



To: Casey Wells
Texas Department of Transportation
Transportation Planning and Programming Div.
125 E. 11th ST.
Austin, TX 78701-2483

Date: September 12, 2022

From: Clifton Hall
Transportation Planning Program Manager
Alamo Area Metropolitan Planning Organization
825 South Saint Mary's Street
San Antonio, TX 78205

Subject: Alamo Area MPO Congestion Mitigation and Air Quality Performance Plan

In compliance with 23 U.S. Code § 149 (l), the Alamo Area Metropolitan Planning Organization has developed the Congestion Mitigation and Air Quality (CMAQ) Performance Plan to support the implementation of CMAQ measures in the San Antonio nonattainment area (Attached.)

AAMPO is appreciative of the support and collaboration of the Texas Department of Transportation and their staff, as well as that of the Texas A&M Transportation Institute and of the other nonattainment MPOs within the state. Together these organizations have been an indispensable resource for developing this plan and the associated measures. AAMPO will continue our coordination with these agencies throughout this and future performance periods in order to meet these and all other federal performance management requirements.

If you have any questions regarding this transmittal, please contact me at (210) 290-6929 or hall@alamoareampo.org

Sincerely,

A handwritten signature in black ink that reads "Clifton L. Hall". The signature is written in a cursive, flowing style.

Clifton L. Hall

Alamo Area Metropolitan Area Congestion Mitigation and Air Quality Performance Plan

September 2022

Introduction

In this plan, AAMPO establishes a new set of federally required performance measures for our region related to the Congestion Mitigation and Air Quality (CMAQ) program. These are part of the federally established System Performance measures, commonly referred to by the shorthand “PM3.” Additional federal measures include Safety (“PM1”), Infrastructure Condition (“PM2”), and Transit Asset Management (TAM). The new CMAQ performance measures (as well as this plan) are required based on the MPO’s inclusion in the latest version of the CMAQ Applicability table¹, and include two measures of traffic congestion and one measure of total on-road emissions reduction. This document will establish a baseline for each of the three measures, in addition to 2- and 4-year targets to be monitored throughout the next 4-year federal Performance Period spanning 2022-2025.

These targets were established in coordination with the Texas Department of Transportation and other metropolitan planning organizations (MPOs) throughout the State of Texas. Technical resources and assistance were also provided by the Texas A&M Transportation Institute (TTI).

Baseline Conditions

Since the Alamo Area MPO was only recently included in the CMAQ Applicability Table, this performance plan must establish baseline conditions for each of the three measures:

- Peak-Hour Excessive Delay Measure (PHED)
- Non-Single-Occupant-Vehicle Measure (Non-SOV)
- On-Road Mobile Source Emissions Measure, including:
 - Oxides of Nitrogen (NOX)
 - Volatile Organic Compounds (VOC)

These baseline values are listed below in Table 1.

Table 1 – Baseline Figures for CMAQ Performance Plan

<i>Measure</i>	Baseline
<i>Annual PHED per Capita</i>	11
<i>Percent of Non-SOV Travel</i>	23.1%
<i>Emissions – NO_x (kg/day)</i>	121.583
<i>Emissions – VOC (kg/day)</i>	25.435

¹ See Table 3., here:

https://www.fhwa.dot.gov/environment/air_quality/cmaq/measures/cmaq_applicability/october_2021/

Traffic Congestion Measures

The two traffic congestion measures are 1.) Peak Hour Excessive Delay (PHED) and 2.) Percent Non-SOV Travel. The baseline figures for traffic congestion in a new Performance period must be from the calendar year preceding the first year of the period, i.e., 2021.

PHED (better described as Annual Hours Peak Hour Excessive Delay per Capita) is defined as the number of person-hours of excessive delay during the peak period (both AM and PM), averaged by the population of the urbanized area. These hours are only measured within the San Antonio Urbanized Area boundary, and only for roadway links that are part of the National Highway System (NHS).

- “Delay” is the extra time spent travelling below the speed limit.
- “Excessive delay” means delay occurring at an average speed less than or equal to 20 mph or 60 percent of the posted speed limit (e.g. 52 mph in a 65 mph zone.)
- The peak period is commonly known as “rush hour”, and for the Alamo Area is each weekday from 6 a.m. to 10 a.m. and from 3 p.m. to 7 p.m., in accordance with our Travel Demand Model (TDM).

To calculate this measure, the total excessive delay for each qualifying roadway segment is added up for each peak period of the year. This total annual excessive delay on each relevant segment is multiplied by its established peak period traffic volumes and vehicle occupancy factors to determine its total person-hours of peak hour excessive delay per year. The annual PHED metric of all qualifying roadway segments is summed and then divided by the urban area population to yield the final PHED metric used in the performance measure, Person-Hours of Peak Hour Excessive Delay per Capita.

The data and calculation of PHED is accomplished using the National Performance Measure Research Data Set (NPMRDS), a tool provide by FHWA. NPMRDS² uses proprietary INRIX speed-probe data to record speeds and the resulting excessive delay for each qualifying segment in 15-minute intervals. It also houses analytical tools for calculating most federal PM3 performance measures, including PHED. Between 2017 and 2021, PHED in San Antonio ranged from 10.3 to 11.9 per capita, with the exception being 2020 which had a value of 6.2. The value for 2021 is 10.6, which can be rounded up to 11, which will serve as the baseline for this Performance Period.

The **Non-SOV** measure is defined as the percentage of the working population that does not use a car, truck, or van to drive alone to work. The Federal Highway Administration (FHWA) allows one of three different data sources to be used for this calculation, but AAMPO in coordination with TTI has opted to use 5-Year American Community Survey (ACS) Journey to Work data, which is also method preferred by FHWA. The most recent data using this method is available for 2021, with 23.1% of commuters using Non-SOV modes in the San Antonio Urbanized Area. This is up from values ranging from 20.4% to 20.7% for years 2017 through 2020. The baseline figure for this performance period is the 2021 value, 23.1%.

² For more information on NPMRDS see: https://ops.fhwa.dot.gov/perf_measurement/

On-Road Mobile Source Emissions Measure

On-road mobile source emissions are criteria pollutants and their precursor emissions produced by road-going vehicles. For the Alamo Area, the precursor emissions that combined produce ozone, NO_x and VOC, are the emissions measured both for our compliance with the CMAQ program and for the CMAQ emissions reduction performance measure. Each project awarded CMAQ funding is assigned an emissions reduction value for the pollutant based on the project type and related criteria. The values anticipated during over the 4-year period, as well as a 2-year mid-Performance Period checkpoint, make up the performance measure for emissions reduction.

To report this measure, information is queried from FHWA's User Profile and Access Control System (UPACS)³ for CMAQ. Projects from TIPs across the state are reported to this database annually by MPOs in coordination with TxDOT and FHWA. Only the number reported in UPACS are used to quantify this measure. There are typically discrepancies between what is reported in UPACS and what is programmed in the TIP for each year. AAMPO has only participated in the reporting process in the previous calendar year, thus has a small sample size to estimate the amount of emissions reductions that will qualify to be included in the metric. The most recent data for CMAQ reporting prior to 2022 is required to be used to establish the baseline for this Performance Period. Since AAMPO began programming CMAQ into the TIP in FY 2020, 10 total projects have been reported in UPACS with total reductions of 121.583 kg/day for NO_x and 25.435 kg/day for VOCs.

Targets

The results of the analyses for the targets, provided in Table 2, are documented below.

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

<i>Performance Measure</i>	2-Year Target	4-Year Target
<i>Annual PHED per Capita</i>	15	16
<i>Percent of Non-SOV Travel</i>	20.0%	20.0%
<i>Emissions – NO_x (kg/day)</i>	127.75	219.13
<i>Emissions – VOC (kg/day)</i>	53.97	92.576

Traffic Condition Measures

TTI through coordination with TxDOT and relevant MPOs to developed a forecast-based target-setting methodology for the PHED measure. AAMPO has chosen to support this methodology and the targets recommended by TTI for the San Antonio Urbanized Area. TTI determined a 2017 baseline value for all MPOs then calculated an adjusted PHED figure using 2017-2021 trends and assuming a 2 percent annual growth in excessive delay as well as a 2 percent annual growth rate in person-miles of travel. This yielded a 2-year target of 15

³ CMAQ reporting in UPACS can be accessed here: https://fhwaapps.fhwa.dot.gov/cmaq_pub/Reports/Criteria

and a 4-year target of 16, which AAMPO agrees is a conservative target reflecting realistic trends prior to COVID-19.

TTI's recommended values for Non-SOV travel reflect the steadiness exhibited by the data from 2017-2020, with values of 20 percent for both the 2- and 4-year target. AAMPO agrees with this target as a conservative goal for the region to maintain or exceed.

On-Road Mobile Source Emissions Measures

AAMPO's 2- and 4-year targets for emissions reductions was calculated by considering the distribution of CMAQ projects throughout the FY 2023-2026 TIP (which as of publication is subject to federal approval,) along with the ratio of projects successfully let in FY 2022 to determine a reasonable scenario for emission reduction in the 2- and 4-year performance reporting timeframes. Several considerations went into this approach, including the high degree of variation in benefits between projects, the large majority of projects being programmed for FY 2022 and 2023 compared to later years, and a low sample size of projects between FY 2020 and FY 2022 making it difficult to project a reasonable ratio of benefits realized in UPACS reporting v TIP programming. All 8 projects originally programmed in 2021 were reported to the UPACS system, which is not a realistic expectation moving forward. AAMPO has determined to use the average number of CMAQ projects expected to let in 2022 versus what was originally programmed, yielding a value of 58.3 percent. Since most project are in the first 2 years of the reporting period, it is assumed approximately 58.3 percent of projects will let by this the end of 2023, and for the remainder to be realized by the end of the 4-year performance period in 2025.

It should be noted that the 2- and 4-year targets are cumulative, excluding the baseline. The 2-year target will include the first 58.3 percent of NOx and VOC benefits, totaling 127.75 and 53.97 kg/day, respectively. AAMPO will have the opportunity to adjust this target at the 2-year mark, and will work with state and local partners to coordinate the reporting and project delivery of CMAQ projects to better understand how the emissions reduction metric can be improved. Also, AAMPO has decided to exclude three projects with a high level of VOC reduction in order to fairly reflect the emissions that will be eventually reported; this project is currently undergoing a rescope and will most likely be report a lower amount of VOC benefit.

Target Tracking

Traffic Condition Measures

And additional requirement of the CMAQ Performance Plan is a list of projects programmed for CMAQ funding (see Table 3) showing their emissions reductions, as well as which projects will provide PHED and Non-SOV benefits that will help achieve the 2- and 4-year targets. AAMPO will continue to coordinate with TxDOT, relevant Texas MPOs, and other statewide and local partners to determine best practices for tracking and reporting progress of traffic condition performance measures.

On-Road Mobile Source Emissions Measures

AAMPO is required to report emissions benefits for NO_x and VOC, the precursor pollutants to ground level Ozone. These are recorded in both the TIP and MTP, and are included in this document as part of Table 3. These emissions benefits will likely change over the course of the Performance Period, since project are frequently moved within the TIP, as well as in and out of the TIP, to accommodate project schedules, fiscal constraint, etc. Although the pending FY 2023-2026 TIP is fully funded for CMAQ, the timing of project delivery is dynamic and AAMPO will continue to coordinate with TxDOT and other partners to improve project delivery processes and ensure more accurate reporting into UPACS.

Conclusion

This plan sets forth to meet the requirements of 23 U.S. Code § 149 (l), that a CMAQ performance plan be developed by each MPO serving a transportation management area a.) with a population greater than 1 million and b.) that includes a nonattainment or maintenance area, to support the implementation of the Congestion Mitigation and Air Quality program. Using this plan, AAMPO will continue coordination and refinement of these and the several other federal performance measures, and will continue biennial performance period in conjunction with TxDOT and various partners across the state and region. This will include updating metrics, better description and evaluation of how projects will aide in reaching targets, and updating progress and processes throughout the performance period. AAMPO will work with our partners to ensure all requirements are met, and that these performance measures will be further integrated into our long- and short-range planning efforts.

TIP Year	MPO#	Type	NOx	VOC	Description	PHED Benefit?	Non-SOV Benefit?
2022	5544	Traffic Incident Management	0.873	0.101	Safety Service Patrol on controlled access highways in Bexar, Comal and Kendall Counties	Yes	No
2023	5571	Operational Improvements	10.097	6.945	Operational improvements including implementation of median U-turns and R-cut intersections	Yes	No
2023	5572	Bicycle/Pedestrian	0.132	0.090	Construct cycle track on Hamilton Wolff Rd from Babcock to Ewing Halsell. And on Ewing Halsell from Hamilton Wolff to Sid Katz	No	Yes
2023	5573	Traffic Signal Improvement	31.360	8.557	Traffic signal optimization on congested corridors in the City of San Antonio. Data collection and implementation of updated signal timing plans.	Yes	No
2023	5573	Traffic Signal Improvement	31.360	8.557	Traffic signal optimization on congested corridors in the City of San Antonio. Data collection and implementation of updated signal timing plans. FY 2022	Yes	No
2023	5574	ITS	13.272	15.587	Install ITS equipment on congested corridors in the City of San Antonio - FY 2020	Yes	No
2023	5574	ITS	13.272	15.587	Install ITS equipment on congested corridors in the City of San Antonio - FY 2021	Yes	No
2023	5575	Travel Demand Management	10.140	4.947	City of San Antonio Travel Demand Management Program. To support efforts in vanpool, carpool, telecommuting and education. Year 1 of 2	Yes	Yes
2023	5575	Travel Demand Management	10.140	4.947	City of San Antonio Travel Demand Management Program. To support efforts in vanpool, carpool, telecommuting and education. Year 2 of 2	Yes	Yes

TIP Year	MPO#	Type	NOx	VOC	Description	PHED Benefit?	Non-SOV Benefit?
2023	5576	Other	0.152	499.810	City of San Antonio Vehicle Emissions Reductions Program. Series of targeted outreach and education programs. Gas cap replacement program.	No	No
2023	5576	Other	0.152	499.810	City of San Antonio Vehicle Emissions Reductions Program. Series of targeted outreach and education programs. Gas cap replacement program.	No	No
2023	5576	Other	0.152	499.810	City of San Antonio Vehicle Emissions Reductions Program. Series of targeted outreach and education programs. Gas cap replacement program.	No	No
2023	5577	Bicycle/Pedestrian	0.922	0.628	Make UTSA Walkable Program. Support UTSA's efforts to establish programs to increase alternate forms of transportation.	No	Yes
2023	5579	Traffic Incident Management	3.492	0.406	Safety service patrol on controlled access highways in Bexar, Comal and Kendall Counties	Yes	No
2023	5580	Fleet Replacement	36.092	3.761	VIA Fleet Replacement Program. Purchase 14 CNG buses.	No	No
2023	5581	Transit Improvement	4.156	3.709	VIA Bus Frequency Program. Increase service on #7 and #552 routes.	Yes	Yes
2023	9149	Bicycle/Pedestrian	7.170	10.288	Transportation Equity For All, an Incentive and Seminar-Based Program at The University of Texas at San Antonio (UTSA)	No	Yes
2023	9143	Operational Improvements	0.032	0.036	Construct Turn Lanes Including Operational and Pedestrian Improvements.	Yes	No

TIP Year	MPO#	Type	NOx	VOC	Description	PHED Benefit?	Non-SOV Benefit?
2023	9148	Bicycle/Pedestrian	0.058	0.022	Construct Concrete Trail to Connect Salado Creek North and South Greenway Trails.	No	Yes
2023	9150	Fleet Replacement	27.083	1.194	Replace Older Diesel Buses with Cleaner, Compressed Natural Gas (CNG) Buses.	No	No
2024	9153	Traffic Incident Management	2.122	0.383	SAFETY SERVICE PATROL ON CONTROLLED ACCESS HIGHWAYS IN BEXAR, COMAL AND KENDALL COUNTIES-FY 2024	Yes	No
2024	9154	Bicycle/Pedestrian	0.010	0.007	Construct Shared Use Path Along Abe Lincoln	No	Yes
2024	9155	Transit Improvement	0.163	1.429	Add New Weekday Express Service from Alamo Ranch (LP 1604/SH 151) to Downtown San Antonio.	Yes	Yes
2024	9156	Transit Improvement	0.273	0.734	Increase Frequency of Service from Downtown to Eastside San Antonio on Rigsby Avenue, Including Weekends.	Yes	Yes
2024	9157	Bicycle/Pedestrian	1.193	1.069	Construct Shared Use Path	No	Yes
2025	9160	Bicycle/Pedestrian	0.183	0.161	Construct continuous 6' Sidewalks to Close Gaps. Construct or Enhance Midblock Crossings.	No	Yes
2025	9161	Bicycle/Pedestrian	0.014	0.012	Construct continuous 6' Sidewalks to Close Gaps. Remove and Replace Non ADA Compliant Pedestrian Structures and Barriers.	No	Yes
2025	9162	Traffic Incident Management	2.122	0.383	SAFETY SERVICE PATROL ON CONTROLLED ACCESS HIGHWAYS IN BEXAR, COMAL AND KENDALL COUNTIES-FY 2025	Yes	No
2026	9168	Operational Improvements	0.043	0.048	Operational Improvements Including Turnaround, Additional Turn lanes and Improved Bicycle and Pedestrian Accommodations	Yes	No

TIP Year	MPO#	Type	NOx	VOC	Description	PHED Benefit?	Non-SOV Benefit?
2026	9169	Traffic Incident Management	2.122	0.383	SAFETY SERVICE PATROL ON CONTROLLED ACCESS HIGHWAYS IN BEXAR, COMAL AND KENDALL COUNTIES-FY 2026	Yes	No
2026	9171	Fleet Replacement	10.774	0.475	Replace Older Diesel Buses with Cleaner, Compressed Natural Gas (CNG) Buses.	No	No