

Table 1. Reliability and Congestion Actual Performance and Targets

Performance Measure	Desired Trend	2022 Baseline	2024 Target	2024 Actual	2024 Target Met?	2026 Target	2026 Target Adj.	2026 Actual	2026 Target Met?
Interstate Reliability	↑	78%	70%	70%	✓	71%	N/A	65%	✗
Non-Interstate Reliability	↑	89%	75%	81%	✓	77%	N/A	78%	✓
Truck Travel Time Reliability Index	↓	2.0	2.2	2.0	✓	2.2	N/A	1.9	✓
Peak Hour Excessive Delay Houston Urban Area	↓	13.5	16.0	15.5	✓	16.0	17.0	17.9	✗
Peak Hour Excessive Delay The Woodlands-Conroe Urban Area	↓	8.0	8.0	9.0	✗	8.0	N/A	15.4	✗
Non-Single Occupant Vehicle Travel Houston Urban Area	↑	21.4%	21.1%	25.3%	✓	22.0%	27.0%	29.3%	✓
Non-Single Occupant Vehicle Travel The Woodlands-Conroe Urban Area	↑	19.7%	20.0%	22.8%	✓	20.0%	24.0%	28.3%	✓

Table 2. *Congestion Mitigation Air Quality Actual Performance and Targets*

Performance Measure	Desired Trend	2022 Baseline	2024 Target	2024 Actual	2024 Target Met?	2026 Target	2026 Target Adj.	2026 Actual	2026 Target Met?
Emission Reductions of NO _x (kg/day)	↑	1,383.040	221.251	19.888	X	601.465	N/A	172.542	X
Emission Reductions of VOC (kg/day)	↑	98.863	69.939	4.325	X	172.864	N/A	72.432	X

NO_x = Nitrogen Oxides

VOC = Volatile Organic Compounds

Resolution 2026-23
ATTACHMENT 1

**CMAQ Performance Plan
Full Performance Period Progress Report
(2022-2025)**



Houston Galveston Area Council

September 25, 2026

Introduction

The Moving Ahead for Progress in the 21st Century Act in 2012, the Fixing America's Surface Transportation Act in 2015, and the Infrastructure Investment and Jobs Act in 2021 charged metropolitan planning organizations (MPOs) and state departments of transportation with developing performance measure targets to assist the Federal Highway Administration (FHWA) in assessing roadway conditions in a consistent manner and to improve the performance of the National Highway System (NHS). The purpose of this full performance period progress report is to document efforts by the Houston-Galveston Area Council (HGAC) to meet regional two- and four-year targets for the three federal performance measures related to the Congestion Mitigation and Air Quality Improvement Program (CMAQ):

- Peak Hour Excessive Delay (PHED) Measure
- Non-Single Occupancy Vehicle (Non-SOV) Travel Measure
- On-Road Mobile Source Emission Reductions Measure

The initial two- and four-year targets for 2024 and 2026, respectively, were established in the Baseline Performance Period Report¹, and several four-year targets for 2026 were adjusted in the Mid Performance Period Report² by the HGAC Transportation Policy Council. These targets and target revisions were established by HGAC with regional stakeholder input and in coordination and consultation with the Texas Department of Transportation (TxDOT), HGAC subcommittees, as well as other regional MPOs within the State of Texas. The four-year performance period for the performance measures above includes the years 2022 to 2025, and the analyses of these performance measures are documented in the following pages.

Traffic Congestion Measures

The two performance measures that relate to traffic conditions are the PHED and non-SOV travel measures, where PHED measures traffic congestion and the non-SOV travel measure evaluates the degree to which travelers use transportation modes other than driving alone. Due to regional population distribution, the region is required to undertake target setting analyses for both urban areas within the HGAC region. These two regions are the Houston Urban Area and The Woodlands-Conroe Urban Area.

Peak Hour Excessive Delay (PHED)

Traffic congestion is measured by the annual hours of PHED per capita on the NHS. According to the definitions associated with the PHED measure,³ *excessive delay* is the additional time spent in congested conditions as characterized by a speed threshold of 20 miles per hour (mph) or 60% of the posted speed limit, whichever is greater, and the *peak period* is defined as weekdays from 6 AM to 10 AM and 3 PM to 7 PM. For example, on a roadway segment with a posted speed limit of 60 mph, the excessive delay would be the time spent driving at or below a speed of 36 mph (i.e., 60% of 60 mph). Specific details about the PHED targets for both the Houston and The Woodlands-Conroe Urban Areas can be found in Table 3.

¹ [CMAQ Performance Plan Baseline Performance Period Report \(2022-2025\)](#)

² [CMAQ Performance Plan Mid Performance Period Report \(2022-2025\)](#)

³ [23 CFR §490.705](#)

Table 3. Baseline Condition, Targets, and Actual Performance for the PHED Measure

Performance Measure: Annual PHED Hours per Capita	2022 Baseline	2024 Targets	2024 Actual	2024 Target Met?	2026 Targets	2026 Target Adj.	2026 Actual	2026 Target Met?
Houston Urban Area	13.5	16.0	15.5	✓	16.0	17.0	17.9	✗
The Woodlands-Conroe Urban Area	8.0	8.0	9.0	✗	8.0	N/A	15.4	✗

A decreased value indicates improvement.

The 2022 Baseline for the PHED measure in the Houston Urban Area was 13.5 hours. Given that this baseline value was influenced by the reduction in vehicle trips during the COVID-19 pandemic and that vehicle miles traveled (VMT) has rebounded in its wake, the two- and four-year PHED targets were set at 16.0 hours for the current performance period. After the first two years of the current performance period, the actual PHED for the Houston Urban Area was 15.5 hours. Although the two-year PHED measure target for 2024 was successfully met, a recent HGAC demographic forecast indicated that regional population is projected to increase by 3.6 million people between 2020 and 2050.^{4,5} Since this population growth will increase VMT and construction work zones will contribute to excessive delay, HGAC adjusted the four-year target for 2026 to 17.0 hours. Despite this adjustment, the actual PHED was 17.9 hours at the end of the performance period in 2026, and the target was not met.

The 2022 Baseline for the PHED measure in The Woodlands-Conroe Urban Area was 8.0 hours. Using this baseline value, HGAC set the two- and four-year PHED targets at 8.0 hours for the current performance period. Since the actual PHED for The Woodlands-Conroe Urban Area was 9.0 hours in 2024, the two-year target was not met. Despite not meeting the target, HGAC opted not to adjust the four-year target for 2026, which remained at 8.0 hours to provide an aspirational target for the remainder of the performance period. After the full performance period, the actual PHED for The Woodlands-Conroe Urban Area was 15.4 hours in 2026, which is nearly double the target for the PHED measure.

The four-year PHED targets for 2026 for both the Houston and The Woodlands-Conroe Urban Areas were not met, as excessive delay increased faster than anticipated due to rising travel demand. Post-pandemic growth in traffic volumes led to a sharp increase in delay, with the total annual average daily traffic rising by about 10% between 2023 and 2025. This increase pushed per capita delay beyond target levels. The use of a fixed American Community Survey (ACS) five-year population estimate keeps the denominator constant across years, which improves comparability but can make increases in per capita delay appear more pronounced in rapidly growing regions.

Non-Single Occupant Vehicle (Non-SOV) Travel

The non-SOV measure is computed as the percent of the working population that do not travel alone to work in a car, van, or truck and measures the percent of those who ride public transit, rideshare, bicycle, or telecommute to work. Based on federal procedures, three data collection methods are available to calculate this measure. For the current performance period, HGAC selected the method that uses data from the ACS Journey to Work dataset. ACS data is aggregated in five-year bins. Specific details about the non-SOV targets for the Houston and The Woodlands-Conroe Urban Areas can be found in Table 4.

⁴ <https://www.HGAC.com/regional-growth-forecast>

⁵ https://www.HGAC.com/getmedia/6ce959a9-b9d7-4b57-96bf-37ffb4748211/Summary_Charts_1

Table 4. Baseline Condition, Targets, and Actual Performance for the Non-SOV Travel Measure

Performance Measure: Percent of Non-SOV Travel	2022 Baseline	2024 Targets	2024 Actual	2024 Target Met?	2026 Targets	2026 Target Adj.	2026 Actual	2026 Target Met?
Houston Urban Area	21.4%	21.1%	25.3%	✓	22.0%	27.0%	29.3%	✓
The Woodlands-Conroe Urban Area	19.7%	20.0%	22.8%	✓	20.0%	24.0%	28.3%	✓

An increased value indicates improvement.

The baseline non-SOV measure for the Houston Urban Area was 21.4%. In 2022, the two-year target for 2024 was set at 21.1%, and the four-year target for 2026 was set at 22.0% to reflect the anticipated increase in non-SOV commuter travel over the full performance period. After the first two years of the current performance period, the actual non-SOV measure for the Houston Urban Area was 25.3%. Since this actual value exceeded the 2024 target by 4.2% and the 2026 target by 3.3%, the target for 2026 was increased to 27.0% in anticipation of further expansion of non-SOV travel in the region. At the conclusion of the full performance period, the actual non-SOV measure was 29.3% in 2026, meaning that the Houston Urban Area met and exceeded the four-year target by 2.3%.

In the Houston Urban Area, the percentage of non-SOV trips has been steadily increasing since 2021 and increased by 7.9% over the full performance period shown in Table 4. Although the share of trips attributable to carpooling decreased slightly in the beginning of the current performance period, the percentage returned to pre-pandemic levels by 2026. Additionally, the share of commutes avoided entirely by working from home more than doubled from 6.5% in 2022 to 13.8% in 2026.

The baseline non-SOV measure for The Woodlands-Conroe Urban Area was 19.7%. Using this baseline value, the two- and four-year targets were set at 20.0%. As with the Houston Urban Area, these targets reflected an anticipated increase in non-SOV travel. This expectation was reinforced by the actual non-SOV measure for The Woodlands-Conroe Urban Area of 22.9% in 2024. Since this value also exceeded the two-year and four-year targets by 0.9% and 2.9%, respectively, the 2026 target for The Woodlands-Conroe Urban Area was increased to 24.0%. At the end of the full performance period, the actual non-SOV measure was 28.3% in 2026, and the four-year target was met and exceeded by 4.3%.

The share of non-SOV trips has increased appreciably in The Woodlands-Conroe Urban Area since 2022, with an increase of over 5.0% between 2024 and 2026 alone. Trips taken using a carpool or public transportation have decreased by 1.9% and 1.1%, respectively, since 2018, and walking accounted for only 0.1% of the mode share by 2026. Simultaneously, however, the share of commutes avoided by working from home has more than tripled from 5.1% in 2018 to 17.6% in 2026. This increase in telecommuting more than offsets the decreases in other travel modes, ultimately driving the increase of non-SOV trips in The Woodlands-Conroe.

On-Road Mobile Source Emissions Measures

The CMAQ On-Road Mobile Source Emission Reductions measures are the two- and four-year cumulative reported emission reductions for all projects funded with CMAQ funds for the ozone precursors nitrogen oxides (NO_x) and volatile organic compounds (VOC) for the fiscal years of 2022 through 2025.

Prior to the current performance period in 2022, HGAC staff developed an initial estimate of on-road mobile source emission reductions related to CMAQ-funded projects within the agency's service area from the Transportation Improvement Program (TIP). For this initial target, emission reduction estimates attributed to TIP projects in federal fiscal years 2022 through 2025 were summed in kilograms per day (kg/day) to determine preliminary target estimates. A *project delivery success rate* (PDSR), measured as the ratio of actual emission reductions reported in the CMAQ Public Access System (PAS) to the anticipated emission reductions programmed in the TIP, was then applied to the preliminary target estimates to determine the final two- and four-year targets. At its core, the PDSR functions to compensate for project delays and shifts that normally occur when programming projects, and its application helps to account for challenges in moving programmed TIP projects towards receiving federal obligation on time and as scheduled. The resulting targets and observed values can be found in Table 5.

Table 5. Baseline Condition, Targets, and Actual Performance for the CMAQ Measures

Performance Measure Emission Reductions	2022 Baseline	2024 Targets	2024 Actual	2024 Target Met?	2026 Targets	2026 Target Adj.?	2026 Actual	2026 Target Met?
NO _x (kg/day)	1,383.040	221.251	19.888	X	601.465	N/A	172.542	X
VOC (kg/day)	98.863	69.939	4.325	X	172.864	N/A	72.432	X

After the first two years of the current performance period, HGAC staff analyzed the emission reductions attributable to TIP projects that let within the fiscal years of 2022 and 2023 and were reported to FHWA's CMAQ Public Access System. In fiscal years 2022 and 2023, five CMAQ projects reached federal obligation, totaling 19.888 kg/day NO_x and 4.325 kg/day VOC. There was significantly less progress on the initial two-year target than was anticipated when these targets were initially developed in 2022. As a result, the Houston region was unable to meet these two-year targets. Reasons for the shortfall of meeting the two-year target include the delays of 13 CMAQ-funded projects to fiscal years 2024 and 2025 and seven others postponed to fiscal year 2026 and beyond.

Despite not meeting the two-year performance targets for the region's CMAQ performance measures, HGAC staff opted to leave the four-year targets unchanged from the baseline report. While there have been project delays and funding reallocations that have delayed the region meeting its targets throughout the current performance period, staff have continued efforts to advance these projects toward implementation. As evidenced in Table 5, these efforts appear to be improving project delivery performance.

Although the region did not ultimately meet the CMAQ performance measures, the region did achieve a greater percentage of the four-year target than of the two-year target. For example, the region achieved approximately 9% and 6% of the two-year targets for NO_x and VOC, respectively. In the second half of the current performance period, these numbers both increased exponentially: the region achieved 28% and 42% of the four-year targets for NO_x and VOC, respectively.

The reason for not meeting the four-year target is consistent with what was observed for the two-year targets, with five CMAQ-funded projects delayed to fiscal year 2026 or later. For example, since the let date of the commuter and transit pilot projects grouped under MPOID 18854 shifted to October 2025, the 31.870 kg/day NO_x and 47.710 kg/day VOC emission benefits will be claimed in the forthcoming 2026-2029 performance period. For two other projects, the CMAQ funding was replaced by local funding, making them ineligible for consideration toward performance measure targets, and one other is anticipated to be canceled. Continued improvements to HGAC's project delivery process are underway and should continue to aid the region in meeting future targets.

Description of CMAQ Projects

HGAC coordinates with local stakeholders to select CMAQ projects for deployment in the Houston-Galveston-Brazoria ozone nonattainment area. These projects are selected to meet the program goals of reducing congestion and/or reducing emissions of ozone precursor pollutants. Emissions estimates for these projects are estimated by HGAC using methodologies developed as part of the Texas Guide to Accepted Mobile Source Emission Reduction Strategies (MOSERS). In cases where no practical MOSERS methodology exists, verified past emission reduction performance is used to create an emissions reduction estimate. The results from these analyses are then uploaded into the CMAQ Public Access System upon the obligation of funding to projects and are accounted for in the expected benefits outlined in Table 6. To simplify reporting, projects are grouped in the table based on general categories HGAC uses to report project types in the TIP.

HGAC is not required to report benefits for pollutants other than VOC and NO_x. As such, the table below reports only on these pollutants. Benefits for later years in the reporting period tend to be lower than in earlier years due to regional fleet turnover. Table 6 shows the projects that were obligated during the current performance period, or fiscal years 2022 through 2025. However, it should be noted that there are no projects listed for 2022 due to delayed let dates for two projects and the cancellation of another.

Table 6. FY 2023, 2024, and 2025 Obligated CMAQ Projects in the Houston-Galveston Region (2022-2025)

Project Type	MPOID	Project Description	Year of CMAQ Obligation	NO _x Benefit (kg/day)	VOC Benefit (kg/day)	PHED Benefit	Non-SOV Benefit
Traffic Flow Improvements	14173	FM 1960 Intersection Improvements	2023	3.070	0.750	Yes – Reduces peak hour delay	No
Bicycle & Pedestrian	15321	City of Houston Sidewalks in SE Central Business District	2023	0.110	0.030	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
Traffic Flow Improvements	18031	SH 105 Improvements to Add Left-Turn Bays	2023	0.208	0.135	Yes – Reduces peak hour delay	No
Air Quality	18363	Regional METRO Star Vanpool Operations	2023	16.500	3.410	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
2023 Emissions Total (kg/day)				19.888	4.325		

Project Type	MPOID	Project Description	Year of CMAQ Obligation	NO _x Benefit (kg/day)	VOC Benefit (kg/day)	PHED Benefit	Non-SOV Benefit
Traffic Flow Improvements	17122	Construct shared use path, intersection improvements, and pedestrian crossings on FM 518.	2024	1.037	0.227	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
2024 Emissions Total (kg/day)				1.037	0.227		

Project Type	MPOID	Project Description	Year of CMAQ Obligation	NO _x Benefit (kg/day)	VOC Benefit (kg/day)	PHED Benefit	Non-SOV Benefit
Transit	11268	Replacement of METRO's 160 diesel hybrid buses with 160 clean diesel buses	2025	29.020	1.840	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
Transit	15243	Replacement of METRO's 20 40' heavy duty diesel buses with 20 all electric buses, purchase 10 all electric 'cutaway' buses; purchase recharging stations	2025	2.800	0.380	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
Transit	16088	Travel Demand Management, Marketing, Outreach, and Public Education	2025	88.300	56.318	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
Traffic Flow Improvements	18036	US 90 grade separation overpass at the UP Railroad crossing in Dayton	2025	0.137	0.108	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
Transit	18238	Commuter bus purchase	2025	2.510	0.012	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
Traffic Flow Improvements	18522	US 290 – Install New ITS Equipment and Infrastructure	2025	0.820	1.650	Yes – Reduces peak hour delay	No
Traffic Flow Improvements	18523	SH 6 – Install New ITS Equipment and Infrastructure	2025	0.030	0.060	Yes – Reduces peak hour delay	No

Project Type	MPOID	Project Description	Year of CMAQ Obligation	NO _x Benefit (kg/day)	VOC Benefit (kg/day)	PHED Benefit	Non-SOV Benefit
Air Quality	18607	Travel Demand Management, Marketing, Outreach, and Public Education	2025	21.630	1.170	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
Transit	19035	Improvement to regional Park & Ride facilities	2025	1.464	5.947	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
Transit	19043	The Woodlands Township commuter bus purchases	2025	4.737	0.300	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
Traffic Flow Improvements	19189	Install Continuous Turn Lane, Milled Edge line Rumble Strips	2025	0.099	0.025	Yes – Reduces peak hour delay	No
Bicycle & Pedestrian	19190	Center Point Utility Corridor Shared Use Path	2025	0.070	0.070	Yes – Reduces peak hour delay	Yes – Increases non-SOV travel
2025 Emissions Total (kg/day)				151.617	67.880		