Federal PM3 and CMAQ Performance Measures

August 5, 2022 | Technical Advisory Committee
Overview

• Measures and Timelines
• PM Structure and Reporting
• CMAQ Performance Measures and Targets
• CMAQ Performance Plan Overview
• Timeline and Next Steps
Federal Performance Measure Target Dates

1st Performance Period

Baseline Performance Period Report (due Oct 1, 2018)
Mid Performance Period Progress Report (due Oct 1, 2020)

2nd Performance Period

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)
Full Performance Period Progress Report (due Oct 1, 2026)
## Federal Performance Measure Target Dates

### FHWA

<table>
<thead>
<tr>
<th>Measure Type</th>
<th>Target Dates</th>
<th>Review Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety (PM1)</td>
<td>5 measures January 2023</td>
<td>Annually by DOTs and MPOs</td>
</tr>
<tr>
<td>Infrastructure (PM2)</td>
<td>6 measures January 2023</td>
<td>Every two years by DOTs and MPOs</td>
</tr>
<tr>
<td>System Performance (PM3)</td>
<td>6 measures October 2022 - January 2023</td>
<td>Every two years by DOTs and MPOs</td>
</tr>
</tbody>
</table>

### FTA

<table>
<thead>
<tr>
<th>Measure Type</th>
<th>Target Dates</th>
<th>Review Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transit Assets</td>
<td>4 measures As needed</td>
<td>Annually by transit providers</td>
</tr>
<tr>
<td>Transit Safety</td>
<td>By July 20, 2020 by transit agencies</td>
<td>Within 180 days of receiving targets from transit agency. Then, during update of TIPs/MTPs.</td>
</tr>
</tbody>
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**Targets are reviewed:**

- Annually by DOTs and MPOs
- Every two years by DOTs and MPOs
- Every two years by DOTs and MPOs
- Annually by transit providers | During update of TIPs/MTPs by MPOs
• **Performance Periods:** 4 years with a Mid-Performance Period update after 2 years

• **Metrics:** specific calculations of performance following federal guidelines

• **Baselines:** metrics defining existing conditions/performance prior to the start of the Performance Period

• **Targets:** metrics developed by states/MPOs to track the Performance Measure across the Performance Period
CMAQ PM3 Reporting Requirements

- CMAQ performance measures are a subset of **System Performance Measures (PM3)**.

- Mandated for MPO populations of **200k+** and a **nonattainment area** receiving CMAQ funds.

- **CMAQ Performance Plan** Required

- The baseline, 2-year and 4-year targets, and performance plan must be submitted to TxDOT prior to **October 2022**.

- TxDOT integrates them into their **Statewide Biennial Performance Report** for the Second Performance Period.
• **Coordinated, collaborative effort** between AAMPO, TxDOT, TTI, and other MPOs.

• TTI provided technical assistance and AAMPO generally followed TTI suggestions for targets.

• For the *emissions reduction* measure, AAMPO participated in an **MPO working group** to establish the methodology for developing this measure.

• **Baseline** performance measures for traffic congestion are reported for 2021 for this performance period.
CMAQ Performance Measures

Traffic Congestion

Annual Hours Peak Hour Excessive Delay (PHED)
% Non-SOV Travel

On-Road Mobile Source Emissions

Total Emissions Reduction NOx and VOC
What is it?

- **Delay** is the extra time spent travelling below the speed limit.

- **Excessive delay** means delay occurring at an average speed less than:
  - 20 mph or
  - 60% of the posted speed limit
    (e.g. 39 mph in a 65 mph zone.)

- Peak hour or **the peak period** is commonly known as “rush hour”, weekdays from 6-10am and from 3-7pm

- Peak hour excessive delay (PHED)
Peak Hour Excessive Delay

How is it calculated?

1. **Reporting segments** are taken from NPMRDS based on the Urban Area Boundary and National Highway System.

2. **Travel times** recorded in 15-minute intervals determine amount of **excessive delay** experienced annually in each segment (during peak periods only).

3. **Hourly traffic volumes** and **vehicle occupancy rates** are multiplied by the amount of excessive delay to determine the total amount of **person-hours travelled** each year due to delay.

4. PHED is added up for each segment, then divided by the **Urban Area population** to yield the final metric.
Peak Hour Excessive Delay

Annual Hours Peak Hour Excessive Delay (PHED)

% Non-SOV Travel

Total Emissions Reduction NOx and VOC

How were targets set?

- AAMPO utilized a TTI spreadsheet distributed to MPOs

- Past PHED numbers from all MPOs are adjusted for future increases in *excessive delay* and *daily person-miles travelled*

- AAMPO corroborated that the suggested targets matched *pre-COVID trends*
Baseline and Targets

- **Baseline (2021)** – 11 person-hours PHED per capita
- **2-year Target (2023)** – 15 person-hours
- **4-year Target (2025)** – 16 person-hours
What is it? How is it calculated?

- **Non-SOV** travel is the percentage of the workforce not driving alone in a car, truck, or van.

- This measure is taken from the *American Community Survey* Journey to Work data.

- TTI recommended 2-year and 4-year targets slightly lower than pre-COVID levels.
Non-SOV Travel

Baseline and Targets

• Baseline (2021) – 23.1% non-SOV travel
• 2-Year Target (2023) – 20.0% non-SOV travel
• 4-Year Target (2025) – 20.0% non-SOV travel
Total Emission Reduction

What is it? How is it calculated?

- Total amount of emissions reduced during entire Performance Period (as well as 2-year midway point)
- Calculated based on CMAQ annual reporting in UPACS
- All CMAQ TIP/MTP projects contain yearly emissions reductions
- Reduction figures are calculated using FHWA’s Emission Calculator Toolkit or TTI’s MOSERS models.
- The metric is cumulative: the 4-year target and metric includes the 2-year figure.
- Baseline is determined by CMAQ benefits reported several years before the start of Performance Period.
How are targets set?

• *Only projects reported in UPACS count toward the target.* Some discrepancy typically between UPACS and the TIP.

• AAMPO has 10 projects in its baseline data, information on the let 2022 projects was used to determine a “win percentage” to apply to the first 2-years. This was 7 of 12 or 58.2% of total benefits for each pollutant.

• AAMPO will revisit this methodology and the CMAQ program before the mid-Performance Period report.
Baseline and Targets

- Baseline (2020-2021, NOx) – 121.583 kg/day
- 2-Year Target (2023, NOx) – 127.750 kg/day
- 4-Year Target (2025, NOx) – 219.130 kg/day

- Baseline (2020-2021, VOC) – 25.435 kg/day
- 2-Year Target (2023, VOC) – 53.970 kg/day
- 4-Year Target (2025, VOC) – 92.576 kg/day
“CMAQ” Performance Plan

• Required and provided to state by MPO for inclusion with Biennial Performance Reports submitted to FHWA

• AAMPO’s Baseline Report contains the following for each CMAQ Measure:
  • Baseline Condition/Performance
  • 2- and 4-year Targets
  • Descriptions of relevant funded projects and how they will contribute to achieving targets in Table 3

• Potential moderate re-classification will not directly impact target methodology (required of all AQ nonattainment and maintenance areas).
“CMAQ” Performance Plan

Overview

Table 1 – Baseline Figures for CMAQ Performance Plan

<table>
<thead>
<tr>
<th>Measure</th>
<th>Baseline</th>
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<tbody>
<tr>
<td>Annual PHED per Capita</td>
<td>11</td>
</tr>
<tr>
<td>Percent of Non-SOV Travel</td>
<td>23.1%</td>
</tr>
<tr>
<td>Emissions – NO\textsubscript{x} (kg/day)</td>
<td>121.583</td>
</tr>
<tr>
<td>Emissions – VOC (kg/day)</td>
<td>25.435</td>
</tr>
</tbody>
</table>

Table 2 – Established CMAQ-Focused Two- and Four-Year Targets

<table>
<thead>
<tr>
<th>Performance Measure</th>
<th>2-Year Target</th>
<th>4-Year Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual PHED per Capita</td>
<td>15</td>
<td>16</td>
</tr>
<tr>
<td>Percent of Non-SOV Travel</td>
<td>20.0%</td>
<td>20.0%</td>
</tr>
<tr>
<td>Emissions – NO\textsubscript{x} (kg/day)</td>
<td>127.75</td>
<td>219.13</td>
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<tr>
<td>Emissions – VOC (kg/day)</td>
<td>53.97</td>
<td>92.576</td>
</tr>
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# Performance Measures Schedule

<table>
<thead>
<tr>
<th>Milestone</th>
<th>Deadline</th>
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<tbody>
<tr>
<td>TAC Action</td>
<td>August 5, 2022</td>
</tr>
<tr>
<td>TPB Action</td>
<td>August 22, 2022</td>
</tr>
<tr>
<td>CMAQ Performance Plan and Performance Management Report (PMF) Due to TxDOT</td>
<td>September 19, 2022</td>
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<tr>
<td>Biennial Performance Report Due to FHWA (TxDOT)</td>
<td>October 1, 2022</td>
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<tr>
<td>AAMPO Regional Performance Targets Due to FHWA (or notice of supporting state measures)</td>
<td>March 30, 2023</td>
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Questions?

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