Memphis Urban Area MPO CMAQ Performance Plan

Memphis, TN-MS-AR Urbanized Area

Final Report

2nd Performance Period

October 2022 to 2026

Memphis MPO
METROPOLITAN PLANNING ORGANIZATION
Strengthening Regional Transportation

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1. Overview and Background

In July 2012, Congress passed the Moving Ahead for Progress in the 21st Century Act (MAP-21) and created a performance-based surface transportation program. The Fixing America's Surface Transportation Act (FAST Act) was signed into law in December 2015, and the Infrastructure Investment and Jobs Act (IIJA), also known as the "Bipartisan Infrastructure Law," was signed into law in November 2021, continuing and refining those efforts.

MAP-21, the FAST Act, and the IIJA integrated performance into many Federal surface transportation programs and required the USDOT to establish a set of national measures that State DOTs must report on.

To carry out the Congestion Mitigation and Air Quality Improvement (CMAQ) Program, FHWA finalized three performance measures – two congestion measures and one on-road mobile source emission reduction measure (Table 1). Two Subparts of 23 CFR Part 490, promulgated through the PM3 regulation, established the performance measures for the CMAQ Program required by MAP-21 (Table 1):

- 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: CMAQ Performance Measures Associated with the PM3 Regulation

Subpart and Measure	Measure Description
Subpart G: Traffic Congestion	• 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
Subpart H: On-Road Mobile Source Emissions	• Total Emissions Reduction Measure: 2- and 4-year Total Emission Reductions for each applicable criteria pollutant and precursor for all projects funded with CMAQ funds

In addition to the reporting required by the PM3 regulation, Title 23 U.S.C. 149(l) requires MPOs that serve a Transportation Management Area (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.

In the CMAQ Performance Plan and its biennial updates, MPOs report 2- and 4-year targets, describe how they plan to meet them, and detail their progress toward achieving them throughout the performance period.

Memphis MPO, which covers parts of Tennessee and Mississippi, is subject to this requirement. For the 2nd Performance Period (October 2022 to October 2026), Memphis MPO submitted its Baseline CMAQ Performance Plan in October 2022 and its Mid Performance Period update in October 2024 to both the Tennessee and Mississippi State DOTs. This Final Report documents the CMAQ performance targets and actual condition/performance at the close of the 2nd Performance Period and is submitted as part of the State DOTs' Full Performance Period Progress Report, due to FHWA on October 1, 2026 (Table 2).

Table 2: 2nd Performance Period Reporting Timeline

Report	Performance Period Covered	Due to FHWA
Baseline Performance Period Report and CMAQ Performance Plan	2022–2026 (targets established)	October 1, 2022
Mid Performance Period Progress Report and CMAQ Performance Plan	2-year condition (2023 data)	October 1, 2024
Full Performance Period Progress Report and CMAQ Performance Plan (this report)	4-year condition (2025 data)	October 1, 2026

2. Summary of the 2nd Performance Period PM3 Targets

The two measures that require Tri-State adoption are Peak-Hour Excessive Delay (PHED) and Percent of Non-SOV Travel. The On-Road Mobile Source Emissions measure is set individually for Tennessee and Mississippi.

The PHED target was updated during the Mid Performance Period Review (Table 3). As agreed by the Tri-State Partners (Tennessee, Mississippi, Arkansas, West Memphis MPO, and Memphis MPO), the 4-Year (2026) PHED target was revised in 2024 from 9.6 hours to 10.8 hours, reflecting ongoing construction-related delays across the Tri-State network. The 4-Year (2026) target for Percent of Non-SOV Travel remained unchanged at 16.2%.

Table 3: Subpart G – Traffic Congestion Targets, Memphis, TN-MS-AR Urbanized Area

Measure	Baseline (2022)	2-Year Target (2024)	4-Year Target (2026) as adopted in 2022	Updated 4-Year Target (2026) adopted 2024
Annual Hrs. of Peak-Hour Excessive Delay (PHED) per Capita	8.4 Hours (2021 data)	9.6 Hours	9.6 Hours	**10.8 Hours**
Percentage of Non-Single Occupancy Vehicle (Non-SOV) Travel	16.8% (2020 ACS data)	16.2%	16.2%	**16.2% (unchanged)**

For the On-Road Mobile Source Emissions measure, the TDOT Working Group agreed during the Mid Performance Period review to adjust the 4-year targets to the actual total emission reductions reported in the FHWA CMAQ Public Access System (UPACS) for the Memphis and Knoxville urbanized areas from 2022 through 2024. In Mississippi, the 4-year target of ≥ 0 was retained (Table 4).

Table 4: Subpart H – On-Road Mobile Source Emissions Targets (Tennessee and Mississippi Statewide)

Measure	Tennessee (TDOT)			Mississippi (MDOT)	
	Baseline (2018–2021)	4-Year Target (2026) adopted 2022	Updated 4-Year Target (2026) adopted 2024	Baseline (2018–2021)	4-Year Target (2026)
Total Emissions Reductions (VOC) kg/day	51.440	42.072	**30.854**	0	> 0
Total Emissions Reductions (NOx) kg/day	201.137	50.671	**27.808**	0	> 0

3. 4-Year Condition/Performance for Traffic Congestion Measures

The Memphis Urbanized Area, which covers parts of Tennessee, Mississippi, and Arkansas, including Memphis Urban Area MPO (MMPO) and West Memphis MPO (WMPO), continues to meet the threshold set in Subpart G, with an estimated population above 1 million and maintenance designations for Ozone (O_3) covering all of Shelby County, TN, all of Crittenden County, AR, and part of DeSoto County, MS. This requires the Tri-State Urbanized Area to establish single, unified targets for:

- The annual hours of Peak Hour Excessive Delay (PHED) per capita, and
- The percentage of Non-Single Occupancy Vehicle (Non-SOV) travel

3.1 Peak Hour Excessive Delay Measure (PHED)

The Tri-State working group used the National Performance Management Research Data Set (NPMRDS), as identified in 23 CFR 490.709, to establish and monitor the Tri-State PHED target. The NPMRDS provides travel time delays by road segment for the National Highway System (NHS) at 15-minute intervals each month for all urbanized areas in the nation, including the Memphis TN-MS-AR Urbanized Area. The PM peak hours used to calculate this metric were determined to be 3:00 – 7:00 PM CST. The target methodology used in both the Baseline and Mid Performance Period reviews was to multiply the highest observed monthly value by 12.

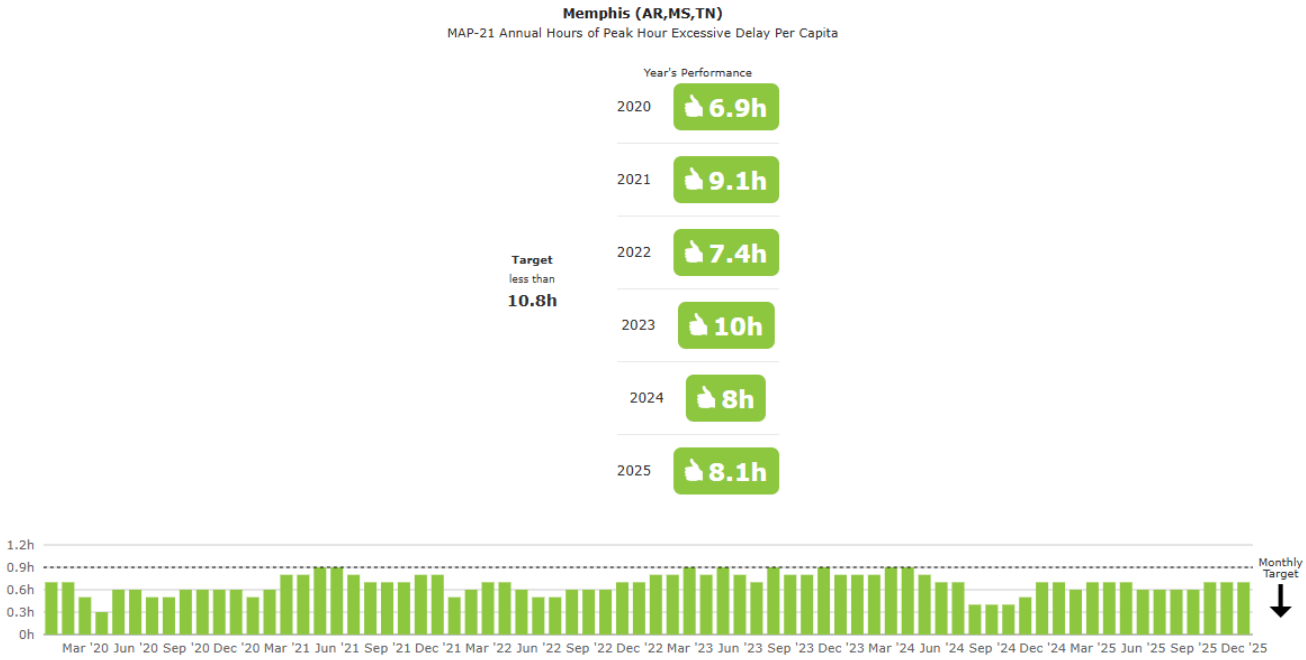
The updated 4-year (2026) target adopted during the Mid Performance Period review was 10.8 hours. The most recent NPMRDS/INRIX data reviewed by the Tri-State working group shows an annual PHED per capita of 8.1 hours for 2025 (Table 5), which is below the 4-year target. The 4-year target has therefore been met.

Table 5: Annual Hours of Peak Hour Excessive Delay per Capita, Memphis TN-MS-AR Urbanized Area

Year	2019	2020	2021	2022	2023	2024	2025
Annual Hrs. of PHED per Capita	7.5	6.9	9.1	7.4	10.0	8.0	**8.1**
4-Year Target (2026)	—	—	—	9.6	9.6	10.8	10.8

Data source: NPMRDS – INRIX (2019–2025).

Figure 1: Annual Hours of Peak Hour Excessive Delay per Capita, Memphis (AR-MS-TN)



Data source: NPMRDS – INRIX (2020–2025), as presented to the Tri-State PM3 Working Group, March 10, 2026. Annual performance is shown against the 4-year target of less than 10.8 hours; monthly values are shown against the corresponding monthly target of 0.9 hours.

As shown in Figure 1, annual PHED per capita remained below the 10.8-hour target in every year of the performance period, and no month in 2025 exceeded the 0.9-hour monthly threshold.

Monthly delay values for 2024 and 2025 are shown in Table 6. The monthly profile flattened in 2025: monthly values ranged from 0.6 to 0.7 hours throughout the year, compared with a wider spread of 0.4 to 0.9 hours in 2024. The highest observed monthly value declined from 0.9 hours in 2024 to 0.7 hours in 2025, while the annual total remained essentially unchanged (8.0 hours in 2024 and 8.1 hours in 2025).

Table 6: Monthly Hours of Peak Hour Excessive Delay per Capita, 2024 and 2025

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2024	0.8	0.8	0.9	0.9	0.8	0.7	0.7	0.4	0.4	0.4	0.5	0.7
2025	0.7	0.6	0.7	0.7	0.7	0.6	0.6	0.6	0.6	0.7	0.7	0.7

Monthly values are rounded to the nearest tenth; annual totals are computed from unrounded monthly data and may differ slightly from the sum of the values shown.

3.1.1 Factors Influencing PHED Performance

Congestion and travel behavior in the Memphis TN-MS-AR Urbanized Area continued to be influenced during the performance period by regional growth, freight movement, changing commute patterns, and sustained major construction activity on the regional NHS network. During the Mid Performance Period review, the Tri-State working group acknowledged that active construction contributes to increased delay through lane closures, work zones, and traffic disruptions, but that these projects are necessary to improve long-term safety, connectivity, mobility, and freight movement throughout the region.

Major projects influencing PHED during the 2nd Performance Period included:

Table 7: Major Construction Projects Influencing PHED, Memphis TN-MS-AR Urbanized Area

Status	Project	Year
Recently Completed	I-55 / Crump Boulevard Interchange (TN)	2025
	Germantown Road (SR-177) & Wolf River Boulevard Intersection (TN)	2025
	Getwell Road: Star Landing Road to Church Road (MS)	2024
Under Construction	Lamar Avenue (US 78): Shelby Drive to Raines/Perkins (TN)	2026
	SR-14: East of Kerrville Road to Tipton County Line (TN)	2026
	SR-57: Collierville-Arlington to SR-385 (TN)	2026
	Commerce Street Extension: Della to Jaybird (TN)	2026
	Summer Avenue (US-70): I-40 to Sycamore View (TN)	2027
Upcoming	Lamar Avenue (US 78): Raines/Perkins to Getwell (TN)	2027
	I-240 & Airways Interchange (TN)	2027
	King's Crossing: I-55 Bridge (TN)	2027
	I-55 Widening: Church Road to 1 mile north of SR-302 (MS)	2026
	I-40 & Airline Road Interchange (TN)	2027

The year shown is the estimated completion year for recently completed projects and projects under construction, and the estimated start year for upcoming projects, as presented to the Tri-State PM3 Working Group on March 10, 2026.

The completion of the I-55/Crump Boulevard Interchange project and the Germantown Road at Wolf River Boulevard intersection improvement in 2025, together with the completion of the Getwell Road widening in DeSoto County in 2024, coincided with a flattening of monthly delay values observed in 2025. Delay is expected to remain sensitive to construction activity through the 3rd Performance Period as the Lamar Avenue corridor, I-240 at Airways, and I-40 at Airline Road projects advance.

3.2 Percentage of Non-Single Occupancy Vehicle (Non-SOV) Travel

The working group used Method A, American Community Survey (ACS) journey-to-work data, as identified in 23 CFR 490.709, to establish and monitor the Percent of Non-SOV Travel target. The 4-year (2026) target retained at the Mid Performance Period review was 16.2%, calculated using a five-year average of ACS data.

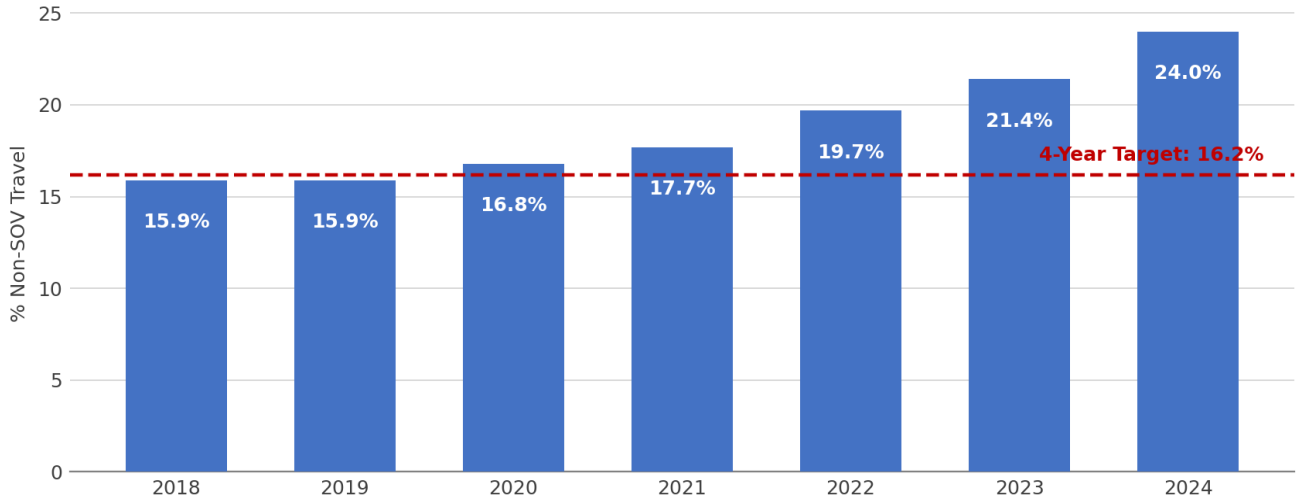
The most recent ACS 5-year estimates (2020–2024) for the Memphis TN-MS-AR Urbanized Area show a Non-SOV share of 24.0%, reflecting a continued year-over-year increase since 2019 (Table 8). The 4-year target of 16.2% has been exceeded by a substantial margin.

Table 8: Percent of Non-SOV Travel – Memphis, TN-MS-AR Urbanized Area, 2020–2024

Mode	2020	2021	2022	2023	2024
Drove Alone (SOV)	83.2%	82.3%	80.3%	78.6%	76.0%
Carpooled	9.8%	9.3%	9.5%	9.4%	10.8%
Transit (excluding taxicab)	0.8%	0.6%	0.6%	0.5%	0.3%
Walked	1.0%	0.9%	1.1%	1.1%	1.3%
Bicycle	0.1%	0.1%	0.1%	0.1%	0.0%
Taxi, motorcycle, or other means	0.9%	0.9%	1.1%	1.1%	1.2%
Worked from Home	4.2%	5.8%	7.3%	9.0%	9.8%
% Non-SOV	**16.8%**	**17.7%**	**19.7%**	**21.4%**	**24.0%**

Data source: American Community Survey (ACS) 5-year estimates, using 2020 Urban Area (UZA) boundary definitions.

Figure 2: Percent of Non-SOV Travel vs. 4-Year Target, Memphis TN-MS-AR Urbanized Area



Data source: American Community Survey (ACS) 5-year estimates, 2018–2024.

The largest single contributor to the increase in Non-SOV travel during the performance period was continued growth in work-from-home activity, which rose from 4.2% in 2020 to 9.8% in 2024. Carpooling, historically the largest Non-SOV mode share in the region, increased from 9.8% to 10.8% over the same period, while transit, walking, and bicycle mode shares experienced comparatively smaller changes. Transit commute share declined from 0.8% to 0.3%, a trend the MPO will continue to monitor in coordination with the Memphis Area Transit Authority (MATA).

4. 4-Year Condition/Performance for On-Road Mobile Source Emission Measures

Memphis MPO is currently designated as a Maintenance Area for Ozone (VOC and NOx) and is required to establish and report against targets for the on-road mobile source emissions measure. In Tennessee, only the Memphis and Knoxville MPO areas are required to report on this performance measure.

The updated 4-Year (FY 2026) targets for Tennessee, 30.854 kg/day (VOC) and 27.808 kg/day (NOx), were set at the Mid Performance Period Review based on actual UPACS-reported emission reductions from CMAQ-funded projects obligated between 2022 and 2024. As reported in the Mid Performance Period Plan, annual reductions attributable to new CMAQ-funded projects declined sharply after 2022 (30.522 kg/day VOC and 24.204 kg/day NOx in 2022, falling to 0.174/0.945 in 2023 and 0.000/0.000 in 2024), as no new emissions-reducing CMAQ projects were obligated in the Tennessee portion of the Memphis MPO area during the second half of the performance period.

As a result, cumulative Total Emission Reductions for the Tennessee portion of the Memphis and Knoxville MPO/TPO area over the 2nd Performance Period (FY 2023–FY 2026) came in below the updated 4-Year targets, at 1.241 kg/day (VOC) and 22.659 kg/day (NOx) for FY2025.

A few congestion and traffic flow CMAQ-funded projects incurring air quality reductions were reported by MDOT for the Mississippi portion of the Memphis MPO area (DeSoto County) during the 2nd Performance Period. The Mississippi 4-Year target of ≥ 0 kg/day was therefore met by definition.

Table 9: Total Emissions Reductions – 4-Year Target vs. Actual (FY 2023–FY 2026)

	TN Updated 4-Year Target (2026)	TN Actual (2023–2026)	MS 4-Year Target (2026)	MS Actual (2023–2026)
VOC (kg/day)	30.854	1.241 – Target Not Met	≥ 0	0.022 – Target Met
NOx (kg/day)	27.808	22.659 – Target Not Met	≥ 0	0.122 – Target Met

5. Assessment of Progress Towards Achieving the 4-Year Targets (2022 – 2026)

The Baseline Performance Period Report submitted to FHWA in October 2022 identified eight CMAQ-funded projects anticipated for obligation within the Tennessee portion of the Memphis MPO area during the 2nd Performance Period, summarized in Table 10 below. As reported at the Mid Performance Period Review (October 2024), no additional CMAQ-funded projects had been obligated in the Tennessee or Mississippi portions of the Memphis MPO area beyond those identified in the Baseline Report.

Table 10: CMAQ-Funded Projects Identified for the TN Portion of the Memphis MPO Area (2nd Performance Period)

Project Category	Description of Project	Anticipated Obligation Year	VOC Benefit (kg/day)	NOx Benefit (kg/day)	PHED Benefit	Non-SOV Benefit
Bicycle Pedestrian Projects	Elvis Presley Blvd Pedestrian Access Project	2022	0.048	0.460	No	Yes
Intelligent Transportation Systems	Brother Blvd Coordinated Signal System	2022	0.076	0.548	Yes	No
New or Expanded Transit Service	FMLM Connections for Downtown Employee/Student Transit	2022	3.120	2.090	No	Yes
Bicycle Pedestrian Projects	Explore Bike Share eBike Operations and Assistance	2022	0.110	0.080	No	Yes
New or Expanded Transit Service	MATA Southwest Memphis On-Demand Transit	2022	25.600	17.200	No	Yes
Transportation Demand Management	Shelby County Memphis Area Rideshare	2022	0.518	0.548	No	Yes
Intelligent Transportation Systems	SR 3/US 51 ITS Expansion	2022	0.296	1.386	Yes	No
Intelligent Transportation Systems	Byhalia Rd Coordinated Signal System	2022	0.098	0.397	Yes	No

Consistent with the emissions data in Section 4, the reported UPACS emission-reduction totals for the Tennessee portion of the Memphis MPO area for FY 2023 to FY 2026 (1.241 kg/day VOC, 22.659 kg/day NOx) are substantially lower than the sum of benefits anticipated from the projects above, indicating that a portion of the identified projects were delayed, re-scoped, or had not yet been obligated as of the close of the performance period. A few new projects were reported by MDOT for the Mississippi portion of the Memphis MPO area (DeSoto County) during the 2nd Performance Period.

6. Assessment of Progress Toward Achieving the 4-Year Targets (2022–2026)

Table 11 summarizes the 4-year condition/performance for each applicable CMAQ measure against the targets in effect at the end of the 2nd Performance Period.

Table 11: Summary of 4-Year Condition/Performance vs. Targets

Measure	Baseline (2022)	4-Year Target (2026)	4-Year Actual	Status
Annual Hrs. of PHED per Capita	8.4 Hours (2021 data)	10.8 Hours (updated 2024)	8.1 Hours (2025 NPMRDS)	**Target met**
Percent of Non-SOV Travel	16.8% (2020 ACS)	16.2%	24.0% (2024 ACS)	**Target exceeded**
Total Emissions Reductions (VOC) kg/day – TN	51.440	30.854	1.241	Target not met
Total Emissions Reductions (NOx) kg/day – TN	201.137	27.808	22.659	Target not met
Total Emissions Reductions (VOC) kg/day – MS	0	≥ 0	0.022	**Target met**
Total Emissions Reductions (NOx) kg/day – MS	0	≥ 0	0.122	**Target met**

Peak Hour Excessive Delay: Actual PHED performance in 2025 was 8.1 hours per capita, 2.7 hours below the updated 4-year target of 10.8 hours. The original 4-year target of 9.6 hours was based on 2021 data, when travel demand and congestion patterns were still influenced by the COVID-19 pandemic and the closure of the I-40 Hernando de Soto Bridge. Performance varied over the period, rising to 10.0 hours in 2023 during peak construction activity before returning to 8.0 and 8.1 hours in 2024 and 2025, reflecting the direct relationship between active work zones on the regional NHS and measured delay. The near-term trend supports the national congestion reduction goal in 23 U.S.C. § 150(b), and the corridor and interchange projects completed during the period are intended to improve long-term mobility, safety, freight reliability, and system connectivity.

Percent of Non-SOV Travel: Actual Non-SOV travel at 24.0% exceeds the 4-year target of 16.2% by 7.8 percentage points and is 7.2 percentage points above the 16.8% baseline. The increase is driven primarily by sustained growth in work-from-home activity and, more recently, by growth in carpooling. Reduced drive-alone commuting supports regional congestion mitigation and air quality goals; however, the concurrent decline in the share of commutes by transit indicates that the gain is attributable largely to trip elimination rather than to mode shift. The MPO will continue to coordinate with the local transit agency to address this issue during the 3rd Performance Period.

Total Emissions Reductions: The Tennessee statewide 4-year targets were adjusted at the Mid Performance Period to equal actual reported reductions through 2024. Confirmed reductions for the Memphis and Knoxville urbanized areas total 30.854 kg/day of VOC and 27.808 kg/day of NOx for 2022 through 2024. The FY 2025 emissions were substantially lower in the Tennessee portion of the Memphis MPO area, resulting in a failure to meet the emission targets compared with the FY 2025 actual emissions. In the Mississippi portion of the Memphis MPO area, the ≥ 0 kg/day target has been met.

Overall, the Memphis MPO Tri-State Urbanized Area met its 4-Year targets for both Traffic Congestion measures (PHED and Non-SOV Travel) at the close of the 2nd Performance Period. The On-Road Mobile Source Emissions targets for the Tennessee portion of the Memphis MPO area were not met, reflecting the reduction of newly obligated CMAQ emissions-reduction projects since 2022; this will inform project programming discussions for the 3rd Performance Period (2026–2030), for which updated targets were approved by the Transportation Policy Board on July 30, 2026.

7. Coordination and Transition to the 3rd Performance Period

The Tri-State PM3 Working Group, comprising TDOT, MDOT, ARDOT, the West Memphis MPO, the Memphis MPO, and the FHWA TN, AR, and MS Division Offices, held a conference call on March 10, 2026, to review 2nd Performance Period results and set Tri-State targets for the 3rd Performance Period (2026–2030).