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## Transportation Performance Management CMAQ Performance Measures

[www.fhwa.dot.gov/tpm/videos](http://www.fhwa.dot.gov/tpm/videos)

*TPM requirements for coordination among State Departments of Transportation, Metropolitan Planning Organizations, and operators of public transportation*



### Topics Covered in Video

- Purpose of the CMAQ performance measures
- What the CMAQ performance measures assess
- Insight into FHWA's reasoning for establishing these three measures

### Statutes & Regulations

- 23 CFR 490.703
- 23 CFR 490.705
- 23 CFR 490.707
- 23 CFR 490.711
- 23 CFR 490.713(d)
- 23 CFR 490.713(d)(1)
- 23 CFR 490.713(d)(2)
- 23 CFR 490.713(d)(3)
- 23 CFR 490.803
- 23 CFR 490.807
- 23 CFR 490.811
- 23 USC 150(c)(5)(A)
- 23 USC 150(c)(5)(B)

The Transportation Performance Management Topic Videos series, produced by the Federal Highway Administration (FHWA), provides State Departments of Transportation, Metropolitan Planning Organizations, operators of public transportation, and other interested parties guidance for implementing Transportation Performance Management (TPM).

There are three FHWA performance measures under the Congestion Mitigation and Air Quality Improvement, or CMAQ, Program. These measures are:

- Annual Hours of Peak Hour Excessive Delay Per Capita, also known as PHED;
- Percent of Non-Single Occupancy Vehicle travel, also known as Non-SOV Travel; and
- Total Emissions Reduction.

This video focuses on why these three CMAQ Program performance measures were selected. It covers:

- The purpose of the CMAQ performance measures;
- What the CMAQ performance measures assess; and
- Insight into FHWA's reasoning for establishing these three measures.

Note that the CMAQ performance measures are not applicable to all States or Metropolitan Planning Organizations (MPOs), so contact your local FHWA Division Office or visit [https://www.fhwa.dot.gov/environment/air\\_quality/cmqaq/measures](https://www.fhwa.dot.gov/environment/air_quality/cmqaq/measures) to learn whether you're impacted.

You can also view videos on applicability determination for the CMAQ Traffic Congestion and CMAQ Emissions measures to understand how applicability for State DOTs and MPOs is determined.

**Let's start by looking at the purpose of the CMAQ performance measures.**

The purpose of the PHED and Non-SOV Travel measures is to assess traffic congestion. The purpose of the Total Emissions Reduction measure is to assess on-road mobile source emissions reductions associated with projects funded by the CMAQ program.

The overall purpose is to assess how the CMAQ program is being carried out. The measures enable us to see how effectively the program works as a flexible funding source for State and local governments for transportation projects and programs to help meet the requirements of the Clean Air Act.

CMAQ funding is available to reduce traffic congestion and improve air quality for areas that do not meet the National Ambient Air Quality Standards for ozone, carbon monoxide, or particulate matter (nonattainment areas) and for former nonattainment areas that are now in compliance (maintenance areas).

### Now let us look at what the three measures assess, and why the measures were selected.

The first measure, the annual hours of peak hour excessive delay per capita on the National Highway System, or PHED, is a measure of traffic congestion. It evaluates congestion during peak hours: weekdays during 6-10 a.m. local time and either 3-7 p.m. or 4-8 p.m. The level of congestion is based on the longest travel time compared to the average travel time on individual road segments. The measure also considers the number of vehicles on the road and the number of vehicle occupants. The PHED measure evolved during the rulemaking process. Commenters felt that proposed Peak Hour Travel Time and Excessive Delay measures created unnecessary complication and added burden. In response, FHWA consolidated those two proposed measures into the PHED measure.

The second congestion measure, the Percent of Non-Single Occupancy Vehicle (Non-SOV) travel, measures whether travelers are using modes of transportation other than driving by themselves in their cars.

### PERCENT OF NON-SINGLE OCCUPANCY VEHICLE TRAVEL



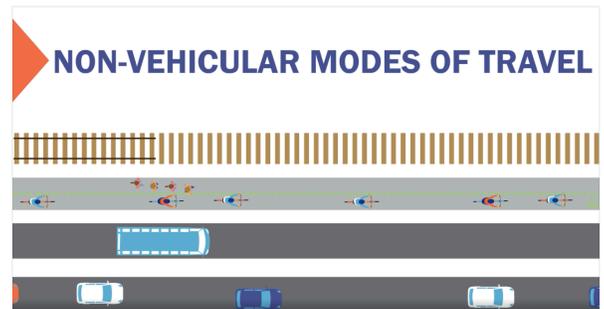
Applicable State DOTs and MPOs have three options for calculating the measure.

- One option is to use the Selected Economic Characteristics data in Table DP03 of the American Community Survey to estimate the total percent of Non-SOV travel commuting to work in the urbanized area.
- A second option is to use local surveys to estimate the percentage of Non-SOV travel occurring in the urbanized areas.

- And the third option is to estimate the percent of Non-SOV travel based on volume measurements of actual use of each transportation mode. This includes but is not limited to cars, bicycles, pedestrian travel, travel avoided by telework, and on-road bus transit. For full details about each method, review the appropriate regulations and consult with your State's FHWA Division Office.

How was the Percent of Non-Single Occupancy Vehicle Travel measure developed?

Stakeholders asserted during the rulemaking process that the performance of the National Highway System (NHS) and the impact of congestion require consideration of pedestrians, bicyclists, public transit riders, and other travelers.



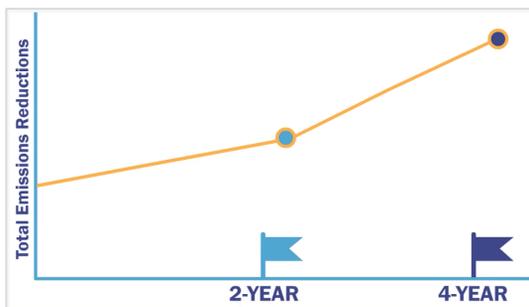
The FHWA believes non-vehicular modes play an important role in reducing levels of criteria pollutants in urbanized areas, and, because transportation in urbanized areas is inherently multimodal, it is important to account as much as possible for the options that are available to travelers in those urbanized areas. This measure will help carry out the CMAQ program, as the program recognizes investments that increase multimodal solutions and vehicle occupancy levels as strategies to reduce both criteria pollutant emissions and congestion.

Now let us turn to the on-road mobile source emissions measure, total emissions reduction.

The purpose of the CMAQ program is to fund transportation projects or programs that will contribute to attaining or maintaining national ambient air quality standards. This measure helps assess progress toward that purpose.

For projects funded with CMAQ funds, states enter estimated emissions reductions of applicable criteria pollutants (ozone, carbon monoxide, and particulate matter) and precursors that aid in the formation of those pollutants into a national database. States estimate emissions reductions in kilograms per day for all projects funded with CMAQ program funds.

To keep this measure simple and consistent with current CMAQ annual reporting requirements, a project's estimated emissions reductions are only for the first year of full operation. The information is entered in the CMAQ Project Tracking System only for the first year the project has funds obligated to avoid double counting benefits. The FHWA understands this approach may result in taking credit for a project in a performance period before it becomes operational, but believes the simplicity of this process is appropriate. The total emissions reduction measure is then calculated by adding together the total emissions reductions in the database for given 2- and 4-year periods.



To see how these performance measures were selected and weighed against stakeholder input, you may review the summary and discussion of comments in the final rule, available through the Federal Register, Document 82 FR 5970. Links to all the TPM related rulemakings are at [www.fhwa.dot.gov/tpm/rule.cfm](http://www.fhwa.dot.gov/tpm/rule.cfm).

For additional information on how to implement the CMAQ performance measures and whether they are applicable to your State or MPO, contact your local FHWA Division Office or download the companion resource and review other information at [www.fhwa.dot.gov/tpm](http://www.fhwa.dot.gov/tpm).

Working together, we can provide strategies to improve our nation and people's lives through great transportation planning.

## Additional Resources

**Extend your learning through more detailed resources and through interactive learning methods.**

TPM Training:

<https://www.fhwa.dot.gov/tpm/resources/training.cfm>

TPM Website:

<http://www.fhwa.dot.gov/tpm/about/index.cfm>

General Portal for FHWA Resources:

<https://www.fhwa.dot.gov/research/library/>

National Highway Institute (NHI) Course Catalogue on Transportation Performance Management:  
[https://www.nhi.fhwa.dot.gov/downloads/catalog/transportation-performance-management\\_all-delivery-types\\_sorted-by-title.pdf](https://www.nhi.fhwa.dot.gov/downloads/catalog/transportation-performance-management_all-delivery-types_sorted-by-title.pdf)

### Other References on Final Rule

Final Rule Discussion, Section 490.507

<https://www.federalregister.gov/d/2017-00681/p-689>

Final Rule Discussion, Section 490.703

<https://www.federalregister.gov/d/2017-00681/p-724>

Final Rule Discussion, Section 490.707

<https://www.federalregister.gov/d/2017-00681/p-728>

Final Rule Discussion, Section 490.707

<https://www.federalregister.gov/d/2017-00681/p-729>

Federal Register, Document 82 FR 5970

<https://www.federalregister.gov/documents/2017/01/18/2017-00681/national-performance-management-measures-assessing-performance-of-the-national-highway-system#p-593>

Final Rule Response to Comments; Subpart G, Decision to Include a Multimodal Measure

<https://www.federalregister.gov/d/2017-00681/p-593>

Final Rule Response to Comments; Subpart H, Reporting

<https://www.federalregister.gov/d/2017-00681/p-630>

Final Rule Section-by-Section Discussion, NPRM

<https://www.federalregister.gov/d/2016-08014/p-488>

### You may also learn more at:

<https://highways.dot.gov/research>

<http://www.facebook.com/FederalHighwayAdmin>

<http://www.flickr.com/photos/fhwa>

<http://www.linkedin.com/company/federal-highway-administration>

<http://www.twitter.com/USDOTFHWA>

<http://www.youtube.com/user/USDOTFHWA>

The content of this document is not a substitute for information obtained from State departments of transportation, appropriate FHWA Division Offices, and applicable laws. Scenarios have been simplified for emphasis and do not necessarily reflect the actual range of requirements applicable to the scenario or this topic.

This document was created under contract number DTFH61-13-D-0004 by the Federal Highway Administration, U.S. Department of Transportation, and is offered to the public to heighten and focus awareness of Federal-aid requirements within the local public agencies community and reinforces the importance of the necessary policies, procedures, and practices. This companion resource contains the script content for the video production of the same name.