant and precursor
**Transportation Performance Management**

**Measure to Assess CMAQ – Traffic Congestion (Subpart G)**

<table>
<thead>
<tr>
<th>Each Reporting Segment</th>
<th>Entire Applicable Network</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>METRIC</strong></td>
<td><strong>MEASURE</strong></td>
</tr>
<tr>
<td>Total excessive delay (vehicle-hours) for each reporting segment on the NHS</td>
<td>Annual hours of excessive delay per capita</td>
</tr>
</tbody>
</table>

**Example**

- **Total excessive delay, single 0.5 mi. Interstate segment:** 863,025 vehicle-hours
- **Threshold for 0.5 mi. Interstate segment:** 51 seconds
- **4.46M hrs excessive delay/1.05M population = 4.3 hours per capita**

**THRESHOLD**

Excessive delay travel time at threshold speed:

a) Interstates/highways/expressways: 35 mph
b) Principal arterials and all other roads: 15 mph
Transportation Performance Management

**Measure vs. Target**

<table>
<thead>
<tr>
<th>Entire Applicable Network</th>
</tr>
</thead>
</table>

**MEASURE**
Annual hours of excessive delay per capita

**TARGET**
Annual hours of excessive delay per capita, as established by the State DOT or MPO

**Example**
4.3 vehicle-hours excessive delay per capita

Target: 5.0 hours/capita
Actual: 4.3 hours/capita
✓ Target Achieved
Measure to Assess CMAQ –
On-Road Mobile Source Emissions (Subpart H)

**METRIC**
Conversion of emission reductions from kg/day to short tons per year

Example
2.127 kg/day × 0.4026 = 0.856 short tons CO per year

**MEASURE**
Total emission reductions:
- 2-year cumulative emission reductions
- 4-year cumulative emission reductions

2-year emission reductions, all CO projects
1.796 short tons
Measure vs. Target

Example for CO Emissions, 2 Fiscal Years (2018-2019)

**MEASURE**
Total reduction in CO emissions for 2 years

**TARGET**
Total reduction in CO emissions for 2 years, as established by the State DOT

Example

Total 2-year reduction in CO emissions: 1.796 tons

2-year target: 1.500 tons
2-year reduction: 1.796 tons

✓ Target Achieved
Summary of Data Sources and Requirements
## Proposed Data Sources

<table>
<thead>
<tr>
<th>Data Sources</th>
<th>Applicable Measures (Proposed 23 CFR §490)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Highway Performance Monitoring System (HPMS)</strong></td>
<td>• Pavement Condition Performance Measures&lt;br&gt;• Performance of the NHS&lt;br&gt;• Freight Movement on the Interstate System&lt;br&gt;• CMAQ – Traffic Congestion</td>
</tr>
<tr>
<td><strong>National Performance Management Research Data Set (NPMRDS) or equivalent data set</strong></td>
<td>• Performance of the NHS&lt;br&gt;• Freight Movement on the Interstate System&lt;br&gt;• CMAQ – Traffic Congestion</td>
</tr>
<tr>
<td><strong>EPA Green Book</strong></td>
<td>• CMAQ – Traffic Congestion&lt;br&gt;• CMAQ – On-Road Mobile Source Emissions</td>
</tr>
<tr>
<td><strong>CMAQ Public Access System</strong></td>
<td>• CMAQ – On-Road Mobile Source Emissions</td>
</tr>
<tr>
<td><strong>Population Data from US Decennial Census</strong></td>
<td>• Performance of the NHS – Peak Hour Travel Time Only&lt;br&gt;• CMAQ – Traffic Congestion</td>
</tr>
<tr>
<td><strong>Urbanized Area Boundary from US Decennial Census or Adjusted Boundary reported to HPMS</strong></td>
<td>• Performance of the NHS – Peak Hour Travel Time Only&lt;br&gt;• CMAQ – Traffic Congestion</td>
</tr>
</tbody>
</table>
## Proposed Data Submittal Requirements for Metric Calculation

<table>
<thead>
<tr>
<th>Data</th>
<th>Submit Data to</th>
<th>Submission Deadline</th>
<th>Extraction Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>CMAQ Emission Reduction Metric - Project Information for previous FY</td>
<td>CMAQ Project Tracking System</td>
<td>March 1</td>
<td>July 1 (in CMAQ Public Access System)</td>
</tr>
<tr>
<td>Travel Time Reliability Metrics</td>
<td>HPMS</td>
<td>June 15</td>
<td>August 15</td>
</tr>
<tr>
<td>Peak Hour Travel Time Metrics</td>
<td>HPMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freight – Truck Travel Time Reliability Metrics</td>
<td>HPMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Freight – Mileage Uncongested Metrics</td>
<td>HPMS</td>
<td></td>
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</tr>
<tr>
<td>CMAQ – Traffic Congestion Metrics</td>
<td>HPMS</td>
<td></td>
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<tr>
<td>Adjusted Urbanized Area Boundaries</td>
<td>HPMS</td>
<td>Baseline Report</td>
<td>--</td>
</tr>
<tr>
<td>Reporting Segments</td>
<td>HPMS</td>
<td>November 1</td>
<td></td>
</tr>
<tr>
<td>State DOT’s methodology to develop hourly traffic volume data for each reporting segment</td>
<td>FHWA</td>
<td>60 days prior to submittal of First Baseline Report</td>
<td>--</td>
</tr>
</tbody>
</table>
Part 4

Subpart A: Target Establishment, Reporting, Significant Progress Determination, and the Regulatory Impact Analysis
Overview

4 Year Performance Period

State DOT

Report Targets

FHWA

Adjust Targets Report on Progress

FHWA

Report on Progress

FHWA

MPO

Report Targets

State DOT

2 Yr Target

4 Yr Target

Report on Progress

System Performance Report

FHWA
## Proposed Establishment of Performance Targets

<table>
<thead>
<tr>
<th>State DOTs</th>
<th>MPOs</th>
</tr>
</thead>
</table>
| - Establish 2-year and 4-year targets, as applicable  
  - Within 1-year of the effective date of the final rule.  
  - Target adjustment of 4-year target allowed at the mid-point of target period  
  - Optional additional urbanized/non-urbanized targets | - Establish 2-year and 4-year targets, as applicable, by either committing to support the State DOT target or establishing a quantifiable target.  
  - Within 180 days of the State DOT  
  - If State DOT adjusts target, any MPO adjustments must occur within 180 days |
## Target Establishment Summary

<table>
<thead>
<tr>
<th>Subpart E - Performance of the National Highway System</th>
<th>Proposed Measures</th>
<th>State DOT Targets</th>
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<tbody>
<tr>
<td></td>
<td>Percent of the Interstate System providing for Reliable Travel Times</td>
<td>2-year* &amp; 4-year targets - Statewide</td>
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*Non-Interstate NHS Travel Time Reliability only: 2-year targets not required for 1st performance period*
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<td>Annual Hours of Excessive Delay Per Capita</td>
<td>Single 2-year* &amp; 4-year targets for each urbanized area</td>
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<td>Subpart H – CMAQ - On-Road Mobile Source Emissions</td>
<td>Total Emission Reductions</td>
<td>2-year &amp; 4-year targets – Statewide</td>
<td>2-year** &amp; 4-year targets - MPA Area</td>
<td>October 1, 2017</td>
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*CMAQ- traffic congestion measure: 2-year targets not required for 1st performance period*
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</table>

**On-Road mobile source emissions measure**: 2-year targets are only required when part of a designated nonattainment and maintenance area within the metropolitan planning area overlaps the boundary of an urbanized area with a population more than 1 million in population.
Geographic Areas used by Proposed Measures
Geographic Areas used by Proposed Measures

- Missouri State DOT
- Illinois State DOT
- MPOs to Report for Proposed Measures
- State DOTs to Report for Proposed Measures
Geographic Areas: Peak Hour Travel Time & Traffic Congestion Measures

- Urbanized Areas (UZA) with Population over 1 Million
- MPOs to Report for Proposed Measures
- State DOTs to Report for Proposed Measures
Geographic Areas: Peak Hour Travel Time

- UZA with Population over 1 Million
- MPOs to Report for Proposed Measures
- State DOTs to Report for Proposed Measures
Geographic Areas: Traffic Congestion

Please Note: This map is for illustrative purposes. Nonattainment and maintenance areas would be identified based on the effective date of US EPA’s designations under NAAQS at the time when the State DOT Baseline Performance Period Report is due to FHWA.
Geographic Areas: On-Road Mobile Source Emissions

Nonattainment and Maintenance Areas for Ozone, CO, PM
State DOTs to Report for Proposed Measure

Please Note: This map is for illustrative purposes. Nonattainment and maintenance areas would be identified based on the effective date of US EPA’s designations under NAAQS at the time when the State DOT Baseline Performance Period Report is due to FHWA.
Reporting
# Initial State DOT Reporting

<table>
<thead>
<tr>
<th>Initial State Performance Report (due October 1, 2016)</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Performance where data is available</td>
</tr>
<tr>
<td>• Effectiveness of asset management investment strategy for NHS</td>
</tr>
<tr>
<td>• Progress toward targets</td>
</tr>
<tr>
<td>• Activity to reduce freight bottlenecks</td>
</tr>
</tbody>
</table>
# State DOT Reporting on Performance Targets

## Baseline Performance Period Report
- NHS limits
- Adjusted urbanized area boundaries and population data
- Nonattainment and maintenance areas and MPOs’ CMAQ Performance Plan*
- Baseline performance
- 2-year and 4-year targets
- Discussion of congestion at freight bottle necks.
- Relationship to other plans, including freight

## Mid Performance Period Progress Report
- 2-year performance
- Progress discussion
- Investment strategy effectiveness
- Adjusted 4-year targets (optional)*
- Extenuating circumstances*
- Target achievement discussion*
- MPOs’ CMAQ Performance Plans*

## Full Performance Period Progress Report
- Same content as Mid Performance Period Progress Report, except:
  - Reporting on 4-year performance
  - No option for adjusted targets

---

*Only include when applicable
**MPO Reporting on Performance Targets**

**System Performance Report**
- Part of MPO’s Metropolitan Transportation Plan (MTP)
- Report baseline performance and progress toward achieving targets

**CMAQ Performance Plan**
- Required for MPOs serving a TMA with a population over 1 million with ozone, CO, or PM nonattainment and maintenance areas
Timeline for Biennial Performance Reporting

1st Performance Period for non-emission measures
- Baseline Performance Period Report (due Oct 1, 2018)
- Mid Performance Period Progress Report (due Oct 1, 2020)

1st Performance Period for emission measure
- Baseline Performance Period Report (due Oct 1, 2018)
- Mid Performance Period Progress Report (due Oct 1, 2020)

2nd Performance Period for non-emission measures
- Full Performance Period Progress Report (due Oct 1, 2022)
- Baseline Performance Period Report (due Oct 1, 2022)
- Mid Performance Period Progress Report (due Oct 1, 2024)

2nd Performance Period for emission measure
- Full Performance Period Progress Report (due Oct 1, 2026)
Example Targets and Target Reporting

Transportation Performance Management

Baseline Performance Period Report (due Oct Year 1)

Baseline Performance

2-Year Targets

4-Year Targets

Performance Period

2017 2018 2019 2020 2021 2022

National Performance Management Measures NPRM
Mid Performance Period Progress Reporting

Transportation Performance Management

Performance Period

Actual Mid-period Performance

Baseline Performance

Mid Performance Period Progress Report (due Oct Year 3)

Adjusted 4-Year Targets (optional)

4-Year Targets

Mid Period Significant Progress Determination for 2-Year Targets

2017 2018 2019 2020 2021 2022

Performance

National Performance Management Measures NPRM
Transportation Performance Management

Full Performance Period Progress Reporting

- Baseline Performance
- Actual Mid-point Performance
- 2-Year Targets
- Adjusted 4-Year Target
- Performance Period
- Actual Period-end Performance
- Full Performance Period Progress Report (due Oct Year 5)
- Period-end Significant Progress Determination for 4-Year Targets

Performance

2017 2018 2019 2020 2021 2022

Baseline Performance

Actual Mid-point Performance

2-Year Targets

Adjusted 4-Year Target

Full Performance Period Progress Report (due Oct Year 5)

Period-end Significant Progress Determination for 4-Year Targets
Effective Dates of Performance Measures

- **Safety PM Effective** (April 14, 2016)
- **Infrastructure Condition PM Effective** (tentative)
- **AMP Effective** (tentative)
- **National PM Measures Rule Effective** (tentative)

**1st Performance Period (except Subpart H)**: 2018-2021

**2nd Performance Period**: 2022-2025

- **Initial State Performance Report**
- **Baseline Period Performance Report**
- **Mid Period Performance Report**
- **Full Performance Period Report (1st Period) & Baseline Performance Period Report (2nd Period)**

**Target Establishment Syncs**
Assessing Significant Progress
### Assessing Significant Progress Toward Achieving NHPP and NHFP Targets

<table>
<thead>
<tr>
<th>NPRM Subpart</th>
<th>Group</th>
<th>Proposed Measures</th>
<th>Significant Progress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Subpart E - Performance of the National Highway System (NHS)</strong></td>
<td>Travel Time Reliability</td>
<td>Percent of the Interstate System providing for Reliable Travel Times</td>
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</tbody>
</table>
### Assessing Significant Progress Toward Achieving NHPP and NHFP Targets

<table>
<thead>
<tr>
<th>Who</th>
<th>• FHWA determines if a State DOT has made significant progress</th>
</tr>
</thead>
<tbody>
<tr>
<td>What</td>
<td>• Makes determination for each NHPP &amp; NHFP target</td>
</tr>
<tr>
<td>When</td>
<td>• Assesses significant progress every 2 years</td>
</tr>
</tbody>
</table>

**Consequence:** For the NHPP and NHFP, the State DOTs are required to achieve or make significant progress toward their targets every biennial reporting period (every 2 years), and are to take additional reporting actions if FHWA determines significant progress is not made.
Transportation Performance Management

Assessing Significant Progress Toward Achieving NHPP and NHFP Targets

Significant progress is made when either...

- Actual performance is better than baseline performance (regardless of target)
- Target is achieved (actual performance is equal to/greater than established target)
Regulatory Impact Analysis (RIA)
Regulatory Impact Analysis Estimate over 11 Years  
(Scenario #1-FHWA Provides NPMRDS)

**Increased travel time reliability on the NHS**
+ **Reduced time spent in congestion for commuters and freight operators**
+ **Reduced emissions from traffic congestion and vehicle travel**

**Total Costs of Proposed Rule (undiscounted)***

- Data Requirements = $21.24 million
- Reporting Requirements = $90.53 million
- Calculation of Metrics = $27.20 million
- Calculation of Measures = $26.30 million

Total = $165.27 million (rounded)

*The NPRM contains a summary analysis on the change needed make the compliance costs beneficial. Refer docket for the NPRM for the detailed RIA for full details.
One Last Thought
Consideration of a Greenhouse Gas (GHG) Emissions Measure

The FHWA seeks comment from the public on:

- Whether to establish a GHG emissions measure in the final rule
- If a GHG measure were to be included, FHWA believes that it would be best measured as the total annual tons of CO2 from all on-road mobile sources
Part 5

Q&A and Summary
Questions?
Rulemaking Resources

Office of TPM website: http://www.fhwa.dot.gov/tpm/

In-Depth Webinars on Proposed Measures

- 4/26: Performance of the NHS (Subpart E)
- 5/3: CMAQ – Traffic Congestion and On-Road Mobile Emissions (Subparts G and H)
- TBD: Freight Movement on the Interstate System (Subpart F) – Industry Overview

Fact sheets, published NRPMs, webinar registration, and related information at http://www.fhwa.dot.gov/tpm/rule/pm3_nprm.cfm
Submit Comments to:

www.regulations.gov

FHWA 2013-0054

The NPRM will be published April 22, 2016

For clarifying questions or more information, please contact:

Francine Shaw Whitson
FSWhitson@dot.gov
PerformanceMeasuresRulemaking@dot.gov
Thank you!