

# Congestion Mitigation and Air Quality Improvement Program:

## A Guidebook for Preparing Performance Plans for Metropolitan Planning Organizations



U.S. Department  
of Transportation

**Federal Highway  
Administration**

**Office of Natural Environment**

# Table of Contents

List of Tables.....	ii
List of Figures.....	ii
Acronyms and Abbreviations.....	iii
1 Overview and Background .....	1
Appendices:.....	3
2 Legislative and Regulatory Requirements.....	4
2.1 Legislative Requirements .....	4
2.2 Regulatory Requirements.....	5
3 Applicability: MPOs Subject to the CMAQ Performance Plan Requirement.....	7
3.1 Applicability Determination Timeline.....	7
3.1.1 Applicability for the Baseline Performance Period Report.....	7
3.2 Maintenance Area Applicability.....	8
4 Data Sources and Requirements.....	9
4.1 CMAQ Traffic Congestion Measures .....	9
4.1.1 Peak Hour of Excessive Delay (PHED) Measure.....	9
4.1.2 Non-SOV Travel Measure.....	12
4.2 CMAQ On-Road Mobile Source Emissions Measure .....	12
4.2.1 Total Emissions Reduction Measure.....	12
5 Key Components of a CMAQ Performance Plan.....	13
5.1 Condition/Performance.....	15
5.1.1 Baseline Condition/Performance.....	15
5.1.2 Condition/Performance at 2 and 4 years.....	16
5.2 Targets.....	17
5.2.1 Coordination for Target Setting .....	19
5.3 Description of Projects .....	20
5.4 Assessment of Progress towards Achieving Targets.....	21
6 Timeline and Reporting Requirements.....	23
7 Additional Information.....	24
Appendix A: CMAQ Performance Plan Sample Templates.....	A-1
Appendix B: Definitions.....	B-1

## List of Tables

Table 1. Performance Measures for the CMAQ Program .....	1
Table 2. Data Sources for PHED Measure .....	9
Table 3. Data Sources for Non-SOV Travel Measure .....	12
Table 4. Data Sources for the Total Emissions Reduction Measure .....	13
Table 5. Components of the CMAQ Performance Plan and Biennial Updates .....	15
Table 6. Target Units for Traffic Congestion Measures .....	18
Table 7. Target Units for On-Road Mobile Source Emissions Measure .....	19
Table 8. Example of Description of Projects in a CMAQ Performance Plan .....	21
Table 9. CMAQ 1 <sup>st</sup> Performance Plan Timeline .....	23
Table B-1. Applicable Definitions from 23 CFR 490.101, 490.705, and 490.805 .....	B-1

## List of Figures

Figure 1. Performance Periods for CMAQ Measures and Reporting Timeline .....	3
Figure 2. Applicability of CMAQ Performance Plan under 23 U.S.C. 149(l) .....	7
Figure 3. Performance Periods for CMAQ Measures and Reporting Timeline .....	14
Figure 4. State Reporting Biennial Performance Plan .....	24
Figure A-1. Summary of CMAQ Performance Plan Content .....	A-1

# Acronyms and Abbreviations

<b>Acronym</b>	<b>Full Name</b>
AADT	Average Annual Daily Traffic
CFR	Code of Federal Regulations
CMAQ	Congestion Mitigation and Air Quality Improvement
CO	carbon monoxide
DOT	State departments of transportation
EPA	Environmental Protection Agency
FAST	Fixing America's Surface Transportation
FHWA	Federal Highway Administration
HPMS	Highway Performance Monitoring System
Kg/day	Kilograms per day
MAP-21	Moving Ahead for Progress in the 21st Century
MPA	Metropolitan Planning Area
MPO	Metropolitan Planning Organization
MTP	Metropolitan Transportation Plan
NAAQS	National Ambient Air Quality Standards
NHS	National Highway System
NO <sub>x</sub>	oxides of nitrogen
NPMRDS	National Performance Management Research Data Set
O <sub>3</sub>	ozone
PHED	Annual Hours of Peak Hour Excessive Delay Per Capita
PM	particulate matter
PM <sub>2.5</sub> and PM <sub>10</sub>	particulate matter less than 2.5 microns in diameter (PM <sub>2.5</sub> ) and less than 10 microns in diameter (PM <sub>10</sub> )
PM3	National Performance Management Measures - Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program Final Rule
SOV	Single Occupancy Vehicle
STIP	Statewide Transportation Improvement Program
TIP	Transportation Improvement Program
TMA	transportation management area
TPM	Transportation Performance Management
U.S.C.	United States Code
USDOT	United States Department of Transportation
VOC	volatile organic compounds

# I Overview and Background

The Moving Ahead for Progress in the 21st Century Act (MAP-21),<sup>1</sup> signed into law on July 6, 2012, transformed the policy and programmatic framework for making investments that guide the growth and development of the Nation’s surface transportation program and created a performance-based surface transportation program. The Fixing America’s Surface Transportation Act (FAST Act),<sup>2</sup> signed into law on December 4, 2015, continued and refined these efforts.

Prior to MAP–21, there were no explicit requirements for State departments of transportation (DOTs) to demonstrate how their transportation program supported national performance outcomes. State DOTs were not required to measure condition or performance, establish targets, and assess progress toward targets, nor report on condition or performance in a nationally consistent manner that FHWA could use to assess the entire system. Without State DOTs reporting on the above factors, it is difficult to examine the effectiveness of the Federal-aid Highway Program as a means to address surface transportation performance at a national level. Changes under MAP-21 and FAST have integrated performance into many Federal surface transportation programs and required the United States Department of Transportation (USDOT) to establish a set of national measures on which State DOTs must report performance or condition.<sup>3</sup>

For the purpose of carrying out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program, MAP-21 required USDOT to establish measures for State DOTs to use to assess traffic congestion and on-road mobile source emissions.<sup>4</sup> To meet this requirement, FHWA finalized three performance measures (two congestion measures and one on-road mobile source emission reduction measure) in the National Performance Management Measures - Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program Final Rule<sup>5</sup> (PM3 regulation). Two Subparts of 23 CFR part 490, promulgated through the PM3 regulation, establish the performance measures for the CMAQ Program required by MAP-21: Subpart G (Measures to Assess the CMAQ Program – Traffic Congestion) and Subpart H (Measure to Assess the CMAQ Program – On-road Mobile Source Emissions). Table 1 lists the CMAQ performance measures associated with the PM3 regulation.

**Table 1. Performance Measures for the CMAQ Program**

Subpart and Measure	Measure Description
Subpart G: Traffic Congestion	<b>PHED Measure:</b> Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita
	<b>Percent of Non-SOV Travel Measure:</b> Percent of Non-Single Occupancy Vehicle (SOV) Travel
Subpart H: On-Road Mobile Source Emissions	<b>Total Emissions Reduction Measure:</b> 2- and 4-year Total Emission Reductions for each applicable criteria pollutant and precursor for all projects funded with CMAQ funds

<sup>1</sup> Pub. L. 112-141

<sup>2</sup> Pub. L. 114-94

<sup>3</sup> 23 U.S.C. 134, 135, and 150

<sup>4</sup> 23 USC 150(c)(5)

<sup>5</sup> 82 Fed. Reg. 5970 (Jan. 18, 2017) (codified at 23 CFR Part 490), available at <https://www.gpo.gov/fdsys/pkg/FR-2017-01-18/pdf/2017-00681.pdf>.

For Subpart G, the two Traffic Congestion performance measures are the 1) PHED measure and 2) Percent of Non- SOV Travel measure. The PHED measure is the Annual hours of peak hour excessive delay per capita that occurs within an applicable urbanized area. The Percent of Non-SOV Travel measure is the percentage of Non-SOV vehicles travelling within an applicable urbanized area. The traffic congestion measures only apply in certain urbanized areas that include National Highway System (NHS) mileage and have a population over 1 million for the 1<sup>st</sup> performance period and a population over 200,000 for the second and all other performance periods.<sup>6</sup> For Subpart H, the On-Road Mobile Source Emissions performance measure is the Total Emissions Reduction measure. The Total Emission Reduction Measure is the 2-year and 4-year cumulative estimated emission reductions, for all CMAQ funded projects, of each applicable criteria pollutant (ozone (O<sub>3</sub>), carbon monoxide (CO), and particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>)) and precursor (volatile organic compounds (VOC) and oxides of nitrogen NO<sub>x</sub>) for which the area is designated nonattainment or maintenance.<sup>7</sup>

State DOTs must establish their targets for these measures no later than May 20, 2018.<sup>8</sup> The target reporting deadline for all measures in the PM<sub>3</sub> regulation for the 1<sup>st</sup> performance period is October 1, 2018.<sup>9</sup> In establishing their targets, State DOTs must coordinate with Metropolitan Planning Organizations (MPOs) to ensure consistency to the maximum extent practicable.<sup>10</sup> MPOs have up to 180 days after the State establishes its targets to establish the MPO targets.<sup>11</sup> The May 20, 2018, State DOT target establishment due dates only apply to the 1<sup>st</sup> performance period. The coordination process should assist with both MPOs and State DOTs meeting their respective target establishment and reporting deadlines.

In addition to the reporting required by the PM<sub>3</sub> regulation, 23 United States Code (U.S.C) 149(l) requires each MPO serving a transportation management area (TMA) with a population over 1,000,000 that includes a nonattainment or maintenance area to develop a CMAQ Performance Plan to support the implementation of the CMAQ measures.<sup>12</sup> In the CMAQ Performance Plan and its biennial updates, these MPOs report 2 and 4 year targets, describe how they plan to meet their targets, and detail their progress toward achieving the targets over the course of the performance period.<sup>13</sup> Figure 1 displays the performance periods for the measures and reporting timeline for the State Biennial Performance Report and the MPO CMAQ Performance Plans.

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<sup>6</sup> 23 CFR 490.703

<sup>7</sup> 23 CFR 490.807

<sup>8</sup> 23 U.S.C. 150(d)

<sup>9</sup> 23 CFR 490.107(b)(1)(i)

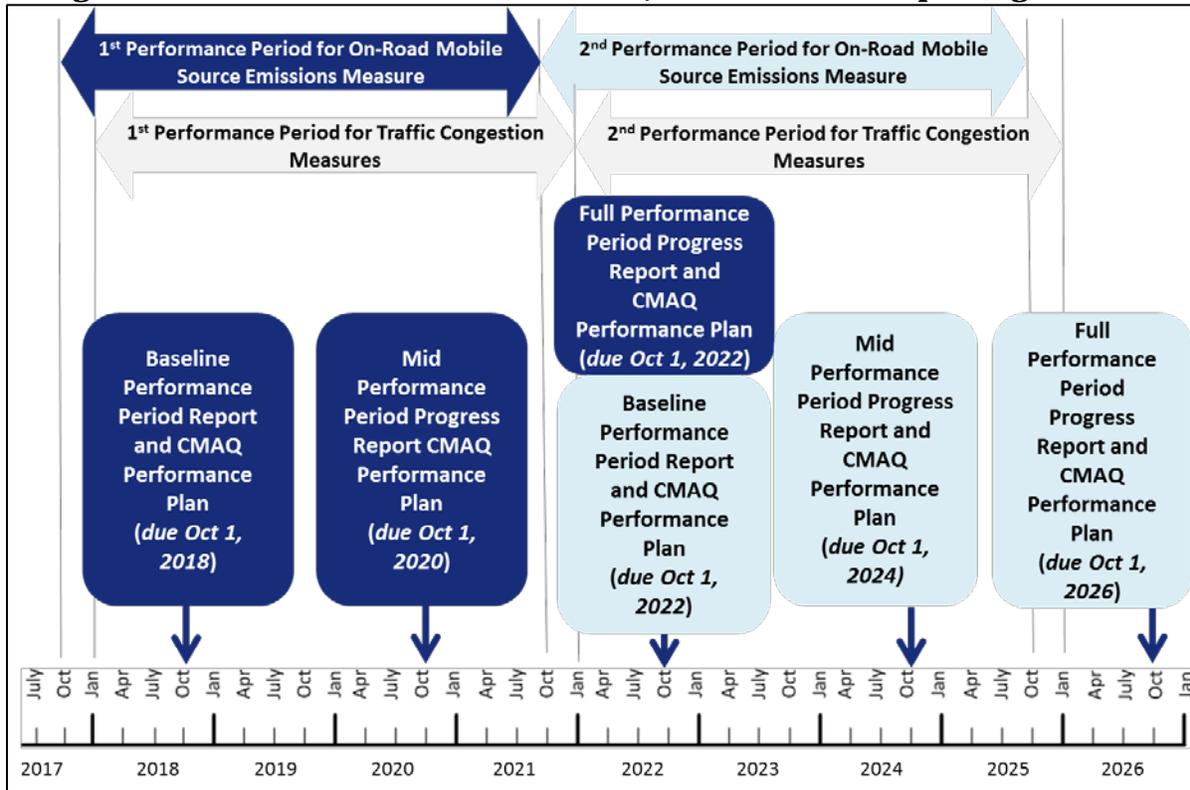
<sup>10</sup> 23 CFR 490.105(e)(2)

<sup>11</sup> 23 U.S.C. 134(h)(2)(C) and 23 CFR 490.105(f)(1)

<sup>12</sup> 23 CFR 490.107(c)(3)

<sup>13</sup> 23 CFR 490.107(c)(3)(ii) and 490.107(c)(3)(iii)

**Figure 1. Performance Periods for CMAQ Measures and Reporting Timeline**



This document serves as a resource for MPOs in preparing a CMAQ Performance Plan. It consists of the following sections:

**2. Legislative and Regulatory Requirements**

**3. Applicability: MPOs Subject to the CMAQ Performance Plan Requirement**

**4. Data Sources and Requirements**

**5. Key Components of a CMAQ Performance Plan**

**6. Timeline and Reporting Requirements**

**7. Additional Information:** This section contains contact information for specific Federal Highway Administration (FHWA) offices that can offer assistance with any question. This section also lists additional resources available that can help assist in developing the CMAQ Performance Plan.

**Appendices:** The document also has two appendices that contain information that can be helpful in developing a CMAQ Performance Plan: templates and a list of definitions associated with the material in this document. **The templates are not required to be used; they are for informational purposes.**

## 2 Legislative and Regulatory Requirements

MAP-21 instituted, and FAST Act continued, the requirement for the CMAQ Performance Plan in 23 U.S.C. 149(l) and defined the required performance measure areas in 23 U.S.C. 150(c).

### 2.1 Legislative Requirements

The CMAQ Performance Plan is defined in 23 U.S.C. 149(l) with the following requirements:

*(l) Performance Plan.—*

*(1) In general. — Each metropolitan planning organization serving a transportation management area (as defined in section 134) with a population over 1,000,000 people representing a nonattainment or maintenance area shall develop a performance plan that—*

*(A) includes an area baseline level for traffic congestion and on-road mobile source emissions for which the area is in nonattainment or maintenance;*

*(B) describes progress made in achieving the performance targets described in section 150(d); and*

*(C) includes a description of projects identified for funding under this section and how such projects will contribute to achieving emission and traffic congestion reduction targets.*

*(2) Updated plans. — Performance plans shall be updated biennially and include a separate report that assesses the progress of the program of projects under the previous plan in achieving the air quality and traffic congestion targets of the previous plan.*

The statute (23 U.S.C. 150 (c) and (d)) requires the Secretary of Transportation to establish performance measures for State DOTs to use to assess the CMAQ Program and to establish the targets. In addition, MPOs are required to establish targets that address the measures described in 23 U.S.C. 150(d).<sup>14</sup> Specifically, the legislation includes the following requirements:

*23 U.S.C. 150(c)(5) Congestion mitigation and air quality program.—For the purpose of carrying out section 149, the Secretary shall establish measures for States to use to assess—*

*(A) traffic congestion; and*

*(B) on-road mobile source emissions.*

*23 U.S.C. 150(d) Establishment of [State DOT] Performance Targets.—*

*(1) In general.—*

*Not later than 1 year after the Secretary has promulgated the final rulemaking under subsection (c), each State shall set performance targets that reflect the measures identified in paragraphs (3), (4), (5), and (6) of subsection (c)...*

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<sup>14</sup> 23 U.S.C. 134(h)(2)(B)

**23 U.S.C. 134(h)(2)(B)(i) [Establishment of MPO] Surface Transportation Performance Targets.—**

- (i) *Surface transportation performance targets. —*
- (I) *In general.— Each metropolitan planning organization shall establish performance targets that address the performance measures described in section 150(c), where applicable, to use in tracking progress towards attainment of critical outcomes for the region of the metropolitan planning organization.*
- (II) *Coordination. — Selection of performance targets by a metropolitan planning organization shall be coordinated with the relevant State to ensure consistency, to the maximum extent practicable.*

## 2.2 Regulatory Requirements

The PM3 final rule, which added regulations to 23 Code of Federal Regulations (CFR) Part 490, clarifies the requirements for the CMAQ Performance Plan as related to the implementation of the final CMAQ performance measures.

These regulations (1) define the applicability of MPOs that are subject to the CMAQ Performance Plans; (2) specify performance measures to assess traffic congestion and on-road mobile source emissions for the purpose of implementing the CMAQ program; and (3) provide details of the content of the CMAQ Performance Plans.

1. **Applicability:** 23 CFR 490.105(f)(6)(iii) and 490.107(c)(3) require that MPOs serving a TMA with population over 1 million that overlap any part of a designated nonattainment and maintenance area must develop a CMAQ Performance Plan. Refer to section 3 for more information on the applicability of the performance measures.
2. **Performance Measures:** The PM3 regulation defines the following three CMAQ measures in 23 CFR 490.707 and 490.807:
  - To assess **traffic congestion**, FHWA developed two performance measures:
    - **PHED Measure:** Annual Hours of Peak Hour Excessive Delay (PHED) Per Capita
    - **Percent of Non-SOV Travel Measure:** Percent of Non-Single Occupancy Vehicle (SOV) Travel
  - To assess **on-road mobile source emissions**, FHWA developed a **Total Emissions Reduction measure**, which is the 2-year and 4-year cumulative estimated emission reductions, for all CMAQ-funded projects, of each applicable criteria pollutant (ozone, CO, PM<sub>2.5</sub>, PM<sub>10</sub>) and precursor (VOC, NO<sub>x</sub>) for which the area is designated nonattainment or maintenance.
3. **Content of a CMAQ Performance Plan:** 23 CFR 490.107 requires that the CMAQ Performance Plans include the following four key components:<sup>15</sup>
  - **Condition/Performance:**<sup>16</sup> a baseline level of condition/performance at the beginning of the performance period for each of the CMAQ measures. Throughout the performance period, the CMAQ Performance Plan reports on the actual 2-year and 4-year condition/performance for each of the applicable CMAQ measures in 23 CFR 490.707 and 490.807.

<sup>15</sup> Summarized based on 23 CFR 490.107(c)(3)(ii), 490.107(c)(3)(iii), and 490.107(c)(3)(iv).

<sup>16</sup> 23 CFR 490.107(c)(3)

- **Targets:**<sup>17</sup> the targets that the MPOs establish for each of the applicable CMAQ performance measures, including any updates at the midpoint of the performance period, if applicable. For the CMAQ Performance Plan submitted with the State DOT Full Performance Period Progress Report, targets are not required. However, the State DOT Full Performance Period Progress Report is due at the same time as the State DOT Baseline Performance Period Report for the next performance period, and the CMAQ Performance Plan attached to that report requires applicable 2- and 4-year targets for the next performance period.
- **Description of projects:**<sup>18</sup> a description of projects scheduled for CMAQ funding that will contribute toward achieving their targets. It is important to note that the CMAQ Performance Plan associated with the Full Performance Period Report does not include a description of CMAQ projects. However, a description of projects is required in the CMAQ Performance Plan submitted with the State DOT Baseline Performance Report, due at the same time.
- **Assessment of progress:**<sup>19</sup> for the mid and full performance period report, updates to the CMAQ Performance Plan include an assessment of how the CMAQ projects contribute toward achieving the targets.

Refer to section 5 for further detail on the requirements for the CMAQ Performance Plan and its updates and section 4 for the data sources and requirements for the CMAQ measures. For additional information on how these measures are calculated, reference 23 CFR Part 490, Subparts G and H, as well as guidance on the PM3 regulation from the FHWA Office of Transportation Performance Management.<sup>20</sup>

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<sup>17</sup> 23 CFR 490.107(c)(3)(ii)(A) and 490.107(c)(3)(iii)(D)

<sup>18</sup> 23 CFR 490.107(c)(3)(ii)

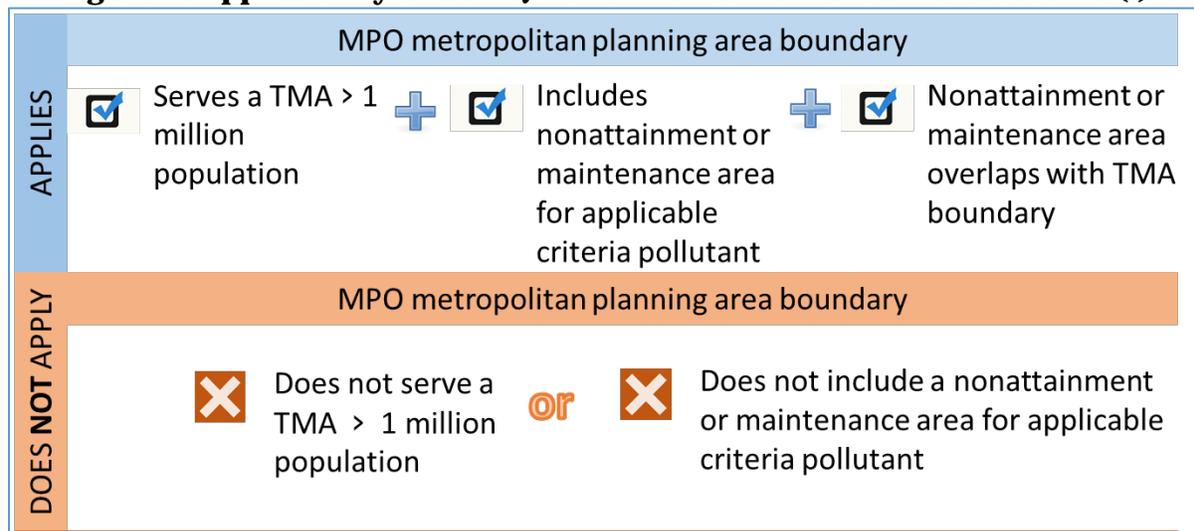
<sup>19</sup> 23 CFR 490.107(c)(3)(iii)(C) and 490.107(c)(3)(iv)(C)

<sup>20</sup> FHWA Office of TPM, Rulemaking Resources: <http://www.fhwa.dot.gov/tpm/rule.cfm>.

### 3 Applicability: MPOs Subject to the CMAQ Performance Plan Requirement

Title 23 U.S.C. 149(l) requires MPOs that serve a TMA with a population over one million for which the boundaries of that TMA overlap a nonattainment or maintenance area for at least one of the transportation-related criteria pollutants to biennially prepare and submit a CMAQ Performance Plan. MPOs subject to the requirement must submit the plan to the State DOT, which will include it as a separate section of the biennial reports submitted to FHWA.<sup>21</sup> FHWA maintains a list of those MPOs subject to the CMAQ Performance Plan requirement; see the FHWA CMAQ Applicability website for that list.<sup>22</sup> Figure 2 displays the applicability criteria for MPOs subject to the CMAQ Performance Plan.

**Figure 2. Applicability of CMAQ Performance Plan under 23 U.S.C. 149(l)**



#### 3.1 Applicability Determination Timeline

For each four-year performance period, the determination of applicability for the CMAQ Performance Plan and the CMAQ traffic congestion and on-road mobile source emissions measures will be made one year before the State DOT Baseline Performance Period Report is due to FHWA.<sup>23</sup> Applicability re-assessments will take place at the midpoint of each performance period.<sup>24</sup> Please see timeline in Section 6.

##### 3.1.1 Applicability for the Baseline Performance Period Report

For the traffic congestion measures and on-road mobile source emissions measure, the applicability determination is made based on NAAQS designations as of one-year before the State DOT Baseline Performance Period Report is due and every 4 years thereafter.<sup>25</sup> Therefore, if on October 1, 2017, an MPO has any portion of a nonattainment or maintenance area for either ozone, CO, or PM within its metropolitan planning area boundary, serves a TMA with a population over 1,000,000, and both boundaries overlap, that MPO will be subject to submitting a CMAQ Performance Plan for the 1<sup>st</sup> performance period.

<sup>21</sup> 23 CFR 490.107(c)(3)

<sup>22</sup> [https://www.fhwa.dot.gov/environment/air\\_quality/cmaq/measures/cmaq\\_applicability/index.cfm](https://www.fhwa.dot.gov/environment/air_quality/cmaq/measures/cmaq_applicability/index.cfm)

<sup>23</sup> 23 CFR 490.105(e)(8)(iii)(F) and 490.105(e)(9)(v)

<sup>24</sup> *Id.*

<sup>25</sup> *Id.*

On the other hand, starting October 1, 2018, if the MPO planning area boundary does not include any designated nonattainment or maintenance areas for any applicable pollutant on October 1, 2017, then the MPO will not be subject to developing a CMAQ Performance Plan for the 1<sup>st</sup> performance period. Likewise, if an MPO does not serve a TMA with a population greater than 1 million on October 1, 2017, it does not need to prepare a CMAQ Performance Plan for the 1<sup>st</sup> performance period. Applicability Reassessment for the Mid Performance Period Report

If any area located in the metropolitan planning area (MPA) boundary is no longer designated as a nonattainment or maintenance area for an applicable pollutant at the midpoint re-assessment, which is one year before the State DOT Mid Performance Period Progress Report is due (on October 1, 2019, for the 1<sup>st</sup> Performance Period), then the MPO will not be subject to developing a CMAQ Performance Plan for the remainder of the Performance Period.<sup>26</sup>

## 3.2 Maintenance Area Applicability

In the PM 3 final rule, the “Maintenance Area” definition was revised to exclude any area that has completed its 20-year maintenance period. Please see “Maintenance Area” definition in Table B-1. Applicable Definitions from 23 CFR 490.101, 490.705, and 490.805 or 23 CFR 490.101. Therefore, maintenance areas that have reached the end of the 20-year maintenance period (20-years from the effective date of the resignation to attainment and approval of the 1<sup>st</sup> 10-year maintenance period) are not, by definition, maintenance areas when applicability is determined for each performance period. To aid in the applicability determination process, FHWA encourages MPOs to share any documentation from EPA related to the end of the maintenance period with FHWA Division Office as soon as it is available.

**Mid-point of Performance Period.** State DOTs and MPOs can request to be excluded from the CMAQ performance requirements at the midpoint of the performance period if the area is no longer in nonattainment or maintenance for a criteria pollutant (or achieve their 20-year maintenance plan) as of the applicability reassessment date,<sup>27</sup> as described in section 3.1.1.

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<sup>26</sup> 23 CFR 490.107(c)(3); see also 82 Fed. Reg. 5970, 6018

<sup>27</sup> 23 CFR 490.101; 23 CFR 490.105(e)(8)(iii)(F), (e)(8)(v), (e)(9)(v), (e)(9)(viii), (f)(5)(iii)(F), (f)(5)(v); (f)(6)(v); 82 Fed. Reg. 5970, 5981

## 4 Data Sources and Requirements

This section details the data sources MPOs are required to use to calculate condition/performance for the traffic congestion and on-road mobile source emissions measures for the CMAQ Performance Plan.<sup>28</sup>

### 4.1 CMAQ Traffic Congestion Measures

This section details the required data sources for each of the traffic congestion measures.<sup>29</sup>

For complete information on computations for the traffic congestion measures, please see the *FHWA Computation Procedure for Travel Time Based and Percent Non-Single Occupancy Vehicle (non-SOV) Travel Performance Measures* document.<sup>30</sup> This document presents the steps for FHWA to compute the CMAQ traffic congestion measures and gives State DOTs a frame of reference when establishing their targets. The FHWA plans to compute the PHED measure and Non-SOV Travel measure (using the method described in the document) for each applicable urbanized area and plans to make them available to the State DOTs to ensure consistency in measure computation process.

#### 4.1.1 Peak Hour of Excessive Delay (PHED) Measure

MPOs use six data points to calculate the PHED measure.<sup>31</sup> For each data point apart from the urbanized area boundary and travel time data set, MPOs have the option to use one of two data sources to obtain the relevant data. State DOTs and MPOs must use the same travel time data set for calculating the PHED measure and must establish and **report single, unified targets for each urbanized area.**<sup>32</sup>

Table 2 describes the data points needed and how to access the data sources.

**Table 2. Data Sources for PHED Measure**

Relevant Data	Data Source Options	How to Access
<b>Urbanized Area Boundary</b> <sup>33</sup>	<ul style="list-style-type: none"> <li>US Decennial Census</li> <li>HPMS</li> </ul>	<ul style="list-style-type: none"> <li>American FactFinder provides Census data for the most recent decennial census.<sup>34</sup></li> <li>The HPMS Field Manual provides detailed instructions for how to enter and extract data in HPMS.<sup>35</sup></li> </ul>

<sup>28</sup> 23 CFR 490.709 and 490.809

<sup>29</sup> 23 CFR 490.709

<sup>30</sup> <https://www.fhwa.dot.gov/tpm/guidance/>

<sup>31</sup> 23 CFR 490.711 and 23 CFR 490.103.

<sup>32</sup> 23 CFR 490.103(e) and 23 CFR 490.105(f)(5)(iii)(B)

<sup>33</sup> 23 CFR 490.103(b) and 23 CFR 490.111(b)(1)

<sup>34</sup> <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

<sup>35</sup> <https://www.fhwa.dot.gov/policyinformation/hpms/fieldmanual/>

Relevant Data	Data Source Options	How to Access
<b>Urbanized Area Population</b> <sup>36</sup>	Total population in the applicable urbanized area from the most recent annual population published by the U.S. Census at the time that the State Biennial Performance Period Report is due to FHWA <sup>37</sup> .	5-year annual estimates from American Community Survey (Table DP05) filtered by “Urban Area” <sup>38</sup> at the time that the State Biennial Performance Period Report is due to FHWA.
<b>Reporting Segments</b> <sup>39</sup>	National Performance Management Research Data Set (NPMRDS) <b>OR</b>	FHWA provides State DOTs and MPOs with access to NPMRDS. Visit the FHWA Operations Performance Measurement webpage for additional details. <sup>40</sup>
	Equivalent data set	Refer to 23 CFR 490.103(e)
<b>Travel Times in 15-minute intervals</b> <sup>41</sup>	NPMRDS, <b>OR</b>	FHWA provides State DOTs and MPOs with access to NPMRDS. Visit the Operations Performance Measurement webpage for additional details. <sup>42</sup>
	Equivalent data set	Refer to 23 CFR 490.103(e)
<b>Hourly Traffic Volume</b> <sup>43</sup>	Annual traffic volume counts, <b>OR</b>	State DOTs may use hourly traffic volume counts collected by continuous count stations and apply them to one or more reporting segments.

<sup>36</sup> 23 CFR 490.709(g)

<sup>37</sup> 23 CFR 490.713(b)

<sup>38</sup> The U.S. Census Bureau publishes both 1-year and 5-year population estimates data annually as part of the ACS. The annual ACS 1-year estimates data are typically released in September, and the annual ACS 5-year estimates data are typically released in December. <https://www.census.gov/programs-surveys/acs/news/data-releases/2016/release-schedule.html>. The FHWA chose 5-year estimates over 1-year estimates because FHWA believes the data release date for 1-year estimate (September) may not provide adequate time for State DOT target establishment and reporting to meet the October 1 deadline for State Biennial Performance Reports (23 CFR 490.107(b)(1)(i)).

<sup>39</sup> 23 CFR 490.103(f) and 490.709

<sup>40</sup> [http://www.ops.fhwa.dot.gov/perf\\_measurement/](http://www.ops.fhwa.dot.gov/perf_measurement/)

<sup>41</sup> 23 CFR 490.103(e) and 490.709

<sup>42</sup> [http://www.ops.fhwa.dot.gov/perf\\_measurement/](http://www.ops.fhwa.dot.gov/perf_measurement/)

<sup>43</sup> 23 CFR 490.709(c)

Relevant Data	Data Source Options	How to Access
	AADT reported to the HPMS	State DOTs Average Annual Daily Traffic (AADT) reported to HPMS to estimate hourly traffic volumes when no hourly volume counts exist. The HPMS Field Manual provides detailed instructions for how to enter and extract data in HPMS. <sup>44</sup>
<b>Annual Vehicle Classification for Buses, Trucks, and Cars</b> <sup>45</sup>	Annual traffic volume counts, <b>OR</b>	State DOTs may use hourly traffic volume counts collected by continuous count stations and apply them to one or more reporting segments.
	AADT, AADT single unit, and AADT combination as reported to the HPMS	The HPMS Field Manual <sup>46</sup> provides detailed instructions for how to enter and extract data in HPMS. The data values should be split to represent the appropriate direction of travel of the reporting segment.
<b>Annual Vehicle Occupancy for Cars, Buses, and Trucks</b> <sup>47</sup>	Data provided by FHWA, <b>OR</b>	FHWA to provide data for each urbanized area.
	Alternative estimate that is more specific	State DOTs may use an alternative estimate of annual vehicle occupancy factors for a specific reporting segment(s) for cars, buses, and trucks in urbanized areas, provided that it is more specific than the data provided by FHWA.

State DOTs must submit the methodology they used to develop hourly traffic volume estimates to FHWA no later than 60 days prior to when the 1<sup>st</sup> Baseline Performance Period Report is due.<sup>48</sup> State DOTs must also submit relevant data to HPMS, including Total Peak Hour Excessive Delay metric and urbanized area data for reporting segments.<sup>49</sup> As required in 23 CFR 490.103(f)(4), the State DOT and applicable MPOs must document, in a manner that mutually agreed upon by all relevant parties, the coordination and agreement on the travel time data set and the defined reporting segments.

<sup>44</sup> <https://www.fhwa.dot.gov/policyinformation/hpms/fieldmanual/>

<sup>45</sup> 23 CFR 490.709(d)

<sup>46</sup> <https://www.fhwa.dot.gov/policyinformation/hpms/fieldmanual/>

<sup>47</sup> 23 CFR 490.709(e)

<sup>48</sup> 23 CFR 490.709(c)(3)

<sup>49</sup> 23 CFR 490.711(f); see also the HPMS Field Manual Supplemental Guidance: Travel Time Metric Data Reporting Requirements & Specifications (February 2018), available at [https://www.fhwa.dot.gov/tpm/guidance/pm3\\_hpms.pdf](https://www.fhwa.dot.gov/tpm/guidance/pm3_hpms.pdf), for more information.

## 4.1.2 Non-SOV Travel Measure

State DOTs and MPOs have flexibility to use one of three count methodologies when calculating the Non-SOV Travel measure.<sup>50</sup> However, for each urbanized area, all applicable agencies must agree upon one of the three methods to use. Each method uses a different source of data and Table 3 describes the three data source options.

**Table 3. Data Sources for Non-SOV Travel Measure**

Method	Relevant Data	Source	How to Access
<b>Method A: American Community Survey</b>	5 Year Estimate for “Commuting to Work” totaled by mode, as of August 15 of year State Biennial Performance Report is due	American Community Survey (Table DP03) filtered by “Urban Area”, as of August 15th of the year in which the State Biennial Performance Report is due to FHWA <sup>51</sup>	American FactFinder <sup>52</sup> provides data for the most recent American Community Survey
<b>Method B: Local Survey</b>	Travel mode choices gathered within 2 years of the start of the Performance Period	Local Survey*	Through local sources
<b>Method C: System Use Measurement</b>	Sample or continuous count of travelers using different modes	System Use Measurement**	Through local sources

\* For the local survey, MPOs must use a survey method that estimates travel mode choice for the full urbanized area using industry-accepted methodologies and approaches, and resulting in a margin of error that is acceptable to industry standards. The method must also allow for updates on at least a biennial frequency and distinguish non-SOV travel occurring in the area as a percent of all work or household travel.

\*\*For the system use measurement, the method used to count travelers must estimate the total volume of annual travel for the full urbanized area within a margin of error that is acceptable to industry standards, and allow for updates on at least a biennial frequency. The method must also include sufficient information to calculate the amount of non-SOV travel occurring in the area as a percentage of all surface transportation travel. State DOTs are encouraged to report use counts to FHWA that are not included in currently available national data sources.

## 4.2 CMAQ On-Road Mobile Source Emissions Measure

### 4.2.1 Total Emissions Reduction Measure

The CMAQ Public Access System is the required data source for calculating the Total Emissions Reduction measure.<sup>53</sup> Table 4 provides the link to the CMAQ Public Access System. State DOTs are responsible for submitting project information to the CMAQ Project Tracking System by March 1 of each

<sup>50</sup> 23 CFR 490.709(f)(1)

<sup>51</sup> 23 CFR 490.709(f)(1)(i)

<sup>52</sup> <https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

<sup>53</sup> 23 CFR 490.809(a)

Federal fiscal year (with the CMAQ Annual Report), for all projects obligated in the previous Federal fiscal year.

**Table 4. Data Sources for the Total Emissions Reduction Measure**

Relevant Data	Data Source Options	How to Access
<b>Emission reduction estimated for each CMAQ funded project by pollutant and precursor</b>	State DOT extracted data from CMAQ Public Access System on July 1 each year. <sup>54</sup>	CMAQ Public Access System Website: <a href="https://fhwaapps.fhwa.dot.gov/cmaq_pub/">https://fhwaapps.fhwa.dot.gov/cmaq_pub/</a>

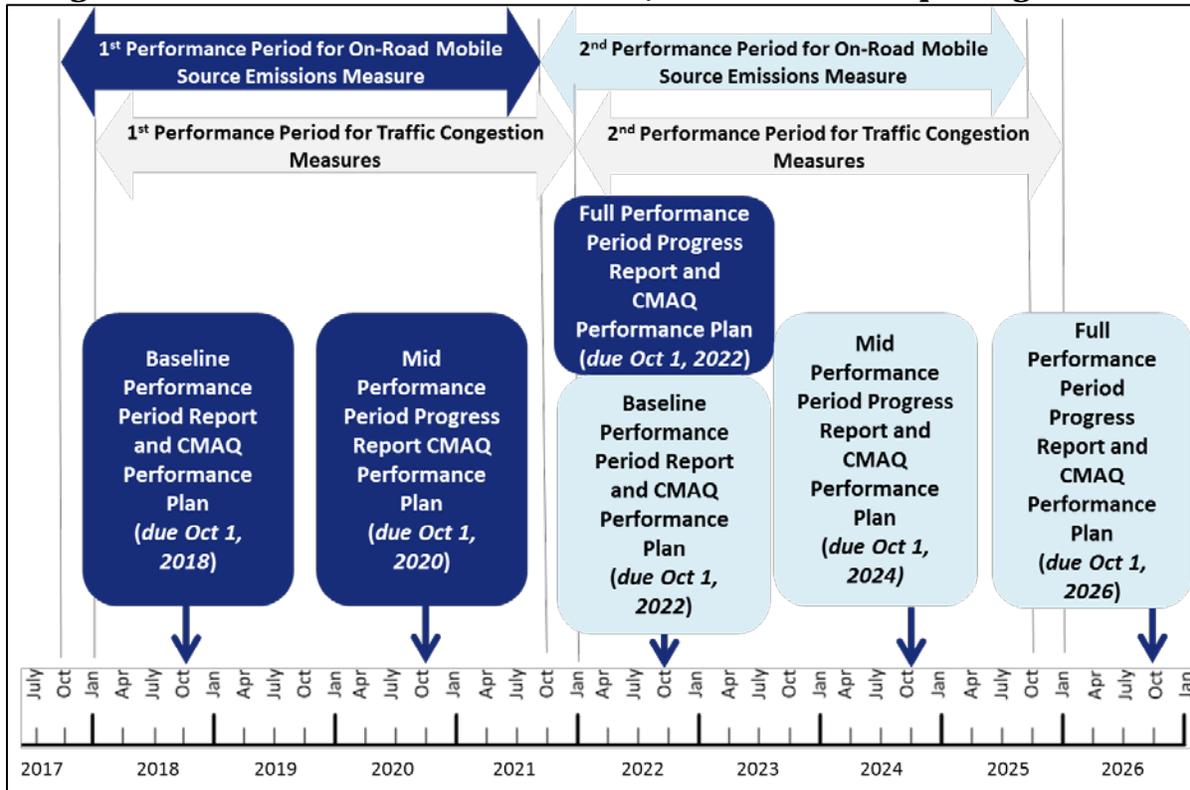
## 5 Key Components of a CMAQ Performance Plan

MPOs subject to the CMAQ Performance Plan requirement must submit a plan at the beginning of a four-year performance period and subsequently update the plan biennially through the performance period – once at the midpoint and again at the end of the performance period. 23 CFR 490.107 (c)(3)(i) requires that the State DOT submit the CMAQ Performance Plan to FHWA as part of State Biennial Performance Report required under 23 CFR 490.107(b). MPOs submit the plan and its biennial updates to their respective State DOT for inclusion as an attachment to the State DOT Baseline, Mid, and Full Performance Period Reports, respectively. See the Applicability section (section 3) for more information on who needs to prepare a Performance Plan. Figure 3 displays the performance periods for the measures and reporting timeline for the State Biennial Performance Report and the MPO CMAQ Performance Plan.

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<sup>54</sup> 23 CFR 490.809

**Figure 3. Performance Periods for CMAQ Measures and Reporting Timeline**



This section describes the process for developing a CMAQ Performance Plan, including discussion of the information MPOs are required to include in the CMAQ Performance Plan and how they conduct activities related to a plan’s preparation. Appendix A provides sample templates for MPOs to consider when developing the CMAQ Performance Plan and its biennial updates.

23 CFR Part 490.107(c)(3) describes the four key components that MPOs must include in CMAQ Performance Plans (please see Section 2.2, #3 for regulatory references for 1-4 below):

1. **Condition/Performance:** a baseline level of condition/performance at the beginning of the performance period for each of the CMAQ measures. Throughout the performance period, the CMAQ Performance Plan reports on the actual 2-year and 4-year condition/performance for each of the applicable CMAQ measures in 23 CFR 490.707 and 490.807.
2. **Targets:** the targets that the MPOs establish for each of the applicable CMAQ performance measures, including any updates at the midpoint of the performance period, if applicable. For the CMAQ Performance Plan submitted with the State DOT Full Performance Period Progress Report, targets are not required. However, the Full Performance Period Report is due at the same time as the State DOT Baseline Performance Report for the next performance period, and the CMAQ Performance Plan attached to that report requires applicable 2- and 4-year targets for the next performance period.
3. **Description of projects:** a description of projects scheduled for CMAQ funding that will contribute toward achieving their targets. It is important to note, that the CMAQ Performance Plan associated with the Full Performance Period Report does not include a description of CMAQ projects. However, a description of projects is required in the CMAQ Performance Plan submitted with the State DOT Baseline Performance Report.

4. **Assessment of progress:** for the mid and full performance period report, updates to the CMAQ Performance Plan include an assessment of how the listed projects contribute toward achieving the targets.

The sub-sections that follow provide detailed discussion for preparing each of these components. During a four-year performance period, each biennial update of the CMAQ Performance Plan includes specific information related to the above components. Table 5 summarizes these specific requirements.

**Table 5. Components of the CMAQ Performance Plan and Biennial Updates<sup>55</sup>**

<b>Key Component</b>	<b>State DOT Baseline Performance Period Report</b>	<b>State DOT Mid Performance Period Progress Report</b>	<b>State DOT Full Performance Period Progress Report</b>
<b><i>Condition/performance</i></b>	Baseline condition/performance	2-year condition/performance	4-year condition/performance
<b><i>Targets</i></b>	Applicable 2-year and 4-year targets, if available	Adjusted 4-year target (optional)	n/a
<b><i>Description of projects</i></b>	Description of projects	Updated descriptions of projects	n/a
<b><i>Assessment of progress</i></b>	n/a	Assessment of projects' contribution to achieving 2-year target	Assessment of projects' contribution to achieving 4-year target
Due Dates for 1 <sup>st</sup> Performance Period	October 1, 2018	October 1, 2020	October 1, 2022

## 5.1 Condition/Performance

MPOs must report their condition/performance for each of the applicable CMAQ measures in their CMAQ Performance Plans.<sup>56</sup> For the CMAQ Performance Plan submitted at the beginning of the performance period, MPOs must report their baseline condition/performance. For the biennial updates to the plan, submitted at the midpoint and end of the performance period, MPOs must report condition/performance during the two- and four-year periods. This section provides details to assist in developing this component of the CMAQ Performance Plan and biennial updates.

### 5.1.1 Baseline Condition/Performance

#### 5.1.1.1 Baseline Condition/Performance for Traffic Congestion Measures

In the 1<sup>st</sup> Biennial Performance Report due on October 1, 2018, MPOs must report the baseline condition/performance of the PHED and Percent Non-SOV Travel measures for calendar year 2017 in the

<sup>55</sup> 23 CFR 490.107(c)(3)

<sup>56</sup> 23 CFR 490.107(c)(3)

CMAQ Performance Plan.<sup>57</sup> For subsequent performance periods, MPOs must report their baseline condition/performance based on the calendar year prior to the 1<sup>st</sup> year of the performance period (i.e. 2021 for the performance period beginning in 2022).<sup>58</sup> For all performance periods, the MPO reported baseline condition/performance for traffic congestion measures in its CMAQ Performance Plan must be identical to the relevant State DOT reported baseline condition/performance for traffic congestion measures in their State DOT Baseline Performance Period Report for each applicable urbanized area.<sup>59</sup>

### **5.1.1.2 Baseline Condition/Performance for the On-Road Mobile Source Emissions Measure**

In the 1<sup>st</sup> biennial Performance Report due on October 1, 2018, MPOs report the baseline Total Emission Reduction for the applicable pollutants associated with CMAQ funded projects between Federal fiscal years 2014 and 2017 or from the most recent available data (in the CMAQ Performance Plan attached to the State DOT Baseline Performance Period Report.<sup>60</sup> The emissions reduction values of each pollutant for each CMAQ-funded project must be obtained from the CMAQ Public Access System.<sup>61</sup> The emissions reduction for each pollutant of each project in the CMAQ Public Access System are in the units of kilogram per day (kg/day<sup>62</sup>).

## **5.1.2 Condition/Performance at 2 and 4 years**

### **5.1.2.1 Condition/Performance at 2 and 4 years for Traffic Congestion Measures**

MPOs subject to the CMAQ Performance Plan requirement must report their condition/performance for the CMAQ measures in the biennial updates to the CMAQ Performance Plan. For all performance periods, the MPO reported 2-year condition/performance for traffic congestion measures in its CMAQ Performance Plan must be identical to the relevant State DOT reported 2-year condition/performance for traffic congestion measures in their State DOT Mid Performance Period Progress Report for each applicable urbanized area.<sup>63</sup> Similarly, for all performance periods, the MPO reported 4-year condition/performance for traffic congestion measures in its CMAQ Performance Plan must be identical to the relevant State DOT reported 4-year condition/performance for traffic congestion measures in their State DOT Full Performance Period Progress Report for each applicable urbanized area.<sup>64</sup> Measuring condition/performance helps identify progress they have made in achieving targets.

### **5.1.2.2 Condition/Performance at 2 and 4 years the On-Road Mobile Source Emissions Measure**

MPOs subject to the CMAQ Performance Plan requirement must report their condition/performance for the CMAQ measures in the biennial updates to the CMAQ Performance Plan. For all performance periods, the MPO reported 2-year condition/performance for the applicable pollutants of the Total Emission Reduction measure associated with CMAQ funded projects for the 1<sup>st</sup> two fiscal years of the reporting period will be included in the CMAQ Performance Plan attached to the State DOT Mid Performance Period Progress Report.<sup>65</sup> Similarly, for all performance periods, the MPO reported 4-year condition/performance of the Total Emissions Reduction measure for the applicable pollutants associated with CMAQ funded projects for four fiscal years of the reporting period will be included in the CMAQ

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<sup>57</sup> 23 CFR 490.107(c)(3)(ii)(C) and 23 CFR 490.107 (b)(1)(ii) and 490.105(e)(4)(i)

<sup>58</sup> 23 CFR 490.107(c)(3)(ii)(C) and 23 CFR 490.107 (b)(1)(ii)(B)

<sup>59</sup> 23 CFR 490.107(c)(3)(ii)(C) and 23 CFR 490.107(b)(1)(ii)(B)

<sup>60</sup> 23 CFR 490.107(c)(3)(ii)(D) and 490.105(e)(4)(i)

<sup>61</sup> 23 CFR 490.809

<sup>62</sup> 23 CFR 490.811

<sup>63</sup> 23 CFR 490.107(c)(3)(iii)(A) and 23 CFR 490.107(b)(2)(ii)(A)

<sup>64</sup> 23 CFR 490.107(c)(3)(iv)(A) and 23 CFR 490.107(b)(3)(ii)(A)

<sup>65</sup> 23 CFR 490.107(c)(3)(iii)(B)

Performance Plan attached to the State DOT Full Performance Period Progress Report.<sup>66</sup> Measuring condition/performance helps identify progress they have made in achieving targets.

## 5.2 Targets

As required in 23 U.S.C. 149(l), each MPO serving a Transportation Management Area (TMA) with a population over 1 million representing nonattainment and maintenance areas must develop a CMAQ Performance Plan, updated biennially, to report baseline condition/performance, targets, projects that will contribute to the targets, and the progress toward achievement of targets for the CMAQ traffic congestion and on-road mobile source emissions measures. Likewise, 23 CFR 490.105(f)(5)(i) and (ii) and (f)(6)(iii) requires these MPOs to establish both 2-year and 4-year targets for the metropolitan planning area.

**CMAQ Traffic Congestion performance measures** are applicable to all urbanized areas that include NHS mileage and with a population over 1 million for the first performance period and in urbanized areas with a population over 200,000 for the second and all other performance periods, that are, in all or part, designated as nonattainment or maintenance areas for ozone (O3), carbon monoxide (CO), or particulate matter (PM10 and PM2.5) National Ambient Air Quality Standards (NAAQS).<sup>67</sup>

**On-road mobile source emissions measure:** MPOs that contain a portion or complete part of any one or more area(s) designated as nonattainment or maintenance for ozone, CO, or PM10 and PM2.5 NAAQS are required to set targets for the on-road mobile source emissions measure. Those MPOs who are required to establish targets for the on-road mobile source emissions measure must report on progress made toward achieving those targets in their CMAQ Performance Plan every two years.<sup>68</sup>

MPOs subject to the CMAQ Performance Plan requirement must establish and report 2- and 4-year targets in accordance with 23 CFR 490.105 and 490.107 for the two traffic congestion measures and the on-road mobile source emissions measure. The CMAQ Performance Plan must report the targets an MPO establishes for the traffic congestion and on-road mobile source emissions measures, as applicable.<sup>69</sup>

- Targets for the traffic congestion measures

An MPO's traffic congestion targets must be identical to the relevant State DOT(s) reported target for each applicable urbanized area.<sup>70</sup> State DOTs and relevant MPOs must establish single, unified targets for an entire urbanized area (as applicable). Coordination between State DOTs and MPOs on these targets is particularly important, since all State DOTs and MPOs that contain any portion of the NHS network in an applicable urbanized area establish and identically report progress toward single, unified targets. Each applicable urbanized area has its own single, unified target for each measure. As described in 23 CFR 490.105(e)(8)(iii), targets reported in the CMAQ Performance Plan must be the single, unified targets for the entire urbanized area that are identical to the State DOT(s) target(s) reported in their State DOT Baseline Performance Report for that urbanized area.<sup>71</sup>

For the case of multi-state MPOs, the requirement for the traffic congestion measures is to establish single, unified targets for the entire urbanized area. Therefore, if the MPO covers two states and an applicable urbanized area extends into both states, then the targets must be identical for the CMAQ Performance Plans submitted to both State DOTs. FHWA recognizes that for these large urbanized areas, performance is not constrained by political boundaries and that performance should be

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<sup>66</sup> 23 CFR 490.107(c)(3)(iv)(B)

<sup>67</sup> 23 CFR 490.703

<sup>68</sup> 23 CFR 490.107(c)(3)(iv)(C)

<sup>69</sup> 23 CFR 490.107(c)(3)(ii), 23 CFR 490.107(c)(3)(iii), and 23 CFR 490.107(c)(3)(iv)

<sup>70</sup> 23 CFR 490.105(e)(8)(iii)(B) and 23 CFR 490.105(f)(5)(iii)(B)

<sup>71</sup> 23 CFR 490.107(c)(3)(ii)(A) and 23 CFR 490.107(b)(1)(ii)(A)

addressed regionally. Strategies taken in one political jurisdiction (e.g. county, State, city) can have direct and indirect impacts when measuring performance in another nearby political jurisdiction. FHWA believes that monitoring targets based on the entire urbanized area will increase the potential for coordination across jurisdictions to manage the overall performance of the region.

Table 6 lists the units associated with each of the traffic congestion measures.

**Table 6. Target Units for Traffic Congestion Measures<sup>72</sup>**

Traffic Congestion Measure	Description of Measure	Units for Targets
Peak Hours of Excessive Delay	Annual hours of peak hour excessive delay per capita	Hours per capita
Percent non-SOV	Percent estimate for “car, truck or van – drove alone”	Percent (%)

○ Targets for the on-road mobile source emissions measure

**MPOs.** An MPO subject to the CMAQ Performance Plan requirement must establish 2-year and 4-year targets<sup>73</sup> for each applicable pollutant and precursors for the nonattainment or maintenance areas within the MPA boundary as described in 23 CFR 490.803. Targets must reflect the anticipated cumulative emission reduction for CMAQ funded projects as reported in the CMAQ Public Access System for each of the applicable pollutants and precursors.<sup>74</sup>

**State DOTs.** State DOTs must develop 2- and 4-year targets.<sup>75</sup> The statewide targets reflect CMAQ-funded projects in nonattainment and maintenance areas within the state boundary.<sup>76</sup> The state will develop one statewide target for each of the applicable pollutants and precursors.<sup>77</sup> In addition, State DOTs may choose to establish additional targets, as provided in 23 CFR 490.105(e)(3).

Since State DOTs are required to develop 2-year and 4-year targets, MPOs and State DOTs must coordinate on setting targets for the Total Emissions Reduction measure.<sup>78</sup> Table 7 lists the units associated with the on-road mobile source emissions measure.

<sup>72</sup> 23 CFR 490.713(b) and (d)

<sup>73</sup> 23 CFR 490.105(f)(6)(iii)

<sup>74</sup> 23 CFR 490.105(f)(6)(ii)

<sup>75</sup> 23 CFR 490.105(e)(4)

<sup>76</sup> 23 CFR 490.809

<sup>77</sup> 23 CFR 490.105(e)(9)

<sup>78</sup> 23 CFR 490.105(e)(2)

**Table 7. Target Units for On-Road Mobile Source Emissions Measure<sup>79</sup>**

<b>On-Road Mobile Source Emissions Measure</b>	<b>Description of Measure</b>	<b>Units for Targets</b>
Total Emissions Reduction	Cumulative emissions reductions (over 2 or 4-year period)	kg/day

### 5.2.1 Coordination for Target Setting

In accordance with 23 CFR 490.105(e)(2) and 23 CFR 450.314(h), State DOTs must coordinate with relevant MPOs on the selection of targets to ensure consistency to the maximum extent possible. Similarly, MPOs are required to coordinate with relevant State DOT(s) on the selection of targets to ensure consistency to the maximum extent possible.<sup>80</sup> To meet this requirement, MPOs and State DOTs may want to consider, for example:

- How the targets might help achieve overall Transportation Improvement Plan (TIP) and Statewide Improvement Program (STIP) goals.
- How the list of projects and programs supports the Metropolitan Transportation Plan (MTP) goals.
- The availability of data to calculate emissions reductions and/or identify trends related to traffic congestion targets.
- How CMAQ-funded projects may contribute to overall environmental programming.
- Any circumstances, such as policy directives, budgeting issues, other plan activities, or agency goals and priorities that may alter the programmed list of projects during the performance period.
- The uncertainty and risks associated with each traffic congestion or emission reduction target.

FHWA’s Regional Models of Cooperation initiative provides MPOs and State DOTs with resources to aid cooperation across agencies on a variety of topics related to transportation planning. For general information related to setting targets, please refer to the NHI Course 138012 “Steps to Effective Target Setting for Transportation Performance Management.”

For the 1<sup>st</sup> performance period, State DOTs must set targets no later than May 20, 2018. This deadline is established according to the effective date of the PM3 final rule.<sup>81</sup> MPOs have up to 180 days after the State DOT sets targets to set MPO targets.<sup>82</sup> For the CMAQ Traffic Congestion Measures, the MPO and State DOT targets must be identical.<sup>83</sup> Therefore, these targets will be known and should be included in the CMAQ Performance Plan. For the CMAQ Emissions Measure, the MPOs preparing CMAQ Performance Plans are required to set their own targets.<sup>84</sup> Should an MPO elect to set its Emissions Measure target by the maximum date set by law, it must do so no later than November 18, 2018. Since the baseline report for the 1<sup>st</sup> performance period and the associated MPO CMAQ Performance Plan are due by October 1, 2018, an MPO that elects to set the targets after October 1, 2018, but before November 18, 2018, may omit its targets from the CMAQ Performance Plan submitted with the State DOT Baseline Performance Period Report. The MPO may then update its baseline CMAQ Performance Plan once targets are established. Within 30 days of the MPO establishing targets for the Total Emissions Reduction measure, but no later than December 20, 2018, the State DOT must submit an amended CMAQ

<sup>79</sup> 23 CFR 490.811(b)

<sup>80</sup> 23 CFR 490.105(f)(2)

<sup>81</sup> 23 U.S.C. 150(d)

<sup>82</sup> 23 U.S.C. 134(h)(2)(C)

<sup>83</sup> 23 CFR 490.105(f)(5)(iii)(A) and (B)

<sup>84</sup> 23 CFR 490.107(c)(3) and 490.105(f)(3) and (f)(6)(iii)

Performance Plan to FHWA that includes any omitted or incomplete items and completes all requirements of 23 CFR 490.107(c)(3)(ii).

Starting with the Mid Performance Period Progress Report due October 1, 2020, all information required under 23 CFR 490.107(c)(3) must be included in the CMAQ Performance Plan submitted with that report with no subsequent amendments. As part of their agreement to jointly develop written provisions (23 CFR 450.314(h)), the States DOTs and MPOs should consider how they can ensure that both the deadline for targets establishment and reporting requirements are met. Any associated documents such as the System Performance Plan that report on the MPO targets would include the MPO targets when/if available pursuant to the requirements under 23 CFR part 450.

### 5.3 Description of Projects

For the Baseline Performance Period, MPOs must include a description of the projects identified for CMAQ funding during the performance period and a description of how such projects will contribute to achieving the 2-year and 4-year targets for the traffic congestion and on-road mobile source emissions measures, as applicable. For the Mid Performance Period Progress Report, the Performance Plan must include an assessment of the progress of the projects identified in the baseline performance period report and an update to the description of projects identified for CMAQ funding and how those updates will contribute to achieving the four-year targets. The description of projects is only included in the CMAQ Performance Plans attached to the State DOT Baseline Performance Period Report and the State DOT Mid Performance Period Progress Report.<sup>85</sup> The description of projects is not required for the CMAQ Performance Plan attached to the State DOT Full Performance Period Progress Report.

MPOs have flexibility on how the projects are described in the CMAQ Performance Plan. They are not required to list each individual CMAQ project and describe how it will contribute to achieving the 2-year and 4-year targets, although MPOs may choose to do so. As an example, MPOs can group CMAQ projects by general project type categories (e.g., Diesel Engine Retrofits, Congestion Reduction and Traffic Flow Improvements, or Transit Improvements). It is suggested that the description of projects be organized by the year the project(s) are programmed to receive CMAQ funding, which can be more easily cross-referenced to the relevant TIP or STIP. That way the project descriptions can be attributed to the 2-year or 4-four year targets and used the assessment of progress. For the traffic congestion measures, MPOs must include a description of how projects will contribute to PHED measure and Non-SOV Travel measure targets, if applicable, whether by project category, for individual projects, or by another means.<sup>86</sup> Likewise, for the on-road mobile source emissions measure, MPOs could discuss relevant estimates of emissions reductions in order to demonstrate how the projects will contribute to the relevant targets. It is important to note that the calculation of emissions reductions is not required for the description of projects but could be used to help with the assessment of progress requirement discussed in section 5.4.

Table 8 provides an example description of projects programmed to receive CMAQ funds that contribute toward achieving the emission reductions targets and provide traffic congestion benefits. The example below groups CMAQ project type categories by year. There is a brief description of projects for each category of projects for each year. The emission reductions for each group are displayed by pollutant which could be used describe how each project category contributes to meeting emissions reduction targets. The last column denotes if the project contributes to reducing traffic congestion.

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<sup>85</sup> 23 CFR 409.107(c)(3)(ii)(E), 490.107(c)(3)(iii)(E), and 490.107(c)(iv)

<sup>86</sup> 23 CFR 490.107(c)(3) and 490.105(f)(6)(iii)

**Table 8. Example of Description of Projects in a CMAQ Performance Plan**

Project Category	Description of Projects	Applicable Pollutant	Year Anticipated for CMAQ Obligation	NOx Benefit (kg/day)	VOC Benefit (kg/day)	CO Benefit (kg/day)	PM <sub>2.5</sub> Benefit (kg/day)	PM <sub>10</sub> Benefit (kg/day)	Traffic Congestion Benefit? PHED	Traffic Congestion Benefit? NON - SOV
1. Transit projects	New bus vehicles to support new transit routes	Ozone	2018	10.5	7.83				No	Yes – increase non-SOV travel
2. Traffic flow improvement projects	Traffic signal synchronization for 5 different arterials.	Ozone	2019	0.953	0.487				Yes – reduced peak hour delay	N/A
3. Bicycle and Pedestrian projects	New bike lanes and improved crossings on 2 arterials	CO	2018			2.127			No	Yes – increased use of non-SOV
4. Traffic flow improvement projects	Traffic signal synchronization for 3 additional arterials.	Ozone	2020	1.734	0.932				Yes – reduced peak hour delay	No

MPOs must update the description of projects for iterations of the CMAQ Performance Plan with the State DOT Baseline Performance Period Report and State DOT Mid Performance Period Progress Report.<sup>87</sup> The updated description of projects may reflect any additional projects that became programmed for CMAQ funding, or that otherwise contribute to the achievement of traffic congestion targets, over the course of the performance period. The description of projects could also describe any changes to the projects, such as changes in scope and/or estimated emissions or congestion reductions.

## 5.4 Assessment of Progress towards Achieving Targets

Finally, in the Mid and Full Performance Period Progress Report, MPOs must include an assessment of their progress towards achieving 2-year and 4-year targets, respectively, based upon the projects in the CMAQ Performance Plans.<sup>88</sup> This assessment must be based on discussion of how the projects included in

<sup>87</sup> 23 CFR 409.107(c)(3)(ii)(E) and 490.107(c)(3)(iii)(E) and 23 U.S.C. 149(l)(2)

<sup>88</sup> 23 CFR 409.107(c)(3)(iii)(C) and 490.107(c)(3)(iv)(C)

the Baseline Performance Period Report and Mid Performance Period Progress Report contributed toward the achievement of the targets.<sup>89</sup>

MPOs can document how the projects have contributed toward progress against the 2-year and 4-year targets using any relevant information. For example, relevant information for the assessment of making progress may include:

- An indication of whether the projects that were scheduled for CMAQ funding received that funding during the 1<sup>st</sup> 2 years of the performance period for the CMAQ Performance Plan update attached to the Mid Performance Period Report, or during the full 4 years of the performance period for the CMAQ Performance Plan update attached to the Full Performance Period Report.
- Calculation of how projects obligated for funding in the 1<sup>st</sup> two years of the performance period contribute to achieving the 2-year target, and how those obligated in the full four years of the performance period contribute to achieving the 4-year target.
- Description of how projects that will reduce traffic congestion contribute to achieving the PHED measure and Non-SOV Travel measure targets for the urbanized area.
- Relevant changes in a project's scope that resulted in re-evaluated estimates of emissions reductions and a discussion of how those changes affected achieving or not achieving the 2-year target (for the 1<sup>st</sup> update) and the 4-year target (for the final update).
- Adjustments to the 4-year target due to changes in CMAQ funding and/or other factors.

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<sup>89</sup> *Id.*

## 6 Timeline and Reporting Requirements

Activities related to the preparation of the CMAQ Performance Plan during the 1<sup>st</sup> performance period occur over the course of the timeline listed in Table 9. The FHWA TPM website provides a more detailed timeline for key implementation dates in 23 CFR part 490.<sup>90</sup>

**Table 9. CMAQ 1<sup>st</sup> Performance Plan Timeline**

Year	Date	Item	Category
2017	5/20	Effective Date of PM3 Final Rule	Rule
	10/1	Applicability determination for CMAQ Performance Measures (23 CFR 490.105(e)(8), (e)(9), (f)(5), and (f)(6))	Applicability
		Start of 1st Performance Period (FY2018-2021) for CMAQ On-Road Mobile Source Emissions Measure (23 CFR 490.105(e)(4)(i)(B))	Performance Period
2018	1/1	Start of 1st Performance Period (2018-2021) for CMAQ Traffic Congestion Measures (23 CFR 490.105(e)(4)(i)(A))	Performance Period
	3/1	Deadline for State DOTs to enter CMAQ project information in the CMAQ Public Access System (23 CFR 490.809(b)(1))	Data
	5/20	State DOT 2-year and 4-year targets established as applicable (23 CFR 490.105(e)(7) and (e)(8)(vi))	Targets
	7/1	CMAQ Project Data Available in CMAQ Public Access System (23 CFR 490.809(b)(2))	Data
	10/1	State DOT Baseline Performance Period Report Due (23 CFR 490.107(b)(1))	Reporting
		MPO CMAQ Performance Plan Due (23 CFR 490.107(b)(1)(ii)(G) and 23 CFR 490.107(c)(3)(i))	Reporting
2019	3/1	State DOTs Submit FY18 Data into CMAQ Tracking System (23 CFR 490.809(b)(1))	Data
	7/1	FY18 CMAQ Project Data Available in CMAQ Public Access System (23 CFR 490.809(b)(2))	Data
	10/1	Applicability re-assessment for CMAQ Performance Measures (Mid Performance Period) (23 CFR 490.105(e)(8), (e)(9), (f)(5), and (f)(6))	Applicability
2020	3/1	State DOTs Submit FY19 Data into CMAQ Track System (23 CFR 490.809(b)(1))	Data
	7/1	FY19 CMAQ Project Data Available in CMAQ Public Access System (23 CFR 490.809(b)(2))	Data
	10/1	State DOT Mid Performance Period Progress Report Due (23 CFR 490.107(b)(2))	Reporting
		MPO CMAQ Performance Plan Due (23 CFR 490.105(f)(6)(iii), 23 CFR 490.107(b)(2)(ii)(I), and 23 CFR 490.107(c)(3))	Reporting
2021	3/1	State DOTs Submit FY20 Data into CMAQ Track System (23 CFR 490.809(b)(1))	Data
	7/1	FY20 CMAQ Project Data Available in CMAQ Public Access System (23 CFR 490.809(b)(2))	Data
	9/30	End of 1st Performance Period for CMAQ On-Road Mobile Source Emissions Measure	Performance Period
	10/1	Start of 2nd Performance Period for CMAQ On-Road Mobile Source Emissions Measure	Performance Period
		Applicability determination for CMAQ Performance Measures (2nd Performance Period)	Applicability
	12/31	End of 1st Performance Period for CMAQ Traffic Congestion Measures	Performance Period
2022	1/1	Start of 2nd Performance Period for CMAQ Traffic Congestion Measures	Performance Period
	3/1	State DOTs Submit FY21 Data into CMAQ Track System	Data
	7/1	FY21 CMAQ Project Data Available in CMAQ Public Access System	Data
	10/1	State DOT Full Performance Period Progress Report Due (23 CFR 490.107(b)(3))	Reporting
		MPO CMAQ Performance Plan Due (23 CFR 490.107(b)(3)(ii)(H) and 23 CFR 490.107(c)(3))	Reporting

<sup>90</sup> <https://www.fhwa.dot.gov/tpm/rule/timeline.pdf>

Figure 4 displays a short summary of some items included with each Biennial State Performance Report. Note that the MPO CMAQ performance plan is included with the State's report submittal.

#### Figure 4. State Reporting Biennial Performance Plan



##### Baseline Performance Period Report includes:

- ✓ Baseline condition/performance
- ✓ 2- and 4-year targets
- ✓ Nonattainment and maintenance area boundaries
- ✓ *MPO CMAQ performance plan*, where applicable



##### Mid Performance Period Progress Report includes:

- ✓ 2-year condition/performance
- ✓ 2-year progress in achieving performance targets
- ✓ Adjusted 4-year targets (optional)
- ✓ *MPO CMAQ performance plan*, where applicable



##### Full Performance Period Progress Report includes:

- ✓ 4-year condition/performance
- ✓ 4-year progress in achieving performance targets
- ✓ *MPO CMAQ performance plan*, where applicable

## 7 Additional Information

MPOs seeking additional information on the performance measures, related rulemakings, additional guidance, or training on any number of performance management topics, should consult the FHWA Office of Transportation Performance Management website.<sup>91</sup> For additional information and resources related to the CMAQ measures specifically, see the following:

**Final Rule for the National Performance Management Measures for Assessing Performance of the National Highway System, Freight Movement on the Interstate System, and Congestion Mitigation and Air Quality Improvement Program** (82 FR 5970, January 19, 2017), available at

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

**PM3 Final Rule Docket and Rulemaking Records.** The complete docket with related materials to the final rule, notice of proposed rulemaking, comments, and other information from the rulemaking process:

<https://www.regulations.gov/docket?D=FHWA-2013-0054>

**CMAQ Program Website.** Landing page for the CMAQ Program, maintained by the FHWA Office of Natural Environment:

[https://www.fhwa.dot.gov/environment/air\\_quality/cmaq/](https://www.fhwa.dot.gov/environment/air_quality/cmaq/)

**CMAQ Performance Measures Website.** Landing page for the CMAQ Performance Measures, maintained by FHWA Office of Natural Environment:

[https://www.fhwa.dot.gov/environment/air\\_quality/cmaq/measures/](https://www.fhwa.dot.gov/environment/air_quality/cmaq/measures/)

<sup>91</sup> <https://www.fhwa.dot.gov/tpm/>

**CMAQ Program Guidance under Map-21 (Interim).** Interim guidance on the CMAQ Program changes introduced under MAP-21:

[https://www.fhwa.dot.gov/environment/air\\_quality/cmaq/policy\\_and\\_guidance/2013\\_guidance/](https://www.fhwa.dot.gov/environment/air_quality/cmaq/policy_and_guidance/2013_guidance/)

**CMAQ Emissions Calculator Toolkit.** Toolkit that includes a series of calculators and tools to estimate emissions from different CMAQ project types, with updates posted as available:

[https://www.fhwa.dot.gov/environment/air\\_quality/cmaq/toolkit/](https://www.fhwa.dot.gov/environment/air_quality/cmaq/toolkit/)

**CMAQ Public Access System.** Landing page for the CMAQ Public Access System, the primary data submittal destination and data source for the On-Road Mobile Source Emissions measure:

[https://fhwaapps.fhwa.dot.gov/cmaq\\_pub/](https://fhwaapps.fhwa.dot.gov/cmaq_pub/)

**List of Applicable State DOTs and MPOs.** The list of State DOTs and MPOs that are required to report targets and performance for the CMAQ Traffic Congestion and On-Road Mobile Source Emissions Measures.

[https://www.fhwa.dot.gov/environment/air\\_quality/cmaq/measures/cmaq\\_applicability/index.cfm](https://www.fhwa.dot.gov/environment/air_quality/cmaq/measures/cmaq_applicability/index.cfm)

**FHWA Office of Transportation Performance Management website.** Main website for the FHWA Office of Transportation Performance Management, which includes links to presentation materials, training opportunities, guidance, reporting and target setting resources, and other information about the performance management-related measures and rules:

<https://www.fhwa.dot.gov/tpm/>

For questions with the content of this document, please contact the FHWA Office of Planning, Environment, & Realty (HEP)'s CMAQ program. The primary points of contact are:

Cecilia Ho: [cecilia.ho@dot.gov](mailto:cecilia.ho@dot.gov)

Karen Perritt: [karen.perritt@dot.gov](mailto:karen.perritt@dot.gov)

Mark Glaze: [mark.glaze@dot.gov](mailto:mark.glaze@dot.gov)

For questions related to the specific application of CMAQ performance measures requirements, please contact your state FHWA Division Office. Contacts are available here:

<https://www.fhwa.dot.gov/about/field.cfm>

# Appendix A: CMAQ Performance Plan Sample Templates

This Appendix provides example templates for the three versions of the CMAQ Performance Plan: the MPO prepared CMAQ Performance Plan is submitted by the State DOT as an attachment to the State DOT created baseline, mid, and full performance period reports. Each template outlines the information MPOs need to include in the plan. Figure A-1 displays a summary of the CMAQ Performance Plan content (see 23 CFR 490.107(c)(3)).

**Figure A-1. Summary of CMAQ Performance Plan Content**

**CMAQ Performance Plan: Summary of Content**

-  **Baseline Performance Period Report includes:**
  - Baseline condition/performance
  - Targets (2-year and 4-year Targets)
  - Description of projects for funding and the projects will contribute to achieving targets
-  **Mid Performance Period Report includes:**
  - 2-year condition/performance,
  - 2-year progress assessment in achieving performance targets
  - If applicable, adjusted 4-year target
  - Update description of projects and their contribution to achieving the 4-year target
-  **Full Performance Period Progress Report includes:**
  - 4 year condition/performance
  - 4-year progress assessment in achieving performance 4-year targets

# Example 1: CMAQ PERFORMANCE PLAN

To be submitted with the State DOT(s) Baseline Performance Period Report(s)

MPO Name:

TMA and State(s):

MPO Name

Urbanized Area(s), State(s)

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## Background or Introduction:

*The CMAQ Performance Plan is attached to the State DOT biennial performance reports for the Baseline, Mid Period and Full-Period of each 4-year performance period. This template for the plan attached to the State DOT Baseline Performance Period Report is a guide to the elements required under 23 CFR 490.107(c) and 23 USC 149(l). MPOs are encouraged to use a layout or template that works within their own reporting processes and promotes collaboration with the State DOT and other stakeholders.*

## Baseline Condition/Performance:

### Baseline Condition/Performance for Traffic Congestion Measures:

*Calculate as a measurement of PHED and Percent of Non-SOV for calendar year 2017. Refer to 23 CFR 490.711 and 490.713 for calculation details on the traffic congestion measures. Baseline condition/performance for the traffic congestion measures is identical to the State DOT baseline condition/performance for these measures, as reported in the Baseline CMAQ Performance Plan.*

### Baseline Condition/Performance for On-Road Mobile Source Emissions Measures:

*Sum together the total emissions reductions for each individual pollutant (e.g., CO, NO<sub>x</sub>, VOCs, PM<sub>2.5</sub> and PM<sub>10</sub>) from all CMAQ funded projects that were reported in the CMAQ Public Access System between Federal fiscal years 2014 to 2017, or provide a relevant baseline estimate of total emissions reductions. Total emissions reductions are to be reported in kg/day.*

*Report emissions reductions for each applicable pollutant individually (e.g., CO, NO<sub>x</sub>, VOCs, PM<sub>2.5</sub> and PM<sub>10</sub>) in kg/day. For calculation details for the on-road mobile source emissions measure, refer to 23 CFR 490.811*

## 2-year and 4-year Targets:

### Targets for Traffic Congestion Measures:

*Report the targets for traffic congestion measures for the metropolitan area. These targets are identical to the State DOT(s) targets for the metropolitan area.*

### Targets for On-Road Mobile Source Emissions Measures:

*Report the targets an MPO establishes for on-road mobile source emissions measures. MPOs that serve a TMA with population greater than 1 million must establish both 2- and 4-year targets. See Section 5.2 or the CMAQ Target Setting document from FHWA for more detail.*

## Description of Projects:

*The CMAQ Performance Plan submitted with the State DOT Baseline Performance Report shall include a description of the projects identified for CMAQ funding and how these projects will contribute to the achievement of the 2- and 4-year targets for traffic congestion and on-road mobile source emissions. MPOs could use a table like the one below to describe the benefits by pollutant and precursor as well as the traffic congestion benefits, **but such a table is not required**.*

*Multi-State MPOs (those whose boundaries include portions of two or more States) should also describe how they will allocate the contributions of different projects to performance within each State DOT*

boundary. For projects without geographically-limited scope (e.g. outreach and education projects), they may wish to allocate emission reductions proportionally by population, geographic area, system mileage, or some other factor. The MPO may determine which method of allocation is most appropriate, but should describe that method within its description of projects.

***The table below is an example of how MPOs may report projects and contributions to the targets, for reference only.***

Project	Project Descriptions	Year Anticipated for CMAQ Obligation	NOx Benefit (kg/day)	VOC Benefit (kg/day)	CO Benefit (kg/day)	PM <sub>2.5</sub> Benefit (kg/day)	PM <sub>10</sub> Benefit (kg/day)	PHED benefit	Non-SOV benefit

# Example 2: CMAQ PERFORMANCE PLAN

To be submitted with the State DOT(s) Mid Performance Period Progress Report(s)

MPO Name:

MPO Name

TMA and State(s):

Urbanized Area(s), State(s)

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## Background/Introduction:

The CMAQ Performance Plan is attached to the State DOT biennial performance reports for the Baseline, Mid Period and Full-Period of each 4-year performance period. This template for the plan attached to the State DOT Mid Performance Period Progress Report is a guide to the elements required under 23 CFR 490.107(c) and 23 USC 149(l). MPOs are encouraged to use a layout or template that works within their own reporting processes and promotes collaboration with the State DOT and other stakeholders.

## 2-Year Condition/Performance:

### 2-year Condition/Performance for Traffic Congestion Measures:

Calculate as a measurement of PHED and Percent of Non-SOV for calendar year 2018 and 2019. Performance is identical to the performance reported by the State DOT(s) and other MPOs serving the metropolitan area (submitted as part of the State DOT Mid Performance Period Progress Report).

### 2-year Condition/Performance for On-Road Mobile Source Emissions Measures:

Sum together the total emissions reductions for each individual pollutant (e.g., CO, NO<sub>x</sub>, VOCs, PM<sub>2.5</sub> and PM<sub>10</sub>) from all CMAQ funded projects that were reported in the CMAQ Public Access System between fiscal years 2018 to 2019. The total emissions reductions are to be reported in kg/day.

Report emissions reductions for each applicable pollutant individually (e.g., CO, NO<sub>x</sub>, VOCs, PM<sub>2.5</sub> and PM<sub>10</sub>) in kg/day.

## Adjusted 4-year Targets (optional):

### Targets for Traffic Congestion Measures:

Report any adjustments to the targets for the traffic congestion measures, if applicable. Adjustments must be identical to the adjusted targets submitted by the State DOT(s) in the mid-performance period progress report.

Note that, if an applicable area is no longer in non-attainment or maintenance for one or more of the criteria pollutants or precursors by one year before the State DOT Mid Performance Period Progress report is due to FHWA (October 1, 2019 in the 1<sup>st</sup> performance period), the State DOT and MPO would no longer need to report targets or progress for these measures.

### Targets for On-Road Mobile Source Emissions Measures:

Report any adjustments to the targets for the on-road mobile source emissions measures, if applicable.

Note that, if an applicable area is no longer in non-attainment or maintenance for one or more of the criteria pollutants or precursors by one year before the State DOT Mid Performance Period Progress report is due to FHWA (October 1, 2019 in the 1<sup>st</sup> performance period), the State DOT and MPO would no longer need to report targets or progress for these measures.

## Description of Projects:

The CMAQ Performance Plan submitted with the State DOT Mid Performance Period Report shall include an updated description of the projects identified for CMAQ funding and how these projects will contribute to the achievement of the 4-year targets for traffic congestion and on-road mobile source emissions.

Multi-State MPOs should be clear to describe, particularly for new projects, how they allocate emission reductions to each State.

***The table below is an example for reference only.***

Project	Project Descriptions	Year Anticipated for CMAQ Obligation	NOx Benefit (kg/day)	VOC Benefit (kg/day)	CO Benefit (kg/day)	PM <sub>2.5</sub> Benefit (kg/day)	PM <sub>10</sub> Benefit (kg/day)	PHED benefit	Non-SOV benefit

## Assessment of Progress towards achieving the 2-year targets:

MPOs may select an appropriate format to describe their progress toward achieving the 2-year targets and are encouraged to use a format and process that aligns with other reporting for the TIP and for State DOT coordination. In general, this assessment of progress should mention

1. Updates and changes to the projects identified for CMAQ funding (e.g. new projects identified, projects that did not receive funding, or changes to the scope or approach of individual projects)
2. How those updates will contribute to achieving the 4-year performance targets for the traffic congestion and on-road mobile source emissions measures.
3. How each project contributes to the State DOT targets (or to each State DOT's targets, for multi-State MPOs).

***The table below is an example for reference only.***

Pollutant/Non-Attainment or Maintenance Area	Assessment of Progress towards Achieving Targets
Ozone area projects	MPOs could list changes and updates to projects identified for CMAQ funding, as compared to the list of projects submitted with the Baseline Performance Period Report, and how the changes and updates will contribute to the 4-year targets (original or adjusted, as applicable).
CO area projects	...
PM <sub>10</sub> area projects	...
PM <sub>2.5</sub> area projects	...

# Example 3: CMAQ PERFORMANCE PLAN

To be submitted with the State DOT(s) Full Performance Period Progress Report(s)

MPO Name:

TMA and State(s):

*MPO Name*

*Urbanized Area(s), State(s)*

## Background or Introduction:

The CMAQ Performance Plan is attached to the State DOT biennial performance reports for the Baseline, Mid Period and Full-Period of each 4-year performance period. This template for the plan attached to the State DOT Full Performance Period Progress Report is a guide to the elements required under 23 CFR 490.107(c) and 23 USC 149(l). MPOs are encouraged to use a layout or template that works within their own reporting processes and promotes collaboration with the State DOT and other stakeholders.

## 4-year Condition/Performance:

### 4-year Condition/Performance for Traffic Congestion Measures:

Calculate as a measurement of Annual Hours of Peak Hour Excessive Delay per Capita and Percent of Non-SOV for calendar year 2018-2021. Performance is identical to the performance reported by the State DOT(s) and other MPOs serving the metropolitan area (submitted as part of the State DOT Mid Performance Period Progress Report).

### 4-year Condition/Performance for On-Road Mobile Source Emissions Measures:

Sum together the total emissions reductions for each individual pollutant (e.g., CO, NOx, VOCs, PM<sub>2.5</sub> and PM<sub>10</sub>) from all CMAQ funded projects that were reported in the CMAQ Public Access System between fiscal years 2018 to 2021. The total emissions reductions are to be reported in kg/day.

Report emissions reductions for each applicable pollutant individually (e.g., CO, NOx, VOCs, PM<sub>2.5</sub> and PM<sub>10</sub>) in kg/day.

## Assessment of Progress:

MPOs may select an appropriate format to describe their progress toward achieving the 4-year targets and are encouraged to use a format and process that aligns with other reporting for the TIP and for State DOT coordination. In general, this should include:

1. An assessment of the progress of projects identified in both the baseline and mid-period performance reports (e.g. project status/completion, funding status, delays, etc).
2. How those projects contribute to the achievement of the 4-year targets for traffic congestion and on-road mobile source emissions (e.g. demonstrated benefits in traffic reduction or emissions reductions), and how they contribute to the State targets (or each State's targets, if applicable).

**The table below is an example for reference only.**

Pollutant/Non-Attainment or Maintenance Area	Assessment of Progress towards Achieving Targets
Ozone area projects	MPOs list changes and updates to projects identified for CMAQ funding, as compared to the list of projects submitted with the Baseline and Mid Period Reports, and how those projects contribute to the achievement of the 4-year targets.
CO area projects	...
PM <sub>10</sub> area projects	...
PM <sub>2.5</sub> area projects	...

## Appendix B: Definitions

The following definitions listed in Table B-1 from 23 CFR Part 490 apply to the CMAQ Performance Plan and to the performance measures for traffic congestion and on-road mobile source emissions. These definitions may assist when preparing the CMAQ Performance Plan or conducting any related activities. In some cases, definitions are incorporated by reference from other parts of Title 23 of the U.S. Code.

**Table B-1. Applicable Definitions from 23 CFR 490.101, 490.705, and 490.805**

Term	Definition
American Community Survey	A national level ongoing survey from the U.S. Census Bureau that includes data on jobs, occupations, educational attainment, transportation patterns, and other topics of the Nation's population.
Attainment Area	As defined in 23 CFR 450.104, any geographic area in which levels of a given criteria air pollutant (e.g., ozone, carbon monoxide, PM <sub>10</sub> , PM <sub>2.5</sub> , and nitrogen dioxide) meet the health-based National Ambient Air Quality Standards (NAAQS) for that pollutant. An area may be an attainment area for one pollutant and a nonattainment area for others. A "maintenance area" [see definition in 23 CFR 450.104] is not considered an attainment area for transportation planning purposes.
Criteria Pollutant	Any pollutant for which there is established a NAAQS at 40 CFR part 50. The transportation-related criteria pollutants per 40 CFR 93.102(b)(1) are carbon monoxide, nitrogen dioxide, ozone, and particulate matter (PM <sub>10</sub> and PM <sub>2.5</sub> ).
Excessive Delay	The extra amount of time spent in congested conditions defined by speed thresholds that are lower than a normal delay threshold. For the purposes of the performance rule, the speed threshold is 20 miles per hour (mph) or 60 percent of the posted speed limit, whichever is greater.
Highway Performance Monitoring System (HPMS)	National-level highway information system that includes data on the extent, condition, performance, use, and operating characteristics of the Nation's highways.
Mainline Highway	The through travel lanes of any highway, specifically excluding ramps, shoulders, turn lanes, crossovers, rest areas, and other pavement surfaces that are not part of the roadway normally traveled by through traffic.
Maintenance Area	As defined in 23 CFR 450.104, any geographic region of the United States that the Environmental Protection Agency (EPA) previously designated as a nonattainment area for one or more pollutants pursuant to the Clean Air Act Amendments of 1990, and subsequently redesignated as an attainment area subject to the requirement to develop a maintenance plan under the Clean Air Act. For the purposes of 23 CFR Part 490, areas that have reached the end of their 20-year maintenance period are excluded.
Measure	An expression based on a metric that is used to establish targets and to assess progress toward achieving the established targets.
Metric	A quantifiable indicator of performance or condition.
MPO	As defined in 23 CFR 450.104, the policy board of an organization created and designated to carry out the metropolitan transportation planning process.
NAAQS	As defined in 23 CFR 450.104, those standards established pursuant to section 109 of the Clean Air Act (see 40 CFR Part 50).

Term	Definition
National Performance Management Research Data Set (NPMRDS)	A data set derived from vehicle/passenger probe data (sourced from Global Positioning Station (GPS), navigation units, cell phones) that includes average travel times representative of all traffic on each mainline highway segment of the NHS, and additional travel times representative of freight trucks for those segments that are on the Interstate System. The data set includes records that contain average travel times for every 15 minutes of every day (24 hours) of the year recorded and calculated for every travel time segment where probe data are available. The NPMRDS does not include any imputed travel time data.
Nonattainment Area	As defined in 23 CFR 450.104, any geographic region of the United States that EPA designates as a nonattainment area under section 107 of the Clean Air Act for any pollutants for which an NAAQS exists.
Non-SOV Travel	Any travel mode other than driving alone in a motorized vehicle (i.e. single occupancy vehicle or SOV travel) including travel avoided by telecommuting
Non-urbanized Area	A single geographic area that comprises all of the areas in the State that are not “urbanized areas” under 23 USC 101(a)(34).
On-Road Mobile Source	For purposes of 23 CFR Part 490, Subpart H, emissions created by all projects and sources financed with funds from the 23 USC 149 CMAQ program.
Peak Period	Weekdays from 6:00 a.m. to 10:00 a.m. and either 3:00 p.m. to 7:00 p.m. or 4:00 p.m. to 8:00 p.m. State DOTs and MPOs may choose whether to use 3:00 p.m. to 7:00 p.m. or 4:00 p.m. to 8:00 p.m.
Performance Period	For purposes of assessing performance of the CMAQ measures, a four-year period during which condition/performance is measured and evaluated to: (1) assess condition/performance with respect to baseline condition/performance; and (2) track progress toward the achievement of the targets that represents that intended condition/performance level at the midpoint and at the end of that time period.
Reporting Segment	The length of roadway that the State DOT and MPOs define for metric calculation and reporting and is comprised of one or more travel time segments.
Target	A quantifiable level of performance or condition, expressed as a value for the measure, to be achieved within a time period required by the FHWA.
TMA	As used in 23 CFR Part 490 and as defined in 23 CFR 450.104, an urbanized area with a population over 200,000, as defined by the Bureau of the Census and designated by the Secretary of Transportation, or any additional area where TMA designation is requested by the Governor and the MPO and designated by the Secretary of Transportation.
Travel Time Data Set	Either the National Performance Management Research Data Set (NPMRDS) or an equivalent data set used by State DOTs and MPOs as approved by FHWA, to carry out the requirements in subparts E, F, and G of 23 CFR Part 490
Travel Time Segment	A contiguous stretch of the NHS for which average travel time data are summarized in the Travel Time Data Set.